GENDER ISSUES IN DEVELOPMENT : IMPACT OF SHIFT IN CROPPING PATTERN IN KERALA ON EMPLOYMENT OF WOMEN, FAMILY INCOME AND CONSUMPTION

Thesis Submitted to the
Cochin Uneversity of Science and Technology
For the award of the Degree of
DOCTOR OF PHILOSOPHY
IN
ECONOMICS
(Faculty of Social Sciences)

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August 2003

CERTIFICATE

Certified that this thesis titled **"GENDER ISSUES IN DEVELOPMENT: IMPACT OF SHIFT IN CROPPING PATTERN IN KERALA ON EMPLOYMENT OF WOMEN, FAMILY INCOME AND CONSUMPTION"** is the record of bona fide research carried out by LELITHABHAI K.N. under my supervision. The thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title of recognition.

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Chapter I

Introduction

The issues regarding women's role in development process have been increasingly examined over the years. In course of time gender roles have grown (Tina Wallace and Candida March, 1991). The majority of development planners and workers did not fully address women's position in the development process as they assume that the benefits accrued to male section of the society would trickle down to the female section (Boserup 1970). This is in spite of the principle of equality of men and women recognised in the UN Charter in 1945 and the UN Declaration of Human Rights in 1948.

For the twentieth century rising inequality of incomes has been a dominant trend in the world. For example, the skilled workers of the industrialised countries earn about sixty times more than the poorest group, say the farmers of Sub-Saharan Africa (World Bank: World Development Report 1995).

The causes for such wide disparities are to be identified with respect to the conditions in individual domestic economies and in the international economic environment. Globalisation of economic activities imparted different impacts on people of different countries mainly on the basis of their internal economic development. The workers in countries and groups, which have greater capacity to respond are expected to benefit from global economy. The conditions within developing and transitional

economies, whether these countries succeed in getting onto market-based growth paths, to generate rapid demand for labour and to raise productivity of labour, count in determining the position of labour there.

Major economic transformations are associated with massive restructuring in employment. In this process many jobs may be destroyed and many new opportunities created. Opening up of economies has resulted in about 5 to 15 per cent decline in formal employment in the Latin American and Middle Eastern countries before starting recovery. Many suffered losses due to fall in wages, shifts into lower paying jobs in the informal sector, or unemployment.

Women participating in work outside home and the resultant change in labour market structure placing female labour as a strong component were a major breakthrough of the twentieth century (Smith, 1979). However, female labour force participation rate shows wide divergence among the countries regardless of overall economic development giving no possibility of showing any trend as such (data in Table 1.1). But it is evident that the rate of female labour force participation in advanced economies is high and it showed an increase over years from 1971 to 1991 for countries like USA, UK, and France. But the countries like Japan and Germany a slight decline in the relevant rates is observed during the same period.

The experience of developing countries also is different as the data relating to African countries shows a higher rate of female participation although the economic

situations are very poor in those countries. This may be due to excellent female farming system of the Sub-Saharan Africa (Boserup, 1970) and/or due to high reporting of female labour involved in homestead farming as labour compared to those in India who report as housewives although they are active labourers in homestead farming (World Development Report, World Bank, 1993).

But the experience of India is different as the data show. The female participation rate of India declined from 29.4 per cent in 1971 to 25 per cent in 1991. The several other developing countries show an increase in the rate of female participation; however, the rates are very low compared to those of the advanced economies.

Table 1.1 Female Labour Force Participation in Selected Countries (Per cent)

Country	1971	1991
Advanced Countries		
USA	37.1	41.4
UK	35.9	38.6
France	36.5	39.9
Germany	40.2	39.2
Japan	38.9	37.9
Australia	31.9	38.2
China	41.8	43.3
Developing Countries		
Mexico	18.9	27.2
Brazil	22.3	27.6
South Africa	33.1	35.7
India	29.4	25.0
Pakistan	9.3	12.3

Source: *World Development Report, World Bank, 1993.*

The U-shape hypothesis which suggests that the relationship between economic development and female labour force participation can be explained with a U-shaped curve, that in the initial stages of economic development employment opportunities available to women get reduced as a result of modernisation in agriculture and traditional non-agricultural sectors.

In spite of the considerable employment in the service sectors of teaching and nursing, the major share of women labourers are crowding in agriculture, household industries and other traditional sectors. Due to sex-based division of labour and jobs, women stick to those works, which are compatible to housework and family responsibilities. This has been cited as a cause of limited work participation of females (Roos, 1985). However, what more important is that now-a-days women are being thrown out of employment and most of the companies of advanced industrialised economies do not prefer to recruit women (Ministry of Labour, Japan: White Paper on Women Labour, 1999). This is not a case of industries alone. Even in traditional sectors of agriculture and allied works, women are facing the same situation. The gender specific impacts of development and growth have to be looked into to isolate the situation of women remaining always the second sex and vulnerable section of the society.

The two approaches to gender and development are: 1) Women in development and 2) Gender and development. The approach of 'Women in development' uses quantitative methods, particularly human capital models. The 'Gender and development' approach rely

on descriptive data and historical narrative, with liberal applications of the word 'empowerment'.

The economic situations of the people of a nation are usually analysed on the basis of changes according to time. Such changes are generally termed growth, decline (recession), etc. The growth is measured in terms of 'National Income' and/or 'Per Capita Income'. The quantitative increase in the national income is considered as growth of the economy. However, the increase in national income alone will not constitute to increase in per capita income. The population statistics also has a relevant role in determining the per capita income. The term 'development' on the other hand not only considers the quantitative increase in national income, however, its distribution also. This means that the generated income should facilitate structural changes in the economy. Thus the term development is defined as growth plus structural changes. The structure of the economy on the basis of distribution of income as 60 per cent of the people are under poverty (or poverty line), another 30 per cent are middle income earners, and the remaining 10 per cent are affluent and high income earners may be the one existing. If we want to show that its structure has changed in terms of the distribution of income itself, the said proportions have to be changed, and if the change in the structure is in favour of equality income distribution and leading to qualitative improvements in the life of the proportion at the lower ends of the income strata, we can denote it as development. This theoretical setting in conventional economics is the base on which the present study is started.

Modern neo colonial development economics, however, extends the view into the introduction of development ideologies in terms of enhanced opportunities. The expansion of one's horizons of activities only will bring forth changes in the structure of the economy. In such views of development economics we see the cause of development as the leading factor rather than a definition to development. This means the basic notion of development has not changed in terms of definition, but what is important is that the causes are evaluated in different ways.

1.1 Issues under study

As far as the society is concerned, the specific distribution pattern of the fruits of growth and development is important regardless of the factors that lead to such growth and development. The most vulnerable section of every society is women. The inequalities are borne by women and men together in almost all cases, but the difference is that women have to bear such inequalities rather long period because of the historical and inherent factors as has been specified by eminent economists like Amarthya Sen. Thus looking into the various aspects of development in relation to gender involves a number of issues. They are mainly, 1) what is the discrete sense of development or how one can clearly state development, 2) what shall be an unambiguous measure of development, 3) what is the historical and present status of women in various economic and socio-political set ups, 4) how women are related to development issues in history as well as in the views of economists and social activists and philosophers, 5) how the term 'gender and development'

are viewed, 6) what are the issues still persist in 'gender and development', and 7) the issues arising for further research.

To approach the various problems stated here, one has to look into the literature on development as well as on gender studies. The issues of gender differences are more related to women and the backwardness they face for time immemorial. The feminist studies and sociological settings also will contribute to the same. The gender and development issues although seems general for all societies and people in the world, such cosmopolitanism can be disintegrated based on the features of the various societies for which located studies can be effected. This means the gender and development issues also can be posted in regional, national, sub-national, and state level. The model can be framed for the macro setting; however, the micro studies can be conducted with empirical data such that inductive reasoning is possible to fit into the broad setting of theory.

1.2 Statement of the Problem

Increased female labour force participation has many positive impacts on life of women as improvement in status, economic freedom, empowerment, greater role in decision-making including fertility decisions and household consumption decisions (Blumberg, 1991; Pillai, 1999). But during the last decade of the twentieth century female labour is being eliminated from their work. This has drastically affected the income of female labourers and thereby the family consumption pattern of female labour families.

Cropping pattern of Kerala changed in favour of perennial commercial crops from seasonal food crops and paddy. This has changed the structure of labour use in agriculture of the state. Female labour saving cropping pattern has released female labourers from their traditional employment. Due to the already remaining reserve army of labour, the female labourers eliminated from their work found it difficult to get a new employment have permanently been evacuated.

In the context of gender impacts on the household consumption pattern, female labour force resorting mainly on traditional sectors especially agriculture, and women are being eliminated from their work, it is important to see the impact of female labour saving shift in cropping pattern of Kerala on the family consumption pattern. The study by Subramanian and Deaton (1991) on consumption data relating to Maharashtra eliminated gender influence on consumption using statistical techniques. Pillai (1999) conducted a detailed study of impact of women's income on family consumption pattern. The study disclosed the commodity combinations of family consumption baskets of households with income earning female members compared to those of families, which have no income earning female members. A number of studies on Kerala agriculture on its various aspects are available. However, no study has yet tried to analyse the impact of shift in cropping pattern on female participation and the income of female labourers consequently affecting the household consumption pattern. The present study is a concrete effort on examining the impact of women labourers released from employment and income on their family consumption pattern.

1.3 Importance of the study

Studies had revealed that women spend a major share of their income on family consumption and spend very less on personal consumption (Blumberg, 1991). On the other hand men spend a greater proportion of their income on personal spending items like liquor, tobacco, hotel food, etc. This general pattern is equally seen among agricultural labourers. In such a situation women being replaced due to female labour saving cropping pattern tend to affect the household consumption significantly. This will have important implications on the welfare aspect of such vulnerable sections of the society, which have to be focused not merely as the beneficiaries of any development plan activities but be targeted as the participating and driving force of development machine.

Studies have substantiated that female income used on consumption of time saving goods like ready wears, fast food, child keeping, etc. as a result of either as decision-making roles of women earners is higher compared to females without income, or for saving household work time by female earners, can augment the consumption pattern as well as market demand for goods (Pillai, 1999).

On the other side of the said, if female labourers are thrown out of employment, the female specifications of consumption spending and the resultant utility levels of the labour families get reversed. Thrown out of employment and income, women labourers as an active decision –maker cease to exist at the strongest and grassroots institution (family) level. The household consumption pattern set up by the significant decisions of female labourers

collapses, defeating the qualitative (welfare) objectives of the structural changes due to development. The policy implications of the same is that if the global societal objectives of higher spending on food and child development (Hopkins, Levin and Haddad, 1994), the development plans and schemes shall focus the gender of the resultant income earner. A change in cropping pattern in favour of the perennial commercial crops may be beneficial on the view of increase in agricultural incomes. But the gender specific reallocations of employment in agriculture sector may defeat, however, the family consumption pattern meeting the subsistence needs of the family as well as child development, because the female labourers being released from their work due to such female labour saving shifts in cropping pattern. The gender impact of the change in cropping pattern on employment of female labourers has not yet been the centre of study. The factors responsible for the shift in cropping pattern also have not been the focus of previous studies. The present study acclaims added significance in this instance.

1.4 Objectives

The study is directed to investigate the impact of female labour saving shift in cropping pattern on female labour force participation and the resultant change in household consumption pattern. Specifically the objectives are:

1. to focus on the impact of change in the cropping pattern on employment, especially of women labourers.
2. to study the impact of changed female employment (unemployment) situations resulting from the shift in cropping pattern on family consumption pattern, and

3. to study how women labourers in agriculture sector got adapted to the situation of changing employment opportunities.

1.4.1 Hypotheses examined

1. Female labour force participation was high under seasonal and annual cropping system rather than under perennial commercial cropping.
2. Female labourers released from agriculture due to change in cropping pattern have not been absorbed into any other job.
3. The family consumption pattern of Female labourers, who were thrown out of employment due to change in cropping pattern drastically deteriorated.
4. The female labourers evacuated from the agriculture sector failed to get adapted in other sectors because of non-availability of opportunity.

1.5 Methodology and data

The sources of data, the details of data collection, the sampling design and the detailed methodology are given as follows.

1.5.1 The Data and the Sampling Design

The data on shift in cropping pattern of Kerala is available from 'Statistics for Planning', the data published by Department of Economics and Statistics, Government of Kerala. The annual data regarding area under crops, production of crops, farm price of agricultural products, etc. are available from the same source. Data regarding female labour force participation, Kerala, are based on reports of the Census of India for the years 1961, 1971, 1981 and 1991. These sources of secondary data were tapped for analysis to ascertain

the agriculture situation in Kerala as well as gender disaggregated labour force participation in the State.

Although researchers usually use the data on consumption expenditure of households available from National Sample Survey (NSS), or data published by the National Sample Survey Organisation (NSSO), they can not be used in the present study as they don't give gender disaggregated data on income earned nor distinguished the households with female income earner and those without. Because no other secondary data source was successfully identified, a sample study was resorted to collect necessary data to analyse the household consumption pattern over the years. As the primary requirement for incorporating gender analysis into development is to consult with and listen to women so that their roles and resulting needs are better understood, a personal investigation by the researcher was conducted. The data collected through the primary survey forms the main source of data for the study.

The household survey was conducted in Kottayam district of Kerala during February to April 2000. The scope of the survey was also limited to Changanacherry Taluk of Kottayam. The Kottayam district was selected for the study, as it is the district where reclamation of paddy fields for cultivating commercial crops like coconut, rubber, tapioca and cocoa was predominant. The female labour force participation rate of Kottayam is very low (12. 13 per cent) compared to that of state rate (15. 85 per cent) for 1991 (as seen in Table 1.2). On the contrary the male labour force participation rate of the district is higher (50.37 per cent) compared with the state rate (47.58 per cent). This marked difference in

the participation rates of female and male workers of Kottayam district has to be looked into within the context of a slightly low overall work participation rate for the district compared with that of the state. In spite of these, the literacy rate of the district is very high compared with the other districts of Kerala and India. As per 1991 census the rate comes to 95.7 per cent. The researcher being a native of Kottayam district is familiar with the changes in various fields in the district and this also went in favour of Kottayam being selected as the study area.

Table 1.2 Distribution of Workers, 1991

Work Participation Rate	Kerala state	Kottayam district	Changanacherry taluk
Male	47.58	50.37	46.72
Female	15.85	12.13	10.80
Total	31.43	31.22	28.64

Source: Census of India, 1991

The district consists of five taluks and 95 revenue villages. There are 11 block panchayats, 73 grama panchayats (rural local self-governments) and four municipalities (urban local bodies). The district has low land of altitude less than 25' and midland between 25'and 250' above mean sea level. The midland is very fertile land rich in luxuriant vegetation. Paddy, coconut, tapioca, pepper and rubber are the main crops grown. Vaikom, Changanacherry and Kottayam taluks and major portions of Meenachil and Kanjirappally taluks come under midland. The remaining portion of Kanjirappally and Meenachil are high lands.

The Changanacherry taluk was selected for the study purposively because the researcher was familiar with the female labour replacement problems in agriculture sector due to reclamation of paddy fields decades back. The very low female participation rate of the study area also has led to the selection of the taluk for the study.

In Changanacherry taluk the rural local self-governments are Madappally Block Panchayat and the Grama Panchayats of Karukachal, Kurichi, Madappally, Paippad, Thrikkodithanam, Vakathanam, and Vazhappally. The urban local self-government of the taluk is Changanacherry Municipality. The rural areas constitute 79 per cent of the population of the taluk and urban 21 per cent. The sex ratio of the taluk is 1013, of rural is 1012 and of urban is 1016. The literacy rate is same for the rural and urban areas of the taluk, 98 per cent for male, 96 per cent for females and 97 per cent for total population (Source: Census of India, 1991). Work participation rate of the taluk shows that female participation is very low compared to the state rate and the district rate (Table 1.2).

After the purposive selection of Changanacherry taluk of Kottayam district, a multi-stage sampling design was used for selecting the households for survey. The study was confined to rural areas where agriculture labourers, present and/or past, was residing. Therefore, at the first stage, a Grama panchayat was selected at random from among the seven Grama panchayats of the taluk.

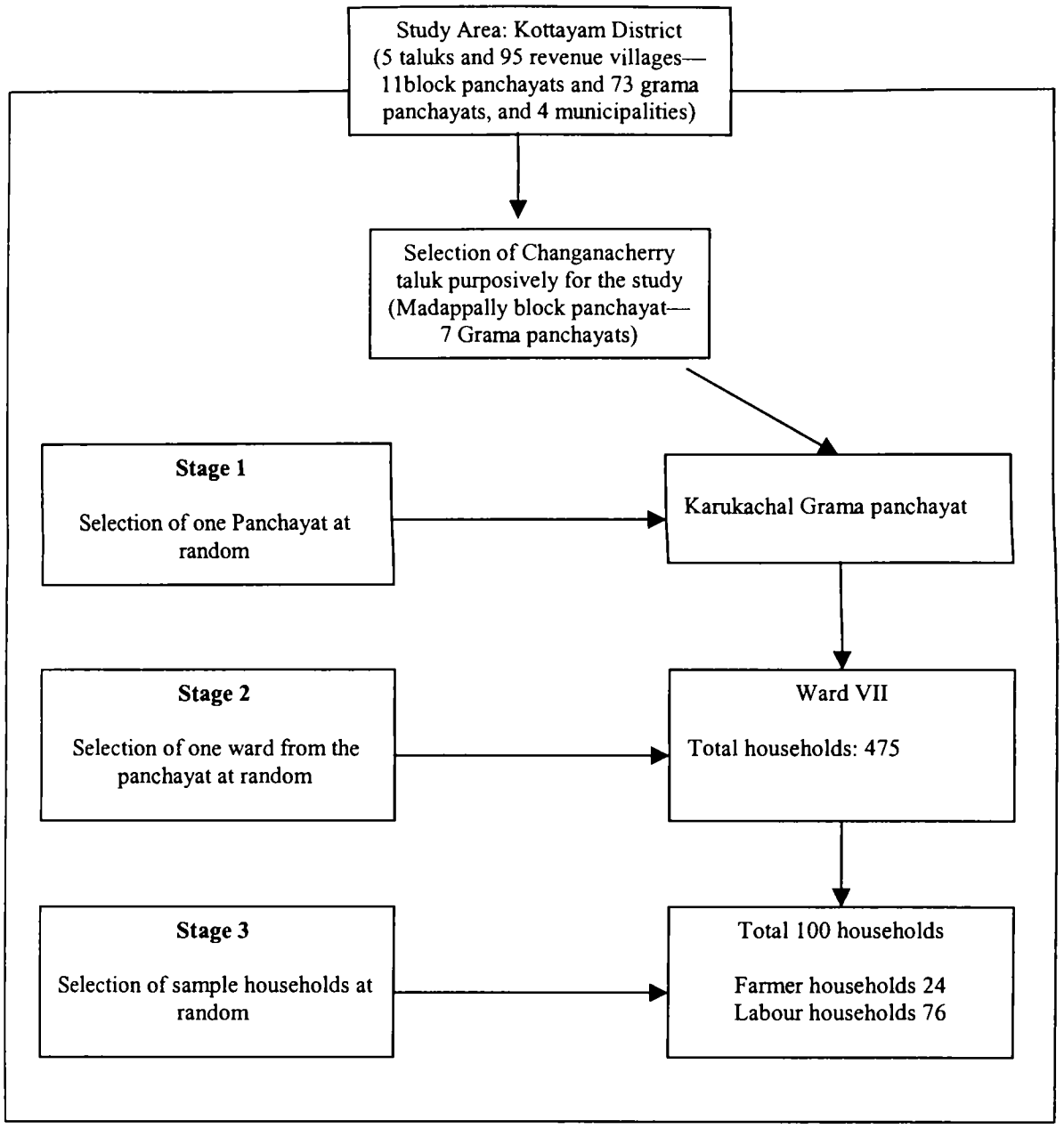
The Grama panchayat selected at random was Karukachal. The main labour colonies of the panchayat are Anchani colony in Ward III, Umpidi in Ward IV, Kuttickal colony in Ward VII, Santhipuram in Ward IX and Writtenparamba in Ward X. The second

stage of the sampling design was to select a ward of the panchayat at random. Ward VII was selected to identify the households to be surveyed. In the third stage, the households of the Wad VII were listed such that labour households and others listed as two categories. A total of 100 households were surveyed, of which 76 were labour households and 24 were full-time or part-time farmer households. (The labour households were designed to be 75 and other 25. However, after random selection of the households, while conducting the survey it was found that for one of the respondent households, wage income was the major source of income and agricultural income was meagre and land owned was only 10 cents, although the household was listed as a farmer household. Therefore the household was included in the labour household category and thus the number of households surveyed from labourers and others became 76 and 24 respectively).

The households were selected at random. The household survey was conducted using a structured and pre-tested questionnaire, which was prepared for the purpose of the present study (A copy of the questionnaire used is appended to the thesis). The survey was conducted as direct personal interview method by the researcher herself. One member of the household was interviewed, the farmer respondents were all male, but respondents-labourers were from both sexes although male labourers interviewed were few. The female labour respondents were the major category of informants of the survey.

The reference period for the survey was about three decades prior to the survey date, from 1970 to 1998. Data on employment, wages, income, consumption, area of land owned, cropping pattern, and education were collected from the sample households.

Sampling design



1.5.2 Concepts and Definitions

The concepts and definitions used in the study are as follows:

1. Household: A family living together and taking food from a common kitchen.
2. Labourer: Person engaged in paid wage work outside house.
3. Farmer: Person whose main work is agriculture and/or cultivates land although she/he has other equally important jobs at the same time.
4. Family income: Total of all incomes received by members of the family plus agricultural income and other incomes received by the family as rent, interest, etc. for a month.
5. Personal income: Income earned by a person for a month.
6. Family consumption spending: Spending of money on total consumption of all commodities of consumption the family makes.

1.5.3 Methodology

The important aspects under investigation of the present study are: (i) impact of change in cropping pattern on Kerala's agriculture performance and on employment of women and (ii) impact of resultant changes in female employment (unemployment) situations on family consumption pattern of the labour households. The methodologies adopted to study these aspects are given as follows.

1.5.3.1 For studying the impact of change in cropping pattern on Kerala's agriculture performance and on employment of women

To study the impact of shift in cropping pattern on Kerala's agriculture performance, the time series of the area under major crops cultivated and the production of crops, from 1962/63 to 1998/99 were analysed. Data relating to Kerala state and ot Kottayam district were used for analysis. The data used is secondary from ***Statistics for Planning***, Department of Economics and Statistics, Kerala. The employment of women in agriculture sector of Kerala was studied using the data on employment according to industrial categories, given in Census reports for 1961, 1971, 1981 and 1991. The present employment and female work participation rates were looked into from Census reports, 1991, for the district of Kottayam and for the Changanacherry taluk.

Growth rates of area, production and yield could be estimated using different functional forms (Reddy, V.N., 1978). However, the components of time series model viz. seasonality, cyclicality and irregularity hold their effect on trend growth (Snigdha Chakrabarti and Ashok Rudra, 1990). And if the periodicity of the swings in trend (up and down) is not of equal order, they have a significant bearing on secular trend (Anandaraj, R., 1992). So the nature and periodicity of cyclical movements was looked on first to choose an unbiased estimate of trend. The OLS method was used to depict the trend of the series over time. The standard semi-log linear model for the exponential growth function,

$$\text{Log } Y = \alpha + \beta T + u \qquad (1)$$

where **Y** is the dependent variable, **T** is the time (independent variable), α and β are the parameters of the model (respectively the intercept and slope) and **u** is the error term, was used to estimate the trend of the series.

The movements in growth or swings in trend, which are due to cyclical and irregular fluctuations was analysed by detrending the series. To eliminate irregular fluctuations from the detrended series, the conventional method of moving average was employed. Using the three-year moving average method the detrended series was smoothened for comprehending the cyclical movements in output. The graphical method of plotting the smoothened series was relied on to have a visual picture of the cyclical fluctuations in growth and periodicity of the same.

Annual average growth rate was used for analysing the growth performance period-wise. The following form of equation was used to estimate the annual growth rate.

$$Gr = ((Y_{t+1} - Y_t)/Y_t)*100 \qquad (2)$$

$$\text{Arithmetic Mean} = Gr = \sum_{t=1}^{n-1} (Y_{t+1}/Y_t - 1)/n - 1 \qquad (3)$$

The sources of growth in production are isolated by decomposing the growth rate into area effect, cropping pattern effect, yield effect and the mixed effect due to

simultaneous change in both cropping pattern and yield (Minhas, B.S. and Vaidyanathan, A., 1965, pp.230-252). The decomposition equation used for this purpose was,

$$Q_t - Q_o = A_t \sum_c a_{ct} Y_{ct} P_c - A_o \sum_c a_{co} Y_{co} P_c , \qquad (4)$$

as $Q_t - Q_o =$

$$(A_t - A_o \sum_c a_{co} Y_{co} P_c + A_t \sum_c a_{ct} - a_{co}) Y_{co} P_o + A_t \sum_c a_{co} (Y_{ct} - Y_{co}) P_c + A_t \sum_c a_{ct} - a_{co}) (Y_{ct} - Y_{co}) P_c$$

..... (5)

where, $\mathbf{Q_t}$ = value of gross agricultural output at constant prices ($\mathbf{P_c}$) during period **t**, $\mathbf{A_t}$ = gross cropped area during period **t**, $\mathbf{a_{ct}} = (\mathbf{A_{ct}/A_t})$ = proportion of area under crop **c** ($\mathbf{A_{ct}}$) to the gross cropped area during period **t**, and $\mathbf{Y_{ct}}$ = physical output per hectare of crop c during period **t**.

The first three components of the equation (5) represent respectively the contribution of change in area, cropping pattern and yield in absolute change in the value of gross agricultural output. The last term shows the interaction effect of changes in cropping pattern and yield in the growth of output.

Instability is defined as the deviation from trend or the variation, which is not explained by the regression fit. Trend is the mean of the time series and thus the co-efficient of variation could be treated as a measure of instability; it being a measure of dispersion of observed values of the variable from its arithmetic mean value. However, if

there is a strong trend element in the time series, co-efficient of variation of the time series can be misleading. To avoid this problem, standard deviation of the detrended series can be used in estimating the co-efficient of variation. Therefore, a reliable measure of instability in production and yield is used in this study, by estimating the co-efficient of variation.

Total area under food crops and non-food crops were analysed using the proportion of both values in the total and represented as percentage. Thus,

$$\textbf{Proportion of area under food crops} = \frac{\text{Area under food crops}}{\text{Gross cropped area}} X100$$

and,

$$\textbf{Proportion of area under non-food crops} = \frac{\text{Area under non - food crops}}{\text{Gross cropped area}} X100$$

The change in cropping pattern of the farmer households was analysed at micro level using the information collected through the sample survey of the farmer households. The questions included in the schedule for survey as 'what was the first shift in cropping pattern, second shift in cropping pattern and third shift in cropping pattern?' gives information regarding the changes in cropping pattern adopted by the respondent farmers during the past three decades. In addition to this, the information on the cropping pattern annual over years also has been inquired into.

The industrial category-wise and gender disaggregated employment data have been analysed taking proportion of employment under each category out of total employment. Comparative static study of the change in employment pattern with the decadal data from Census reports is resorted to for examining the employment pattern.

1.5.3.1 For studying the impact of changes in female employment (unemployment) situations on family consumption pattern of the labour households

The micro level data on female labourers employment in agriculture over years has been collected in the sample survey for the present study. The questions used in the schedule of survey as: 'for how many years you have been a labourer?', 'what is the major change in primary employment?', 'the year of change in primary employment', etc. give relevant information regarding the employment pattern of the respondent labourers over the reference period of the survey.

The income and consumption spending analyses have been conducted based on the current income data. The pattern of income use into consumption by labourers disaggregated into personal consumption and family consumption uses also is analysed. However, it is important that the usual consumption studies based on expenditure on each and every items of expenditure of the consumption basket, as is the procedure of National Sample Survey studies, has not been resorted to here. The purpose of study of the consumption studies for the present study is to see the change in the pattern of consumption over last three decades, during which female labourers in agriculture had employment to be compared to how it is under the changed employment scenario. In addition to this, the

comparative study of the present situation of the labour families of employed female labourers and those of released female labourers from their employment and who remain unemployed due to lack of opportunities to be absorbed into any other sector also is done.

The Theoretical Framework of Study of Household consumption Pattern

Household consumption behaviour is usually analysed on the basis of theoretical formulations of the utility theory of demand. Individual or household demand functions for different commodities are derived from constrained utility maximisation function. The study of household consumption pattern by Earnest Engel in 1857 is based on household income as the explanatory variable to demand function. From among the determinants of demand income, taste and fashions, time, social set up, etc., income is the most important determinant. That is, expenditure on i^{th} commodity by j^{th} household (E_{ij}) is a function of total income of the j^{th} household (Y_j).

$$E_{ij} = F(Y_j).$$

Although income reported by households usually suffer errors due to under statement and the proxy of expenditure by household is used in empirical studies of consumption function, it is not practical in this study. In the present study income of household and the income of female earners separately have been used as the explanatory variables, although household consumption demand for individual commodity items are not looked into. Total monthly consumption expenditure out of total monthly income has

been studied as well as the consumption level attained and maintained by the household at the changed situations of employment and income. Consumption pattern of households with female earners is significantly determined by the preferences of female earners. Not only this, female income is a deciding factor in the maintenance of labour household consumption at a higher level.

If income earned by male member(s) of j^{th} household is Y_{mj} and income earned by female member(s) of j^{th} household is Y_{fj} , then total income earned by the j^{th} household,

$$Y_j = Y_{mj}+Y_{fj}.$$

Thus the expenditure by household is determined by the income earned both by male and female members of the household.

$$E_{ij} = F(Y_{mj}, Y_{fj}).$$

Thus a gender disaggregated analysis of influence of income on consumption demand for any commodity if theoretically possible. This conventional wisdom is being transformed for the present study that the gender disaggregated analysis of influence of incomes on expenditure for family consumption basket (total magnitude of household consumption expenditure) is possible irrespective of the commodity(s) in the consumption basket. That is, total family consumption expenditure of j^{th} household (E_j) is a function of incomes earned by male and female members of the household.

$E_j = F(Y_{mj}, Y_{fj})$.

The limitations of the analysis are that the demand elasticity for each commodity cannot be used as the total family expenditure is used, Engel's ratio is not relevant, and only descriptive study of the influence of income by male and female members is resorted to rather than using any econometric model.

1.6 Plan of the study

The study is divided into eight chapters including the introduction and concluding chapters. The importance of the study, the objectives and the important hypotheses, the detailed methodology, the sampling design, the concepts used, the plan as well as the limitations of the study are presented in the introduction chapter. The second chapter gives the basis for the problem setting surveying the relevant literature. The reviewed earlier studies have direct or indirect relevance to the present study. The third chapter explains female labour force participation. The work participation at state level, study area level, selected taluk level and panchayat level are analysed. The industrial category-wise data as time series of Census data from 1961 to 1991 are used for analysis of state level participation rates in this chapter. The fourth chapter presents a detailed analysis of shift in cropping pattern of Kerala state as well as an analysis of the production pattern of major crops cultivated in the state. The study district level data analysis vis-à-vis state level data is also included in this chapter. The fifth chapter gives the analysis of the sample data based on respondents specific characteristics. The characteristic variables relating to farmer

households and labour households are analysed separately in this chapter. Chapter six gives impact of shift in cropping pattern on employment of female labourers in agricultural sector at the micro level. In the context of change in cropping pattern, it is analysed how female agriculture labourers got adapted in the situation of female labour saving shift in cropping pattern. The analysis in this chapter is purely on the basis of sample data. The impact of changed female agriculture labour employment situation on family consumption pattern is analysed in chapter seven. In the last chapter, the summary of the findings of the study and the major conclusions that emerge out of that are given.

1.7 Limitations of the study

The present study is an explorative one because no other study has attempted in this area in Kerala. The studies on Kerala agriculture performance and shift in cropping pattern ignored the gender specific impacts it brought on employment, income and the consumption pattern of households. Likewise, consumption studies in India ignored gender specific impacts and gender specific explanatory variables. The major secondary sources of data like NSS do not give gender disaggregated data for analysis of consumption. The present study also deviates from the conventional methods of analysing demand of individual commodities to arrive at consumption function related to income, as only aggregate consumption expenditure on family consumption basket is taken into account in relation to gender disaggregated incomes. Data constraints are also seen as the shift in cropping pattern is looked into as female labour saving.

Also inaccuracy of income data collected constrains the analysis. None of the respondents reported to have savings. It is both shocking and interesting information. The constraints in information because of a long reference period also have to be noted. The informants were egocentric to reveal the accurate information regarding their consumption pattern in the early decades of the reference period. Lack of similar studies also constrained the present study. The limited sample also forces us to view the policy conclusions emerging out of the study with reservation. Opportunities for further study in the same area remains with vast scope and comparing different region specific data for drawing strong policy conclusions.

References

1. Anandaraj, R. (1992): 'Cyclicality in Industrial Growth in India: An Exploratory Analysis', *Working Paper No. 249*, Centre for Development Studies, Thiruvananthapuram.
2. Blumberg Rae Lesser (1991) (ed): *Gender, Family and Economy: The Triple Overlap*, Sage Publications, U.S.A.
3. Boserup E. (1970): *Women's Role in Economic Development*, London, George Allen and Unwin, edition 1989, Earthscan Publications.
4. Chakrabarti, Snigdha and Ashok Rudra (1990): "Where is the Industrial Retardation?" in *Economic and Political Weekly*, September 29.
5. Hopkins Jane, Levin Caroll and Haddad Lawrence (1994): "Women's Income and Household Expenditure Patterns: Gender or Flow? Evidence from Niger", *American Journal of Agricultural Economics*, Vvol.76.
6. Minhas, B.S. and Vaidyanathan A. (1965): "Growth of Crop Output in India, 1951-54 to 1958-61: An Analysis by Component Elements" in *Journal of the Indian Society of Agricultural Statistics*, Vol. XVII, No. 2, December 1965.

7. Pillai, Renuka (1999): *Gender Influence on Consumption Pattern: A Study of the Impact of Women's Income on Household Consumption*, Ph.D. Dissertation, Department of Applied Economics, Cochin University of Science and Technology, Cochin.

8. Reddy, V.N. (1978): "Growth Rates" in *Economic and Political Weekly*, Vol. XIII No. 19, May 13, 1978, PP. 806-809.

9. Roos Patricia (1985): *Gender and Work; A comparative Analysis of Industrial Societies*, State University of New York Press, Albany.

10. Smith Ralph E. (1979): "The Movement of Women into the Labour Force" in Ralph E. Smith (ed) *The Subtle Revolution: Women at Work*, The Urban Institute, Washington D.C.

11. Tina Wallace and Candida March (ed) (1991): *Changing Perceptions*, Writings on Gender and Development, Oxfam, Oxford.

Chapter II

Review of Literature

2.1 Introduction

The need and significance of the present study as well as its important objectives are spelt out clearly in the first chapter. Methodology of the study is also given in the first chapter. In this chapter an attempt is made to briefly survey the available literature, which has direct or indirect relevance to the present study.

Although the present study is different from other previous studies, it is imperative to analyse the relevant literature available, which have a direct or indirect bearing on the present study. This thesis is developed on the fact that cropping pattern has changed over time in Kerala and that has produced specific gender impact on employment opportunities in agriculture in the state. It is further based on the fact that shifts in cropping pattern and the resultant changes in gender specific employment pattern changed the consumption pattern of agriculture labour families. Hence the survey of relevant literature covers studies on agriculture performance of Kerala, female labour force participation, as well as on gender issues and household behaviour.

2.2 Studies on Kerala Agriculture

Low level of agriculture growth performance at production and yield of crops in Kerala, for a decade from mid seventies has generated a large number of studies. Some of these studies were overall studies while some others were disaggregated studies by crop and by region. Stagnation in Kerala agriculture was the focal point of these studies (Kannan and Pushpangadan, 1988, 1990, Jeemol Unni, 1981, P.G.K. Panikar, 1980, Joseph C.J., 1983, Narayana D. et al., 1983, 1989, Narayana D., 1990, Kuttappan M., 1979, P.S. George, 1979, Ninan K.N., 1984, Lelithabhai K.N., 1993). The growth performance of Kerala agriculture has been approached dividing the period of performance into two phases viz. pre mid seventies and post mid seventies (Kannan and Pushpangadan, 1988).

However, D. Narayana argued that analysis of trends in growth of production and productivity of agriculture in Kerala has to be based on an understanding of the perennial nature of crops in the state and the consequent production cycle. He identified that the period from early seventies to early eighties, during which area, production and productivity in state agriculture tended to stagnate or even decline as the downward swing phase of agriculture production cycle that characterises the tree crops. The results of empirical data analysed by K.N. Lelithabhai also supported the agriculture production cycle hypothesis.

Although the production cycle hypothesis turns out to be true, the significance of plethora of studies on the constraints on agriculture growth prompted by the agriculture

stagnation during the seventies and eighties does not diminish. A general consensus arrived at about the growth performance of state agriculture was that the longrun growth performance has been relatively lower than the Indian average. This comparatively poor performance of state agriculture is in spite of its rich resource endowments. The state benefits from southwest and northeast monsoons. The southwest monsoon is very heavy throughout the state and it starts in May and lasts till September. The northeast monsoon starts in September and lasts till November. The annual rainfall generally exceeds 300 cm. And average number of rain-days exceeds 125 a year. Even though the rainfall is skewed in distribution, the eastern forest system and network of paddy land valleys, canals and homestead ponds had acted as effective water conservation measures.

The geographic divisions of the state are: a) high ranges, the mountainous land along the Western Ghats, b) high land, the hilly tract on the western side of Western Ghats (43% of land area), c) mid land, the undulating terrain with a number of rivers, hills and valleys (42% of the land), and d) low land, the strip of land along the coasts of the Arabian sea. The soil is suitable for rich vegetation. Given the agro-climatic diversity, Kerala is suitable for a wide variety of crops.

Agriculture of the state is characterised by intensive utilisation of the land and unique pattern of mixed cropping (Report of the One Man Commission, 1981). The system of cultivation in the state is homestead agriculture. Homestead refers to the area surrounding the farmhouse. Coconut is the basic crop in almost all the homesteads and it is intercropped with seasonal, annual and perennial crops. The farming systems followed in

the state are: I) rice based farming system, ii) coconut based homestead farming system, iii) tapioca based farming system and iv) plantation system.

Agricultural seasons in the state are Autumn or 'Virippu' (April-September), Winter or 'Mundakan' (October-January) and Summer or 'Puncha' (February-April). Only the first two seasons receive rainfall from southwest monsoon and northeast monsoon respectively.

Kerala agriculture is benefited not only by rich resource endowments, but also by social reformation through eradication of feudal landlordism, which was an impediment to agriculture growth. The process of land reforms climaxed in 1971 when tenancy was abolished and hutment lands were granted to all agricultural labourers (K.N. Raj and Michel Tharakan, 1983). Therefore the factors standing against the state achieving full growth in agriculture have to be identified yet.

Non-price factors like technology influences productivity more than price factors (Kannan and Pushpangadan, 1988, 1990). The problems associated with new technology is not introduction of technology but of providing critical inputs to help farmers to adopt new techniques. Water and farm management had been identified as critical inputs. Water logging in low lands also is a problem.

The cause of decline in yield per coconut tree has been identified as low input use, especially that of irrigation, which aggravates the adverse effect of root-wilt disease and/or

increasing proportion of old palms per hectare, concluded after analysing the trends in area under crop, production and productivity of coconuts in Kerala (Narayana, D. and Nair, K.N., 1989). The impact of irrigation in stabilising and increasing yield of paddy crop in Kerala was studied and the major findings were: 1) the impact is only marginal, and 2) the management of irrigation water is far from satisfactory (Nair, K.N. and Narayana, D., 1983). The yield rates of HYVs were less than their experimental yield potential, as found from the survey conducted in Kuttanad areas and Palakkad (Panikar, P.G.K, 1980).

2.3 Issues in Female Labour Force Participation: A Selective Survey

Role of women in economic activities was not a concern for scholars and development specialists till the mid of second half of the 20th century. The women liberation movements of the western countries led to the production of a number of articles and books on women and work. In 1970s women's economic role was thought positively and the U.N. declared 'Women's Development Decade' from 1975 to 1985 accentuated this perception. Labour force participation in U.S. and many other developed economies as well as developing economies had been studied and theoretical and econometric models for the same had been developed (Mincer, 1962, Collver and Langlois, 1962). Collver and Langlois found that female labour force participation in developed countries was positively related to economic development and that the developing economies didn't establish such a relationship.

Major causes of variations in economic behaviour of women in developing countries and third world had been researched (Boserup, 1970). The Women in Development approach was developed during this time. This fostered the view that women's involvement in the projects that would help them to improve their economic conditions and that of their families. Women in Development approach focuses only on women. More appropriate is a gender issues approach, which emphasises not just women, but both men and women and the dynamics of men-women interactions.

The issues and concerns specific to women in developing countries had been attempted in various studies (Tinker et. al., 1976, Rogers, 1980, Smoke, 1981, Charlton, 1984. The data relating to female work in several industrial nations had been studied and found that the human capital theory, which emphasises training and job commitment, was not adequate to explain female labour force participation (Roos, 1985).

Country specific case studies on female labour force participation had introduced different results. In Guatemala females joined labour force at a faster rate than men since 1950 (Chinchilla, 1977). Tremendous increase in female labour force participation in Mexico (Lustig and Rendon, 1979), and in Venezuela (Acosta, 1980) was proved. The World Bank (1985) study on Latin American women gave a cross-national study on female labour force participation.

Studies on Japanese women (Hill, 1981), on Philippino women (Gonzalez, 1977), and on Sri Lankan women (Kiribanda (1981) have concluded that women in Asian countries also have become economically active.

In spit of the tremendous growth in female labour force, irrespective of the country characteristics, the women's employment status remains specific such like women hold traditional jobs, have low status positions, and earn comparatively very low income than men. Sex-typing of jobs is observed by various studies (Deitch, 1980, Miller, 1980, Barrett, 1979, Malik, 1981). Even with same educational background or work experience as that of men, women have to work at low pay scales because of sex-typing of jobs (Waite 1981, Ehlers, 1980).

Conventionally women were treated as beneficiaries of social services provided by governments. They had little say in matters affecting their lives. In the Third UN International Conference for Women in Nairobi, in 1985, India and Netherlands signed and ratified the Forward Looking Strategies (FLS) whereby the approaches to women in development changed to women as contributors to development. The impact of development had been different on men and women. The impact on the relationship between men and women also is different. Therefore, development has to be approached with a gender consideration rather than women specific (Mary E. John, 1996). The Institutionalist theory reinterprets the debate between the two approaches to gender and development. It focuses on the evolution of social institutions in which individual decisions are made (Nancy Folbre, 1995). In spite of imperfections and lags, social institutions are

evolving towards an efficient, Pareto-optimal equilibrium. Earlier, agrarian economies were male dominant and wage difference existed because of physical strength of men. Women's high fertility made her depend on men. But as technology improved, mental skills got importance than physical strength and fertility decline was encouraged. Thus male dominance became less efficient. But traditional social norms hindered the adjustment to modern egalitarian norms.

"The investigations of the Committee on the Status of Women in India (1971-1974) (CSWI) represent the watershed in the field of Women's Studies in the country. Starting with a new perspective, these investigations collated, for the first time, a large body of data on different aspects of women's lives and identified unexpected trends in women's situation such as declining sex ratio, declining economic participation rate and growing gaps in life expectancy and mortality rates between men and women". (quoted from UNESCO Women's Studies and Social Sciences in Asia, Report of a meeting of Experts, Bangkok, 1983, p.47)

Indian women's position worsened with certain exceptions of some middle-class women gained some employment and education. Seeing the uplift of middle-class educated and/or employed women, who are the visible sections of the society, a myth was generated that unlike some of the Asian Societies, women's status in India is very high (Neera Desai and Maithreyi Krishnaraj, 1990). Women have less access to better paying jobs in the formal sector and are disproportionately represented among unpaid family workers and in the informal sector (World Bank: World Development Report 1995).

Explanation to the U-shape hypothesis showing the relationship between economic development and female labour force participation using a U-shaped curve is given in Youssef's study (1974). The study concludes that in the beginning stages of economic development, due to modernisation and mechanisation of agriculture and traditional non-agricultural sectors, the employment opportunities for female labourers decline and development in secondary and tertiary sectors, succeeding the development of the primary sector, introduces more opportunities for female labourers. Studies on female participation in developed countries gave results in conformity with the U-shape hypothesis.

Factors affecting female labour force participation have been identified as presence of young children (Presser and Baldwin, 1980), and household's economic structure (Mason and Palan, 1981).

The interrelationship among economics, gender and household variables has been researched only by early 1980s. Studies have concluded that generally women have provider obligations to their families, especially to their children (Dwyer and Bruce, 1988, Blumberg, 1991).

2.4 Gender Issues in Household Consumption Behaviour

The importance of relative male/female control of income and other resources has a major role in household decision-making (Blumberg and Coleman, 1989). The analysis of

third world data concluded that men and women have distinct expenditure pattern and that women spend more on the family's sustenance and upbringing of children (Blumberg, 1991).

Gender differences in control over land and labour in African agriculture was found attributed to economic history (Lockwood, 1992). Studies on African agriculture concluded that economic processes associated with structural adjustments, seems to be accentuating the gender biases (Collier, 1992, Palmer, 1991). Although neoclassical economists are optimistic about the ability of markets to prove gender equity, Feminist economist Elson (1993) is sceptical about the same.

Attempting to fill the gap between the neoclassical models, which treat the household as a single unit, and other models that treat men and women within the household separately, Whitehead (1990) challenges the view that economic separation between husbands and wives is total. The gender efficiency approach points out the importance of directing economic resources to women and the need for action oriented political strategies to bring about women's empowerment (Kabir, 1991, Young, 1993). Collective consciousness among women workers was generated and reproduced by the Self Employed Women's Association (SEWA) in India (Westwood, 1991).

Ernest Engel (1857) studied the relationship between household income and expenditure on different commodities and the result was later known as Engel's Law. Other empirical studies on consumption pattern and consumer behaviour, on the basis of family

expenditure data, also were done (Working, 1943, Prais and Houthakker, 1955). Consumption pattern in India has first attempted to be studied by Roy and Laha (1954). Their study focussed on demand elasticities with respect to per capita household expenditure, and they used National Sample Survey data on consumer expenditure.

Iyengar (1968) and Gupta (1969) studied the effect of household size on consumption. Inter regional variations in the consumption pattern in India was also studied and worked out elasticity coefficients separately for rural and urban households (Gupta, 1970). Rural-urban differences in consumption habits, also was studied (Mahajan, 1971). Although a number of studies on consumption behaviour were brought forth in India, none of the earlier studies examined the household consumption pattern introduced by women's income. Recent studies have concentrated on the influence of women's income on household consumption pattern. Some of the studies found that women spend differently from men, and household expenditure pattern are influenced by share of household income earned by women holding household income constant (Guyer, 1980, Dwyer and Bruce, 1988, Horton and Campbell, 1991, Thomas and Chen, 1993). These studies supported the view that household expenditure pattern with same income, with female earners and without female earners differ. They found that women's income leads to increased spending on food and children's education and nutrition needs.

Increased participation of women in labour force brought changes in household food production type, such that food away from home became an attractive attribute to the households. Many studies in western countries analysed the expenditure on food away

from home (Byrone, Capps and Saha, 1996, Mc Cracken and Brandt, 1987). Food spending patterns of female-headed households in the U.S. was studied (Frazao, 1992). These studies concluded that wife's employment status leads to higher share of restaurant food consumption. In Canada couples working outside home spent more than 50 per cent on restaurant food than wife work full time in the home (Barewal, 1987). The literature showed that wife's employment status and income has important economic effects. Mainly, it is the influence on the household consumption pattern, which has not been studied in detail at grass roots level in India, except Subramaniyan and Deaton (1991), the study which examines the gender effects on consumption pattern in India using data from NSS 38th round for Maharashtra, and Pillai (1999), the study which focussed on impact of women's income household consumption pattern using micro level sample data.

Several studies originated in India in last few decades, regarding women and work. The studies on female labour force participation are limited. Study of Datar (1958) gives an analysis of female employment during the period from 1901 to 1951. An analysis of trend in female employment during the period 1881-1951 (Thorner, 1962), analysis of trend in employment of men and women over decades, using Census data (Ambannavar, 1975), and a trend analysis of occupational changes using census data (Prakash, 1975) also are noted studies in the field. Ambannavar also identified the women absorbing and the women reflecting industries. Reasons for declining sex ratio in India was studied in relation to female work participation (Dandekar, 1975). Technological change was identified as the major reason for decline in women's employment in modern organised industries and in some services (Acharya, 1979, Sinha, 1961). Shift in occupation during 1961-71 and the

status of women in the Indian economy was studied (Mitra, Pathak and Mukherjee, 1980). The reasons for declining female labour force participation in India, has been studied by a number of scholars (Parthasarathy and Rao, 1981, Reddy, 1977, Paul, 1982, Moorthy, 1982, Mukhopadhyay, 1982).

Married women's labour force participation was studied using data related to Madras city (Malathy, 1983). Women agricultural labourers, was the focus of the study of Sen (1983), using census data. Women's involvement in rural transformation (Mehra and Saradamoni, 1983), and the process of transformation of women labour in Indian agriculture been transferred into wage earners (Chatterjee, 1984) are the other major aspects studied. Women workers in the unorganised sector in India, was studied (Banerjee, 1985). Bardhan's (1985) study on how the forces of tradition and change in India affected the female labour force participation, Agarwal's (1986) study on the inter-relationship between female employment, poverty and agricultural growth in India and Mies's (1986) study on how the Indian women in agriculture subsist also give manifestations of issues of female labour force participation in India.

National Institute of Urban Affairs (1987) examined the gender bias in employment in India referring to the urban informal sector. Work participation of women in India during the period 1961-81 was explained in the study of Duvry (1988). Women in labour force in India, was examined in Kalpagam (1988). Her study used NSS data. Female poverty and women's contribution to household maintenance was studied in Mencher (1988). She used data from two regions of South India. Bhalla's (1988) study examined the

impact of technological change on female labour employment in agriculture sector. Anker, Khan and Gupta (1988) discussed the methodological issues relating to measuring female labour force participation in India. Various aspects of female employment in India was given in the study of Jose (1989). The study of Visaria (1996) using NSS data gives the trends and differentials in female labour force participation in India.

The 'National perspective Plan for Women' and the 'Report of the National Commission of Self-employed Women and Women in the Informal Sector (Ministry of Labour, 1988), give exhaustive information on the female labour force participation in India. The casualisation of work of female labourers in India is pointed out in studies (Horton, 1996).

Higher levels of female labour force participation is admired due to that having important effects on social institutions (Dreze, 1997) and independent income earning reduce the economic dependence of women on men (Sen, 1990). Low female-male ratio in India led Dreze and Sen (1996) to conclude that gender inequality is high in the country.

The studies on women and work in Kerala also are mainly based on secondary data. The pattern of female employment in Kerala was studied in recent decades (Prakash, 1988, Devi, 1995). The impact of structural changes in the state on demand for female labourers was studied (Kumar, 1994). Casualisation of employment and impact mainly on female labourers due to their limited mobility was concluded in the study of Eapen (1994). Major reason for female unemployment in the state was found due to lack of mobility (Richard

and Barbara, 1996). Educated unemployment has been studied (Mukherjee and Isaac, 1994, Mathew, 1997, Thomas, 1988, Oommen, 1992). Mathew uses primary data and analysed unemployment in terms of job preferences. Devi's (1996) micro level study on female labour force participation is based on a limited sample.

Reference

1. Agarwal, B. (1986), "Gender Relations and Food Security: Copping with Seasonality, Drought and Famine in South Asia", in L. Beneria and S. Feldman (ed) *Unequal Burden, Economic Crises, Persistent Poverty and Women's Work*, Westview Press, Boulder Co.

2. Ambannavar, Jaipal (1975), "Changes in Economic Activity of Males and Females in India", *Demography in India*, Vol. 14.

3. Anker Richard, M.E. Khan, and R.B. Gupta (1988), *Women's Participation in the Labour Force: A Methods Test in India for Improving its Measurement*, ILO, Geneva.

4. Banerjee Nirmala (1985), *Women Workers in the Unorganised Sector*, Sanyal Books, Hyderabad.

5. Bardhan Kalpana (1985), "Women's Work, Welfare and Status: Forces of Tradition and Change in India", *Economic and Political Weekly*, Vol. XX. No.51, 52.

6. Barewal, S. (1987), "Canadian Spending of Food Service Dollars", *Food Market Commentary*, 9.

7. Barrett Nancy (1979), "Women in the Job Market: Occupations, Earnings and Career Opportunities" in Ralph, E. Smith (ed), *Women at Work*, Urban Institute, Washington D.C.

8. Bhalla Shiela (1988), "Technological Change and Women Workers- Evidence from the Expansionary Phase in Labour Absorption in Haryana", *Paper presented at The*

Workshop on Women in Agriculture, Centre for Development Studies, Thiruvananthapuram.

9. Blumberg Rae Lesser (1991) (ed), op. cit.

10. Blumberg Rae Lesser and Coleman (1989), "A Theoretical Look at the Gender Balance of Power in the American Couple", *Journal of Family Issues*, Vol. 2.

11. Boserup E. (1970), op. cit.

12. Byrone Patrick, J., Oral Capps Jr. and Atanu Saha (1996), "Analysis of Food- Away from –Home Expenditure Patterns for U.S. Households, 1982-89", *American Journal of Agricultural Economics*, August.

13. Chalton Sue Ellen, M. (1984), *Women in Third World Development*, West View Press, Boulder, Co.

14. Chatterjee Ruchira (1984), *Marginalisation and the Introduction of Women into Wage Labour*: The Case of Indian Agriculture, ILO, Geneva.

15. Chinchilla Norma, S. (1977), "Industrialisation, Monopoly Capitalism and Women's Work in Guatemala", *Journal of Women in Culture and Society*, Vol. 3.

16. Collier, P. (1992), *Women and Structural Adjustment Unit for the Study of African Economies*, Oxford University Press, Oxford.

17. Collver Andrew and Eleanor Langlois (1962), "The Female labour Force in Metropolitan Areas; An International Comparison", in *Economic Development and Cultural Change*, No. 10.

18. Dandekar, K. (1975), "Has the Population of Women in India's Population been Declining", *Economic and Political Weekly*, No.10.

19. Datar (1958), *Women in Employment 1901 to 1951*, Planning Commission, New Delhi.

20. Deitch Cynthia, H. (1980), *Sex, Inequality and the Labour Market; Earning Differences between Men and Women Workers 1959-1976*, Doctoral Dissertation, University of Massachusetts.

21. Devi Lakshmy (1995), "An Analysis of Female Labour Force Participation in Kerala", *Indian Labour Journal*, Vol. 36, No.10.

22. Devi Lakshmy (1996), "Determinants of Labour Force Participation Among Women in Kerala – Some Evidence from a Micro Level Study", *The Asian Economic Review*, Vol. 38, April.

23. Dreze Jean (1997), "Introduction", *The Indian Journal of Labour Economics*, Special Issue on Gender and Employment in India, Vol. 40, No. 3.

24. Dreze Jean and Sen Amartya (1996), *India: Economic Development and Social Opportunity*, Oxford University Press, Oxford.

25. Duvry Nata (1988), *Work Participation of Women in India: A Study with Special Reference to Female Agricultural Labourers, 1961-1981*, ARTEP, ILO, Geneva.

26. Dwyer, Daisy and Judith Bruce (1988) (ed), *A Home Divided: Women and Income in the Third World*, Stanford University Press, Palo Alto, C.A.

27. Ehlers Tracy (1980), *Women and Development in Guatemalan Town*, Doctoral Dissertation, University of Colorado, Boulder.

39. Joseph, C.J. (983), *'Economics of Minor Irrigation in Kerala (A Case Study)'*, Ph.D. Thesis.

40. Kabir, N. (1991), "Gender, Production and Well-being: Rethinking the Household Economy", *Discussion paper No. 228*, Institute of Development Studies.

41. Kalpagam, U. (1988), "Women in the Labour Force: An Analysis of NSS data", *Background Paper for the National Commission for Self Employed Women and Women in the Informal Sector*, New Delhi.

42. Kannan, K.P. and Pushpangadan, K. (1988), "Agricultural Stagnation and Economic Growth in Kerala: An Exploratory Analysis", *Working Paper No. 227*, Centre for Development Studies, Thiruvananthapuram.

43. Kannan, K.P. and Pushpangadan, K. (1990), "Dissecting Agricultural Stagnation in Kerala: An analysis across Crops, Seasons & Regions" in *Economic and Political Weekly* Vol. XXV, Sept. 1-8, 1990, pp 1991-2004.

44. Kiribanda Balasuriya, M. (1981), *Education, Female Labour Status and Fertility Interrelationship: A Study of Dynamics and Differentials in Sri Lanka in 1971*, Ph.D. Dissertation, University of Pennsylvania.

45. Kumar Rachel (1994), "Development and Women's Work in Kerala, Interactions and Paradoxes", *Economic and Political Weekly*, Vol. XXIX, No.51-52.

46. Kuttappan, M. (1979), *'Coconut Production in Kerala - An Economic Analysis'*, Ph. D. Thesis, University of Kerala.

28. Elson, D. (1993), "Gender Aware Analysis and Development Economics", *Journal of International Development*, Vol. 5.

29. Frazao, E. (1992), *Food Spending by Female Headed Households*, US Department of Agriculture, Washington D.C.

30. Gonzalez Anna, B. (1977), "Philippino Women in Development: The Impact of Poverty", *Philippine Sociological Review*, Vol. 25.

31. Gupta, D. (1969), "Household Size and Expenditure", *Artha Vijnana*, Vol. II.

32. Gupta, D. B. (1970), *Consumption Pattern in India – A Study of Inter-Regional Variations*, Tata McGraw Hill Publishing Company, Bombay.

33. Guyer, J. (1980), "Household Budgets and Women's Incomes", African Studies Centre, *Working Paper 28*, Boston University.

34. Hill Annie, M. (1981), "Female Labour Force Participation in Japan", Paper read at the *50th Annual Meeting of Population Association of America*, Washington D.C.

35. Horton Susan (1996), *Women and Industrialisation in Asia*, Routledge, London.

36. Horton Susan and Cathay Campbell (1991), "Wife's Employment, Food Expenditure and Apparent Nutrient Intake: Evidence from Canada", *American Journal of Agricultural Economics*, August.

37. Iyengar, N.S. (1968), "Economies of Scale in Household Consumption – A Case Study", *Indian Economic Journal*, Vol. 15.

38. Jose, A.V. (1989), *Limited Options*, ILO, ARTEP, New Delhi.

47. Lelithabhai, K.N. (1993), '*Constraints to Productivity Growth in Kerala Agriculture- A Micro Level Study*', M.Phil. Dissertation, Jawaharlal Nehru University, Centre for Development Studies, Thiruvananthapuram.

48. Lockwood, M. (1992), "Engendering Adjustment or Adjusting Gender? Some New Approaches to Women and Development in Africa", *Discussion paper No. 315*, Institute of Development Studies, Brighton.

49. Lustig Nora and Teresa Rendon (1979), "Female Employment, Occupational Status and Socio Economic Characteristics of the family in Mexico", *Journal of Women in Culture and Society*, Vol. 5.

50. Mahajan, V.M. (1971), *Consumer Behaviour in India: An Econometric Study*, Concept Publishing Company, New Delhi.

51. Malathy, R. (1983), *Women's Allocation of Time to Market and Non-Market Work: A Study of Married Women in Madras City*, Ph.D. Dissertation, University of Madras.

52. Malik Patricia (1981), *Factors Related to Women's Choices of Careers in Life Sciences and Letters – A Comparison of a Non-Traditional with a Traditional Discipline*, Ph.D. Dissertation, Indiana University, Indiana.

53. Mary E. John (1996), "Gender and Development in India, 1970s-1990s – Some Reflections on the Constitutive Role of Contexts", in *Economic and Political Weekly*, Vol. XXXI, No. 47, November 23, 1996.

54. Mason Karen, O. and V.T. Palan (1981), "Female Employment and Fertility in Peninsula Malaysia", *Demography*, Vol. 18, November.

55. Mathew E.T. (1997), *Employment and Unemployment in Kerala, Some Neglected Aspects*, Sage Publications, New Delhi.

56. Mc Cracken, V. and J. Brandt (1987), "Household Consumption of Food Away from Home: Total Expenditure and by Type of Food Facility", *American Journal of Agricultural economics*, November.

57. Mehra Rekha and Saradamani (1983), *Women and Rural Transformation*, Concept Publishing Company, New Delhi.

58. Mencher, Joan (1988), "Women Work and Poverty: Women's contribution to Household Maintenance in two Regions of South India", in Judith Bruce and Daisy Dwyer (ed), *A Home Divided: Women and Income in the Third World*, Stanford University Press, Palo Alto, C.A.

59. Mies Maria (1986), *Indian Women in Subsistence and Agricultural Labour*, Vistas Publications, New Delhi.

60. Miller Baila, M. (1980), *Equal Access to Equal Work: A Study of Inter Firm Variation in the Occupational Inequality of Women*, Ph.D. Dissertation, University of Illinois.

61. Mincer Jacob (1962), "Labor Force Participation of Married Women", in H.G. Lewis (ed), *Aspects of Labour Economics*, Princeton University Press, Princeton.

62. Ministry of Labour, Government of India, (1988), *National Perspective Plan for Women: 1980-2000 A.D.*, New Delhi.

63. Ministry of Labour, Government of India, (1988), *Report of the National Commission for Self- Employed Women and Women in the Informal Sector*, New Delhi.

64. Moorthy Krishna, J. (1982), "Ground Level Technology", *Seminar Paper, ISST*, New Delhi.

65. Mukherjee, C. and Thomas Issac, T.M. (1994), *A Review of the Self-Employment Programmes for Educated Unemployed*, Centre for Development Studies, Thiruvananthapuram.

66. Mukhopadhyay Ghosh (1982), "Sources of Variation in Female Participation Rate: A Decomposition Analysis", *Seminar Paper, ISST*, New Delhi, April.

67. Nair, K.N. and Narayana, D. (1983), "Linking Irrigation with Development- The Kerala Experience", *Economic and Political Weekly.*

68. Nancy Folbre (1995), *Annual World Bank Conference on Development Economics, 1995 - Engendering Economics: New Perspectives on Women, Work, and Demographic Change.*

69. Narayana, D. (1990), "Agricultural Economy of Kerala in the post-seventies: Stagnation or Cycles?" • *Working paper No. 235*, Centre for Development Studies, Thiruvananthapuram.

70. Narayana, D. and Nair, K.N. (1989), 'Trends in Area, Production and Productivity of Coconuts in Kerala' in *Indian Journal of Agricultural Economics*, Vol.44, No.2

71. National Institute of Urban Affairs (1987), "Gender Bias in Employment of Women in the Urban Informal Sector", *Research Study Series*, No. 20, New Delhi.

72. Neera Desai and Maithreyi Krishnaraj (1990), *Women and Society in India*, Ajanta Publications (India), Delhi

73. Ninan, K.N. (1984), "Labour Use in Agriculture: Case Studies of Tapioca and Paddy" in *Economic and Political Weekly*, Vol. 19, No. 51 & 52, December 22-29.

74. Oommen M.A. (1992), "The Acute Unemployment Problem in Kerala – Some Explanatory Hypothesis", *IASSI Quarterly*, Vol. 10, No.3.

75. Palmer, I. (1991), *Gender and Population in the Adjustment of African Economies*, ILO, Geneva.

76. Panikar, P.G.K. (1980), "High Yielding Varieties of Rice - A study of Selected Areas in Kerala", *Working Paper No.140*, Centre for Development Studies, Thiruvananthapuram.

77. Parthasarathy, C. and Rao (1981), *Women in the Indian Labour Force*, ARTEP, ILO, Geneva.

78. Paul Jacob (1982), "The Low Female Participation Rates and Related Issues, Observation based on N.S.S.", *Seminar Paper ISST*, New Delhi.

79. Pillai, Renuka (1999), op. cit.

80. Prais, S.J. and Houthakkar, H.S. (1955), *The Analysis of Family Budgets*, Cambridge University Press, Cambridge.

81. Prakash B.A. (1988), "Educated Unemployed in Kerala", *Working Paper No. 224*, Centre for Development Studies, Thiruvananthapuram.

82. Prakash Jain (1975), "Women in Industry", *Indian Labour Journal*, Vol. 16., No.8.

83. Raj, K.N. and Tharakan, Michael (1983), 'Agrarian Reform in Kerala and Its Impact on the Rural Economy - A Preliminary Assessment' in Ajit Kumar Ghose edited,

Agrarian Reform in Contemporary Developing Countries, Croom Helm, St Martins Press, New York, pp 31-90.

84. Reddy Narasimha (1977), "Female Work Participation in India – Acts, Policies", *Indian Journal of Industrial Relations*, Vol. 15, No.2, October.

85. Richard W. Franke and Barbara H. Chasin (1996), "Female Supported Households- A Continuing Agenda for Kerala Model", *Economic and Political Weekly*, Vol. XXXI, No.10.

86. Rogers Barbara (1980), *The Domestication of Women*, Kegan Paul Limited, London.

87. Roos Patricia (1985), op. cit.

88. Roy, J. and Laha, R.G. (1954), "Preliminary Estimates of Relative Increase in Consumers Deman" in Ganguly A. et. al., (ed), *Studies in Consumer Behaviour*, Asia Publishing House, London.

89. Sen, A. (1990), "Gender and Co-operative Conflicts", in Tinker (ed), *Persistent Inequalities: Women and World Development*, Oxford University Press, Oxford.

90. Sen, Gita (1983), "Womens Work and Agricultural Labourers: A Study of the Indian Census", *Working Paper No. 159*, Centre for Development Studies, Thiruvananthapuram.

91. Sinha, J.N., *Census of India 1961*, Vol. 1, Monograph No. 11, Government of India.

92. Smoke Audrey (1981), *Women's Education in Developing Countries; Opportunities and Outcomes*, Praeger Publishers, New York.

93. Subramanian Shanker and Angus Deaton (1991), Gender Effects in Indian Consumption Pattern", *Sarvekshana*, April-June.

94. Thomas Joseph (1988), *Some Economic Aspects of Higher Education in Kerala – Special Reference to Education, Employment and Income Linkages*, Ph.D. Thesis, University of Kerala.

95. Thomas, D. and Chen, C.L. (1993), *Income Shares and Shares of Income: Empirical Tests of Models of Household Resource Allocation*, Rand Corporation, U.S.A.

96. Thorner Alice (1962), "The Sexual Trend in the Indian Economy 1881-1951", *Economic and Political Weekly*, Vol. 14.

97. Tinker Irene, Michele Bo Bramson and Mayra Buvenic (1976), (ed), *Women and World Development*, Praeger Publishers, New York.

98. Unni, Jeemol (1981), *An Analysis of Change in the Cropping Pattern in Kerala with Particular Reference to the Substitution of Coconut for Rice - 1960/61 to 1978/79*, M.Phil Dissertation, Centre for Development Studies, Thiruvananthapuram.

99. Visaria Praveen (1996), "Women in the Indian Working Force: Trends and Differentials", *Working Paper*, Gujarat Institute of Development Studies, Ahemdabad.

100. Waite Linda, J. (1981), "U.S. women at work", *Population Bulletin*, Vol. 36, May.

101. Westwood, S. (1991), "Gender and the Politics of Production in India", in H. Afsher (ed), *Women Development and Survival in the Third World*, Longman, London.

102. Whitehead, A. (1990), "Rural Women and Food Production in Sub Saharan Africa, in Dreze and Sen (ed), *The Political Economy of Hunger, Vol. I, Entitlement and Well-being*, Clarendon Press, Oxford.

103. Working Hollbrook (1943), "Statistical Laws of Family Expenditure", *Journal of American Statistical Association*, Vol. 38.

104. Young, K. (1993), *Planning Development with Women: Making a World Difference*, Macmillan, London.

105. Youssef Nadia (1974), *Women and Work in Developing Societies*, Population Monograph Series 15, University of California, Berkley.

Chapter III

Female Labour Force Participation
An Overall View

3.1 Introduction

Data on female labour force participation in selected countries as given in Table 1.1 of the first chapter shows that in majority of world countries the rate of female work participation increased over the years from 1971. However, wide differences can be observed across the countries. While the European and South African countries showed admirable rates of female participation, the Asian countries showed comparatively low rates.

However, mere looking into the rates of participation till 1991 is not sufficient to discern the employment and participation scenario in the context of Globalisation. Even the advanced economies such as USA, Canada, Japan, and Germany are facing increased unemployment. The unemployment situations in the less developed countries have to be viewed in the context of more than 60 per cent of the labour force of these countries are still crowded in agriculture sector (World Development Report, World Bank, 1998). The changing employment situations have rather seriously affected female labour as the local companies and multinationals are reluctant to employ female labour even in sectors where female labourers were accepted till last decade of the 20th century (Ministry of Labour, Japan: White Paper on Women Labour, 1999).

Employment and opportunities to earn income working outside home has every positive impact on the lives of women. As women's access to and participation in social institutions increase, they attain economic independence through their earned income although the burden of financial exploitation and increased hours of work remains dismal to this. Valuing the benefits accrued from the paid work outside home, females who are at present not in the labour force also are acquiring skill and knowledge through training and specialised education to include themselves also in the female labour force everywhere in the world. However, in India, the employment opportunities for female labour remains dismal even after more than a twelve year period of implementation of the opening up policy for global market, the time span being not too small to evaluate the impact of a policy implemented.

Studies show that the share of women workers in the labour force of various countries, both developed and developing increased since mid sixties (Standing, 1989, Erturk & Cagatay, 1995). Communist China is the country most committed to gender equality. Taking into account the important role of female employment as the most effective way of achieving gender equality, China always focused on increasing female employment. Female Labour Force Participation in China was 42 percent in 1970. Female labour force as a percentage of adult female population reached a height of 70 percent in 1982.

However, the increased participation of women had not benefited to improve the conditions of women. Even if employment opportunities increase women have access only

to the traditional insecure and low paid works. The pity is that women are not paid equal pay for work of equal value compared to men. Therefore the gender-earning gap continues to remain without any serious attempt to bring equal pay for equal work. Increase in female work participation (feminisation of work) has been accompanied by feminisation of poverty in most of the less developed countries. Economic development attained by world countries was gender biased in favour of male population. Female half of the world has been placed the second in the queue and the fruits are distributed to the male who is always the stronger sex. Thus 70 per cent of the world poor is females.

3.2 Participation in India

The female labour force participation in India still remains at dismal states. Wide difference prevails, in India, between participation rates of women and men (see Table 3.1). Gender inequality is accentuated because of the issues associated with women kept aloof from fruitful employment and income to make them economically empowered. Female work participation rate was high in rural areas compared to urban. The major employment sector in rural areas is agriculture. This means women find employment mainly in primary sector. Increase in work participation rates of male (0.8 per cent) and female (one per cent) workers is very low over the years from 1972-73 to 1993-94.

The various reports of NSS and Census on employment and unemployment state that marginal increase in female work participation rates is seen from 1970s onwards. However, in India, certain works are women-typed and some works have been identified

with women. In addition to such feminisation of work, female work has been made mostly casual work (see Table 3.2).

Table 3.1 Usual Status Work Participation Rates in India by Sex for Rural and Urban Areas

NSS Round	Rural		Urban	
	Males	Females	Males	Females
27th (1972-73)	54.5	31.8	50.1	13.4
32nd (1977-78)	55.2	33.1	50.8	15.6
38th (1983)	54.7	34.0	51.2	15.1
43rd (1987-88)	53.9	32.3	50.6	15.2
50th (1993-94)	55.3	32.8	52.0	15.4

Source: NSSO, Government of India: Sarvekshana, Special Number, Special Number, September 1990 and Report of the NSS, July 63 to June 94, 50th Round, Revised Report, 1996.

Table 3.2 Percentage of Workers by Employment Status, All India

Period	Male			Female		
	Self employed	Regular	Casual	Self employed	Regular	Casual
	Rural					
1977-78	62.8	10.6	26.6	62.1	2.8	35.1
1983	60.5	10.3	29.2	61.9	2.8	35.3
1987-88	58.6	10.0	31.4	60.8	3.7	35.5
1993-94	57.9	8.3	33.8	58.5	2.8	38.7
	Urban					
1977-78	40.4	46.4	13.2	49.5	24.9	25.6
1983	40.9	43.7	15.4	45.8	25.8	28.4
1987-88	41.7	43.7	14.6	47.1	27.5	25.4
1993-94	41.7	42.1	16.2	45.4	28.6	26.0

Source: NSSO (1995).

Data show that percentage of males and females doing casual work increased over the years both in rural and urban areas. The percentage of women casual workers is higher than the percentage of male casual workers in both urban and rural sectors. Self-employment of women is mainly as family helpers. Regular employment in rural sector is few for both men and women. In urban areas regular employment of women is slightly higher than casual employment in recent periods. The percentage of male regular workers in urban areas is more than the percentage of male self-employed or casual workers. Higher percentage of casual female workers in rural areas is mainly in agriculture. This data recorded in Table 3.2 is till 1993-94 and the information at All India level has to be considered as the macro setting in which we are analysing our sample data to see the new situations of female employment in rural agriculture sector.

Table 3.3 Percentage of Workers by Broad Sectors, All India

Period	Male			Female		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
	Rural					
1977-78	80.6	8.8	10.6	88.1	6.7	5.1
1983	77.5	10.3	12.2	87.5	7.4	4.8
1987-88	74.5	12.1	13.4	84.7	10.0	5.3
1993-94	74.1	11.2	14.7	86.2	8.3	5.6
	Urban					
1977-78	10.6	33.8	55.7	31.9	32.4	35.7
1983	10.3	34.2	55.4	31.8	30.6	37.6
1987-88	9.1	34.0	56.9	29.4	31.7	38.9
1993-94	9.0	33.0	57.9	24.7	29.1	46.3

Source: NSSO (1995, 1996).

Table 3.3 gives the broad sectors of employment in India. More than 85 per cent of the female workers and about 75 percent of male workers in rural areas is in primary sector. This means agriculture is the predominant source of employment and income in rural areas for male as well as female population. Women labourers in rural areas are crowded in agriculture more than male labourers in the same sector. Rural male workers find employment relatively high in tertiary sector compared to secondary sector, while percentage of rural female workers engaged in secondary sector is higher than that in tertiary sector.

In urban area tertiary sector is the major employment provider for both male and female workers. Urban primary sector accommodates less than 10 percent of male workers, while around 25 percent of urban female workers are in this sector in 1993-94. Only 33 per cent of urban male workers are in secondary sector. This means that the industrial sector in India still is in a dismal state to accommodate its human resources absolutely to generate fullemployment level of national income. In 1993-94, the urban female workers engaged in industrial sector, was only 29.1 per cent. Female employment percentage in primary and secondary sectors of urban areas declined over the years. This resulted in the increased engagement of women in the service sector of the urban centres (see Table 3.3). The tertiary sector showed a sharp increase in employment of urban women from 38.9 per cent in 1987-88 to 46.3 per cent in 1993-94. In the mean time (in 1991 and 1992) rural poverty in India increased sharply (Tendulkar and Jain, 1995). This has to be read together with the data showing the increased engagement of rural male and female labourers in casual work, the impact of which is affecting the second sex severely. In addition to the casualisation of

women's work, the pay for women compared to men is very low. This also accentuates the process of female's share of income comparatively low. The worse unemployment position of women defeats all the effects of any increase in work participation rate even if experienced by women.

3.3 Industrial Category-wise Analysis of Participation in Kerala

Male and female work participation rates in Kerala since 1961 are analysed in this section using census data. The industrial category-wise data analysis was aimed at identifying the sectors where female workers got employment and the changes over time. In 1961 the total work force in all industries was 5630333 (see Table 3.4). The gender imbalance in employment is clear through sex-disaggregated data of total workers, which shows that 70.10 per cent are males and only 29.90 per cent, females. Around 21 per cent of the total workers were cultivators and another 17.38 per cent, agriculture labourers. The household and manufacturing industries together accommodated only 18 per cent of the total workforce. Thus agriculture is the largest employment sector of Kerala. The sex disaggregated data showed significant variations in industry-wise employment of men and women. While 22.92 percent of the male workers were classified as cultivators, only 16.25 per cent of female workers were cultivators. Among the total cultivators, 76.78 per cent were males and only 23.22 per cent, females in 1961. On the contrary, while only 13.10 per cent of male workers were agriculture labourers, 27.42 per cent of the female workers belonged to this category. This higher percentage of total female workers as agriculture labourers in 1961 has introduced a near equality of percentage of employment, between

male and female, in total agriculture labour employment (as 52.83 per cent of total agriculture labourers were males, 47.17 per cent were females).

Table 3.4 Industrial Category-wise and Sex-wise Distribution of Main Workers, Kerala, 1961.

Industry	Total	%	Male	%	Female	%	% of male & female to class total Male	Female
1. Cultivators	1178103	20.92	904502	22.92	273601	16.25	76.78	23.22
2. Agriculture labourers	978396	17.38	516914	13.10	461482	27.42	52.83	47.17
3. Mining, Quarrying, Livestock, forestry, fishing, Plantations, orchards & allied activities	487359	8.66	398622	10.10	88737	5.27	81.79	18.21
4. Household industries	488562	8.68	188654	4.78	299908	17.82	38.61	61.39
5. Manufacturing other than HH industry	529472	9.40	392950	9.96	136522	8.11	74.22	25.78
6. Constructions	70702	1.26	67664	1.71	3038	0.18	95.70	4.30
7. Trade & Commerce	321933	5.72	298218	7.56	23715	1.41	92.63	7.37
8. Transport, storage & Communications	152513	2.71	144913	3.67	7600	0.45	95.02	4.98
9. Other services	1423293	25.28	1034601	26.21	388692	23.09	72.69	27.31
Total	5630333	100.00	3947038	100.00	1683295	100.00	70.10	29.90

Source: Census report, 1961

Another important sector where women got employed was household industries. It was 17.82 per cent of total female workers who were engaged in the household industries. Only 4.78 per cent of total male workers were employed in the same industrial category.

Household industry is the only industrial category, which is dominated by female workers. The Services sector excluding transport, storage and communications accounted for 25.28 per cent of the total employment. Although 23.09 per cent of the total female workers find employment in this services sector, they constitute only 27.31 percent of total employment in this sector, the rest was engaged by male. The 1961 data thus reveals that women labourers are mainly absorbed in agriculture wage works and household industries, both bonds women to stick to home and/or homestead agriculture and restricting opportunities to transform existing gender relations in employment and production sectors.

Data relating to the industrial category-wise distribution of workers in 1971, which was also analysed using census data, showed that the proportion of male workers to total workers increased to 76.64 per cent compared to 70.10 per cent in 1961.Total employment of women declined in absolute figure and in proportion to total workers. The percentage of cultivators declined to 17.80 percent of total workers in 1971, compared to that of 20.92 per cent of the previous census year (see Table 3.5). It is interesting to note that male cultivators increased in absolute figures although total number of cultivators declined. Because of the increase in total employment of male the percentage of male cultivators in 1971 was slightly low compared to that of 1961. On the contrary the women cultivators declined absolutely as well as in percentage of total female workers. The percentage of women cultivators to total female workers declined from 16.25 per cent in 1961 to 4.64 per cent in 1971. This drastic decline in percentage of women cultivators has to be seen in the light of the fact that total number of employment of women also had declined in 1971 (1451877) compared to that of 1961 (1683295). The proportion of male cultivators to total

cultivators increased to 93.92 per cent, marginalizing the female cultivators as 6.08 per cent of total cultivators.

Instead of the decline in percentage of cultivators, the percentage of agriculture labourers to total workers in Kerala increased over the decade, from 17.38 per cent in 1961 to 30.69 per cent in 1971. Almost two-fold increase in male agriculture labourers in absolute terms and in percentage occurred during the decade 1961 to 1971. While male labourers in agriculture as a proportion to total male labourers increased from 13.10 per cent in 1961 to 25.10 per cent in 1971, the female agriculture labourers changed from 27.42 per cent in 1961 to 49.06 per cent of total female workers in 1971. The increase in male and female agriculture labourers was an instance of increasing casualisation of work, and in this itself incidence is more on women. In 1971 the primacy of women in household industries also was lost, although proportion of women in this sector and in agriculture wage work remained nearer to those of men. All other industrial categories showed male dominance in comparatively higher proportions.

Another interesting change in the distribution of main workers of the state in 1971 was, the proportion of female labourers engaged in manufacturing other than household industries increased in percentage and reversed the position in household industries from that of 1961. The percentage of female workers engaged in service sectors also declined from 23.09 per cent in 1961 to 17.01 per cent in 1971. Thus gender inequalities were extended after a decade's economic development such that women labourers of Kerala been marginalized in development sectors and made confined to agriculture sector, which

was dominated by casual wage work. In agriculture wage work also women have to compete with her counter part and find it difficult to get employment.

Table 3.5 Industrial Category-wise and Sex-wise Distribution of Main Workers, Kerala, 1971.

Industry	Total	%	Male	%	Female	%	% of male & female to class total Male	Female
1. Cultivators	1106663	17.80	1039331	21.81	67332	4.64	93.92	6.08
2. Agriculture labourers	1908114	30.69	1195755	25.10	712359	49.06	62.67	37.33
3. Mining, Quarrying, Livestock, forestry, fishing hunting, Plantations, orchards & allied activities	464715	7.48	384021	8.06	80694	5.56	82.64	17.36
4. Household industries	265892	4.28	147625	3.10	118267	8.15	55.52	44.48
5. Manufacturing other than HH industry	711962	11.45	533353	11.19	178609	12.30	74.91	25.09
6. Constructions	107449	1.73	103098	2.16	4351	0.30	95.95	4.05
7. Trade & Commerce	565648	9.10	536887	11.27	28761	1.98	94.92	5.08
8. Transport, storage & Communications	242089	3.89	227576	4.78	14513	1.00	94.01	5.99
9. Other services	843927	13.58	596936	12.53	246991	17.01	70.73	29.27
Total	6216459	100.00	4764582	100.00	1451877	100.00	76.64	23.36

Source: Census report, 1971.

Data relating to distribution of main workers of Kerala in 1981 showed a slight improvement in the proportion of women workers to total workers (24.30 per cent) compared to that of the previous census year (23.36 per cent) (see Table 3.6). The

proportion of agriculture labourers to total workers declined from 30.69 per cent in 1971 to 28.23 per cent in 1981 and both sexes experienced the decline in the variable. Although the percentage of female agriculture labourers to total women workers slightly declined over a decade from 49.06 per cent in 1971 to 43.55 per cent in 1981, the proportion of females to total agriculture labourers increased but insignificantly. Although percentage of female workers in household industries to total female workers declined from 8.15 per cent in 1971 to 7.64 per cent in 1981, the proportion of female workers to total workers in household industries increased and more than equated with that of the males. The proportion of female workers in services sector increased and brought a considerable improvement in the proportion of females to total workers in services other than transport, storage and communications in 1981.

In 1981 the proportion of female workers in manufacturing industries other than household industries marked only a slight change - still positive, but the proportion of females to total workers in manufacturing industries declined in insignificant magnitude (see Table 3.6). The predominant industrial category where women find work remained agriculture wage work (43.55 per cent of women workers were engaged), although services other than transport, storage and communication (engaged 18.98 per cent of female workers) and industries totally (engaged 20.11 per cent of female workers) also accommodated female labourers, in 1981.

Table 3.6 Industrial Category-wise and Sex-wise Distribution of Main Workers, Kerala, 1981.

Industry	Male	%	Female	%	Total	%	% of male & female to class total Male	Female
1. Cultivators	805552	15.67	81680	4.95	887232	13.06	90.79	9.21
2. Agriculture labourers	1198775	23.32	718587	43.55	1917362	28.23	62.52	37.48
3. Livestock, forestry, fishing, hunting and plantations, orchards& allied activities	542349	10.55	106566	6.46	648916	9.56	83.58	16.42
4. Mining & Quarrying	49979	0.97	4484	0.27	54463	0.80	91.77	8.23
5. Manufacturing, processing, servicing and repairing								
a) Household industries	124365	2.42	126141	7.64	250506	3.69	49.65	50.35
b) Other than Household industries	622224	12.10	205764	12.47	827988	12.19	75.15	24.85
6. Constructions	188572	3.67	13992	0.85	202564	2.98	93.09	6.91
7. Trade & Commerce	696568	13.55	53218	3.23	749786	11.04	92.90	7.10
8. Transport, storage & Communications	316295	6.15	26406	1.60	342701	5.05	92.29	7.71
9. Other services	596470	11.60	313188	18.98	909658	13.39	65.57	34.43
Total	5141149	100.00	1650026	100.00	6791175	100.00	75.70	24.30

Source: Census of India 1981, Part III-A & B (1), General Eco. Tables

The proportion of female main workers to total workers again performed dismally in 1991, declining to 22.85 per cent, from 24.30 per cent in 1981 (see Tables 3.6 & 3.7). After three decades of economic development since 1961, in our present analysis, the position of women in employment was getting worsened. This means women were marginalized in income generating economic activities even after decades of economic

development and thus Kerala's economic development also has been gender biased in favour of male in spite of all the proclaimed indices regarding the state's performance in high female literacy, low infant and mothers mortality rates, high sex ratio, and other social development indices matching with the most advanced countries of the world. Gender inequalities were widening in spite of four decades of planned economic activities in the state of Kerala. The state has not had a different experience from that of other states in the country or the country as a whole and to that of the rest of the world.

In 1991 also agriculture wage work was the single largest category where female workers got engaged. However the percentage of women workers in agriculture work to total women workers declined to 36.09 per cent in 1991, compared to 43.55 per cent in 1981. Women labour in agriculture declined absolutely also over the decade 1981 to 1991. And an increase in the number of women as cultivators and their percentage to total female workers was found in 1991 compared to that of 1981 (see Tables 3.6 & 3.7). The percentage of women workers, in manufacturing industries other than household industries as well as in services other than transport, storage & communication, to total female workers, increased over the decade 1981-1991.

Insignificant improvements are observed over the decade 1981-1991, in the proportion of females to total workers in the industrial categories of mining and quarrying, household industries, manufacturing other than household industries, and in services other than transport, storage and communications, while the proportion of female agriculture labourers declined.

Table 3.7 Industrial Category-wise and Sex-wise Distribution of Main Workers, Kerala, 1991.

Industry	Male	%	Female	%	Total	%	% of male & female to class total Male	Female
1. Cultivators	910548	14.22	105435	5.56	1015983	12.24	89.62	10.38
2. Agriculture labourers	1436022	22.42	684430	36.09	2120452	25.54	67.72	32.28
3. Livestock, forestry, fishing, hunting and Plantations, orchards& allied activities	648811	10.13	118441	6.24	767252	9.24	84.56	15.44
4. Mining & Quarrying	68675	1.07	13593	0.72	82268	0.99	83.48	16.52
5. Manufacturing, processing, servicing and repairing								
a) Household industries	101368	1.58	112486	5.93	213854	2.58	47.40	52.60
b) Other than Household industries	682127	10.65	280302	14.78	962429	11.59	70.88	29.12
6. Constructions	314523	4.91	17817	0.94	332340	4.00	94.64	5.36
7. Trade & Commerce	962407	15.03	87086	4.59	1049493	12.64	91.70	8.30
8. Transport, storage & Communications	468883	7.32	28455	1.50	497338	5.99	94.28	5.72
9. Other services	811094	12.66	448584	23.65	1259678	15.17	64.39	35.61
Total	6404458	100.00	1896629	100.00	8301087	100.00	77.15	22.85

Source: Census of India 1991

3.4 Gender and Work: Data Analysed for the Study Area

A gender and development approach to analyse the development impacts on distribution of main workers of the study area has been adopted in the present study, using secondary data from Census of India reports. This analysis with respect to the data relating to the researcher's micro study area of Kottayam district is thought of giving a baseline for the sample study. The sex-disaggregated data on distribution of main workers in 1991 is analysed to see the female participation.

The proportion of female main workers to total workers was very low in Kottayam district (17.50 per cent) in 1991. That is, 82.50 per cent of total workers were male in the district in 1991 (see Table 3.8). Women had few opportunities and were marginalized in employment and production sectors. Overall view of the employment scenario of the district showed that 15.70 per cent of the main workers were cultivators in 1991. However, 96.80 per cent of them were male cultivators and only 3.20 per cent of them were female cultivators.

The category of agriculture labourers were found 23.35 per cent of the main workers, which was a little lower in magnitude compared to that of state information on the same (25.54 per cent). Percentage of male workers as agriculture labourers to total male labourers (21.45 per cent) and the percentage of female workers as agriculture labourers to total female workers (32.33 per cent) were slightly lower than the state information on these variables (22.42 per cent and 36.09 per cent respectively) (see Tables 3.7 & 3.8).

Table 3.8 Industrial Category-wise and Sex-wise Distribution of Main Workers, Kottayam District, Kerala, 1991.

Industry	Male	%	Female	%	Total	%	% of male & female to class total Male	Female
1. Cultivators	81627	18.42	2700	2.87	84327	15.70	96.80	3.20
2. Agriculture labourers	95031	21.45	30393	32.33	125424	23.35	75.77	24.23
Livestock, forestry, fishing, hunting and Plantations, orchards& allied activities	52765	11.91	4136	4.40	56901	10.59	92.73	7.27
4. Mining & Quarrying	2727	0.62	225	0.24	2952	0.55	92.38	7.62
5. Manufacturing, processing, servicing and repairing								
a) Household industries	6692	1.51	5387	5.73	12079	2.25	55.40	44.60
b) Other than Household industries	38583	8.71	5690	6.05	44273	8.24	87.15	12.85
6. Constructions	18345	4.14	565	0.60	18910	3.52	97.01	2.99
7. Trade & Commerce	64773	14.62	6388	6.80	71161	13.25	91.02	8.98
8. Transport, storage & Communications	28339	6.40	1235	1.31	29574	5.51	95.82	4.18
9. Other services	54210	12.23	37276	39.66	91486	17.03	59.25	40.75
Total	443092	100.00	93995	100.00	537087	100.00	82.50	17.50

Source: Census of India 1991

Services other than transport, storage and communications, was the single largest category where women got engaged (39.66 per cent of total female workers) in Kottayam district. Still it is interesting that this services sector also was under the sway of male

workers, as they constituted 59.25 per cent of the total workers in services. Male domination in agriculture wage work was observed, as 75.77 per cent of total agriculture labourers, was males. Even household industries, which were traditionally dominated by women labourers, was found in the hands of males as they were occupying 55.40 per cent of total work in household industries.

Data relating to the distribution of main workers in the sample survey area for the basis of the micro level analysis part of present study, the Madappally block, Kottayam district was also analysed. The data used was census data for 1991. The proportion of female workers to total main workers in the Madappally block (17.47 per cent) was almost equal to the district level proportion (17.50 per cent). While 15.70 per cent of total main workers were cultivators at district level, only 13.66 per cent were cultivators at block level (see Table 3.9). The proportion of agriculture labourers to total main workers was higher in block (33.48 per cent) compared to the district level share (23.35 per cent). It is interesting to note that proportion of female workers as agriculture labourers, to total female workers of the block (46.16 per cent), was very higher than the district level proportion (32.33 per cent). Still the proportion of women in total agriculture labour was only 24.09 per cent. Agriculture wage work was the largest sector accommodating female labourers and the second important was services, which engaged 37.72 per cent of female workers. The district level and block level data also underlines the typing of women's work as certain services and as casual wage work.

ble 3.9 Industrial Category-wise and Sex-wise Distribution of Main workers, Madappally block Kottayam, Kerala, 1991.

ndustry	Male	%	Female	%	Total	%	% of male & female to class total Male	Female
. Cultivators	6939	15.95	258	2.80	7197	13.66	96.42	3.58
2. Agriculture labourers	13393	30.79	4250	46.16	17643	33.48	75.91	24.09
3. Livestock, forestry, fishing, hunting and Plantations, orchards& allied activities	1711	3.93	113	1.23	1824	3.46	93.80	6.20
4. Mining & Quarrying	119	0.27	7	0.08	126	0.24	94.44	5.56
5. Manufacturing, processing, servicing and repairing								
a) Household industries	858	1.97	134	1.46	992	1.88	86.49	13.51
b) Other than Household industry	3877	8.91	384	4.17	4261	8.08	90.99	9.01
6. Constructions	2073	4.77	47	0.51	2120	4.02	97.78	2.22
7. Trade & Commerce	6392	14.70	431	4.68	6823	12.95	93.68	6.32
8. Transport, storage & Communications	3455	7.94	111	1.21	3566	6.77	96.89	3.11
9. Other services	4680	10.76	3473	37.72	8153	15.47	57.40	42.60
Total	43497	100.00	9208	100.00	52705	100.00	82.53	17.47

Source: Census of India 1991

The secondary data on distribution of workers at the study panchayat level also was analysed. The census reports for 1991, was the source of data. The data regarding Karukachal grama panchayat of Madappally block (Changanacherry taluk), Kottayam showed higher gender inequality in employment. Share of women in total main work was

only 12.99 per cent in 1991 in the panchayat, which is very lower than the block and district level shares (see Tables 3.8, 3.9 and 3.10). The total panchayat information was 20.13 per cent of main workers were cultivators, of which 95.03 per were male. Total agriculture labourers was 24.36 per cent of total workers and this also was distributed highly gender imbalanced that 91.78 per cent of them were males. This means in the traditional sector for women, agriculture wage work, women were marginalized and male domination almost evicted females from this category of work. Still 15.41 per cent of total female workers were seen as agriculture labourers. Services sector engaged the majority of women workers (53.34 per cent of total female workers), coming near to equate the opportunities to both sexes in services. Manufacturing other than household industry and trade and commerce also was important categories where female workers got employment.

25.70 per cent of the total male workers were agriculture labourers. This was the largest category where male labourers crowded. This means the increasing casualisation of male work also. Female labourers were finding strict competition from male workers, because of increasing male unemployment together with female unemployment.

3.10 Industrial Category-wise and Sex-wise Distribution of Main workers, Karukachal Grama panchayat, Changanacherry, Kerala, 1991

Industry	Male	%	Female	%	Total	%	% of male & female to class total Male	Female
1. Cultivators	1013	21.99	53	7.70	1066	20.13	95.03	4.97
2. Agriculture labourers	1184	25.70	106	15.41	1290	24.36	91.78	8.22
3. Livestock, forestry, fishing, hunting and Plantations, orchards& allied activities	464	10.07	32	4.65	496	9.37	93.55	6.45
4. Mining & Quarrying	30	0.65	6	0.87	36	0.68	83.33	16.67
5. Manufacturing, processing, servicing and repairing								
a) Household industries	54	1.17	9	1.31	63	1.19	85.71	14.29
b) Other than Household industries	320	6.95	42	6.10	362	6.84	88.40	11.60
6. Constructions	166	3.60	12	1.74	178	3.36	93.26	6.74
7. Trade & Commerce	532	11.55	42	6.10	574	10.84	92.68	7.32
8. Transport, storage & Communications	332	7.21	19	2.76	351	6.63	94.59	5.41
9. Other services	512	11.11	367	53.34	879	16.60	58.25	41.75
Total	4607	100.00	688	100.00	5295	100.00	87.01	12.99

Source: Census of India 1991

3.5 Conclusions

The data analysed in this chapter of the present study reveals that casualisation of work is increasing in the case of workers of both sexes. Female labourers are being

marginalised from their traditional sectors of agriculture wage labour, household industries, etc. and were finding no opportunities in other industrial categories also as the additional opportunities generated in all the categories were few. The percentage of women workers, in manufacturing industries other than household industries as well as in services other than transport, storage & communication, to total female workers increased over the decade 1981-1991, but accommodating a low addition to female workers occurred in absolute terms. This growth in female employment in manufacturing and/or services sectors was not enough to accommodate the released agriculture labourers from that category, observed as a decline in employment both in absolute terms and proportionately. This poses several issues that are gender specific and generated by development of decades. In the context of feminisation of work lead to feminisation of poverty, it is very much important to study the consequences of female labourers being evicted from their traditional sectors of employment. This view has to be centred again round the view that female labour incomes are spent mostly on household expenses rather than male income. The implication of changing work distributions of female labourers will be on family consumption pattern. The sample study of the present work concentrates on this aspect.

Reference

1. Erturk, K. and Cagatay, N. (1995): "Macro Economic Consequences, of Cyclical and Secular Changes in Feminisation", *World Development*, Vol.23, No.11.

2. Standing Guy (1989): "Global Feminisation through Flexible Labour", *World Development*, Vol. 17, No.7.

3. Tendulkar Suresh D. and L.R. Jain (1995): "Economic Reforms and Poverty", *Economic and Political Weekly*, Vol.30, No.23.

Chapter IV

Shift in cropping pattern of Kerala

Introduction

In the third chapter we discussed female labour force participation in Kerala. This chapter gives a brief account of shift in cropping pattern in Kerala, and analyses in detail agricultural growth performance of the state and the study area, and describes how shift in cropping pattern affected female labour force participation.

Agriculture is the sector where most of the labour force is crowded. Once agriculture got marginalized with too small-holdings to accommodate many labourers as well as due to convenient shift in cropping pattern, labourers crowded in agriculture also is being eliminated from the sector. The structural changes in the production pattern GDP of India shows that share of agriculture in GDP declined from 45 per cent in 1970 to 31 per cent in 1991 (Table 4.1). It is desirable that the share of agriculture in GDP is declining. However, it is dismal to see that the shares of industry and manufacturing is not at high levels to accommodate the existing unemployed as well as those released from agriculture. Share of industry in GDP showed an increase over years from 1970 to 1991; still it remains at low level of 27 per cent. Expansion of service sector without a proper initiation of the industrial development raises issues of sustainability of such service sector development.

Decadal growth rates relating to the sectors of production of Indian economy shows that agriculture registered an increase in growth rate from 1.8 per cent during 1970-80 to 3.2 per cent during the decade 1980-91 (Table 4.2).

Table 4.1 Structure of Production, India

Sectors	Year to which data relates	Distribution of GDP to sectors (%)
GDP (millions of dollars)	1970	52,949
	1991	221,925
Agriculture	1970	45
	1991	31
Industry	1970	22
	1991	27
Manufacturing	1970	15
	1991	18
Services, etc.	1970	33
	1991	41

Source: World Bank: World Development Report 1993.

Table 4.2 Growth of Production, India

Sector	Year to which data relates	Average annual growth rate (%)
GDP	1970-80	3.4
	1980-91	5.4
Agriculture	1970-80	1.8
	1980-91	3.2
Industry	1970-80	4.5
	1980-91	6.3
Manufacturing	1970-80	4.6
	1980-91	6.7
Services, etc.	1970-80	4.6
	1980-91	6.7

Source: World Bank: World Development Report 1993.

Agricultural sector has been assigned a vitally important role in India's five-year plans. This sector that accounts for roughly one third of the GDP and two-thirds of the total labour force decisively affects macro-economic performance. Further, the issues relating to unemployment, income disparities, and the provision of better standards of living to the growing population of the country cannot be tackled without substantial and sustained increase in agricultural production.

Even though the overall performance of Indian agriculture since independence has been impressive with an average annual growth rate of 2.8 per cent, serious questions have emerged about the sustainability of this growth rate. The employment elasticity of agriculture growth has also been rapidly declining. This is because output growth is increasingly becoming dependant upon intensive use of fertilizers, pesticides, and farm machines rather than land augmenting innovations. No doubt, the Indian agriculture has reached extensive land use frontiers.

4.1 Agriculture growth in Kerala: Trends and Patterns

Agriculture of Kerala is characterised by intensive utilisation of the land and unique pattern of mixed cropping. Homestead system of cultivation is prevalent in all parts of the state. Homestead refers to the area surrounding the farmhouse. And coconut is the basic crop in almost all the homesteads and it is intermixed with seasonal, annual and perennial crops. Broadly there are four farming systems in practice in the state: 1) rice based farming system,

2) coconut based homestead farming system, and 3) tapioca based farming system and 4) plantation system.

Wide variations are seen in the pattern of agricultural growth in Kerala over time. The first four Five Year Plan periods witnessed significant increases in crop production (Sivanandan, P.K., 1985). The performance of Kerala agriculture suffered serious set backs from mid 1970s. One group of economists believed that agriculture in Kerala has been stagnating from the mid seventies, and the stagnation was found more in food crops than in plantation crops (Kannan and Pushpangadan, 1988). Another school of thought argued that the tendency of production and yield to remain without significant change during 1970s was due to production period cycles occurring due to cyclical changes in bearing periods of perennial and crops (Narayana, D., 1990). The present section of this chapter presents the result of an attempt to re-examine these viewpoints on the agricultural performance of Kerala.

4.1.1 Data for analysis

The Bureau of Economics and Statistics, Government of Kerala collects data on area, yield and output of crops cultivated in the state. We have used this data from 1962/63 to 1998/99 for the present analysis. The data relating to paddy, sugarcane, tapioca, banana, coconut, cashew, rubber, tea, coffee, pepper, cardamom, ginger, turmeric, seasmum and pulses are used for the study. These fifteen crops accounted for 90.09 per cent of the gross cropped area in the state in 1998/99.

The study period has been selected from 1962/63 as systematic collection of data on area and yield of principal crops was started only from that year under the ICAR scheme. Under this scheme the Land Utilisation Surveys were started on a yearly basis from 1960/61 and estimates of yield of crops through Crop-cutting Surveys from 1961/62. The estimates of area, production and yield of principal crops based on these surveys were available from 1962/63. The method of data collection was further improved by the timely reporting surveys for estimating crop statistics from 1975/76. The Directorate of Economics and Statistics has also adjusted the estimates for the pre- 1975/76 periods in order to make it comparable with the post 1975/76 periods.

In addition to the abovementioned matters, we have to keep in mind the following facts also. Tree crops and spices depend not only on the changes in area under crop but also on the area under re-plantation, which take time to yield from that land (Narayana, D., 1990). This poses some problems in estimating the yield per hectare.

The total agriculture production of the state is taken as the addition of money value of production of all the crops under study. The money value is estimated by using the constant average farm prices of agriculture products for the year 1991/92. Prices of plantation crops were taken from the publications of the respective Commodity Boards and for other crops, from the Economic Review. The food crops production is taken as the total value of production of paddy, tapioca and banana and other plantains. The non-food crops total combines value production of the remaining crops under analysis.

The growth rates of area, production and yield per hectare of the crops under study have been used to explain the performance of Kerala agriculture. The sources of growth in production are isolated by decomposing growth rate into area effect, cropping pattern effect, yield effect and the mixed effect due to simultaneous change in both cropping pattern and yield. The methodology used has been described in 1.5.3.1 of the Chapter I of the present study. Co-efficient of variation has been used in this study as a measure of instability.[1]

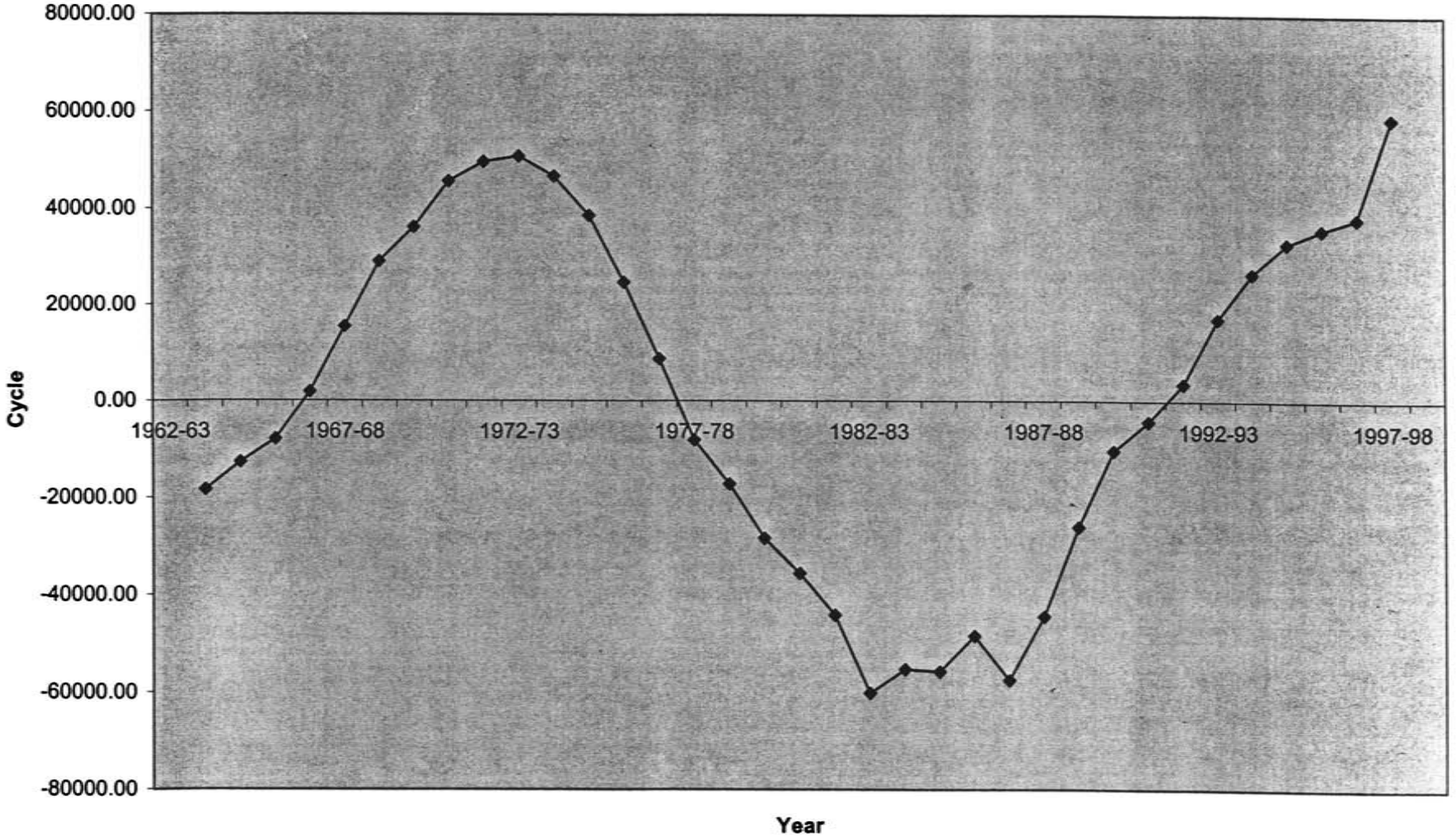
The sample study area level performance of agriculture has been examined by estimating growth rates of area, yield and output of the crops at district level for Kottayam district.

The graphical representation of the cyclicality in growth clearly indicates the existence of three distinct phases in agricultural production in the state, acceleration first, then deceleration, and further acceleration during the period under study. It is evident from Graph 1, the deceleration in agricultural production for the state started in 1972/73 and recovery in 1982/83. Therefore period I in the analysis is from 1962/63 to 1972/73, period II is from 1972/73 to 1982/83 and period III is from 1982/83 to 1998/99[2]. However, following a decadal period break system, the growth rates for the periods from 1982/83 to 1992/93 and from 1992/93 to 1998/99 has been taken although these periods are in continuation and come as the recovery started in 1982/83 (See Graph 1). The growth rates for the period of the last decade

[1] C.V. = (Standard Deviation of the detrended series/Arithmetic Mean of the time series)*100

[2] Growth rates were averaged, of 1963/64 to 1972/73 for period I, of 1973/74 to 1982/83 for period II and of 1983/84 to 1998/99 for period III.

Graph 1
Cycle in Agricultural Output in Kerala



of the twentieth century from 1990/91 to 1998/99 also have been computed separate to see any special pattern available to show the impact of opening up of Indian markets and globalisation of the economy on the agriculture performance of the state. [3]

4.1.2 Growth Rates of Area, Production and Yield in Agriculture at State Level

The total agricultural output increased at an average annual rate of 2.38 per cent, during the period 1962/63 to 1998/99. Between 1962/63 and 1972/73 production increased at an average annual rate of 3.99 per cent and in the subsequent period, 1973/74 to 1982/83 it has shown a negative rate of –1.25 per cent per annum. During the third period of 1983/84 to 1998/99, there has been a recovery in the growth of output, at an average annual rate of 3.64 per cent (see Table 4.1).

The growth of agricultural output for the third period again bifurcated for the decades from 1983/84 to 1992/93 and from 1993/94 to 1998/99 and the average annual rates of growth were computed as 3.45 per cent and 3.94 per cent respectively for the said periods. The growth of output from 1991/92 to 1998/99 taken showed an average annual rate of 4.05 per cent. This period is particularly important in the context of opening up of Indian markets for the global players. This period shows the highest rate of growth in agricultural production during the whole study period.

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[3] For the period from 1982/83 to 1992/93, growth rates were averaged for 1983/84 to 1992/93, for period 1992/93 to 1998/99 that of 1993/94 to 1998/99, and for period 1990/91 to 1998/99 that of 1991/92 to 1998/99.

Total cropped area in the state grew at an average annual rate of 0.49 per cent, during the entire period of study. Although gross cropped area registered an increase of 1.97 percent per annum during period I, it declined during period II, and the rate of decline was –0.42 per cent per annum. During period III, the average annual growth rate of gross cropped area was positive but was very low (0.12 per cent).

The bifurcated periods of period III showed a highly different pattern of growth of gross cropped area. The average annual growth rate of cropped area was 0.63 per cent during 1983/84 to 1992/93. However, the gross cropped area registered a decline at the rate of –0.72 per cent per annum during 1993/94 to 1998/99. The period 1991/92 to 1998/99 also registered a decline in the rate of gross cropped area (-0.43 per cent per annum). These results of analysis of gross cropped area have to be read in line with the growth pattern of production during the same periods. Although gross cropped area in the state registered decline during 1993/94 to 1998/99, agricultural production was increasing at 3.94 per cent per annum during the period. The period since opening up of Indian economy to global markets also shows the same pattern. With a decline in gross cropped area, agricultural output showed an all time high growth rate during the period 1991/92 to 1998/99.

The growth rate of yield, for the entire period of present analysis, was 1.88 per cent. Yield increased at an average annual rate of 1.99 per cent during period I, but in period II yield declined at the rate of -0.84 per cent per annum. However, period III experienced growth in yield at a high rate of 3.51 per cent per annum.

Table 4.3 Growth Rates of Area, Production and Yield, in Kerala Agriculture (Average Annual Percentage Change)

	Total Agriculture	Food Crops	Non-food Crops
1962/63 to 1998/99			
Area	0.49	-0.57	1.81
Production	2.38	1.00	2.91
Yield	1.88	1.56	1.07
1962/63 to 1972/73			
Area	1.97	1.45	2.87
Production	3.99	7.26	2.36
Yield	1.99	5.74	-0.49
1973/74 to 1982/83			
Area	-0.42	-0.74	0.12
Production	-1.25	-2.38	-0.52
Yield	-0.84	-1.64	-0.63
1983/84 to 1998/99			
Area	0.12	-1.73	2.20
Production	3.64	-0.80	5.40
Yield	3.51	0.95	3.11
1983/84 to 1992/93			
Area	0.63	-1.52	3.24
Production	3.45	-1.32	5.64
Yield	2.78	0.19	2.27
1993/94 to 1998/99			
Area	-0.72	-2.07	0.47
Production	3.94	0.07	5.01
Yield	4.72	2.22	4.53
1991/92 to 1998/99			
Area	-0.43	-1.78	0.78
Production	4.05	-0.10	5.24
Yield	4.52	1.73	4.44

Source: Computed using Data from: (1) 'Statistics for Planning' 1986, 1993, & 2001, Directorate of Economics and Statistics, Government of Kerala, and (2) 'Economic Review' (various issues), State Planning Board, Kerala, Thiruvananthapuram.

Period III bifurcated for the two decades show a clear picture of the yield growth. During 1983/84 to 1992/93 the yield increased at an average annual rate of 2.78 per cent, and a still further increase at the rate of 4.72 per cent per annum is found during 1993/94 to 1998/99. The period 1991/92 to 1998/99 showed an increase in yield at 4.52 per cent per annum. The analysis of data shows that although gross cropped area declined during the period of global markets, the state agriculture brought an increased output due to increased yield.

4.1.3 Sources of Growth in Production

Analysis pertaining to the sources of growth in agricultural output has shown that for the entire period of analysis the absolute change in output was worth Rs. 333801 Lakh. The effects of area, cropping pattern and yield constituted the total change in output. Comparatively yield effect was the highest component effect, cropping pattern second (see Table 4.4). However, the period-wise analysis of the effects of area, cropping pattern and yield on change in total output showed wide variations in the impact of these effects on change in output.

During period I the absolute change in agricultural output was worth Rs. 128536 Lakh. The area effect was the highest contributive factor, while yield got second importance. Cropping pattern effect and the combined effect of change in cropping pattern and yield contributed next in the series. Period II experienced an absolute decline in agricultural production in the state (Rs. 48064 Lakh). The decline was accounted for by all

the four factors, of which yield effect and area effect were the major causes of such decline. Period III on the other hand, showed an increase in absolute value of output of the magnitude Rs. 253329 Lakh. Yield effect was the single major component factor contributing to the increase in absolute value of output. The second in rank was cropping pattern effect and the next combined effects of changes in cropping pattern and yield.

Table 4.4 Decomposition of Absolute change in Total Agricultural Production

Period	Output change (Rs. Lakh)	Area Effect	Cropping pattern Effect	Yield effect	Effect of changes in cropping pattern and yield
1962/63 to 1998/99	333801	50251	92817	155089	35643
1962/63 to 1972/73	128536	57961	18655	46881	5039
1972/73 to 1982/83	-48064	-16648	-8250	-21958	-1208
1982/83 to 1998/99	253329	6687	55058	147830	43754
1982/83 to 1992/93	129670	22656	6974	93220	6821
1992/93 to 1998/99	123658	-20535	61138	72798	10257
1990/91 to 1998/99	162910	-15145	45910	115911	16234

Source: Same as in Table 4.3.

The period from 1982/83 to 1992/93 showed an absolute increase in the value of output (Rs. 129670 Lakh). In this change yield effect and area effect contributed more than cropping pattern effect. The period 1992/93 to 1998/99 showed an increase in output value mainly due to yield effect and cropping pattern effect, while the area effect on output change was depressive. We have already seen that growth rate of area was negative during the same period. The combined effects of changes in cropping pattern and yield also had considerable

positive impact on the output change during the period. All these help us to arrive at the conclusion that agricultural output growth in the 1990s was mainly due to increase in yield per hectare and changes in cropping pattern. The yield increase might be associated to the change in cropping pattern.

4.1.4 Instability in Production

To examine instability in agricultural production and yield co-efficient of variation of the detrended series was estimated for the entire period and the sub-periods. The co-efficient of variation in production for the entire period was 10.07 per cent (see table 4.5). The sub-period III gave relatively unstable production, as the co-efficient of variation was 10.67 per cent, which is high compared to that in period I (8.90 per cent), and period II (10.18 per cent).

Variation in yield also was low in period I comparatively, because the co-efficient of variation of yield in period I (2.80 per cent) was the lowest to those of period II (7.17 per cent), period III (11.28 per cent) and entire period (9.27 per cent).

Table 4.5 Co-efficient of Variation

	Total Agriculture	Food crops	Non-food crops
1962/63 to 1998/99			
Area	4.16	7.54	5.39
Production	10.07	15.18	13.26
Yield	9.27	9.08	9.36
1962/63 to 1972/73			
Area	6.59	8.70	4.97
Production	8.90	21.61	3.42
Yield	2.80	13.69	2.68
1972/73 to 1982/83			
Area	3.17	1.88	6.72
Production	10.18	9.19	10.48
Yield	7.17	8.39	4.15
1982/83 to 1998/99			
Area	1.92	4.16	4.61
Production	10.67	4.36	14.49
Yield	11.28	4.55	12.50
1982/83 to 1992/93			
Area	1.54	3.06	5.56
Production	7.97	4.48	12.08
Yield	6.77	1.86	7.89
1992/93 to 1998/99			
Area	2.51	3.08	2.80
Production	4.86	3.76	5.69
Yield	7.31	6.19	7.71
1990/91 to 1998/99			
Area	2.33	2.85	2.74
Production	5.81	3.38	6.86
Yield	8.05	5.73	8.89

Source: Same as in Table 4.3.

4.1.5 Performance of Food Crops and Non-food Crops

Production of food crops and non-food crops can be analysed separately so as to get a better insight into the process of agricultural growth.

4.1.5.1 Food crops

Production of food crops grew at an average annual rate of one per cent over the entire period (see Table 4.3). The area under food crops declined during the entire period at an average annual rate of -0.57 per cent. This decline in food crop area has taken place because of the shift in cropping pattern in favour of non-food crops (see Table 4.6). Although the area under food crops has declined, the yield increased at an average annual rate of 1.56 per cent, and was sufficient to keep production without significant change. In period I food crops production growth rate was 7.26 per cent per annum, which was contributed to a large extent due to the growth in yield (5.74 % per annum) and to a certain extent (1.45% per annum) by the growth in area. On the contrary, period II experienced a decline in the area under food crops at the rate of –0.74 per cent per annum. In addition to this, an average annual decline in yield at the rate of –1.64 per cent caused production decline at the rate of –2.38 per cent per annum. Despite the growth in yield at the annual rate of 0.95 per cent per annum, production of food crops in period III has declined at the rate of –0.80 per cent per annum due to decline in the area (at –1.73% per annum).

Wide fluctuation was experienced in food crops production in period I compared to periods II and III. The co-efficient of variation of food crops production in period I was 21.61 per cent, while it was 9.19 per cent in period II, 4.36 per cent in period III, and 15.18 per cent during 1962/63 to 1998/99. The period since globalisation of markets gives the least degree of variation in food crops production (co-efficient of variation 3.38 per cent for the period 1990/91 to 1998/99).

Yield of food crops showed comparatively low variation during period III with co-efficient of variation 4.55 per cent, compared to 13.69 per cent in period I, 8.39 per cent in period II, and 9.08 per cent for the entire period (see Table 4.5). Most stable yield was obtained for food crops during the first decade of the bifurcation of period III (co-efficient of variation in yield was1.86 per cent during 1982/83 to 1992/93).

4.1.5.2 Non-Food crops

Production, yield and area under cultivation of non-food crops registered positive growth rates in the entire period. Growth rates of production and yield were the highest in period III compared to those in periods I and II. The rates of growth in production, area and yield achieved by non-food crops has more than compensated the poor growth performance of food crops in period III. However, the highest growth rate of production of non-food crops registered during the decade 1983/84 to 1992/93 (5.64% per annum), and the highest yield growth rate during the sub-period 1993/94 to 1998/99 (4.53% per annum). The highest rate of growth in area under non-food crops (3.24% per annum) together with a considerable growth

in yield at the rate of 2.27 per cent per annum led to the highest growth in non-food crops production during 1983/84 to 1992/93. This has contributed to the recovery since 1982/83, while the highest yield together with a positive growth in area under non-food crops helped to maintain a steady growth in production at the rate of 5.01 per cent per annum during the period 1993/94 to 1998/99. Thus the bifurcated periods analysis of area, yield and output gives a clear picture of the period III (1983/84 to 1998/99) regarding the growth performance of non-food crops. The yield growth during the period 1993/94 to 1998/99 is highest due to the pre-yielding age of the perennial and tree crops for which area under cultivation increased in the just prior decade of 1983/84 to 1992/93.

Production of non-food crops was comparatively stable in period I (C.V.=3.42%). The sub-periods II and III showed greater variation in production, and the period III gave the highest variation (C.V.=14.49%). The entire period also showed highly unstable pattern in non-food crops production with co-efficient of variation 13.26 per cent (see Table 4.5).

4.2 Shift in cropping pattern of Kerala

Shift in cropping pattern may be because of different reasons. Agriculturists are responsive to profit because now-a-days agriculture is becoming more and more capital intensive and wage labour oriented. Own work of farmers in land is few. Therefore, they may shift their cultivation to more profit making crops. The profitability is affected by productivity, relative prices of agricultural products, wage rates in agriculture, etc. There have much debate on the relative significance of these factors.

Table 4. 6 Proportion of area under food and non-food crops to total cropped area, Kerala (per cent)

Year	Food crops	Non-food crops
1962-63	65.17	34.83
1963-64	65.18	34.82
1964-65	64.63	35.37
1965-66	64.10	35.90
1966-67	63.95	36.05
1967-68	63.93	36.07
1968-69	63.83	36.17
1969-70	63.24	36.76
1970-71	62.89	37.11
1971-72	62.43	37.57
1972-73	61.94	38.06
1973-74	61.99	38.01
1974-75	62.28	37.72
1975-76	64.04	35.96
1976-77	63.71	36.29
1977-78	62.85	37.15
1978-79	62.52	37.48
1979-80	61.56	38.44
1980-81	61.63	38.37
1981-82	61.33	38.67
1982-83	59.90	40.10
1983-84	59.06	40.94
1984-85	57.43	42.57
1985-86	56.14	43.86
1986-87	55.43	44.57
1987-88	53.15	46.85
1988-89	51.88	48.12
1989-90	51.35	48.65
1990-91	49.54	50.46
1991-92	49.00	51.00
1992-93	48.25	51.75
1993-94	47.81	52.19
1994-95	47.06	52.94
1995-96	46.99	53.01
1996-97	46.29	53.71
1997-98	45.33	54.67
1998-99	44.41	55.59

Source: Same as in Table 4.3.

Productivity or yield per hectare in Kerala agriculture has seen increased during the last decade of the twentieth century (see Table 4.3). The shift in cropping pattern in favour of non-food crops is evident from the proportion of area under food crops and non-food crops during the period of the present study. The proportion of area under food crops to gross cropped area was 65.17 per cent in 1962/63, which declined to 44.41 per cent in 1998/99. In other words, the proportion of area under non-food crops was 34.83 per cent in 1962/63 and it increased over years to 55.59 per cent in 1998/99 (see Table 4.6).

A clear picture of the shift in cropping pattern is available from Table 4.7, which gives the growth rate of area under major crops in Kerala since 1962/63 to 1998/99. Paddy is the major food crop produced in Kerala. About 76 per cent of area under food crops was occupied by paddy in 1962/63. The proportion of area under paddy to area under food crops declined to 63 per cent in 1998/99. The area under paddy declined considerably during the period from 1962/63 to 1998/99 and the rate of decline was of –2.19 per cent per annum. From 1983/84 a sharp decline in paddy area has occurred, consequently the total labour used in paddy production is reduced. The decline in area under paddy was the sharpest during the last decade of the study period (at the rate of –6.74% per annum during 1993/94 to 1998/99). Even if the released area from paddy cultivation had been utilised in cultivating other crops like coconut, it would not have been possible to absorb the total released labourers from paddy sector. This is because the perennial and tree crops are less labour intensive compared to paddy. Further, such a shift in cropping pattern affect female labourers more than male, because of high female labour intensity in paddy sector as well

as female labour saving nature of tree crops. This has implications on the income of women labourers in agriculture sector, which was contributing much to the household income of the labour families, and thereby the consumption behaviour of labour class. The impact of female labour saving cropping pattern is redistribution of employment and thereby income, in favour of male labour.

4.2.1 Crop-wise Growth Rates

Crop-wise analysis of growth rates help to identify crop specific factors influencing its respective performance. Growth rates of major crops are examined here.

1. Paddy

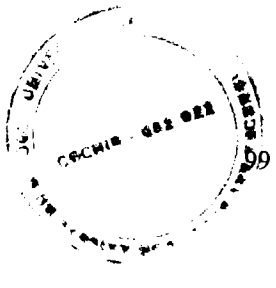
Paddy is the major food crop produced in Kerala. As we have seen in section 4.2 of the present chapter, area under paddy declined considerably over the period of analysis and the rate of change was –2.19 per cent per annum. In period I area under paddy in the state grew at an average annual rate of 0.88 per cent, which was more than offset by a rate of growth at –1.13 per cent in period II. The period III experienced a sharp decline in area under paddy at the rate of –4.77 per cent per annum (see Table 4.7).

The growth rate of paddy production was –0.89 per cent per annum for the entire period of the study. This decline in paddy production was mainly due to the drastic decline experienced in period III at the rate of –3.43 per cent per annum (see Table 4.8).

Table 4.7 Growth Rates of Area under Major Crops, Kerala

Crops	Period for which growth rate is computed						
	1962/63-1998/99	1962/63-1972/73	1973/74-1982/83	1983/84-1998/99	1983/84-1992/93	1993/94-1998/99	1990/91-1998/99
Paddy-Autumn	-3.11	-0.08	-1.29	-6.14	-4.20	-9.37	-7.41
Paddy-Winter	-1.66	1.56	-0.77	-4.22	-3.57	-5.31	-4.59
Paddy-Summer	-0.54	2.83	-1.48	-2.06	-0.88	-4.01	-2.02
Paddy-Total	-2.19	0.88	-1.13	-4.77	-3.59	-6.74	-5.38
Sugarcane	-1.08	-1.83	1.00	-1.91	-2.16	-1.50	-3.82
Pepper	2.57	1.75	-0.71	5.14	5.58	4.41	4.00
Ginger	0.95	-0.10	1.16	1.48	1.33	1.72	0.86
Turmeric	0.31	-0.96	-1.16	2.03	0.56	4.49	3.10
Cardamom	1.68	6.49	1.50	-1.21	-1.44	-0.84	-4.11
Banana& plantain	1.70	1.05	0.28	2.99	3.87	1.53	2.65
Cashew	0.63	2.01	3.43	-1.99	-0.80	-3.97	-4.01
Tapioca	-1.11	4.01	-2.73	-3.28	-5.03	-0.37	-2.08
Food crops	-0.48	1.45	-0.74	-1.53	-1.52	-1.56	-1.63
Sesamum	-3.36	-0.12	2.77	-9.22	-5.36	-15.65	-13.53
Coconut	1.98	3.23	-0.96	3.04	2.70	3.61	3.00
Tea	-0.08	0.10	-0.85	0.29	-0.21	1.12	0.71
Coffee	4.56	5.68	6.86	2.42	3.92	-0.06	1.28
Rubber	3.40	3.20	2.79	3.91	5.34	1.54	1.91
Nonfood crops	1.81	2.87	0.12	2.20	3.24	0.47	1.11
Net cultivated Area	0.32	0.89	-0.08	0.22	0.32	0.07	0.13
Gross Cropped area	0.49	1.97	-0.42	0.12	0.63	-0.72	-0.38
Pulses	-2.62	-1.50	-2.15	-3.61	-2.55	-5.39	-4.43

Source: Same as in Table 4.3



Although paddy production increased at the average annual rate of 2.67 per cent in period I, it couldn't maintain a positive growth spread through the entire span of analysis (37 years) because of the decline in production in periods II and III. Growth rates for the bifurcated periods of period III showed that in period 1993/94 to 1998/99 paddy production declined at the highest rate of –6.39 per cent per annum.

Table 4.8 Growth Rates of Production of Major Crops, Kerala

Crops	Period for which growth rate is computed						
	1962/63-1998/99	1962/63-1972/73	1973/74-1982/83	1983/84-1998/99	1983/84-1992/93	1993/94-1998/99	1990/91-1998/99
Rice	-0.89	2.67	-0.40	-3.43	-1.65	-6.39	-4.81
Sugarcane	2.41	0.70	9.76	-1.13	-2.08	0.45	-0.26
Black Pepper	4.49	0.64	0.54	9.37	11.83	5.27	2.70
Dry Ginger	5.05	9.03	3.63	3.45	3.99	2.56	1.37
Cured Turmeric	4.77	1.55	7.65	4.97	1.33	11.04	7.35
Processed Cardamom	7.42	1.44	9.64	9.77	5.18	17.42	10.80
Banana& other plantain	3.53	1.18	0.92	6.62	6.09	7.51	6.67
Raw Cashew nut	-0.78	2.33	-2.30	-1.79	1.82	-7.80	-6.33
Tapioca	2.28	15.42	-3.66	-2.22	-3.67	0.19	-1.48
Sesamum	-1.94	4.09	1.30	-7.72	-6.77	-9.30	-8.05
Coconut	2.40	1.76	-1.94	5.50	5.82	4.98	5.23
Tea	2.16	1.56	0.95	3.30	2.72	4.27	2.62
Coffee	17.25	6.05	8.00	30.04	42.24	9.70	12.42
Rubber	8.87	12.55	5.61	8.61	9.44	7.21	8.22
Pulses	-0.39	-2.35	5.80	-3.02	-1.40	-5.73	-4.34
Groundnut	3.51	3.81	-0.74	5.98	10.79	-2.05	1.52

Source: Same as in Table 4.3

The yield of paddy grew at an average annual rate of 1.30 per cent during the entire period. The yield growth rate was the highest in period I (1.76% per annum), although growth rates for periods II and III were also positive (see Table 4.9). The yield growth rate of period III bifurcated for 1983/84 to 1992/93 and 1993/94 to 1998/99, showed that for the first decade the rate of growth was 1.93 per cent per annum, which is the highest of the decadal growth rates of yield of paddy. This high yield growth would have helped production from drastically falling during the period. But for the last decade yield growth rate was only 0.39 per cent per annum and this couldn't check production declining at alarming rates during the period 1993/94 to 1998/99 consequent on sharp decline in area under paddy.

2. Tapioca

Tapioca is used as a cereal substitute as well as for industrial production. It occupies the second place in food crops production. Although area under tapioca declined (G.R.= -1.11% per annum) over the entire period of analysis, production grew at the average annual rate of 2.28 per cent at the state level. Yield growth rate of tapioca was considerable in the entire period (3.55% per annum). In period I area, production and yield registered high growth rates. But period II witnessed sharp decline in production because of decline in both area and yield. The high rate of decline in area under tapioca during period III (G.R.= -3.28% per annum) was mainly due to the sharp decline in area during the period 1983/84 to 1992/93 (G.R.= -5.03% per annum) although the last decade also witnessed a negative growth rate. The decline in area under tapioca during period III caused the decline in production although the yield registered a positive growth rate (at 1.37% per annum) during the period.

Table 4.9 Growth Rates of Mean Yield of Major Crops, Kerala

Crops	Period for which growth rate is computed						
	1962/63-1998/99	1962/63-1972/73	1973/74-1982/83	1983/84-1998/99	1983/84-1992/93	1993/94-1998/99	1990/91-1998/99
Rice	1.30	1.76	0.74	1.36	1.93	0.39	0.61
Sugarcane	3.64	2.67	9.16	0.81	-0.29	2.63	4.08
Black Pepper	1.58	-1.10	1.02	3.60	5.11	1.09	-1.14
Dry Ginger	4.09	8.86	2.45	2.14	2.83	0.99	0.60
Cured Turmeric	4.17	2.51	8.18	2.69	0.62	6.13	3.95
Processed Cardamom	6.88	-2.57	8.32	11.89	8.15	18.12	16.70
Banana& other plantain	1.92	0.13	1.16	3.50	2.16	5.75	3.88
Raw Cashew nut	-0.59	0.32	-5.38	1.82	5.46	-4.23	-2.56
Tapioca	3.55	11.31	-0.71	1.37	1.50	1.15	1.01
Sesamum	1.55	4.05	-1.01	1.58	-1.39	6.52	5.78
Coconut	0.43	-1.42	-0.99	2.47	3.08	1.46	2.31
Tea	2.25	1.45	1.82	3.02	2.91	3.21	1.93
Coffee	13.29	0.41	2.65	28.00	38.92	9.80	11.46
Rubber	5.34	9.08	2.81	4.58	3.97	5.59	6.19
Pulses	2.26	-0.95	8.09	0.62	1.18	-0.31	0.10

Source: Same as in Table 4.3

3. Banana and Other Plantains

Production and yield of banana and other plantains registered average annual growth rates of 3.53 per cent and 1.92 per cent respectively during the whole period under study. Area under banana and other plantains increased at an average annual rate of 1.70 per cent in the entire period. Although growth rates of area, production and yield were positive throughout, the periods II and I showed comparatively poor performance, while in period III banana and other plantains registered considerable average annual rates of growth in area (2.99%),

production (6.62%) and yield (3.50%) indicating a recovery from poor performance experienced in previous sub-periods.

4. Coconut

Area under coconut registered a growth rate of 1.98 per cent per annum, from 1962/63 to 1998/99. Production grew at an average annual rate of 2.40 per cent, and yield has shown only a low rate of growth annually (G.R.=0.43%) during the entire period. In period I area under coconut grew at the rate of 3.23 per cent per annum, but production growth rate was only 1.76 per cent per annum. The poor growth in production was due to the decline in yield of coconut during period I (G.R.= -1.42% per annum). In period II, area, production and yield declined (see Tables 4.7, 4.8 & 4.9). On the contrary, period III registered high average annual growth rates in area (at 3.04%), production (at 5.50%) and yield (at 2.47%).

5. Cashew

Area under cashew in Kerala grew at the rate of 0.63 per cent per annum for the entire period, while production declined at an average annual rate of –0.78 per cent. Yield also declined at an annual rate of –0.59 per cent during the same period. In period I area under cashew grew at the rate of 2.01 per cent per annum, production at the rate of 2.33 per cent, and yield at a low rate of 0.32 per cent. Although area under cashew increased at the average annual rate of 3.43 per cent per annum in period II, production declined (G.R.= -2.30%) due to a sharp decline in yield (G.R.= - 5.38%). Period III registered a positive growth rate in yield of cashew (at

1.82% per annum). However, production declined (G.R.= -1.79% per annum) due to decline in area under cashew (G.R.= - 1.99% per annum) in period III from 1983/84 to 1998/99.

6. Sesamum

Area and production of sesamum registered decline at the average annual rates of -3.36 per cent and –1.94 per cent respectively, during the whole period of the analysis. This was in spite of the growth of yield of sesamum at the average annual rate of 1.55 per cent. Period I experienced high average annual rate of yield (G.R.= 4.05 %) and production (G.R.= 4.09%), but a slight decline in area. Period II showed an increase in cropped area of sesamum at 2.77 per cent per annum leading to an increase in production at an average annual rate of 1.30 per cent although yield declined at the rate of –1.01 per cent per annum. In period III sharp decline in sesamum production (at the rate of –7.72% per annum) was experienced due to decline in area at an accelerated rate (G.R. = -9.22% per annum), although yield increased during the period at an average annual rate of 1.58 per cent.

7. Rubber

Rubber was the most attractive plantation crop to farmers, as it assured a decent income, till the last decade of the twentieth century. Even small farmers in midland and high land regions of the state turned to rubber cultivation. Area, production and yield of rubber in Kerala experienced high growth rates during the period from 1962/63 to 1998/99. Growth rate of area increased from 3.20 per cent per annum during the period from 1962/63 to 1972/73 to

3.91 per cent in the period from 1982/83 to 1998/99. The highest rate of growth in area under rubber was during the first decade of period III (G.R.=5.34% per annum during 1983/84 to 1992/93). However, area under rubber in the state increased at the average annual rate of 3.40 per cent in the entire period. Although yield estimation is a difficult task in the case of rubber due to the yield cycle, production data reported by Rubber Board is reliable.

Growth rate of production in period I was12.55 per cent per annum and in period II it was only 5.61 per cent. Period III showed average annual growth at the rate of 8.61 per cent in production, and 4.58 per cent in yield. As rubber has reported increasing productivity, low growth rate in output in period II can be due to decline in yielding area.

8. Pepper

Kerala is the land of spices. Pepper production in India is confined to the states of Kerala and Karnataka. About 97 per cent of India's pepper production is in Kerala. However, area, production and yield of pepper in the state increased only at low rates of 2.57 per cent, 4.49 per cent and 1.58 per cent per annum respectively, during 1962/63 to 1998/99. In period I growth rate of area (1.75 %) was higher than the growth rate of production (0.64%). In period II area under pepper declined, but production and yield grew at low rates. Production grew at a higher rate (9.37% per annum) than area (5.14% per annum) in period III, because of the growth in yield at the average annual rate of 3.60 per cent. Area, production and yield of pepper were increasing at the highest rates per annum, during 1983/84 to 1992/93.

9. Cardamom

Cardamom is another important spice produced in Kerala. At the all India level Kerala ranks next to Sikkim, which is the highest producer. However, area under cardamom is more in Kerala compared to the other four states producing cardamom, viz. West Bengal, Karnataka, Tamil Nadu and Sikkim. Area under the crop and production in the state grew at the rates of 1.68 per cent and 7.42 per cent, per annum, respectively during the whole period of analysis. Growth rate of yield was 6.88 per cent per annum, in the entire period. Only in period I area registered significant growth rate, although in period II also area under cardamom increased. However, production and yield registered high rates of growth during period II. Period III experienced a decline in area under cardamom, but the rates of growth attained in production (9.77% per annum) and yield (11.89% per annum) were very impressive.

10. Coffee

Coffee production in Kerala is mainly from Palakkad, Kozhikode, Kannoor, Idukki and Kottayam districts. Area under coffee in the state registered growth rate of 4.56 per cent during the entire period under consideration. Average annual growth rates of production and yield during the entire period showed high magnitudes (17.25% and 13.29 % respectively). Growth rate of area under coffee was the highest in period II (G.R.=6.86% per annum) compared to other periods. Coffee production growth rate was higher in period III (at 30.04% per annum) compared to those of period II (at 8.00% per

annum) and period I (6.05% per annum). However the highest growth rate of production of coffee was experienced in the decade 1983/84 to 1992/93 (G.R.=42.24% per annum). The growth in production in period III and especially in the first decade of period III was mainly due to high rate of growth in yield of coffee.

II. Tea

Tea is an important plantation crop in Kerala. The agro-climatic conditions of Idukki district are suitable for tea, and Idukki is the major producer of tea in Kerala. At the state level area under tea declined at an average annual rate of –0.08 per cent over entire period of analysis. However, production and yield during the same period grew at the rate of 2.16 per cent and 2.25 per cent per annum, respectively. In periods III and I increase in area under tea was not significant, but it was declining at a rate of –0.85 per cent per annum during period II. Production and yield gave high growth rates in period III.

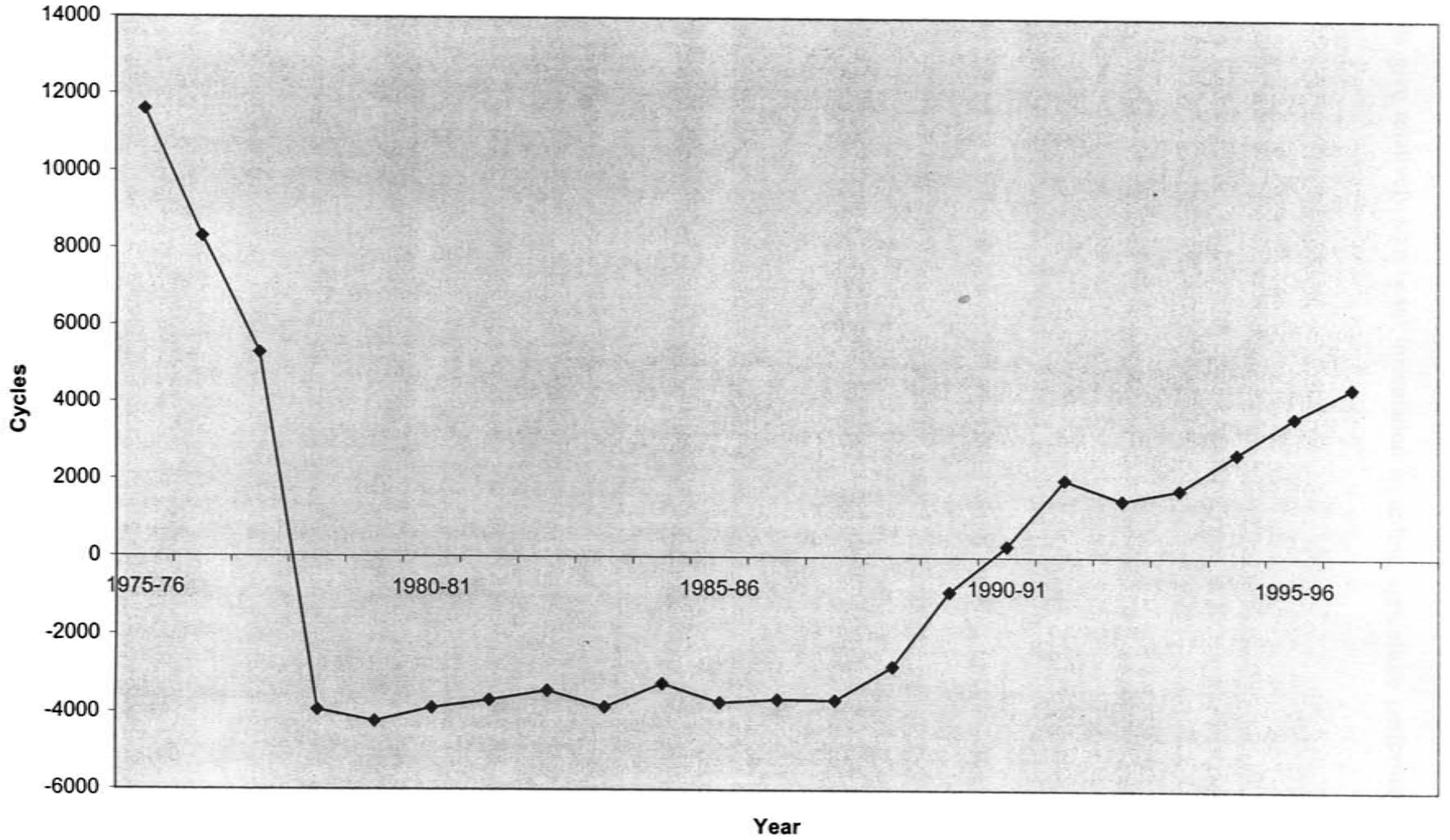
4.3 Agriculture Growth Performance of the Study Area (Kottayam district, Kerala)

As the primary level study for this present work was proposed and conducted in Kottayam district of Kerala, the agriculture growth performance of the study area is looked into separately to see any pattern different from that of the state prevails at the study district level. Because of formation of new districts of Idukki and Pathanamthitta taking a few portions of Kottayam district also, the land area under the district of Kottayam changed from that of the 1960s to first half of 1970s. Therefore, to get a clear picture of the

agriculture performance of Kottayam district, the present study used only the district level data for the period from 1975/76 to 1998/99.

The graphical representation of the cyclical fluctuations taken as a three year moving average of the detrended series of agriculture production of Kottayam district is given as Graph 2. It is observed that the declining trend of production experienced in the state during the 1970s was also experienced in Kottayam district. However, a difference in the cyclical fluctuations in production is that the recovery started in 1987/88. The period from 1978/79 to 1987/88 showed a relatively stable production, but at a very low level than the average production during the entire period of analysis from 1975/76 to 1998/99. This stagnation in production can be observed as the result of gestation period of the tree/perennial crops for which a positive shift in area under cultivation occurred during a decade from the second half of 1970s and the first half of 1980s. The pattern of agricultural output growth for the periods relevant for state agriculture has been studied taking average annual growth rates of area under crops as well as their production. Period I is not under review here as the data used is from 1975/76 onwards. Period II is limited as 1975/76 to 1982/83 and period III is the same as taken for state level analysis, from 1983/84 to 1998/99. The bifurcation period III into two decades of 1983/84 to 1992/93 and 1993/94 to 1998/99 also is considered here. However, observing the cyclical fluctuations represented by Graph 2, the growth pattern of the agriculture sector of Kottayam district has been studied also with relevant periods of decline, stagnation and increase in production. These periods are taken as period I-a from 1975/76 to 1979/80, period II-a from 1980/81 to 1987/88, and period III-a from 1988/89 to 1998/99 respectively. The growth rates related to

Graph 2
Cycle in Agricultural Output in Kottaym



these periods give relatively significant information regarding agriculture performance of Kottayam district.

4.3.1 Growth Rates of Area and Production of Major Crops in Kottayam District

The agricultural production of Kottayam district during 1975/76 to 1998/99 grew at an average annual rate of 1.96 per cent. Period II (from 1975/76 to 1982/83) showed growth at the rate of 1.13 per cent per annum, period III (from 1983/84 to 1998/99) showed growth rate as 2.28 per cent per annum. Agriculture output in Kottayam during 1993/94 to 1998/99 showed a higher rate of growth of 3.16 per cent per annum (see Table 4.11).

However, relevant information is obtained from the growth rates of agriculture production of Kottayam district considering the periods of decline, stagnation and growth observed by graphing the cyclical fluctuations in production. The growth rate during period I-a was 0.15 per cent per annum, which showed a slight improvement of 0.61 per cent per annum in period II-a. The growth rate of production was significant in period III-a (at an average annual rate of 3.59 per cent).

Gross cropped area in Kottayam district declined over the entire period of the analysis (G.R.=-0.45% per annum). Decline in total cropped area was the highest during period II (G.R.=-1.25% per annum), although the decline continued in period III also. However, it is important to see that period I-a showed comparatively high rate of decline in gross cropped area (G.R.=-2.53% per annum). However, total cropped area showed a

significant rate of growth at 1.17 per cent per annum in period II-a. Period III-a also witnessed decline in the cropped area (see Table 4.10).

The yield growth rates as given in Table 4.12 showed an average annual growth of yield in total agriculture at 0.16 per cent over the entire period. Rate of yield increase was high in period II (G.R.=3.17% per annum) compared to period III (G.R.= 2.67% per annum).

In period I-a yield grew at an average annual rate of 3.92 per cent. But the rate of growth was negative in period II-a, although at a low magnitude. Period III-a showed a significant growth in yield at the rate of 4.78 per cent per annum. Agriculture production of the district was equally influenced by area under crops and yield in period I-a such that the growth in yield was almost offset by decline in gross cropped area. However, in period II-a yield growth rate went negative although total cropped area grew at the rate of 1.17 per cent per annum introducing only a slight change in agricultural output. In period III-a increase in yield led to a significant growth in production although total cropped area was declining at a low rate.

Table 4.10 Growth Rates of Area under Major Crops, Kottayam

Crops	Period for which growth rate is computed								
	1975/76-1998/99	1975/76-1982/83	1983/84-1998/99	1983/84-1992/93	1993/94-1998/99	1990/91-1998/99	1975/76-1979/80	1980/81-1987/88	1988/89-1998/99
Paddy-Total	-4.23	-3.04	-4.76	-2.78	-8.05	-7.05	-6.64	-1.04	-5.68
Sugarcane	1.95	12.57	-2.69	-3.00	-2.17	-0.61	-17.34	17.49	-2.33
Pepper	-2.03	-0.51	-2.69	-2.18	-3.55	-2.86	-0.01	-2.85	-2.16
Ginger	-11.53	-3.33	-15.12	-16.72	-12.46	-19.65	-2.53	-6.35	-18.58
Turmeric	2.17	15.94	-3.86	-6.73	0.93	-5.77	36.97	-3.72	-6.21
Banana	12.81	2.19	17.45	30.46	-4.22	-0.09	0.95	33.68	1.94
Other Plantain	0.45	-3.34	2.11	0.68	4.49	4.39	-1.82	-2.11	3.13
Cashew nut	-1.81	6.69	-5.53	-4.94	-6.52	-6.64	7.39	-1.48	-5.40
Tapioca	-6.14	-6.18	-6.13	-6.31	-5.83	-6.32	-8.30	-5.12	-6.10
Jack	0.60	1.18	0.35	-2.02	4.29	1.93	0.08	-1.05	1.99
Mango	-3.66	-6.99	-2.20	-5.34	3.03	-1.40	-8.60	-5.25	-0.70
Tamarind	3.17	5.80	2.02	-3.96	11.98	6.30	3.77	1.35	4.27
Pineapple	1.41	5.85	-0.54	2.31	-5.28	-2.71	7.71	2.67	-1.81
Cocoa	10.40	58.64	-4.67	-8.04	0.95	-5.42	149.91	-3.30	-4.99
Sesamum	-4.74	-23.31	3.39	12.59	-11.94	1.49	-31.05	-1.23	2.28
Coconut	6.68	-1.77	10.38	-8.35	41.58	18.96	-3.67	-0.32	15.53
Tea	-0.71	-1.07	-0.55	-0.47	-0.68	-0.29	-0.42	-1.48	-0.25
Rubber	3.40	2.59	3.76	6.05	-0.06	0.68	1.51	7.96	0.77
Food crops	**-2.43**	**-3.51**	**-1.95**	**-3.20**	**0.13**	**-1.32**	**-5.22**	**-2.73**	**-1.18**
Nonfood crops	**1.53**	**1.03**	**1.75**	**2.81**	**-0.01**	**0.05**	**0.32**	**3.98**	**0.19**
Gross cropped area	**-0.45**	**-1.25**	**-0.10**	**0.49**	**-1.09**	**-1.14**	**-2.53**	**1.17**	**-0.87**

Source: Same as in Table 4.3

Table 4.11 Growth Rates of Production of important crops, Kottayam District

Crops	Period for which growth rate is computed								
	1975/76-1998/99	1975/76-1982/83	1983/84-1998/99	1983/84-1992/93	1993/94-1998/99	1990/91-1998/99	1975/76-1979/80	1980/81-1987/88	1988/89-1998/99
Rice	-2.28	1.83	-4.08	-2.44	-6.81	-6.06	-5.40	1.84	-4.14
Sugarcane	3.73	13.96	-0.75	-1.20	0.00	3.39	-17.48	17.30	1.57
Black Pepper	-0.43	-2.78	0.59	2.34	-2.31	-2.30	-18.37	6.78	0.85
Dry Ginger	-11.38	-4.81	-14.26	-14.44	-13.96	-18.39	-3.96	-6.50	-17.63
Cured Turmeric	11.02	36.79	-0.25	-0.39	-0.01	-7.27	74.63	5.29	-7.94
Banana	7.26	14.28	4.19	7.88	-1.96	0.55	23.60	6.62	1.78
Other Plantain	5.49	0.32	7.75	5.09	12.19	12.27	6.91	-0.76	9.51
Raw Cashew nut	20.01	10.78	24.05	39.49	-1.67	-2.39	18.52	51.81	-2.57
Tapioca	-3.44	-2.90	-3.68	-4.12	-2.94	-3.45	-3.54	-3.90	-3.08
Cocoa	0.48	-25.54	3.74	11.03	-8.42	-9.43	....	14.33	-8.33
Sesamum	6.76	-25.27	20.78	30.23	5.03	16.30	-36.52	0.62	26.98
Coconut	-1.35	-2.79	-0.71	0.24	-2.30	-1.89	-9.73	1.22	-0.16
Tea	8.35	-5.76	14.52	18.25	8.31	26.28	1.19	-17.45	29.72
Rubber	15.97	33.41	8.34	9.67	6.12	8.46	55.51	6.24	8.67
Food crops	**-2.21**	**-2.48**	**-1.98**	**-2.28**	**-2.04**	**-2.10**	**-4.79**	**-1.82**	**-1.57**
Non-food crops	**5.00**	**6.94**	**4.40**	**3.75**	**4.96**	**4.15**	**9.34**	**2.17**	**5.48**
Total Agriculture	**1.96**	**1.13**	**2.28**	**2.39**	**3.16**	**2.32**	**0.15**	**0.61**	**3.59**

Source: Same as in Table 4.3

It is important to note that the decline in yield per hectare of total agriculture in period II-a with a reported growth in area under crops would be mainly due to the increase in area under tree crops which have a long gestation period.

Table 4. 12 Growth rate of Mean Yield of important crops, Kottayam

Crops	Period for which growth rate is computed								
	1975/76-1998/99	1975/76-1982/83	1983/84-1998/99	1983/84-1992/93	1993/94-1998/99	1990/91-1998/99	1975/76-1979/80	1980/81-1987/88	1988/89-1998/99
Paddy-Total	0.08	5.29	0.53	0.32	0.90	0.69	2.07	2.93	1.26
Sugarcane	0.02	0.68	4.29	1.67	8.67	8.56	-0.25	-0.31	6.99
Pepper	0.04	-1.14	3.08	4.28	1.07	-0.72	-16.80	9.56	2.90
Ginger	0.58	-1.70	1.33	3.02	-1.49	-1.12	-1.73	-0.92	2.15
Turmeric	0.05	17.54	2.12	4.45	-1.75	-2.54	32.18	6.74	-2.36
Banana	0.81	13.38	10.68	15.54	2.56	2.37	24.38	20.64	0.17
Other Plantain	0.33	2.81	5.23	4.18	6.98	6.23	6.91	1.61	5.71
Cashew nut	0.08	3.34	30.96	47.99	2.58	5.18	9.51	57.92	1.57
Tapioca	0.35	3.22	2.47	2.21	2.90	2.71	3.85	1.59	3.08
Sesamum	0.02	-3.04	17.21	12.35	25.30	18.83	-7.38	-3.49	28.32
Coconut	0.18	-1.02	11.88	27.88	-14.78	23.06	-6.08	1.74	17.59
Tea	0.06	-4.82	15.24	18.92	9.10	2.43	1.41	-15.74	30.03
Rubber	0.18	31.06	4.69	3.77	6.21	8.24	54.06	-1.31	7.88
Food crops	**0.13**	**0.92**	**3.40**	**1.25**	**6.99**	**5.66**	**0.03**	**1.05**	**4.77**
Nonfood crops	**0.18**	**6.91**	**2.56**	**1.80**	**3.82**	**5.56**	**10.62**	**-1.50**	**5.35**
Total Agriculture	**0.16**	**3.17**	**2.67**	**1.89**	**3.98**	**5.02**	**3.92**	**-0.41**	**4.78**

Sources: Same as in Table 4.3

4.3.2 Performance of Food Crops and Non-food Crops

Production of food crops and non-food crops in Kottayam district is analysed separately in the following paragraphs.

4.3.2.1 Food Crops

Production of food crops declined during the period 1975/76 to 1998/99 at an average annual rate of –2.21 per cent. The periods comparable here with state agriculture are periods II and III (see Table 4.3 and Table 4.11). Period II showed almost equal rate of decline in food production of the state (G.R.= -2.38% per annum) and of the district of Kottayam (G.R.= -2.48% per annum). In period III, state production of food crops declined only at a low rate (G.R.= -0.80% per annum), while the district data showed a comparatively high rate of decline in food production (G.R.= -1.98% per annum).

The decline in production of food crops in Kottayam in period I-a was the highest and was at an average annual rate of –4.79 per cent. Periods II-a and III-a also showed decline in food crops production in the district.

Area under food crops in Kottayam showed a decline over the entire period of analysis for the district (G.R.= -2.43% per annum). In period II state agriculture showed a decline in area under food crops at an average annual rate of –0.74 per cent, while the district showed a sharp decline of the same at the rate –3.51 per cent per annum. In

period III although area under food crops declined at a higher rate at the state level (G.R.= -1.73% per annum), compared to the previous period, the decline at district level was at a little higher rate (G.R.= -1.95% per annum). The decline in area under food crops in the sate was only at an average annual rate of -1.52 per cent during the first decade of the bifurcated periods of period III, while the same period from 1983/83 to 1992/93 experienced sharp decline in area under food crops in Kottayam (G.R.= -3.20% per annum). And while in the last decade of 1993/94 to 1998/99 the area under food crops showed a positive increase in Kottayam (G.R.=0.13% per annum) the state showed continuing decline in area of food crops and that too at a higher rate (G.R.= -2.07% per annum) compared to the previous period.

Period I-a showed the sharpest decline in food crops area in Kottayam (G.R.= -5.22% per annum). The decline followed in periods II-a as well as in III-a, but at lower rates.

Yield of food crops showed an increase of 0.13 per cent per annum during the entire period for the district (see Table 4.12). Yield of food crops in period II also was increasing in Kottayam (G.R.=0.92% per annum), while it was decreasing at the state level (G.R.= -1.64% per annum). While period III showed a slight increase in yield of food crops in the state (G.R.=0.95% per annum), the district witnessed a high rate of growth variable (G.R.= 3.40% per annum). In spite of this high increase in yield in the district, total food crops production declined due to the decline in area under food crops.

Analysis of growth rates for the district specific periods showed certain pattern in agriculture. While period I-a showed insignificant change in yield of food crops in Kottayam, the rate of increase was high in period II-a and it reached the peak in period III-a (G.R.=4.77% per annum) (see Table 4.12).

4.3.2.2 Non-food Crops

Production of non-food crops in Kottayam registered a significantly high rate of growth (at an average annual rate of five per cent) during the entire period of the analysis. While period II registered a decline in non-food crops production at the state level (G.R.= -0.52% per annum), the district showed a high rate of growth at 6.94 per cent per annum. In period III, while non-food crops production grew at a higher rate at the state level (G.R.=5.40% per annum), the rate of increase of the same in the district was comparatively low (G.R.=4.40% per annum).

In period I-a production of non-food crops in Kottayam grew at a high rate of 9.34 per cent per annum, the rate of growth in period II-a was very low in magnitude (G.R.=2.17% per annum). Period III-a witnessed a recovery from the low rate of growth in production compared to the previous period, and grew at the average annual rate of 5.48 per cent (see Table 4.11). This high rate of growth in non-food crops production helped to attain a significant growth at the rate of 3.59 per cent per annum in the district agriculture in spite of a decline in production of food crops (G.R.= -1.57% per annum) during the same period.

Area under non-food crops in Kottayam registered an average annual rate of growth of 1.53 per cent in the entire period of analysis. In period II the growth in area under non-food crops was at an average annual rate of 1.03 per cent for Kottayam, while it was insignificant at the state level (G.R.=0.12% per annum). In period III growth in area under non-food crops at state level was at an average annual rate of 2.20 per cent, while the rate of growth at district level was only 1.75 per cent per annum. The first decade of period III also showed a higher rate of growth in area under non-food crops in the state as a whole (G.R.= 3.24% per annum) compared to the district's performance with respect to the same variable (G.R. = 2.81% per annum). The growth rate of area (3.98% per annum) was significantly high during period II-a of the district specific periods of analysis.

4.3.3 Shift in Cropping Pattern in the Study Area

The shift in cropping pattern in Kottayam in favour of non-food crops is evident from the proportion of area under food crops and non-food crops during the period from 1975/76 to 1998/99. The proportion of area under food crops to gross cropped area was 52.60 per cent in 1975/76, which declined to 24.19 per cent in 1998/99. In other words, the proportion of area under non-food crops was 47.40 per cent in 1975/76 and it increased over the years to 75.81 per cent in 1998/99 (see Table 4.13). This is a paradigm shift in the cropping pattern of the district. The state agriculture also showed such an important shift in cropping pattern in favour of non-food crops.

A clear picture of the shift in cropping pattern of Kottayam is available from Table 4.11, which indicates the growth rate of area under major crops in the district since 1975/76 to 1998/99. Tapioca was the major contributor of value of food crop produced in Kottayam till 1997/98. The last year of the present study period showed a higher share of banana and other plantain together in food crops production. However, paddy is the major food crop cultivated in the district with regard to the share of area under food crops. About 52 per cent of area under food crops was occupied by paddy at the start and end of the study period. The importance is thus to the fact that area under food crops declined and the area under paddy declined thereby while remaining the proportion of area under paddy to the area under food crops almost same over the period. On the contrary, the proportion of area under paddy to area under food crops declined over the period of study for the sate as a whole.

The area under paddy in Kottayam declined considerably during the period from 1975/76 to 1998/99 and the rate of decline was of –4.23 per cent per annum. From 1983/84 to 1998/99 occurred the higher rate of decline in paddy area (G.R.= -4.76% per annum). The decline in area under paddy was found the sharpest during the last decade of our study period (at the rate of –8.05% per annum during 1993/94 to 1998/99). The area under tapioca in Kottayam also declined considerably over the study period (G.R.= -6.14% per annum). The decline in area was sharpest in period I-a at an average annual rate of –8.30 per cent. This added to the quantum shift in area under food crops to non-food crops in the district.

Table 4.13 Proportion of area under food and non-food crops to total cropped area, Kottayam

Year	Food crops	Non-food crops
1975-76	52.60	47.40
1976-77	54.24	45.76
1977-78	51.60	48.40
1978-79	48.53	51.47
1979-80	46.66	53.34
1980-81	44.46	55.54
1981-82	45.40	54.60
1982-83	44.30	55.70
1983-84	43.47	56.53
1984-85	40.72	59.28
1985-86	39.58	60.42
1986-87	38.80	61.20
1987-88	33.70	66.30
1988-89	33.87	66.13
1989-90	33.06	66.94
1990-91	31.18	68.82
1991-92	30.39	69.61
1992-93	30.14	69.86
1993-94	30.28	69.72
1994-95	28.98	71.02
1995-96	18.87	81.13
1996-97	28.10	71.90
1997-98	25.02	74.98
1998-99	24.19	75.81

Source: Same as in Table 4.3

4.3.4 Crop-wise Growth Rates

1. Paddy

Area under paddy in Kottayam declined significantly over the study period as seen in section 4.3.2. And the rate of decline in area under paddy was the sharpest during 1993/94 to 1998/99 (at the rate of –8.05% per annum) (see Table 4.10). Production of paddy also declined at an average annual rate of –2.28 per cent (see Table 4.11). The decline in paddy production also was the sharpest in the last decade of the period III (G.R.= -6.81% per annum). The yield of paddy in the district experienced only an insignificant growth in period III. But the analysis of district specific periods showed that yield growth rates were significant for the three periods although for period III-a the magnitude of the rate was low (G.R.= 1.26 %) compared to the other periods of II-a (G.R.= 2.93%) and I-a (G.R.= 2.07%) (see Table 4.12).

2. Sugarcane

Sugarcane production in the district grew at the average annual rate of 3.73 per cent in Kottayam over the entire period. Although growth of yield of sugarcane was insignificant, area under sugarcane in the district increased at a significant rate in period II (G.R.= 12.57% per annum), which led to a higher rate of growth in production (G.R. = 13.96% per annum). However, area under sugarcane declined in period III resulting in slight decline in production. The decline in production was low as the yield increased

ring the period. But wild fluctuations were seen in the growth rate of production for the district specific periods of analysis. In period I-a sugarcane production in Kottayam declined at an average annual rate of –17.48 per cent. In period II-a production of the crop in the district grew at the rate of 17.30 per cent per annum. But the district could not maintain the growth rate in period III-a as the rate declined to 1.57 per cent per annum. Yield of sugarcane was the highest in the last decade of period III (8.67% per annum) (see Table 4.10).

3. Pepper

Area under pepper in the district declined at an average annual rate of –2.03 per cent in the entire period. In period III rate of decline in area under pepper was significantly high at –2.69 per cent per annum. Production of pepper in Kottayam also declined over the entire period although the magnitude of the rate of decline was low (see Table 4.11). However, in spite of the decline in area, production grew at the average annual rate of 0.59 per cent because of the increase in yield (G.R.=3.08% per annum) in period III. Growth rates of pepper production in the district for the periods I-a (G.R.= -18.37% per annum) and II-a (G.R.= 6.78% per annum) were wildly fluctuating. Yield growth rates also showed the same pattern. In period I-a yield declined at the rate of –16.80 per cent per annum, while in period II-a, yield grew at an average annual rate of 9.56 per cent.

4. Ginger

Area under ginger in Kottayam drastically declined over the entire period (G.R.= -11.53% per annum). Period III witnessed a drastic decline at the rate of –15.12 per cent per annum. Period III-a witnessed a decline in area under ginger in Kottayam at the rate of -18.58 per cent per annum. Production of ginger in the district also showed almost the same magnitude of decline (-11.38 per cent per annum) for the entire period. The decline in production was drastic during period III compared to period II. The rate of decline in ginger production was alarming in period III-a (G.R.= -17.63% per annum). This was in spite of a growth in yield of ginger in the district in period III-a at an average annual rate of 2.15 per cent.

5. Banana

Area under banana in Kottayam grew at the rate of 12.81 per cent per annum in the entire period. Period III experienced high growth rate compared to period II. Period II-a showed a wonderful rate of growth in area under banana in the district (G.R.=33.68% per annum). However, growth rate of production of banana was high in period I-a (G.R.=23.60% per annum). The entire period also experienced significant growth in banana production (G.R.=7.26% per annum). Yield growth rate of banana in the district was more than 20 per cent per annum for the periods I-a and II-a.

6. Cashew

Area under cashew in Kottayam declined at an average annual rate of –1.81 per cent over the entire period. In spite of the growth in area at the average annual rate of 6.69 per cent in period II area under cashew declined at the rate of –5.53 per cent per annum in period III. In period I-a area under cashew in the district grew and the succeeding periods showed decline with a higher rate in period III-a (G.R.= -5.40% per annum). Production of cashew nut grew at a magnificent rate of 20.01 per cent per annum in the entire period. The first decade of period III experienced a very high growth rate in cashew nut production (G.R.= 39.49% per annum). Periods I-a and II-a showed high rates of growth in cashew nut production (G.R. = 18.52% per annum in period I-a and G.R.=51.81% per annum in period II-a).

7. Tapioca

Area under tapioca in the district declined at the average annual rate of –6.14 per cent in the entire period. The pattern was almost the same in the sub-periods - all showed negative rates of growth. Tapioca production in Kottayam also declined in the entire period, at an average annual rate of –3.44 per cent. The pattern of decline in production also was almost the same in the sub-periods. However, yield of tapioca in Kottayam showed positive growth rates. The rate of growth in yield of tapioca in period I-a (G.R.=3.85% per annum) and period III-a (G.R.=3.08% per annum) were significantly high compared to that of period II-a (G.R.=1.59% per annum).

8. Cocoa

Area under cocoa in Kottayam increased at an average annual rate of 10.40 per cent in the entire period of analysis. Wide variations in the growth rates were seen in sub-periods. In period II area under cocoa increased at the rate of 58.64 per cent per annum, while it declined at the rate of –4.67 per cent per annum in period III. Growth rate of area under cocoa in period I-a was 149.91% per annum showing that cocoa was an almost new crop to the district at the start of period I-a. However the growth rate of area was negative in the subsequent sub-periods for the district. Data with respect to production of cocoa in period I-a was not available. Although a high growth rate of production of cocoa at 14.33 per cent per annum was experienced in period II-a, the rate turned negative in period III-a (G.R.= -8.33% per annum).

9. Sesamum

Area under sesamum declined at an average annual rate of –4.74 per cent in the entire period in the district. Drastic decline was experienced in period I-a (G.R.= -31.05% per annum). However, area under sesamum showed a growth at the rate of 2.28 per cent per annum in period III-a. Sesamum production in the district grew at an average annual rate of 6.76 per cent during 1975/76 to 1998/99. However, wide variations were found in the sub-period performance. In period I-a sesamum production declined at an average annual rate of – 36.52 per cent. On the contrary it grew at the rate of 26.98 per cent per

annum in period III-a and although the rate of change in production of sesamum was positive the magnitude of the rate was insignificant in period II-a. Although change in yield of sesamum over entire period was insignificant, for the sub-period III-a a marked growth at the rate of 28.32 per cent per annum was observed.

10. Coconut

Area under coconut increased at an average annual rate of 6.68 per cent in the whole period of analysis for the district. Although area under coconut in period II declined (G.R.= -1.77% per annum) a high growth experience of the period III (G.R.=10.38% per annum) resulted in overall growth rate of area under coconut in the district. Although the periods I-a and II-a showed negative rates of growth in area under coconut, period III-a witnessed a magnificent increase at the rate of 15.53 per cent per annum. Production of coconut in the district, however, experienced a negative growth at the rate of –1.35 per cent per annum. Yield of coconut showed a high rate in period III-a (G.R.=17.59% per annum).

11. Tea

Area under tea in the district declined over the entire period at an average annual rate of –0.71 per cent. All the sub-periods also gave negative growth rates for area under tea in Kottayam. On the contrary, production of tea grew at an average annual rate of 8.35 per cent over the whole period. A drastic decline in production of tea was experienced in period II-a (G.R.= -17.45% per annum), but a relief was brought in period III-a with a

positive growth in production of tea at an average annual rate of 29.72 per cent. Yield of tea in the district also experienced a high rate of growth in period III-a (G.R.=30.03% per annum).

12. Rubber

The whole period of analysis experienced an average annual rate of growth of 3.40 per cent in area under rubber in Kottayam. The highest increase in area under rubber was observed in period II-a (G.R.=7.96% per annum), although the other sub-periods also showed positive growth. Production of rubber grew at an average annual rate of 15.97 per cent over the entire period of analysis. The rate of growth in production was the highest in period I-a (G.R.=55.51% per annum) and the subsequent periods also gave significant rates of growth in production of rubber in the district.

4.4 Conclusions

From the analysis of agricultural performance in Kerala at state level and at the study area (district) level, one could see that agriculture sector is recovering from a decline since early 1980s. Total agriculture showed growth in production and yield due to shift in cropping pattern in favour of high valued non-food crops. The disparities in agriculture performance of state and the study area, is noticeable. Even then non-food crops production and yield growth rates varied considerably. The peculiarity of cropping pattern change in Kottayam is that non-food crops occupy 75 per cent of total agriculture at present and the important non-food crops

in the district are perennial and tree crops like rubber, coconut, and cocoa. Food crops in the district occupy only 25 per cent of the area under agriculture. This has serious implications. The number of workers accommodated in food crops production due to the seasonal and labour intensive nature of food crops was high compared to that of non-food crops. When the cropping pattern shifted over the years (such that more than 50 per cent of the area under food crops was also brought under non-food crops) the number of employment in the food crops sector declined significantly. Even if the released area from paddy and other seasonal crops cultivation had been utilised in cultivating other perennial and tree crops like coconut and rubber, it was not possible to absorb the total released labourers from paddy sector. This is because the perennial and tree crops are less labour intensive compared to paddy, tapioca, ginger, etc. Further, such a shift in cropping pattern affect female labour more than male, because of high female labour intensity in paddy sector as well as female labour saving nature of tree crops. This has implications in the context of, income of women labour in agriculture sector contributing much to the household income of the labour families and thereby determine the consumption behaviour of labour class. The impact of female labour saving cropping pattern is redistribution of employment and thereby income, in favour of male labour. These aspects have to be looked into more specifically to understand the process. This necessitated the micro level study based on sample survey.

References

1. Kannan, K.P. and Pushpangadan, K. (1988), op. cit.

2. Narayana, D. (1990): "Agricultural Economy of Kerala in the post-seventies: Stagnation or Cycles?" *Working paper No. 235*, Centre for Development Studies, Thiruvanathapuram.

3. Sivanandan, P.K. (1985): *'Kerala's Agricultural Performance: Differential Trends and Determinants'*, M.Phil. Thesis, Centre for Development Studies, Thiruvananthapuram.

Chapter V

Socio-Economic Characteristics of the Respondents of Sample Survey

5.1 Introduction

In chapter IV we discussed shift in cropping pattern of Kerala. Analysis of secondary data on gross cropped area, production and yield of crops in the state revealed that recovery in agriculture since 1982-83 onwards was mainly due to the shift in cropping pattern from seasonal and food crops to perennial tree crops. The shift in cropping pattern resulted in marginalisation of female labour in agriculture sector. Reduction in employment and income of female labour has serious implications on household consumption pattern of labour families. As secondary data is not available to study the impact of shift in cropping pattern on female labour force participation and thereby on consumption pattern of labour families, a micro level study was conducted based on sample survey. The present chapter concentrates on analysis of socio-economic characteristics of the respondents of the survey.

Studies on consumption pattern of Kerala disclose that the proportion of household expenditure on food declined continuously and the expenditure on non-food items increased correspondingly (Pillai, 1999). It has also been observed that the proportion of expenditure on food in Kerala has always been less than the All India figures, with a low per capita income of the state compared to the national level per capita income. This finding stands against the traditional theories of consumption, especially that of Ernest

Engel who stated that the proportion of expenditure on food tends to decline as household income increases. However, a detailed analysis of the household consumption pattern, the factors lead to such pattern, etc. cannot be analysed with the secondary data on consumption. The implications of and interactions by various forces on household consumption pattern could better be studied only using primary data. In the present study, which focuses mainly on gender specific economic factors influencing household consumption pattern and their implications, primary data collected through a sample survey is used for analysis. The sample survey was conducted for the purpose of present study, and the analysis in this chapter as well as in the succeeding two chapters relies mainly on the data collected through the survey.

Because study on the impact of shift in cropping pattern of Kerala resulting in change in women's work participation and the implications on family consumption pattern is the main consideration of the present study, the sample study was to collect information spreading through past few decades through the present. Although the survey was conducted during February to April 2000, the information collected related to three decades prior to the survey period. The respondent specific characteristics are therefore important for the analysis. The ecological setting of the Karukachal panchayat, where the sample study was conducted, together with the respondent specific characteristics is presented in the present chapter.

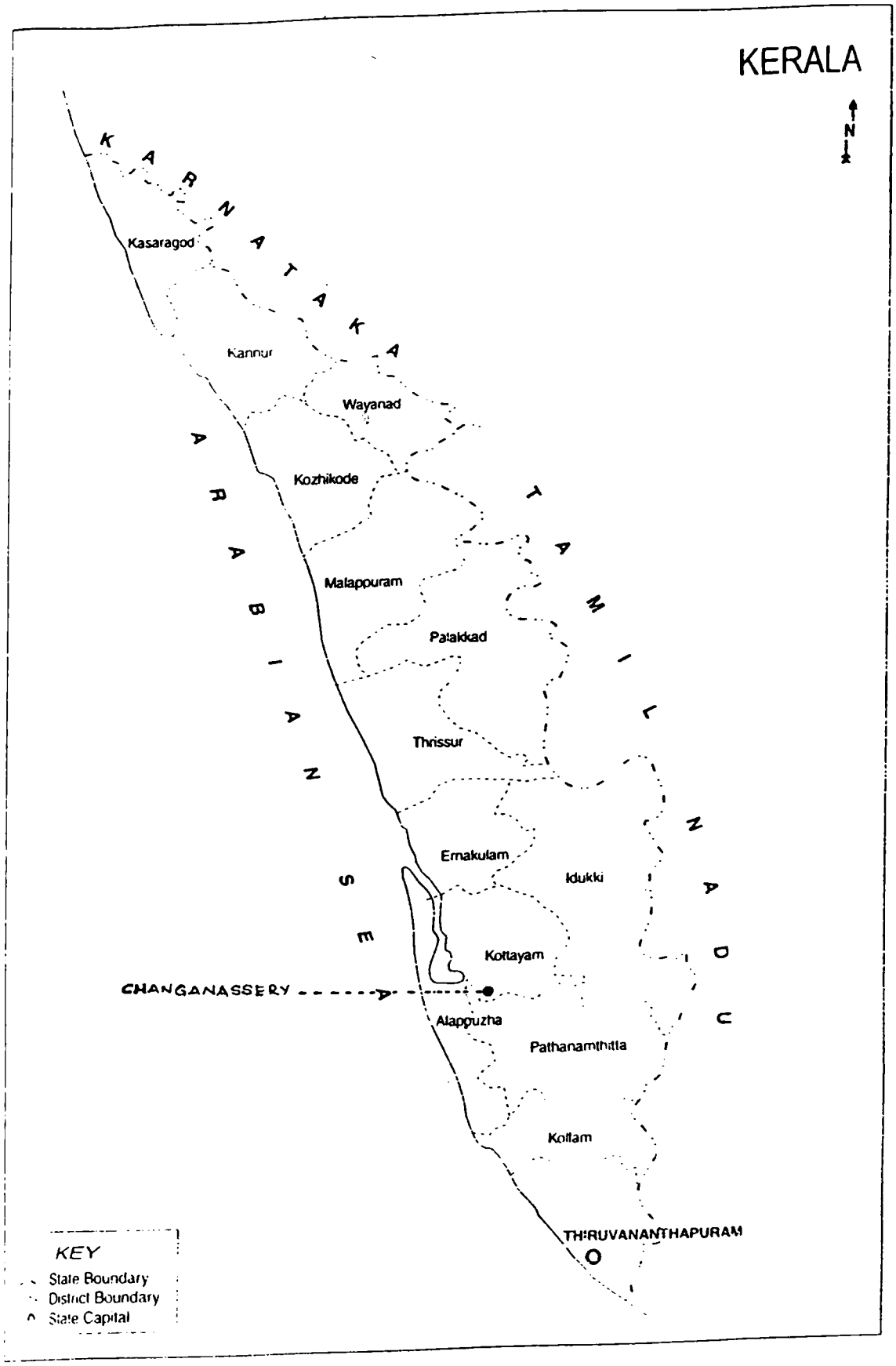
5.2 Karukachal Panchayat: The Ecological Setting

In the last chapter we have examined the trends in the growth of agriculture in Kerala and the gender specific impacts of it. The gender impacts of agriculture growth at micro level were attempted to study through analysis of the sample data collected from Karukachal panchayat. Data relating to the labourers as well as the farmers have been collected through the survey to study the work participation changes and family consumption pattern of the female agriculture labourers and to see the shift in cropping pattern, if any.

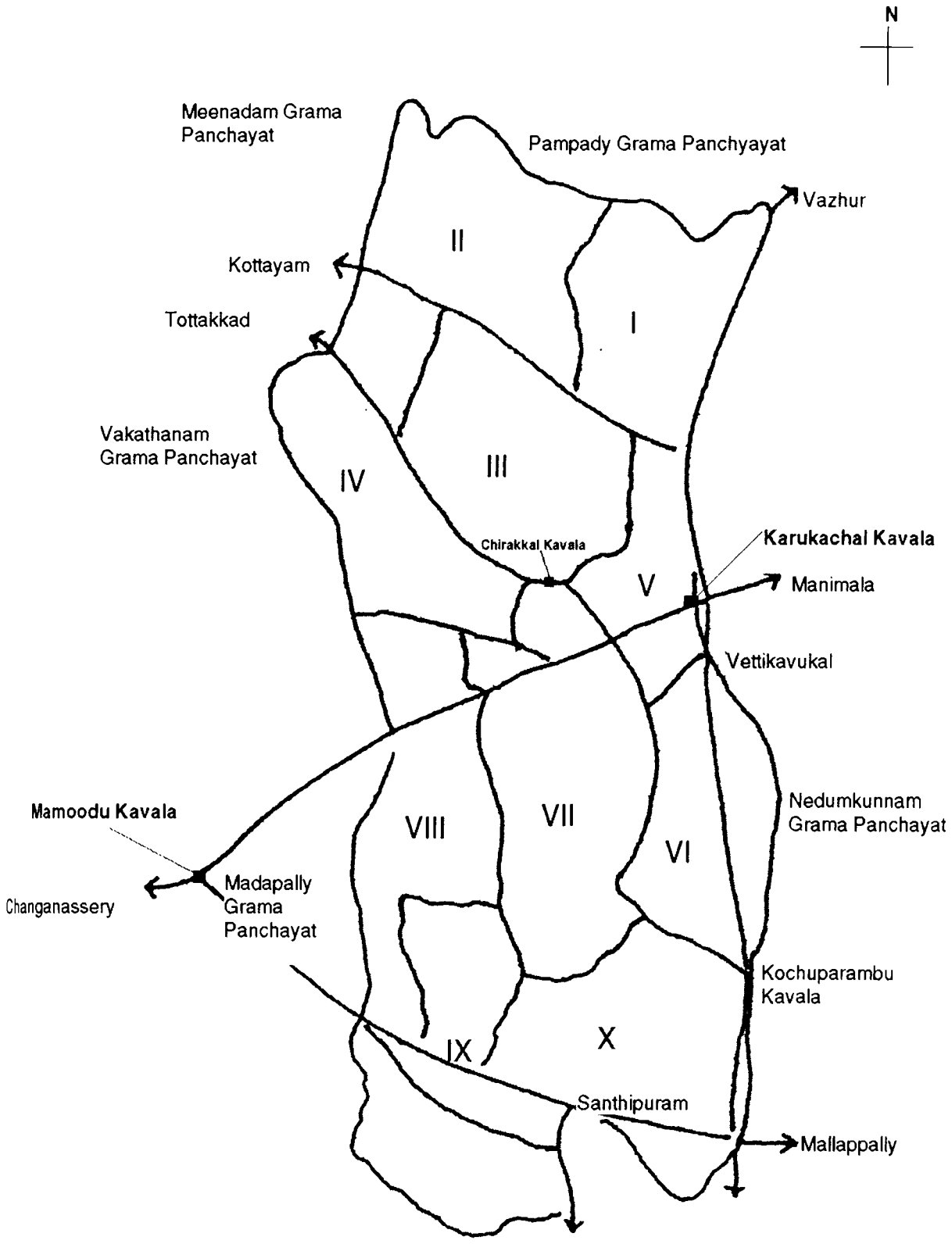
Karukachal grama panchayat, as given in the introductory chapter, lies in Kottayam district, and in Changanacherry Taluk or alternatively in Madappally block. The panchayat was formed in 1953 including the villages of Nedumkunnam and Karukachal. The area under the panchayat is 8.1 square KM. Total population of the panchayat is 20133 as per 1991 census and the revised data in 1996 shows population as 22199. There are 5989 houses in 10 wards of the panchayat.

The land area of the panchayat is categorised as high land and low land. The low land come under the places of Nethalloore, Vayalumkal, Makkiyil, Kavunnada, Poomattom, Veliyam, Tengolil, Kootrappally, Chirackal, Kavumkalpadi, Tanungumpati, Thommacherry, Vettikkavumkal, Raittanparamba, and Kavil Nedungadappally.. The high lands comprise of the places Chambakkara Thakadiyel, Kaniyamkunnu, Mampati,

Kerala: District Boundaries



KARUKACHAL GRAMA PANCHAYAT



Budhanakkuzhi, Umpidi, Plachikkal, Banglamkunnu, Pachilamakkal, Thakadiyel, Irumpukuzhi, Mulakkamkunnu, Anchani, Chettuthadam, Perumpettu, and Oothappara.

The low lands were mainly paddy area, but were almost totally been converted into cultivating cash crops like rubber, coconut, cocoa, tapioca, banana and plantain, etc. The historical evolution of cropping pattern of the panchayat is somewhat interesting. The earlier crop cultivated was sweet potatoes. Then shifted to paddy cultivation. Paddy became predominant crop in the panchayat for a considerable period of time. But cropping pattern changed drastically over time and the present system of mixed crops emerged. Although a few families have land holding up to eight hectares, small and marginal holdings dominate in the area. During the last one and a half decade farmers in the area have shifted from short term and/or seasonal crops to long term and tree crops as a part of commercialisation of agriculture. Thus rubber became the most important crop of the panchayat in spite of the fluctuations in price of rubber experienced in 1996 onwards.

5.3 Respondent Specific Social and Economic Characteristics

The social and economic factors relating to the respondents of the sample study are important in determining the cause and effect of change in cropping pattern as well as the employment of female labour. The database for the analysis was the sample survey of the households conducted in Karukachal grama panchayat. The samples were selected from both farmers and labourers. The respondent specific and their family relevant characteristics were analysed in the present chapter.

5.3.1 Sample data and Methods used for analysis

The sample size was 100. The respondent farmers were 24 and respondent labourers, 76. All the respondent farmers were males. In other words, no women reported her being a farmer from any one of the 24 farmer households surveyed. Out of the 76 labourers interviewed, eight were male labourers and 68 were female labourers. The data collected through the sample survey were crosstabulated two-way to analyse various attributes, which are respondent specific and/or respondents' family specific, and to observe any association.

5.3.2 Age Distribution of Respondents

The age distribution of the respondents showed only five of them were below the age of 40 years. About 62 per cent of the female labour respondents were of age above 50 years (see Table 5.1). The respondent labourers were continuing in the labour force except one quitted voluntarily, although majority of them reported unemployed due to lack of opportunity.

Table 5.1 Age Distribution of Respondents by Sex

Age (Years)	No. of persons		Percentage of	
	Female	Male	Female	Male
30-34	2	0	2.94	0.00
35-39	2	1	2.94	3.13
40-44	11	4	16.18	12.50
45-49	11	4	16.18	12.50
50-54	15	8	22.06	25.00
55-59	11	7	16.18	21.88
60-64	11	5	16.18	15.63
65-69	5	1	7.35	3.13
70-74	0	0	0.00	0.00
75-79	0	2	0.00	6.25
Total	68	32	100.00	100.00

Source: Sample Survey of Karukachal Panchayat, 2000.

5.3.3 Caste and Religion

Distribution of respondents by caste, religion and sex showed that 45 females and 17 males were Hindus and 23 females and 15 males were Christians. Majority of the Christian respondents were Roman Catholics, while Hindu respondents were mainly from Ezhava caste. The Cheramar Christians, Hindu Pulayars, Hindu Sambavas and Hindu Nairs were the other important castes of respondents (see Table 5.2).

Table 5.2 Distribution of Respondents by Caste, Religion and Sex

	Hindu		Christian		Total
Caste	Female	Male	Female	Male	
Cheramar	2		11		13
Ezhava	18	10			28
Nair	6	5			11
CSI				1	1
Sambava	8				8
Roman Catholic			12	14	26
Kurup		1			1
Pulaya	11	1			12
Total	45	17	23	15	100

Source: Same as in Table 5.1

The information collected through the sample survey relates to 472 persons, the total members of the families of the respondents of the survey. The details regarding the population covered by the survey are given in Table 5.3. One household had no male member. Average household size is 4.72, i.e. five persons. On an average the respondent families had two or three female members and three or two male members.

The number (and percentage) of households having two males is equal to the number (and percentage) of households having two females. While 38 per cent of the households had three male members, only 32 per cent had three female members. A significant percentage of households (9 per cent) had four female members while only in 3 per cent of households the researcher found four male members.

Table 5.3 Distribution of members of the households of the Respondents by Sex

No. of persons	No. of households having		Total Number of Persons		
	Females	Males	Females	Males	Total
0	0	1	0	0	0
1	14	13	14	13	27
2	44	44	88	88	176
3	32	38	96	114	210
4	9	3	36	12	48
5	0	1	0	5	5
6	1	0	6	0	6
Total	100	100	240	232	472

Source: Same as in Table 5.1

5.3.4 Occupation of the Respondents

The present occupational status of the respondents is given in Table 5.4. The data show that 73.53 per cent of the total female respondents are at present unemployed. They have reported being in the labour force but remaining unemployed due to lack of opportunity. It is observed that 19.12 per cent of the total female labour respondents were agriculture labourers, which is a higher percentage in the similar category with respect to the panchayat as a whole as per 1991 Census (only 15.41 per cent of total female workers were agriculture labourers (see Table 3.10). However, the census data relates to existing employed and our sample data contains those in labour force and were employed in the past and at present remain unemployed due to changes in their work environment. While no female cultivator reported in the survey, 65.63 per cent of the male respondents were mainly cultivators (farmers). Another 9.38 per cent of male respondents were cultivators as

well as businessmen. But, as is the case, in Kerala agriculture is not a farmers business, but mainly is a wage labour exercise. So one can confidently say that 75 per cent of the male respondents were cultivators. The panchayat level data show that 7.70 percent of the total female work participants of the panchayat were cultivators and only 21.99 per cent of the male workers, cultivators (see Table 3.10). Because 73.53 per cent of female respondents were unemployed, only the remaining 26.47 percent were employed or income earning female respondents; and they being not cultivators or industrialists, were labourers.

Table 5.4 Distribution of Present Occupation of Respondents by Sex

Present Occupation	No. of persons		Percentage of persons	
	Female	Male	Female	Male
Agriculture Labourers	13	2	19.12	6.25
Industrial Labourers	1		1.47	0.00
Rubber Tapping Labourers		2	0.00	6.25
Construction Worker	2	2	2.94	6.25
Housemaid	2		2.94	0.00
Farmer		21	0.00	65.63
Business & farmer		3	0.00	9.38
Unemployed	50	2	73.53	6.25
Total	68	32	100.00	100.00

Source: Same as in Table 5.1

The distribution of present occupation of the respondents by their age showed that 86.67 per cent of the agriculture labourers were of the age between 40 to 69 years (see

Table 5.5). The respondent farmers were of varying age from 30 to 79 years. Unemployed were mainly of age between 40 to 69 years. Of the respondents in the age group of 40-49 years, 53.33 per cent were unemployed and 33.33 per cent, employed in different wage works, from the age group 50-59 years 53.66 per cent were unemployed and only 12.20 per cent were engaged as agriculture labourers, and from those in the age group of 60-69 years 59 per cent were unemployed and 27.27 per cent were employed in agriculture and construction wage works. The rest of them in these age groups were farmers. And 60 per cent of the respondents in the age group of 30-39 years were labourers.

Table 5.5 Distribution of Present Occupation of Respondents by Age

Present Occupation	Age (Years) 30-39	40-49	50-59	60-69	70-79	Total
Agriculture Labourers	2	4	5	4		15
Industrial Labourers	1					1
Rubber Tapping Labourers		2				2
Construction Worker		2		2		4
Housemaid		2				2
Farmer	1	3	12	3	2	21
Business & farmer		1	2			3
Unemployed	1	16	22	13		52
Total	5	30	41	22	2	100

Source: Same as in Table 5.1

Data show that the majority of the middle aged are remaining unemployed. This has serious economic implications on the labour families. Labour being the only productive

resource owned by them, their unemployment means no income to them. All of these unemployed have reported that earlier they were labourers mainly in agriculture sector, and became unemployed due to changes in cropping pattern to female labour saving crops as well as increasing male unemployment causing competition between female and male labour to available jobs.

The distribution of present occupation of the respondents by labour years showed that respondents who were agriculture labour have worked for more than 11 years (see Table 5.6). While 20 per cent of the agriculture labourers worked 11 to 20 years, 40 per cent of them worked for 21 to 30 years. Another 20 per cent worked for 31 to 40 years and the rest 20 per cent worked 41 to 50 years. It is interesting to see that the unemployed respondents were all labourers and around 94 per cent of them were employed for more than 11 years. Exactly 28.85 per cent of the unemployed had worked for 11 to 20 years. Another 36.54 per cent of the presently unemployed had worked for 21 to 30 years and 25 per cent of them had worked for 31 to 40 years. Although a lower percentage, some of the unemployed had worked even for 41 to 50 years. This means that once they were effectively participating and at present remain unemployed. This has implications on personal and thereby family income.

Table 5.6 Distribution of Present Occupation of Respondents by Labour Years

Present Occupation	Labour-years 0	1-10	11-20	21-30	31-40	41-50	Total
Agriculture Labourers			3	6	3	3	15
Industrial Labourers			1				1
Rubber Tapping Labourers			2				2
Construction Worker				2	1	1	4
Housemaid			2				2
Farmer	21						21
Business & farmer	3						3
Unemployed		3	15	19	13	2	52
Total	24	3	23	27	17	6	100

Source: Same as in Table 5.1

5.3.5 Abstract information regarding the respondent specific characteristics

The average age of respondents of the sample survey was 52.48 years (see Table 5.7). The average size of household was 4.73, but it varied from one to eight. The household income of the respondents varied between Rs. 430 and Rs.25000 per month. And the average household income was Rs. 2482 per month. The respondents' households had male members nil to a maximum of five, and female members one to six. On an average, respondent households had 2.32 male members and 2.4 female members. The houses of the respondents showed large differences (say in the matter of plinth area of the house, variation was from 15 square feet to 3500 square feet).

Table 5.7 Descriptive statistics regarding the total (N=100) Respondents

Variables	Statistic.....> Minimum	Maximum	Mean	Std.Error of Mean	Standard deviation	Skewness Statistic	Skewness Std.Error	Kurtosis Statistic	Kurtosis Std.Error
Age of Respondent	30	78	52.48	0.88	8.844	-0.008	0.241	0.166	0.478
Size of households	1	8	4.73	0.11	1.145	0.138	0.241	1.442	0.478
Total household income (Rs.)	430	25000	2482	328	3281	4.485	0.241	24.756	0.478
Male members	0	5	2.32	0.08	0.815	0.03	0.241	0.617	0.478
Female members	1	6	2.4	0.09	0.91	0.673	0.241	1.381	0.478
Plinth area of house (Sq.ft.)	15	3500	730	59	586	2.17	0.241	6.342	0.478

Source: Same as in Table 5.1

5.4 Respondent Farmers Specific Characteristics

The percentage distribution of respondent farmers by caste and religion showed that 58.33 per cent of the farmers were Hindus and 41.67 per cent were Christians (see Table 5.8). The Hindu farmers were mainly from the Ezhava caste and Nair and Kurup were the other castes of Hindu farmers. Ezhavas are included in Other Backward Castes by the state list. They were traditionally known as tenants or cultivators of lands of the landlords. After the implementation of land reforms they turned into farmers owning their farmland. The Ezhava farmers constituted 37.50 per cent of the total respondent farmers. The Christian farmers were mainly Roman Catholics (37.50%). The CSI group formed 4.17 per cent. The rest belonged to other groups like Nairs (16.67%) and Kurup (4.17%).

Table 5.8 Percentage Distribution of Respondent-Farmers by Caste and Religion

Caste	Number of Respondents			Percentage of Respondents		
	Hindu	Christian	Total	Hindu	Christian	Total
Ezhava	9		9	37.50		37.50
Nair	4		4	16.67		16.67
CSI		1	1		4.17	4.17
Roman Catholic		9	9		37.50	37.50
Kurup	1		1	4.17		4.17
Total	14	10	24	58.33	41.67	100.00

Source: Same as in Table 5.1

Household size of farmers tabulated by sex showed that six households had only one female member while three households had one male member (see Table 5.9). Two to three females and males were seen in majority of farmer households. The total number of members of farmer household varied between three and eight. The model household size of farmers was four with maximum frequency of 12 households having the size. The farmer households totally had 54 females and 59 males, which indicates an unfavourable sex ratio for females. Total farmer households covered in the survey were 24 and the farmer population, 113.

Table 5.9 Distribution of household-size of the Respondent-Farmer households by Sex

No. of persons	No. of households having			Total Number of Persons		
	Females	Males	Total	Females	Males	Total
1	6	3		6	3	
2	8	9		16	18	
3	8	11	1	24	33	3
4	2		12	8		48
5		1	6		5	30
6			4			24
8			1			8
Total	24	24	24	54	59	113

Source: Same as in Table 5.1

The experience of respondent farmers in the field showed that 87 per cent had farming experience more than 20 years and only 13 per cent of them had farming experience less than 20 years (see Table 5.10). It is important to note that 43.48 per cent of the farmers had field experience of 31 to 40 years. And some of them have farming

experience up to 50 years. This aspect is very important to evaluate the response of farmers to changes in cropping pattern in the course of their farming experience.

Table 5.10 Percentage Distribution of Respondent-Farmers by years of experience as farmer

Years	Number of persons	Percentage
Up to 20	3	13.04
21-30	7	30.43
31-40	10	43.48
41-50	3	13.04
Total	23	100.00

Source: Same as in Table 5.1

5.4.1 Land Holdings and Agricultural income of Respondent Farmer Households

The distribution of the respondent farmer households surveyed on the basis of their land ownership is given in Table 5.11. The table shows that 12.50 per cent of farmers own 'less than 50 cents' of land only. Another 37.50 per cent of the farmer households own '50-100 cents'. This shows that 50 per cent of the farmer households own less than one acre of land. Around 29 per cent of the farmers own one to two acres of land. This indicates that majority of the respondent farmers were marginal farmers. As things are like that it is rather a paradox to note that the average holding size was 185.42 cents with a high error term (Standard Error = 71.55) and a very high measure of dispersion (Standard Deviation) of 350.546 (see table 5.21). This is largely because of the wide difference

between minimum (35 cents) and maximum (1800 cents) holdings held by the respondents. While farmers with marginal holdings predominate in Kerala one can come across people holding large estates in the state.

Table 5.11 Percentage Distribution of Respondent-Farmer households by Land owned

Land Area (cents)	Number of households	Percentage of households
Less than 50	3	12.50
50-100	9	37.50
100-150	3	12.50
150-200	4	16.67
200 and above	5	20.83
Total	24	100.00

Source: Same as in Table 5.1

Household agricultural income of respondent farmers is given in Table 5.12. It is interesting to observe that 50 per cent of the farmer households had agricultural income between Rs. 500 and Rs. 1500 per month. Agricultural income of 41.66 per cent of farmers ranged between Rs. 1500 and Rs. 3000 per month. Only 8.33 per cent of farmers had income more than Rs. 3000 per month. The average monthly income of farmer households was Rs.2375 (estimated with an error term Standard Error = 650) with a high measure of dispersion (Standard Deviation = 3185) (see Table 5.21). This result is because of the highly dispersed and skewed distribution of income with the lowest value of Rs. 500 and the highest value Rs. 13000. This high difference in agricultural incomes across farmer

households was due to the wide difference in land holdings from marginal holdings to large size holdings as seen earlier.

Table 5.12 Percentage Distribution of Respondent-Farmer households by monthly income from agriculture

Agricultural Income (Rs.)	Households	
	Number	Percentage
500-1000	4	16.67
1000-1500	8	33.33
1500-2000	4	16.67
2000-2500	4	16.67
2500-3000	2	8.33
Above 3000	2	8.33
Total	24	100.00

Source: Same as in Table 5.1

5.4.2 Crops cultivated and Changes in Cropping Pattern

Only 83. 33 per cent of the respondent farmers had entered the field in 1970 (see Table 5.13). Paddy was the main crop cultivated by them in that year and the second important crop was tapioca. The other crops cultivated were coconut, ginger, rubber, cocoa, plantain, teak, arecanut, etc. A mixed cropping of two or more of these crops also was adopted. In 1975, some more respondents entered farming and 95.83 per cent of total respondent farmers cultivated various crops and the importance of crops was in the same order as of 1970. Around 54 per cent of the respondent-farmers cultivated paddy in 1975.

1980 even though all the respondent farmers were in the field, data showed that only 50 per cent of them were paddy cultivators in 1980. Tapioca cultivators accounted 16.67 per cent of the farmers. In 1985 the percentage of farmers cultivating paddy declined further to 33.33. So also is the case with farmers cultivating tapioca. It declined to 12.50 in 1985 from 16.67 per cent in 1980. On the contrary, coconut cultivation increased over years as the percentage of farmers cultivating coconut increased from 4.17 in 1975 to 16.67 in 1985. Again in 1990, the percentage of farmers cultivating paddy declined to 16.67 and those involved in coconut cultivation increased to 25 per cent of the respondent farmers. Tapioca cultivation seemed only an occasional business as the percentage of farmers involved showed fluctuations periodically. No paddy cultivation by the respondents reported for the periods from 1995 onwards. None of the respondent farmers resorted to ginger cultivation since 1980.

The percentage of farmers involved in rubber cultivation increased from 4.17 in 1970 to 41.67 in 1998. This shows an evident shift in cropping pattern. Cultivation of paddy by respondents stopped prior to 1995 and the proportion of rubber cultivators rose from 29.17 per cent in 1990 to 37.50 per cent in 1995. The shift in cropping pattern was mainly in favour of rubber and secondly, coconut. Although coconut and rubber in the initial one or two years of cropping are possible to be mixed cropped with tapioca, plantain, ginger and such seasonal crops, only an insignificant percentage of farmers resorted to such practices. Otherwise farmers who adopted mixed cropping with rubber opted for teak and arecanut, which are again tree and perennial crops.

The seasonal crops like ginger and food crops like paddy, tapioca, plantain, etc. are involving more labourers, especially casual women labourers. When the cropping pattern changed in favour of the tree and perennial crops, those female labourers who were engaged in the seasonal and food crops cultivation got released from their job and thrown to the labour market seeking other employment. The newly introduced crops by shifting from the existing cropping pattern to tree and perennial crops offered less employment opportunities compared to that offered by the seasonal and food crops. Opportunities generated due to new cropping pattern were mainly for male labourers. Climbing coconut tree to pluck coconut and tapping rubber to collect latex were mainly done by male labourers. Although technically speaking, rubber tapping and application of manure for coconut and rubber, etc. can be performed by female labourers, the field level experience was that mostly those works are done by male labourers. Increasing unemployment, cutthroat competition in casual labour market and the physical capacity of male helped male labourers to marginalise females. All these accentuated the adversities of female labourers and thrown the once employed and then released female labourers from agriculture due to changes in cropping pattern.

The details regarding first shift in cropping pattern and the reason thereof reported by the respondent farmers participated in the survey are given in Table 5.14. Scarcity of labour, high cost of land on lease and financial loss with respect to paddy cropping were the reported causes of shifting from paddy to tapioca. Because of these reasons 25 per cent of the farmers shifted their cropping pattern from paddy to tapioca. Farmers shifted from cultivating paddy to rubber as paddy cultivation resulted in financial loss. Around 8.33 per

cent of the farmers resorted to such shift in cropping pattern. Another 4.17 per cent of the farmers shifted their cropping pattern to rubber from coconut. Farmers shifted from paddy to plantain & rubber accounted 4.17 per cent of the total respondent farmers, and from tapioca to rubber 8.33 per cent. This shows that a total of 25 per cent of the farmers who were cultivating other crops had shifted to rubber. Likewise 29.17 per cent of farmers shifted their cropping pattern from paddy, pepper, tapioca and mixed crops to coconut. The reasons cited were financial loss connected with paddy cropping and/or seeking better options in commercial crops.

The observed shift in cropping pattern of farmers was mainly in favour of tree and perennial crops. A few farmers had shifted to cocoa from paddy and recently from rubber seeking better options in commercial crops.

Table 5.13 Percentage Distribution of Respondent-Farmer households by crops cultivated

Year	Crops														
	Paddy	Coconut	Mixed crops	Tapioca	Ginger	Rubber	Cocoa	Paddy & tapioca	coconut& tapioca	Tapioca & rubber	Rubber& plantain	Paddy& coconut	Rubber& teak	Arecanut	Total
1970	50.00		4.17	12.50	4.17	4.17		4.17				4.17			83.33
1975	54.17	4.17	4.17	16.67	4.17	4.17		4.17				4.17			95.83
1980	50.00	12.50	8.33	16.67		4.17		4.17	4.17						100.00
1985	33.33	16.67	4.17	12.50		12.50		4.17	8.33		8.33				100.00
1990	16.67	25.00		8.33		29.17	4.17		4.17	4.17	4.17			4.17	100.00
1995		25.00		12.50		37.50	4.17			4.17	8.33		4.17	4.17	100.00
1998		25.00	4.17	4.17		41.67	4.17			4.17	4.17		8.33	4.17	100.00

Source: Same as in Table 5.1

Table 5.14 Percentage Distribution of Respondent-Farmer households by first shift in cropping pattern and reason for first shift in cropping pattern

Shift in cropping pattern	Reason for shift in cropping pattern						
	1	2	3	4	5	6	Total
1. From paddy to tapioca	4.17	4.17		16.67			25.00
2. From paddy to rubber				4.17	4.17		8.33
3. From paddy to coconut				16.67			16.67
4. From paddy & pepper to coconut				4.17			4.17
5. From coconut to rubber			4.17				4.17
6. From rubber to cocoa			4.17				4.17
7. From paddy to plantain & rubber				4.17			4.17
8. From paddy to plantain				4.17			4.17
9. From tapioca to mixed crops						4.17	4.17
10. From tapioca to coconut				4.17			4.17
11. From tapioca to rubber			8.33				8.33
12. From paddy to cocoa			4.17				4.17
13. From mixed crops to coconut			4.17				4.17
14. From Ginger to tapioca				4.17			4.17
Total	4.17	4.17	25.00	58.33	4.17	4.17	100.00

Source: Same as in Table 5.1

Note: Reasons for first shift in cropping pattern
1. Shortage of labour
2. High cost of land on lease and scarcity of labour
3. Seeking better options in commercial crops
4. Financial loss due to crop
5. Increase in price of rubber
6. Intensive cropping

The percentage distribution of respondent farmer households by year of first shift in cropping pattern and reason for the same is given in Table 5.15. From 1975 to 1992 the major reason cited for whatever shift in cropping pattern was financial loss incurred by the previous cultivated crop. From 1985 onwards farmers started seeking better options in commercial crops. The financial loss owing to the cultivation of seasonal and food crops was the reason for seeking better options in commercial crops. In the last one decade since 1990, 41.67 per cent of the farmers resorted to shift in cropping pattern. An equal percentage of farmers have adopted shift in cropping pattern in the previous decade of 1980-1990. This was followed in the last decade because of the opportunities expected by opening up of Indian markets to competition. However, in mid 1990s decline in price of rubber due to global competition had clearly indicated the vulnerability of local farmers in commercial agriculture. Recent shifts in cropping pattern, was observed mainly from rubber to cocoa, which is another commercial crop open to global markets.

The second shift in cropping pattern resorted by respondent farmers was the result of seeking better options in commercial crops. It is observed that 50 percent of the farmers initiated a second shift in cropping pattern due to the said reason and the shift was from coconut, pepper and tapioca to rubber (see Table 5.16). The second important reason stated was that own land reserved for commercial crops. Commercial crops like rubber, was expected to give a predictable return in terms of production and if assured steady prices, income also is assured. However, many of these farmers lost hopes because of opening up of agricultural output markets for global competition, which resulted in fluctuations in prices. An extra natural shift in crops cultivated was reported as a shift

from plantain and rubber to paddy and coconut because of financial loss due to cultivation of plantain and rubber. Such a shift reveals the technical possibilities of low land rubber area to be reclaimed for paddy again.

Table 5.15 Percentage Distribution of Respondent-Farmer households by year of first shift in cropping pattern and reason for shift in cropping pattern

Year of first shift in cropping pattern	Reason for shift in cropping pattern						
	1	2	3	4	5	6	Total
1975				4.17			4.17
1978				4.17			4.17
1980				12.50		4.17	16.67
1982				4.17			4.17
1985			8.33	12.50			20.83
1988			4.17	4.17			8.33
1990		4.17	4.17	8.33			16.67
1992			4.17	8.33			12.50
1993					4.17		4.17
1995	4.17						4.17
1998			4.17				4.17
Total	4.17	4.17	25.00	58.33	4.17	4.17	100.00

Source: Same as in Table 5.1

Note: Reasons for first shift in cropping pattern
1. Shortage of labour
2. High cost of land on lease and scarcity of labour
3. Seeking better options in commercial crops
4. Financial loss due to crop
5. Increase in price of rubber
6. Intensive cropping

Table 5.16 Percentage Distribution of Respondent-Farmer households by second shift in cropping pattern and reason for second shift in cropping pattern

Shift in cropping pattern	Reasons for second shift in cropping pattern						
	1	2	3	4	5	6	Total
1. From coconut to rubber		25.00					25.00
2. From pepper to rubber		8.33					8.33
3. From plantain & rubber to paddy & coconut			8.33				8.33
4. From plantain to arecanut					8.33		8.33
5. From tapioca to mixed crops						8.33	8.33
6. From tapioca to coconut	8.33						8.33
7. From tapioca to rubber	8.33	16.67		8.33			33.33
Total	16.67	50.00	8.33	8.33	8.33	8.33	100.00

Source: Same as in Table 5.1

Note: Reasons for second shift in cropping pattern
1. Own land aimed at cultivating commercial crops
2. Seeking better options in commercial crops
3. Financial loss due to crop
4. Increase in price of rubber
5. Crop failure
6. Intensive cropping

The second shift in cropping pattern occurred mainly in 1990 and 50 percent of the farmer households adopted change in crops (see Table 5.17). The shift in crops in 1990 was mainly from other crops to rubber. After 1990 another 33.33 percent of the farmers adopted second change in cropping pattern and the change was from coconut and tapioca to rubber. The common root-wilt disease of coconut forced many of the farmers

to stop coconut cultivation and this led to introducing rubber as it is the wide spread commercial crop in Kottayam district.

Table 5.17 Percentage Distribution of Respondent-Farmer households by second shift in cropping pattern and year of second shift in cropping pattern

Shift in cropping pattern	Year						
	1982	1985	1990	1992	1995	1998	Total
1. From coconut to rubber			16.67		8.33		25.00
2. From pepper to rubber			8.33				8.33
3. From plantain & rubber to paddy & coconut	8.33						8.33
4. From plantain to arecanut			8.33				8.33
5. From tapioca to mixed crops						8.33	8.33
6. From tapioca to coconut			8.33				8.33
7. From tapioca to rubber		8.33	8.33	8.33	8.33		33.33
Total	8.33	8.33	50.00	8.33	16.67	8.33	100.00

Source: Same as in Table 5.1

5.4. 3 Life Situations of Respondent Farmer Households

The standard of living of the farmer households elsewhere is determined not only by agricultural income but also by the bovine production they are practising. In our sample study, the farmers had reared cows, hen/cock, goat, buffalo, duck and dog. The percentage of farmers, who reared cows increased over each period since 1970 (16.67 per cent) to 1990 (70.83 per cent) (see Table 5.18). However, a decline in the percentage of farmers, who reared cows, was observed in 1995 (58.33 per cent), and it showed an

improvement in 1998 (62.50 per cent). The percentage of farmers growing hen/cock also increased over periods since 1970.

Table 5.18 Percentage Distribution of Respondent-Farmer households by Bovine culture pattern

Year	Domesticated animals Cow	Buffalo	Goat	Hen/cock	Duck	Dog
1970	16.67			4.17		
1975	33.33			8.33		
1980	41.67		4.17	16.67		
1985	50.00	4.17		12.50		
1990	70.83		8.33	20.83	4.17	
1995	58.33			33.33		
1998	62.50		4.17	33.33	4.17	4.17

Source: Same as in Table 5.1

The farmer households owned many assets and articles as given in Table 5.19. However, the revelation of ownership of articles and assets is not so reliable as most of them did not want to disclose details regarding their assets to the researcher. This is why the farmer households owning gold ornaments come up to 89 per cent only. This much revelation even was done because the quantity of gold owned was not inquired to them. It is observed that 75 per cent of them owned radio and they had the same by 1985. That is, for the last one and a half decades radio is not an article new to farmer households, instead their preference was for television after 1985. And 50 percent of the farmers possessed audio sets and they possessed the same by 1995. More than 50 percent of the farmers had mixer/grinder and fridge, which are the modern amenities in kitchen.

However, only 25 per cent of farmers had washing machine and was possessed recently since 1995. Mechanical assistance for women in their routine works are usually provided to facilitate them to participate paid work outside house. Here the women in farmer households were reported to have engaged in no work outside home.

Table 5.19 Percentage Distribution of Respondent-Farmer households by articles and assets owned since the corresponding year reported.

Year	Articles and assets Ornaments (gold & precious Metals)	Radio	Audio set	Tele-vision	Steel vessels	Mixer/ grinder	Fridge	Washing machine	Gold, radio Audio & Vessels	Cooker & Mixer/ grinder	Gold, Television & Fridge	Total
1970	16.67	4.17			4.17				12.50			37.50
1975		33.33	4.17		8.33				4.17			50.00
1980		29.17	8.33		4.17	4.17			8.33	4.17		58.33
1985	8.33	8.33	12.50		20.83	4.17	8.33			4.17		66.67
1990			12.50	8.33	25.00		8.33			8.33	16.67	79.17
1995			12.50	16.67		4.17	4.17	16.67		20.83		75.00
1998	4.17			20.83		8.33	4.17	8.33			8.33	54.17
Total	29.17	75.00	50.00	45.83	62.50	20.83	25.00	25.00	25.00	37.50	25.00	

Source: Same as in Table 5.1

The banking transactions of the respondent farmers showed that during 1970-74 the involvement was in the form of savings deposits and chits. The percentage of farmers having savings deposits increased over the decades from 4.17 during 1970-74 to 83.33 during 1995-97 (see Table 5.20). However, the percentage of farmers, who had fixed deposits, was 4.17 during 1990-94. In no other periods the farmers reported to have had

fixed deposits. Chits were another major financial intermediary involvement with farmers. But the percentage of farmers, who had chits were variable during the periods. In all the periods since 1980-84, farmers availed loans from banks. The maximum percentage of farmers availed loan from banks was 20.83 and it was during 1990-94. After the period 1990-94 the percentage of farmers availed loan from banks steadily declined. Instalment purchase was resorted to by only 4.17 percent of farmers.

Table 5.20 Percentage Distribution of Respondent-Farmer households by their Banking Transactions

Year	Banking transactions				
	Savings deposits	Fixed deposits	Chits	Bank loan	Instalment purchase
1970-74	4.17		4.17		
1975-79	16.67		8.33		
1980-84	54.17		4.17	4.17	
1985-89	75.00		20.83	12.50	
1990-94	75.00	4.17	4.17	20.83	4.17
1995-97	83.33		8.33	16.67	
1998	83.33		8.33	12.50	

Source: Same as in Table 5.1

The summary statistics regarding the farmers' specific variables are given in Table 5.21.

Table 5.21 Descriptive statistics regarding the Respondent-Farmers (N=24)

Variables	Statistic.....> Minimum	Maximum	Mean	Std.Error of Mean	Standard deviation	Skewness Statistic	Skewness Std.Error	Kurtosis Statistic	Kurtosis Std.Error
Age of Respondent	39	78	54.79	1.86	9.098	0.796	0.472	1.458	0.918
Size of households	3	8	4.75	0.24	1.152	1.281	0.472	1.629	0.918
Total household income (Rs.)	800	25000	4821	1213	5940	2.146	0.472	4.919	0.918
Male members	1	5	2.46	0.18	0.884	0.55	0.472	1.811	0.918
Income earning males	1	3	1.22	0.22	0.667	3	0.717	9	1.4
Income of Males (Rs.)	1200	23000	5243	2991	7914	2.534	0.794	6.523	1.58
Personal consumption spending by Males (Rs.)	500	1500	1025	275	550	-0.029	1.014	-5.835	2.61
Family consumption spending by Males (Rs.)	600	4500	2200	694	1551	0.863	0.913	-0.307	1
Proportion of Male income used for personal consumption	0.25	1	0.688	....	0.375	....	....	....	....
Female members	1	4	2.25	0.19	0.944	0.127	0.472	-0.879	0.91
Land holding (cents)	35	1800	185.42	71.55	350.546	4.608	0.472	21.99	0.91
Income from land (Rs.)	500	13000	2375	650	3185	3.014	0.472	8.294	0.91
Other income (Rs.)	1000	10000	4500	1969	3937	1.262	1.014	1.5	2.61
Plinth area of house (Sq.ft.)	600	3500	1391	163	797	1.06	0.472	0.39	0.91

Source: Same as in Table 5.1

5.5 Respondent Labourers Specific Characteristics

The percentage distribution of respondent labourers by caste, religion and sex showed that 10.53 per cent of respondent labourers were males and 3.95 percent of labourers were Hindu males and 6.58 per cent were Christian males (see Table 5.22). And 89.47 per cent of respondent labourers were females. Hindu females accounted for 59.21 per cent of total respondent labourers, while 30.26 per cent were Christian females. Ezhava was the major Hindu caste and 25 per cent of the respondent labourers belonged to that. The other Hindu labourers were from Pulaya, Sambava, Nair, and Cheramar castes. The Christian labourers were from Roman Catholic and Cheramar castes.

Table 5.22 Percentage Distribution of Respondent-Labourers by Caste, Religion and Sex

Caste	Number of Respondents					Percentage of Respondents				
	Hindu		Christian		Total	Hindu		Christian		Total
	Female	Male	Female	Male		Female	Male	Female	Male	
Cheramar	2		11		13	2.63		14.47		17.11
Ezhava	18	1			19	23.68	1.32			25.00
Nair	6	1			7	7.89	1.32			9.21
Sambava	8				8	10.53				10.53
Roman Catholic			12	5	17			15.79	6.58	22.37
Pulaya	11	1			12	14.47	1.32			15.79
Total	45	3	23	5	76	59.21	3.95	30.26	6.58	100.00

Source: Same as in Table 5.1

The average size of labour households was 4.72. One of the households had no male member. Total members of labour households varied from one to eight. A total 76 labour households (see Table 5.23) having 359 persons were surveyed. The population covered include 186 females and 173 males. Contrary to the respondent farmer households of the sample survey, the labour households had a sex distribution of members (sex ratio) favourable to females (see Table 5.9).

Table 5.23 Percentage Distribution of Size of the Respondent-Labour households by Sex

No. of persons	No. of households having			Total Number of Persons		
	Females	Males	Total	Females	Males	Total
0			1			
1	8	10	1	8	10	1
2	36	35	2	72	70	4
3	24	27	3	72	81	9
4	7	3	26	28	12	104
5	.		28			140
6	1		12	6		72
7			3			21
8			1			8
Total	76	76	76	186	173	359

Source: Same as in Table 5.1

The labour years completed by the respondent labourers as given sex-wise in Table 5.24, showed that only 4.41 percent of female labourers had work experience less than 10 years. It is observed that 30.88 per cent of female labourers and 25 percent of male labourers had worked for 11-20 years. Another 35.29 per cent of female labourers and 37.50 percent of male labourers had worked for 21-30 years. And 29.41 percent of female labourers and 37.50 percent of male labourers had worked for more than 30 years.

Table 5.24 Percentage Distribution of Labour years completed by Respondents by Sex

Labour Years	No. of persons Female	Male	Percentage of persons Female	Male
1-10	3	0	4.41	0.00
11-20	21	2	30.88	25.00
21-30	24	3	35.29	37.50
31-40	15	2	22.06	25.00
41-50	5	1	7.35	12.50
Total	68	8	100.00	100.00

Source: Same as in Table 5.1

The distribution of labour years completed by respondent labourers by their age showed that the labour years increased with age. Only 5.26 percent of the labourers were under 40 years of age (see Table 5.25). The labourers were mainly middle aged and 69.74 percent of them were between 40 and 60 years of age. Only 25 percent of the labourers were above 60 years.

Table 5.25 Percentage Distribution of Labour years of Respondents by their Age

Labor Years	Age (Years) 30-39	40-49	50-59	60-69	Total
1-10	1.32	2.63			3.95
11-20	3.95	23.68	2.63		30.26
21-30		7.89	23.68	3.95	35.53
31-40			9.21	13.16	22.37
41-50				7.89	7.89
Total	5.26	34.21	35.53	25.00	100.00

Source: Same as in Table 5.1

5.5.1 Employment and Income of Respondent Labourers

The types of work the labourers engaged were manual in nature. It included tree climbing, harvesting paddy, rubber tapping, and all paddy works (of ploughing, planting, weeding and harvesting). Labourers were mainly unskilled manual labourers and 57.35 percent of the females and 50 percent of the males came under this category (see Table 5.26). Only female labourers were paddy workers and 36.76 percent of them involved in that work. Rubber tapping was mainly of males and 37.50 percent of male labourers were engaged in that work. Only 1.47 percent of female labourers engaged in rubber tapping as an additional work. One of the female labourers explained that because her main work is in paddy field most of the times she remained unemployed. Therefore when she got an offer for tapping a few rubber trees she opted for that as a source of additional income.

The distribution of present occupation of respondent labourers by their type of labour is given in Table 5.27. It is important that 68.42 percent of the labourers were unemployed during the period of survey. The types of labour with acute unemployment were manual labourers and paddy workers. The unemployed manual labour came up to 36.84 per cent of total labourers, while paddy workers, who went unemployed, were 27.63 percent of total labourers. Employed agricultural labourers constituted 19.74 percent of the respondent labourers and they were mainly unskilled manual labourers. Construction sector employed only 5.26 percent of total labourers. Occupations like industrial labour, rubber tapping and housemaid collectively engaged only 6.58 percent of total labourers.

Table 5.26 Percentage Distribution of Type of Labour of Respondents by Sex

Type of Labour	No. of persons		Percentage of persons	
	Female	Male	Female	Male
Manual Labour	39	4	57.35	50.00
Tree climbing		1		12.50
Harvesting paddy	3		4.41	
Rubber Tapping		3		37.50
All paddy works	25		36.76	
Paddy work & rubber tapping	1		1.47	
Total	68	8	100.00	100.00

Source: Same as in Table 5.1

Table 5.27 Percentage Distribution of Present Occupation of Respondents by Type of Labour

Present Occupation	Type of Labour						
	Manual Labour	Tree - climbing	Harvesting Paddy	Rubber Tapping	All paddy works	Paddy work & rubber tapping	Total
Agriculture Labour	11.84	1.32			5.26	1.32	19.74
Industrial Labour	1.32						1.32
Rubber Tapping Labour				2.63			2.63
Construction Worker	3.95			1.32			5.26
Housemaid	2.63						2.63
Unemployed	36.84		3.95		27.63		68.42
Total	56.58	1.32	3.95	3.95	32.89	1.32	100

Source: Same as in Table 5.1

The labourers either unemployed or employed in various occupations have experienced change in their employment. The primary change in employment experienced by labourers is given in Table 5.28 by their prevailing occupational status. It is observed that only 10.14 percent of the total labour did not experience change in their occupation. And 31.88 percent of total labourers experienced a change from paddy work to other agricultural wage work initially, and their prevailing status was as agriculture labour and majority of them remained unemployed. This means that the prevailing unemployed experienced at least one change in employment from wage work in agriculture to unemployment. Another 30.43 percent of the total labour experienced direct change in occupation as from general wage work to unemployment. More than 10 percent (10.14%) of the total labourers changed occupation from agriculture labour to other wage work. The percentage of labour turned unemployed from paddy work was 8.70.

The income-earning members of labour families arranged sex-wise showed that only 28 labour households (i.e. 36.84 percent of total labour households) have income earning female members. On the other hand 71 labour households (93.42 per cent of labour households) had income earning male members (see Table 5.29). Totally, 30 female labourers and 97 male labourers earned income. Although the 89.47 per cent of the respondent labourers were females, the percentage of earning female labourers to total earning labourers was only 23.62. The earning male labourers as a percentage of total earning labourers of labour households, was 76.38.

Table 5.28 Percentage Distribution of Present Occupation of Respondents by Primary Change in Employment

Present Occupation	Primary Change in Employment									
	No change	1	2	3	4	5	6	7	8	9
Agriculture Labour	7.25	5.80			1.46	1.46				
Industrial Labour			1.46							
Rubber Tapping Labour	2.90									
Construction Worker							1.46			
Housemaid										2.90
Unemployed		26.09		8.70				30.43	10.14	
Total	10.14	31.88	1.46	8.70	1.46	1.46	1.46	30.43	10.14	2.90

Source: Same as in Table 5.1

Note: Primary Change in Employment

1. Paddy work to agriculture wage work
2. Paddy work to other wage work
3. Paddy work to unemployment
4. Paddy work to construction work
5. Paddy work to rubber tapping
6. Rubber tapping to wage work
7. Wage work to unemployment
8. Agriculture Labour to other wage work
9. Agriculture work to housemaid

The income size class-wise distribution of labour households by sex of earning members showed that 50 percent of the female income earners had income less than Rs. 1000 per month, while 46.48 percent of families with male earners fall in this category (see Table 5.30). While 46.43 percent of the female earners of labour households had monthly income between Rs. 1000 and Rs. 2000, 40.84 percent of male earners fall in

this income size class. The highest ceiling of labour income per month was Rs. 4000 and only an insignificant percentage of female as well as male earners of labour households came under the high-income class of Rs. 3001-4000.

Table 5.29 Distribution of Respondent-Labour households by number of income earning members by sex

Number of earning Persons	No. of households with earning		Total Earning members	
	Female	Male	Female	Male
1	26	46	26	46
2	2	24	4	48
3		1		3
Total	28	71	30	97

Source: Same as in Table 5.1

Table 5.30 Distribution of Respondent-Labour households by income size class and sex of earning members

Income (Rs.)	No. of households		Percentage	
	Female	Male	Female	Male
1-1000	14	33	50.00	46.48
1001-2000	13	29	46.43	40.84
2001-3000		8		11.27
3001-4000	1	1	3.57	1.41
Total	28	71	100.00	100.00

Source: Same as in Table 5.1

The summary statistics regarding wages obtained by respondent labourers is given in Table 5.31. The minimum (Rs. 2) and maximum (Rs. 3) wages reported for the year 1970 showed a range of Re. 1. The reported highest wage received by labourers in 1998 was Rs. 100 and the lowest was Rs. 20. The average wages increased from Rs. 2.03 in 1970 to Rs. 70.24 in 1998.

Table 5.31 Descriptive statistics regarding the wages obtained by Respondent-Labourers (N=76)

Wages per day (Rs.)	Statistic.....>								
	Minimum Rs.	Maximum Rs.	Mean Rs.	Std.Error of Mean	Standard deviation	Skewness Statistic	Skewness Std.Error	Kurtosis Statistic	Kurtosis Std.Error
1970	2	3	2.03	0.035	0.185	5.385	0.434	29.000	0.845
1973	2	5	2.85	0.138	0.756	1.256	0.427	2.846	0.833
1975	3	15	6.31	0.375	2.020	2.784	0.434	12.242	0.845
1978	7	20	8.08	0.523	2.957	3.105	0.414	9.408	0.809
1980	5	30	14.73	0.715	4.228	1.261	0.398	5.523	0.778
1983	5	30	18.75	0.872	5.372	-0.002	0.383	0.552	0.750
1985	7	32	23.90	0.779	4.924	-1.201	0.374	2.468	0.733
1988	7	50	29.58	1.243	7.860	0.595	0.374	3.350	0.733
1990	10	60	39.68	1.699	10.880	-0.595	0.369	0.132	0.724
1991	12	60	47.97	1.546	9.528	-2.375	0.383	6.416	0.750
1993	15	75	51.35	2.075	12.619	-0.542	0.388	2.263	0.759
1995	20	75	62.65	2.705	15.775	-1.297	0.403	1.273	0.788
1998	20	100	70.24	3.736	21.464	-0.561	0.409	-0.035	0.798

Source: Same as in Table 5.1

Only 5.26 per cent of labour households had income from land and it varied between Rs. 200 to Rs. 500. The household income size class distribution of respondent labourers' by age of respondents showed that 34.21 percent of labourers had income less than Rs. 1000 and they belonged to the age group of 40 to 69 years (see Table 5.32). More than 39 percent (39.47%) of respondent labourers came under the household income size class of Rs. 1001-2000. They are distributed in all the age groups. The respondent labourers from high-income group households also are sparsely distributed in age groups such that no association is observed between age of respondents and their household income.

Table 5.32 Percentage Distribution of Respondent-Labourers by Age and total household Income

Income (Rs.)	Age (years)					Percentage of respondents				
	30-39	40-49	50-59	60-69	Total	30-39	40-49	50-59	60-69	Total
-1000		13	6	7	26		17.11	7.89	9.21	34.21
1001-2000	1	10	12	7	30	1.32	13.16	15.79	9.21	39.47
2001-3000	2	2	6	3	13	2.63	2.63	7.89	3.95	17.11
3001-4000	1		2	1	4	1.32		2.63	1.32	5.26
Above 4000		1	1	1	3		1.32	1.32	1.32	3.95
Total	4	26	27	19	76	5.26	34.21	35.53	25.00	100.00

Source: Same as in Table 5.1

5.5.2 Land and Other Assets Owned by Respondent Labour Households

The distribution of the respondent labour households by land size class showed that 22.37 percent of the total labour households were landless (see Table 5.33). It was informed to the researcher that the households in Kuttichal colony of labourers, the houses were constructed under panchayat scheme in 1972 and the ownership of land still remains with the panchayat. It is a four-cent colony and although the households demanded transfer of ownership of land from panchayat to the head of the household, it still remains to be done. Land holdings of labour households at small size and 34.20 percent of them were in the land size class 3-5 cents. Another 28.95 percent of labour households had land holdings of six to ten cents. And 10.53 percent of labour families had holdings in the land size class 11-15 cents. Only 3.95 percent of households had land holdings above 15 cents. A few of them had coconut trees in their homestead, other households cultivated tapioca, plantain and other crops in mix. Only 3.95 percent of labour families had cows, 5.26 percent of families had goat, and 10.53 percent had hen/cock.

Table 5.33 Percentage Distribution of Respondent-Labour households by Land owned

Land Area (cents)	Number of households	Percentage of households
No land	17	22.37
3-5	26	34.20
6-10	22	28.95
11-15	8	10.53
Above 15	3	3.95
Total	76	100.00

Source: Same as in Table 5.1

Data on articles and assets owned by respondent labourers showed interesting pattern in adopting changes by labourers, the changes over time due to introduction of new commodities. For example as a mass media radio was premier prior to mid 1990s, but television took over the place after that. In 1990, 19.74 percent of the labour households had radio, but later many of them sold off radio and in 1995 only 6.58 percent of labour households had radio (see Table 5.34). The households, who had radio again declined and in 1998 only 1.32 percent of them had it. Only an insignificant percent of labour households had gold ornaments. In 1995, only 1.32 percent of labour households had gold ornaments, but this share increased to 5.26 percent in 1998. Percentage of households who had television set in 1995 was only 1.32, but it increased to 10.53 in 1998. Most of the households bought television sets at second sale and for a token price. It is interesting that only 3.95 percent of labour households had bedstead in 1985, and the percentage declined to 1.32 in 1990 and 1995 and none of the households had a bedstead in 1998. The percentage of households who owned steel vessels increased over periods from 1.32 in 1980 to 18.42 in 1998. This was mainly because of the commodity being a common article in any family. Although income was limited and the opportunities were not enough to absorb the total unemployed, people are influenced by demonstration effect and this is visible especially in fashion, modernisation and entertainment. The increase in the percentage of households who had television was due to that.

The interest of labour households in financial intermediation was analysed studying their banking transactions. The analysis revealed that inability to provide any

collateral securities blocked their access to bank loans even if they wished for it. This was the situation until 1990. But during the periods 1990-94 and 1995-97 there was some change and 3.95 percent of labour households had savings deposits. But in 1998 their percentage declined to 2.63 (see Table 5.35). Chits were another important financial intermediation and the percentage of labour households having chits increased from 1.32 in 1980-84 to 14.47 in 1998. The maximum percentage of households who got bank loan was 2.63. An insignificant percent of households had involved in instalment purchases since 1990-94. The indigenous moneylenders like Hundis also were operating in labour colonies lending money, but only 1.32 percent of the households engaged in such financial operations.

Table 5.34 Percentage Distribution of Respondent-Labour households by articles and assets owned

Year	Articles and assets						
	Ornaments (gold & precious metals)	Radio	Audio set	Television	Steel vessels	Mixer/ grinder	Bedstead
1975		1.32					
1980					1.32		
1985		2.63			5.26		3.95
1990		19.74	3.95		13.16		1.32
1995	1.32	6.58	1.32	1.32	18.42	5.26	1.32
1998	5.26	1.32		10.53	18.42		

Source: Same as in Table 5.1

Table 5.35 Percentage Distribution of Respondent-Labour households by their Banking Transactions

Year	Banking transactions				
	Savings deposits	Chits	Bank loan	Instalment purchase	Hundis
1980-84		1.32			
1985-89	1.32				1.32
1990-94	3.95	3.95	2.63	1.32	1.32
1995-97	3.95	13.16	1.32	2.63	1.32
1998	2.63	14.47	2.63	3.95	

Source: Same as in Table 5.1

5.5.3 Housing Conditions of Respondent Labour Families

The housing pattern of labour households provides evidence of their living standards. The houses of labourers, in the labour colonies like Kuttichal, were of very bad conditions. The plinth areas of these houses were only 15 square feet. Not a single human being can lie down straight inside those houses. The walls of the houses were of mud/mud bricks. Low cost roofing sheets were used for roofing and almost all the houses had lost these sheets and were at the time of the survey, the houses were covered with coconut palm leaves. The floor also was of mud. Unhygienic surroundings of the houses in the four-cent colony without proper sanitation facilities added to the miseries of the households, especially of women. Because no water supply schemes reached most of the labour colonies in Karukachal panchayat, women had to fetch water from more than one KM distant places during summer season.

The percentage distribution of plinth area of houses of labourers showed that 50 percent of houses had plinth area less than 50 sq. ft. (see table 5.36). Another 48.68 percent of labourers had houses with plinth area between 500 and 1000 sq. ft.

Table 5.36 Percentage Distribution of Respondent-Labourers' houses By Plinth area of house

Plinth area (sq.ft.)	Number of houses	Percentage of houses
Upto 500	38	50.00
500-1000	37	48.68
1000-1500	1	1.32
Total	76	100.00

Source: Same as in Table 5.1

The flooring materials used were mud/cow dung and cement. The houses of 59.21 percent of the labourers had mud/cow dung flooring and the rest had cement flooring (see Table 5.37). Walling materials used were mud/mud brick, burnt brick and laterite. Mud/mud brick was used for walling houses of 61.84 percent of labourers, burnt brick for houses of 23.68 percent of labourers and laterite for houses of 14.47 percent of labourers (see Table 5.38).

The roofing materials used were coconut/palm leaves, roofing tiles, RCC, low cost roofing sheets and asbestos sheets. For majority of houses roofing tiles was used (for houses of 60.53 percent of labourers) (see Table 5.39). Another 19.74 percent of labourers had houses roofed with low cost roofing sheets and 15.79 percent of labourers

had houses with roofing of coconut/palm leaves. Insignificant percentages of labourers had houses with asbestos sheet or RCC roofing.

Table 5.37 Percentage Distribution of Respondent-Labourers' houses by materials of flooring

Flooring Material	Number of houses	Percentage of houses
Mud/cow dung	45	59.21
Cement	31	40.79
Total	76	100.00

Source: Same as in Table 5.1

Table 5.38 Percentage Distribution of Respondent-Labourers' houses by materials of walling

Walling material	Number of houses	Percentage of houses
Mud/mud bricks	47	61.84
Burnt bricks	18	23.68
Laterite	11	14.47
Total	76	100.00

Source: Same as in Table 5.1

The year of construction of the houses points to the necessity for reconstruction and repairs for the houses. More than 13 percent of houses are older than 30 years (see Table 5.40). The houses older than 30 years, constructed of mud/cow dung flooring,

mud/mud brick walling and low cost roofing sheets or coconut/palm leaves roofing were dilapidated.

Table 5.39 Percentage Distribution of Respondent-Labourers' houses by materials of roofing

Roofing material	Number of houses	Percentage of houses
Coconut/palm leaves	12	15.79
Tiles	46	60.53
RCC	1	1.32
Low cost roofing sheets	15	19.74
Asbestos sheets	2	2.63
Total	76	100.00

Source: Same as in Table 5.1

Table 5.40 Percentage Distribution of Respondent-Labourers' houses by Year of construction

Year	Number of houses	Percentage of houses
1950-59	1	1.32
1960-69	9	11.84
1970-79	43	56.58
1980-89	20	26.32
1990-99	3	3.95
Total	76	100.00

Source: Same as in Table 5.1

5.6 Conclusion

Change in cropping pattern had been adopted by farmers one or more times due to various reasons. The shift in cropping pattern was in favour of tree and perennial crops. The percentage of respondent farmers cultivating paddy declined from 54 in 1975 to 50 in 1980 and to 33.33 in 1985. Tapioca cultivation also declined over the period. On the contrary, coconut cultivation increased over the years as the percentage of farmers cultivating coconut increased from 4.17 in 1975 to 16.67 in 1985. Paddy cultivators declined to 16.67 percent of farmers in 1990 and none of the respondent farmers cultivated paddy since 1995. Respondents did not cultivate ginger since 1980. The farmers have shifted to perennial commercial crops.

The percentage of respondent farmers in rubber cultivation increased from 4.17 in 1970 to 41.67 per cent in 1998. Stopping paddy and tapioca cultivation farmers shifted mainly to rubber and then to coconut. Although coconut and rubber in the initial one or two years of cropping are possible to be mixed cropped with tapioca, plantain, ginger and such seasonal crops, only an insignificant percentage of farmers resorted to such practices. Otherwise farmers who adopted mixed cropping with rubber opted for teak and arecanut, which are again tree and perennial crops.

The shift in cropping pattern from seasonal and food crops to perennial tree crops had introduced drastic changes in the employment pattern. The seasonal and food crops

engaged more women labourers, but the tree/perennial crops were female labour saving. Therefore shift in cropping pattern left many of the female labourers unemployed. Increasing overall unemployment resulted in cutthroat competition for employment by female and male workers resulted in marginalizing women labour.

From 1975 to 1992 the major reason for shift in cropping pattern was financial loss incurred by the previous cultivated crops. From 1990 onwards farmers started seeking better options in commercial crops because of the opportunities expected by opening up of Indian markets to competition. However, in mid 1990s decline in price of rubber due to global competition had clearly indicated the vulnerability of local farmers in commercial agriculture. Still 50 percent of the farmers initiated a second shift in cropping pattern again to seek better options in commercial crops and the shift was from coconut, pepper and tapioca to rubber.

The fact that 68.42 percent of the respondent labourers were turned unemployed over years unwillingly because of changes in cropping pattern necessitated special attention. Another cause of unemployment was non-availability of work. Labour being evicted from agriculture sector and not finding job in any other secondary or tertiary sectors had still further implications on family income of labourers. This ultimately leads to a permanent reduction in income of the family of the unemployed. This results in very low consumption of goods and services by labour families. The gravity of the problem can be realised when we note that 89.47 percent of the respondent labourers were females.

Reference:

Pillai, Renuka (1999), op. cit.

Chapter VI

A Micro Level Analysis of the Impact of Shift in Cropping Pattern on Employment of Female Labour in Agriculture Sector

6.1 Introduction

In the preceding chapter we have seen that the respondent farmers had adopted one or more changes in cropping pattern due to various reasons, the important of which was financial loss in the case of paddy and other seasonal crops, and better options due to globalisation. Whatever may be the reason for shift in cropping pattern, the shift was in favour of labour saving crops and especially female labour saving. When crops such as paddy, tapioca, ginger, etc. were changed into crops like coconut, rubber, and cocoa, female labour got marginalised. Increasing unemployment in rural sector - both of male and female - together with labourers released from work on account of crop shifting accentuated competition in labour market. This adversely affected the weaker sex and consequently their participation rate further declined. The present chapter of the study focuses on the impact of shift in cropping pattern on employment of female labour.

6.2 Data used for analysis

The analysis is based on the data collected through the sample survey in Karukachal panchayat. Change in employment status of respondents, the year of change

in employment/unemployment and reasons thereof are analysed in the following paragraphs.

6.3 Changes in Employment of Female Labour

Primary change in employment experienced by respondent female labourers and the reasons thereof are given in Table 6.1. Table 6.1 shows that of the 35.48 percent of female labourers who experienced change in employment from paddy works to other agricultural wage works 33.87 percent was due to shift in cropping pattern - from paddy to other crops. Another 6.45 percent of female labourers turned unemployed due to change in cropping pattern - from paddy to other crops. Totally 41. 94 percent of female labourers experienced change in employment due to shift in cropping pattern from paddy and the resultant non-availability of paddy works.

Because of no work available in nearby areas 14.52 percent of the female labourers became unemployed (11.29 percent from wage works and 3.23 percent from paddy works). Change in cropping pattern from short-term crops like tapioca, ginger, etc. to perennial crops like coconut, cocoa, rubber, etc., which are female labour saving crops had caused change in employment of 25.81percent of female labourers. Due to cropping pattern change from short-term seasonal crops to perennial and tree crops 12.90 percent of the female labourers got unemployed. The rest of female labourers who experienced primary change in employment due to cropping pattern change, shifted from agriculture works to other wage works or as housemaid. Another 4.84 percent of female labourers

turned unemployed from wage work because of ill health. Scant access to facilities to meet basic needs of nutritious food, proper shelter, hygienic surroundings with sanitation facilities, needed health care, etc. had led to ill health.

Table 6.1 reveals that 67.75 percent (41.94+25.81) of female labour experienced primary change in employment due to shift (change) in cropping pattern. The primary change in employment experienced by 44.55 percent (9.68+33.87) of female labour was from paddy work or wage work to unemployment and of which 22.58 percent (6.45+3.23+12.90) was due to shift in cropping pattern.

Although high wages and employment opportunities in construction sector was reported the cause of change in employment of 4.84 percent of female labourers, other respondent labourers who turned unemployed rejected the general possibility of getting construction work because the construction works were not available to labourers who were not associated to any construction company. Mobility of labour was inevitable to seek employment in construction sector. After incurring travel and other expenses, the labourers reached at construction work site sometimes may not get work for the day. Therefore the end result was usually seeking work in construction and get label as construction worker, not get employment.

The percentage distribution of female labourers by the year of primary change in employment and reason thereof showed that change in cropping pattern from paddy to other crops lead to the primary change in employment mainly in the period 1981-85 (of

24.20 percent of female labourers) (see Table 6.2). Non-availability of work started as a cause of change in employment in the period of 1981-1985 and continued till last period of 1996-2000.

Table 6.1 Percentage Distribution of Respondent Female Labourers by Primary Change in Employment and Reason for Primary Change in Employment

Primary change in Employment	Reason for Primary Change in Employment							
	1	2	3	4	5	6	7	Total
1. Paddy work to Agriculture wage work	33.87	1.61						35.48
2. Paddy work to other wage work		1.61						1.61
3. Paddy work to unemployment	6.45		3.23					9.68
4. Paddy work to construction work				1.61				1.61
5. Paddy work to Rubber Tapping	1.61							1.61
6. Rubber tapping to wage work				1.61				1.61
8. Wage work to unemployment		1.61	11.29		12.90	4.84	3.23	33.87
9. Agriculture Labour to other wage work				1.61	9.68			11.29
10. Agriculture work to housemaid					3.23			3.23
Total	41.94	4.84	14.52	4.84	25.81	4.84	3.23	100

Source: Sample Survey of Karukachal Panchayat, 2000.

Note: Reason for Primary Change in Employment
1. Change in Cropping pattern that no paddy work available
2. Shift of labour to new place
3. No work available in nearby areas
4. High wage and employment opportunities in construction wage work
5. Change in cropping pattern from short term crops like tapioca, ginger, etc. to perennial crops like coconut, cocoa, rubber, etc. which are female labour saving crops
6. Ill health
7. Voluntary quit from Labour force

Change in cropping pattern from short-term crops like tapioca, ginger, etc. to perennial crops like coconut, rubber, etc. caused the change in employment since 1986-1990 onwards and persisted in the last period also. Major portion of the primary change in employment of labour occurred between 1981 and 1995. In 1991-95 the percentage of labourers got change in employment was 29.03. In 1996-2000 another 9.68 percent of labour changed their employment.

Table 6.2 Percentage Distribution of Respondent Female Labourers by Year of Primary Change in Employment and Reason for Primary Change in Employment

Year of Primary change in Employment	Reason for Primary Change in Employment							
	1	2	3	4	5	6	7	Total
1971-1975		1.61						1.61
1976-1980	6.45			1.61				8.06
1981-1985	24.20		1.61			3.23		29.03
1986-1990	8.06	1.61	1.61	1.61	11.29			25.81
1991-1995	3.23	1.61	8.06		12.90		1.61	29.03
1996-2000			3.23	1.61	1.61	1.61	1.61	9.68
Total	41.94	4.84	14.52	4.84	25.81	4.84	3.23	100

Source: Same as in Table 6.1

Note: Reason for Primary Change in Employment
1. Change in Cropping pattern that no paddy work available
2. Shift of labour to new place
3. No work available in nearby areas
4. High wage and employment opportunities in construction wage work
5. Change in cropping pattern from short term crops like tapioca, ginger, etc. to Perennial crops like coconut, cocoa, rubber, etc. which are female labour saving crops
6. Ill health
7. Voluntary quit from Labour force

Unemployment of Female Labourers

The respondent female labourers started to be left unemployed since 1983. Although only a very low percentage (1.92%) of the total unemployed were turned unemployed in 1983, their employment was lost due to change in cropping pattern (see Table 6.3). Until 1990, 11.54 percent of the total unemployed lost their work due to change in cropping pattern and 5.76 percent lost work due to non-availability of any work in the nearby places. During 1992-98, shift in cropping pattern caused unemployment of 42.31 percent of total unemployed female labourers. The major cause of unemployment was change in cropping pattern (accounted for 53.85 percent of unemployment). Non-availability of work in the nearby areas convenient to reach for work in working-hours was the other important reason for unemployment of labour (accounting for 40.38 percent of female unemployment).

The fact that 66.18 percent of the female labourers were turned unemployed had serious implications on family income of labour households. In addition to that, 53.85 percent of this unemployment was due to change in cropping pattern and another 40.38 percent due to non-availability of work (see Table 6.3) had still further implications on family income of labourers. The issue is that how could the female labourers released from agriculture due to change in cropping pattern find alternative employment competing with the already remaining reserve army of labour? This ultimately leads them to remain unemployed with a permanent reduction in income of their family. The

consequences are drastic and incurring irrecoverable loss to the household through a very low consumption of goods and services for maintenance of the labour. The field level experience of the researcher during the survey was shocking that most of the unemployed labourers find it difficult to give food once a day for their children. In many of the labour colonies unemployed adolescent and school left-out children were resorting to theft and other illegal activities.

Table 6.3 Percentage Distribution of Respondent Female Labourers by Year of Unemployment and Reason for unemployment

Year of unemployment	Reason for Unemployment			
	No work available	Change in cropping pattern	Others	Total
1983		1.92		1.92
1985	1.92	5.77		7.69
1987	1.92			1.92
1990	1.92	3.85		5.77
1991	1.92			1.92
1992	9.62	9.62	1.92	21.15
1993	5.77	11.54		17.31
1994	5.77	7.69		13.46
1995	3.85	7.69		11.54
1996	7.69	3.85	1.92	13.46
1998		1.92	1.92	3.85
Total	40.38	53.85	5.77	100.00

Source: Same as in Table 6.1

6.5 Conclusion

It is important that 80.77 percent of total unemployment of female labour occurred from 1992 onwards (see Table 6.3), i.e., after the opening up of Indian markets for global competition. The perceptions of farmers about trade liberalisation and the opportunities that brings had excited them to shift the cropping pattern in favour of commercial crops. This had ultimately resulted in unemployment of female labour and reduction in their family income. Majority of female labour released from agriculture did not find other works because of severe competition for work by the otherwise unemployed labourers and especially male labourers.

Unemployment of female labour due to change in cropping pattern has serious implications on their family income. The spending pattern of female and male income earners, are different. Female earners spend more on family consumption, while male earners spend mainly on personal consumption. The micro level study showed that when female labourers left unemployed, the family consumption expenditure was reduced. This reduction in family consumption expenditure introduced changes in family consumption pattern, which was observed easily through the consumption pattern for satisfying basic needs like food, clothing, etc. The next chapter of the present study focuses on these aspects.

Chapter VII

Impact of Change in Female Labour Employment Situations on Family Consumption Pattern

7.1 Introduction

In the last chapter we have seen that 53.85 percent of the unemployed female labourers were eased out (released) from their employment in agricultural sector due to shift in cropping pattern effected by farmers. The situation aggravated because of non-availability of work for female labourers. These female labourers who were once employed and contributing to their family income and thus contributing to their family consumption when suddenly became unemployed resulted in reduction in their total family income. This has adverse impact on their family consumption expenditure. Unemployment of female labour causes greater decline in family consumption expenditure as female earners spend more on family consumption than male earners. The implications of reduction in family consumption expenditure of labour households are serious as that effects a cut in their consumption of goods that satisfy their basic needs. This ultimately implies formation of low quality labour force in the economy.

7.2 Data and Method of Analysis

The implications of reduction in family consumption due to unemployment of female labour was studied here by analysing consumption pattern of food and clothing

for the last three decades prior to the sample survey period. The information collected relate to Karukachal panchayat. The survey covered a period of about three decades starting from 1970. As data were collected through a single sample survey, techniques of cross section data analysis have to be used rather than time series analysis techniques. But here we have actually resorted to descriptive methods for analysing data and hence drawing any hypothesis, or testing of any hypothesis becomes irrelevant.

The information collected was tabulated according to attributes and the tabulated information formed the basis of description of data. As we are concerned about the changes in the consumption pattern of labour households due to changes in cropping pattern and the resultant changes in the employment (unemployment) situations of the female agriculture labourers, we wanted information for a long period to assess the changes occurred. The time series on consumption expenditure at micro level was not available from any source. So we were not in a position to analyse changes in consumption pattern with time series on household consumption expenditure. We were therefore forced to use certain indicators of which information was collected in a single sample survey (conducted particularly for the present study, as noted in the initial chapter), to study the changes in consumption pattern of labour households. The indicators used were usual clothing items for women, girls, men and boys; and the usual food items used in Kerala families. The changes occurred due to time or changes in fashions were eliminated while describing the causes of change in consumption pattern. Experience sharing by the respondents with the researcher also was useful while doing descriptive analysis.

7.3 Food Consumption Pattern of Respondent-Labour Households

The food consumption pattern of respondent-labour households for three decades viz. 1970-80, 1980-90, and 1990-98 was considered for comparative analysis. Changes found were absolutely clear. The percentage distribution of respondent-labour households consuming the commonly used food combinations for breakfast, lunch and dinner is given in Table 7.1. The data showed that tapioca and fish were the common food items for breakfast of labour households during the first two decades. In the decade of 1970-80, the respondent-labour households using tapioca and fish as food for breakfast were 84.21 percent. Although the percentage of households using tapioca and fish for breakfast in the second decade of 1980-90 fell to 78.95 percent, the popularity of the food combination was absolutely high. But the period of 1990-98 showed a sweeping change. During this decade the percentage of labour households using tapioca and fish for breakfast came to a mere 2.63. This means tapioca ceased to be a staple food of common people of Kerala by the end of the decade 1980-90.

In the last period of 1990-98, food prepared of rice or wheat flours became common. However, the percentage of labour households who were able to afford food items of rice or wheat flour like *appam, chappathi, steam cake* or *idly* was only 40.79. But this is very high compared to the periods prior to the period of 1990-98 (see Table 7.1). The shift to rice/wheat flour food from tapioca was largely due to the scarcity of that food product due to shift in cropping pattern. In the same period, another 48.68 percent of the labour households were left not having anything to eat at breakfast. They have to

satisfy with tea or coffee (without milk) for breakfast. The percentage of labour households who had only tea or coffee to drink rather than had any food to eat in the morning as breakfast has increased from 2.63 in 1970-80 to the alarming figure of 48.68 in 1990-98. Thus about half of the labour households could not afford any food for breakfast during 1990-98. In the early chapters we have seen that cropping pattern change and the resultant unemployment of female labour occurred during the same period or just prior to it. Unemployment of female labour and the resultant reduction in family income available for family consumption expenditure was the major cause of such a rise in percentage of households having no food for breakfast. The respondents stated the same while sharing their experience of life with the researcher. A combination of Kanji and fish/chutney was used by 7.89 percent of the labour households in the first and last periods of analysis. A slight increase in the percentage (to 9.21) was observed in the period 1980-90.

The data relating to food consumption pattern showed that Kanji and fish/chutney formed the major food combination of labour households for lunch during the period of 1970-80. But only 10.53 percent of the labour households used Kanji and fish/chutney for lunch in the second and third periods. The period of 1980-90 witnessed considerable improvement in the percentage (82.89%) of labour households who used a food combination of boiled rice and curries (see Table 7.1). However, this improvement in food consumption at lunch observed during the second decade of analysis (1980-90) was not witnessed in the third period (1990-98). During this period the percentage of labour households, which consumed boiled rice and curries at lunch declined to 48.68. This has

naturally raised the percentage of households with no food for lunch (35.53%). Labour households abstained from lunch not because they opted for it but because they found it unaffordable. The reason for this unaffordability was reduction in family income consequent on loss of employment for the female labourers.

Table 7.1 Percentage Distribution of Respondent-Labour households by their Food consumption pattern

Food consumption pattern	Period		
	1970-80	1980-90	1990-98
Breakfast			
1. Tapioca & fish	84.21	78.95	2.63
2. Kanji & fish/chutney	7.89	9.21	7.89
3. Boiled rice with curry		1.32	
4. Appam/ chappathi/ steam cake/idly	3.95	7.89	40.79
5. Tea/coffee without milk	2.63	1.32	48.68
6. Tapioca & fish & coffee/tea	1.32	1.32	
Lunch			
1. Kanji & fish/chutney	81.58	10.53	10.53
2. Boiled rice with curries	9.21	82.89	48.68
3. Tea/coffee without milk		1.32	5.26
4. Nil	9.21	5.26	35.53
Supper			
1. Tapioca & fish	26.32		
2. Kanji & fish/chutney	67.11	84.21	61.84
3. Boiled rice with curry	6.58	15.79	38.16

Source: Sample Survey of Karukachal Panchayat, 2000.

The changes in food pattern for supper, consequent on loss of employment for female labourers also was analysed. During 1970-80 tapioca and fish were the major items of supper for 26.32 percent of the labour households. Kanji and fish/chutney formed part of supper for 67.11 percent of the labour households. Boiled rice with curry formed part of supper for 6.58 percent of the households. In the second and third periods tapioca and fish ceased to be a combination for supper. During 1980-90, the percentage of households taking kanji and fish/chutney as supper increased to 84.21, but their percentage declined to 61.84 during 1990-98. Another 38.16 percent of the labour households took boiled rice and curry as supper in the last period. We have already noted that an alarming percentage of labour households were deprived of breakfast and lunch during 1990-98. The only solace is that all labour households had food either kanji and fish/chutney or boiled rice with curry for supper. All members of the households used to be present for taking supper. Several households were forced to live with one meal a day. Whatever money they earn in the day or borrowed was spent on the evening food. This shift of labour families to one meal a day during the period 1990-98 was from three meals a day during the first decade of our analysis.

7.4 Clothing Pattern of Respondent-Labour Households

Clothing pattern of the labour households show that they are not averse to changes and fashion. The clothing pattern of men, women, boys, and girls, in different situations are analysed. The percentage distribution of labour households according to the clothing pattern of their members is given in Table 7.2. For men at home and at work,

Lunki or Kaili used to be the major clothing pattern. But this has changed over time. Percentage of men wearing lunki/kaili at home and at work declined over the periods (from 83.78 in 1970-80 to 79.73 in 1990-98). Percentage of men wearing lunki with banyan/shirt, has gone up, from 16.22 during 1970-80 to 20.27 during 1990-98. Clothing pastern of men outside house other than work site also changed over the period of analysis. The percentage of men who wore mundu and thorthumundu outside their house but other than work site declined from 35.62 during 1970-80 to 21.62 in 1980-90 and further to 12.16 during 1990-98. Men wearing mundu and shirt while outside home and not at work site has been increasing and the percentage of men who wore such dress increased from 64.38 during 1970-80 to 87.84 during 1990-98. This shows that the labour households are moving with fashion even when their family food consumption is declining. Likewise, the percentage of boys who wore trousers at home was 45.90 during the period 1970-80. The percentage increased to 47.69 during 1980-90. But their percentage declined in the last period to 28.79. Their drop in percentage was due to wearing lunki in place of trousers. The clothing pattern of boys at school also changed – either from trousers and shirt to mundu and shirt or to pants and shirt (see Table 7.2).

The clothing pattern of women and girls also showed the same trend as that of men and boys. Lunki/kaili and blouse were the common dress for female labour at house and work. The percentage of women who wore such dress declined from 88 percent during 1970-80 to 80 percent during 1990-98. Lunki, blouse and thorthu also constituted an important set of dress for women at home and at work; and the percentage of women who used this dress combination increased from 10.67 during 1970-80 to 14.67 during

1990-98. For women outside home and other than work site the combination of dress (a) lunki, blouse and thorthu, and (b) mundu, blouse and thorthu, lost preference over time and as a result sari and blouse became common dress combination. The percentage of women who wore sari and blouse outside home other than work site increased from 46.58 during 1970-80 to 65.33 during 1990-98. This was largely due to the demonstration effect.

The girls of labour households also changed their dress in accordance with fashion. Skirt and blouse used to be the common clothes for girls at home during the first two periods, viz. 1970-80 and 1980-90. And the importance of skirt and blouse declined during 1990-98, because of the wide acceptance of churidar sets. Skirt and blouse used to be the common clothes for girls at school during 1970-80 (98.31%) and during 1980-90 (94.12%). During 1990-98 changes occurred in clothing pattern of girls of labour families. They opted the new fashions in dress. Consequently during 1990-98, sari or churidar happened to be the common dress worn by girls of 53.62 percent of labour households, and skirt and blouse or churidar and kammis formed the dress of girls of 40.58 percent of labour households.

The analysis of clothing pattern revealed that members of labour households responded to changes of time and fashion in clothing. Demonstration effect forced them to follow the new trends in clothing in spite of lack of purchasing power owing to unemployment of labour, mainly female labour.

Table 7.2 Percentage Distribution of Respondent-Labour households by their Clothing pattern

Clothing pattern	Period		
	1970-80	1980-90	1990-98
Clothing for Men at house & work			
1. Lunki/Kaili	83.78	83.78	79.73
2. Lunki with banyan/shirt	16.22	16.22	20.27
Clothing for Men outside house other than work site			
1. Mundu & Thorthumundu	35.62	21.62	12.16
2. Mundu & shirt	64.38	78.38	87.84
Clothing for boys at house			
1. Thorthumundu	18.03		
2. Trousers	45.90	47.69	28.79
3. Lunki	34.43	49.23	63.64
4. Trousers/Lunki with shirt	1.64	3.08	7.58
Clothing for boys at school			
1. Mundu & shirt	22.03	32.31	60.61
2. Trousers & shirt	76.27	63.08	12.12
3. Pants & shirt	1.69	4.62	27.27
Clothing for Women at house & work			
1. Lunki/kaili & blouse	88.00	85.33	80.00
2. Lunki, blouse & thorthu	10.67	13.33	14.67
3. Mundu, blouse & thorthu			1.33
4. Sari & blouse	1.33	1.33	2.67
5. Housecoat			1.33
Clothing for Women outside house other than work site			
1. Lunki, blouse & thorthu	20.55	13.51	6.67
2. Mundu, blouse & thorthu	32.88	29.73	28.00
3. Sari & blouse	46.58	56.76	65.33
Clothing for girls at house			
1. Skirt	4.69		
2. Skirt & blouse/house coat	95.31	97.06	67.65
3. Churidar		2.94	32.35
Clothing for girls at school			
1. Skirt & blouse	98.31	94.12	5.80
2. Sari or Churidar	1.69	4.41	53.62
3. Skirt & blouse or Churidar		1.47	40.58

Source: Same as in Table 7.1

7.5 Comparative Analysis of Consumption Pattern of Labour Households with that of Respondent-Farmer Households

A comparative study of the consumption pattern of labour households and farmer households will help isolate changes due to time or fashion and changes due to cropping pattern change, unemployment or reduction in family income. The food pattern of farmer households showed that 91.67 percent of the households had food to eat for breakfast and only 8.33 percent of the households had only black tea or black coffee for breakfast, in the first and second periods of analysis, 1970-80 and 1980-90 respectively (see Table 7.3). The percentage of farmer households without food to eat (had only tea/coffee without milk) for breakfast declined to 4.17 in the period 1990-98. For 45.83 percent of farmer households tapioca and fish was food for breakfast during 1970-80 and this percentage declined to 4.17 during 1990-98. We have already seen in section 7.3 of the present chapter that 84.21 percent of the labour households were using tapioca and fish as breakfast during 1970-80 and although the percentage declined in the second period it was still very high at 78.95, compared to that of farmer households. This means that tapioca and fish was a common food of the labour families. The drastic decline in the percentage of households using tapioca and fish was experienced among both labour and farmer households. And this was mainly due to scarcity of tapioca due to change in cropping pattern from tapioca to other perennial commercial crops in the last decade of 1990-98. The consumption of food items like appam, chappathi, steam-cake and idly of rice/wheat flour was common among the farmer households from the initial period of analysis. During 1970-80, 25 percent of the farmer households used appam, chappathi,

steam cake and idly as food for breakfast, and the percentage increased over the periods to 79.17 during 1990-98. While the labour households were not using the said food commonly for breakfast in the first two periods, but were forced to shift to the same in the third period due to scarcity of tapioca (also demonstration effect would have influenced the labour families). None of the farmer households stayed without food for lunch and their common lunch items were boiled rice with curries. It is interesting to note that although only 58.33 percent of farmer households used boiled rice with curries as lunch during 1970-80, the percentage increased to 83.33 during 1980-90 and then to the total farmer households (100 per cent). This means that in spite of the variations in prices of agriculture products, even after opening up of Indian markets for global competition the farmers stood benefited through cropping pattern changes in favour of commercial crops.

The food pattern of farmer households for supper brings forth attitudinal changes regarding perception of food for health. In the first period of analysis a considerable percentage of farmer households (37.50%) used tapioca and fish for supper. During 1980-90 only 4.17 percent of farmer households used tapioca and fish for supper and in the third period none of them used it. Although 25 percent of farmer households used Kanji and fish/chutney for supper during 1970-80 and the percentage increased to 37.50 during 1980-90, it declined to 25 during 1990-98. Similarly the percentage of farmer households, which used boiled rice with curry increased from 37.50 during 1970-80 to 50 during 1980-90, it declined to 45.83 during 1990-98. This means that people's perception of food for health changed recently to reduce use of rice. During 1990-98, 29.17 percent

of farmer households changed to appam, chappathi, steam cake or idly such that they shifted to use of wheat rather than rice. On the other hand labour households had food comprising rice as main item for supper during 1990-98.

Table 7.3 Percentage Distribution of Respondent-Farmer households by their Food pattern

Food consumption pattern	Period		
	1970-80	1980-90	1990-98
Breakfast			
1. Tapioca & fish	45.83	33.33	4.17
2. Kanji & fish/chutney	16.67	4.17	8.33
3. Boiled rice with curry		4.17	
4. Appam/chappathi/steam cake/idly	25.00	45.83	79.17
5. Tea/coffee without milk	8.33	8.33	4.17
6. Tapioca & fish & coffee/tea	4.17		
7. Appam/chappathi, with tea/coffee		4.17	4.17
Lunch			
1. Tapioca & fish	8.33		
2. Kanji & fish/chutney	33.33	16.67	
3. Boiled rice with curries	58.33	83.33	100.00
Supper			
1. Tapioca & fish	37.50	4.17	
2. Kanji & fish/chutney	25.00	37.50	25.00
3. Boiled rice with curry	37.50	50.00	45.83
4. Appam/chappathi/steam cake/idly		8.33	29.17

Source: Same as in Table 7.1

The clothing pattern of farmer households also showed comparative well-being of the farmer households. The percentage of farmers using lunki/kaili for work and at house declined from 58.33 in first and second period to 29.17 during 1990-98 (see Table 7.4). But the percentage of labourers using lunki/kaili at work and home was 79.73 during 1990-98 (see Table 7.2). Instead, the percentage of farmers wearing lunki with

banyan/shirt increased from 29.17 during 1970-80 to 70.83 during 1990-98. Clothing for male members of farmer households outside home other than in fields was mundu and thorthumundu for 50 percent of farmer households during 1970-80, and the percentage declined to 25 during 1980-90. None of the members of farmer households used the set of dress outside home during 1990-98. Instead, they changed to mundu and shirt for outside home, or to pants and shirt (see Table 7.4).

Clothing for boys at home changed over the period from trousers as such to trousers/lunki with shirt. And for boys at school the clothing pattern changed from trousers and shirt in the first period through the last period to pants and shirt. Boys of 63.64 percent of farmer households were wearing trousers and shirt at school during 1970-80, while boys of 60.87 percent of households were wearing pants and shirt during 1990-98.

Percentage women of farmer households wore lunki/kaili and blouse at home and at work was 50 during 1970-80. But this dress was replaced mainly *by set mundu* and blouse over time. Percentage of women of farmer households wore *set mundu* and blouse increased to 54.17 during 1990-98. Women of farmer households used sari and blouse, and housecoat also at home.

Table 7.4 Percentage Distribution of Respondent-Farmer households by their Clothing Pattern

Clothing pattern	Period		
	1970-80	1980-90	1990-98
Clothing for Men at house & work			
1. Lunki/Kaili	58.33	58.33	29.17
2. Lunki with banyan/shirt	29.17	41.67	70.83
3. Thorthumundu	12.50		
Clothing for Men outside house other than work site			
1. Mundu & Thorthumundu	50.00	25.00	
2. Mundu & shirt	41.67	62.50	79.17
3. Pants & shirt	8.33	12.50	20.83
Clothing for boys at house			
1. Thorthumundu	13.04		
2. Trousers	60.87	52.17	21.74
3. Lunki		21.74	8.70
4. Trousers/Lunki with shirt	26.09	26.09	69.57
Clothing for boys at school			
1. Mundu & shirt	9.09	21.74	34.78
2. Trousers & shirt	63.64	47.83	4.35
3. Pants & shirt	27.27	30.43	60.87
Clothing for Women at house & work			
1. Lunki/kaili & blouse	50.00	16.67	8.33
2. Lunki, blouse & thorthu	8.33	33.33	4.17
3. Set Mundu & blouse	16.67	20.83	54.17
4. Sari & blouse	20.83	25.00	16.67
5. Housecoat	4.17	4.17	16.67
Clothing for Women outside house other than work site			
1. Lunki, blouse & thorthu	12.50	8.33	
2. Set Mundu & blouse	37.50	41.67	8.33
3. Sari & blouse	50.00	50.00	91.67
Clothing for girls at house			
1. Mundu & blouse	13.04	4.35	
2. Skirt & blouse/house coat	86.96	95.65	91.30
3. Churidar			8.70
Clothing for girls at school			
1. Skirt & blouse	91.30	73.91	4.35
2. Churidar	8.70	26.09	95.65

Source: Same as in Table 7.1

Women of farmer households preferred to wear *set mundu* and blouse while they go outside their house other than for work. But today the preference shifted almost fully to sari and blouse. This is evident from the fact that 91.67 percent of women of farmer households use sari and blouse when they go outside their home. The clothing pattern of girls of farmer households, at home was mainly skirt and blouse or housecoat. Skirt and blouse (91.30%) were the main set of dress for girls of farmer households at school during 1970-80. During 1990-98, 95.65 percent of girls of the farmer households wore churidar at school. Female members of the labour families followed the same pattern of clothing as that of female members of farmer households, but the changes occurred at a low pace.

7.6 Housing Pattern of Respondent-Labour Households

Basic needs have to be considered while analysing the consumption pattern of labour household. The consumption pattern of food and clothing has already been considered. The shelter conditions of labour households have been analysed in the fifth chapter under section 5.5.3. In the present chapter we intend only to mention certain aspects of housing of labour households.

Percentage distribution of labour households on the basis of monthly income and size of the house (plinth area) is given in Table 7.5. The table shows that 34.21 percent of the labour households have monthly income less than Rs.1000/-. The plinth area of

houses of those whose monthly income is less than Rs.1000 per month is less than 1000 sq. feet, of which 22.37 percent households have plinth area up to 500 sq. feet and 11.84 percent households have plinth area ranging from 500 sq. feet to 1000 sq. feet. Similarly 39.47 percent households have monthly income ranging from Rs. 1001 to Rs. 2000 and of which 15.79 percent households have plinth area up to 500 sq. feet and the other 22.37 percent households have plinth area ranging from 500 sq. feet to 1000 sq. feet. A little more than 17 percent households have monthly income ranging from Rs. 2001 to Rs. 3000 and of which 7.89 percent households have plinth area up to 500 sq. feet and another 9.21 percent have houses having plinth area ranging from 500 sq. feet to 1000 sq. feet. Again, of the 5.26 percent households having monthly income between Rs. 3001 and Rs. 4000, equal percentage has houses with plinth area up to 500 sq. feet and 500 sq. feet to 1000 sq. feet. There are 3.95 percent households having monthly income above Rs. 4000 and of which 1.32 percent households have plinth area up to 500 sq. feet and the rest of the households have plinth area between 500 sq. feet and 1000 sq. feet. It is interesting to see that 1.32 percent of the households belonging to income Rs. 1001 to Rs. 2000 per month have houses having plinth area more than 1000 sq. feet.

Commonly labourers' houses were of small size with plinth area less than 1000 sq. feet. Fifty percent of labour households have plinth area less than 500 square feet. Very small huts also fall under this category. Another 48.68 percent of labour households have plinth area ranging 500-1000 sq. feet. The materials used for roofing flooring, walling, etc. were of poor quality and the houses were rather *cutcha* houses as seen in section 5.5.3 of Chapter V. Although the labour households' houses are small *cutcha*

houses, we cannot attribute this to female labour unemployment resulting from changes in cropping pattern. This is because their housing conditions were the same even when female labour were employed and contributing to family consumption expenditure. Majority of the houses of labour were constructed prior to the opening up of Indian economy for global markets and the cropping pattern change in favour of commercial crops became the feature of Kerala agriculture.

Table 7.5 Percentage Distribution of Respondent-Labour households by total household income and house plinth area

Monthly Income (Rs.)	Number of households with Plinth area of house (square feet)				Percentage of Respondent-Labour households			
	Up to 500	500-1000	1000-1500	Total	Up to 500	500-1000	1000-1500	Total
1-1000	17	9		26	22.37	11.84		34.21
1001-2000	12	17	1	30	15.79	22.37	1.32	39.47
2001-3000	6	7		13	7.89	9.21		17.11
3001-4000	2	2		4	2.63	2.63		5.26
Above 4000	1	2		3	1.32	2.63		3.95
Total	38	37	1	76	50.00	48.68	1.32	100.00

Source: Same as in Table 7.1

Data relating to consumption of labour households and the related variables are provided in Table 7.6. The average age of respondent-labourers was 51.75 years. The average size of labour families was 4.72 and the average family income per month was Rs. 1744. Although the number of male members per family varied between zero to four, the number of income earning male members varied between one and three. On the other

and, the number of female members of the labour families varied between one to six but the income earning female members varied between one and two.

Female earners of labour families earned income between Rs.350 to Rs.4000 per month. The personal consumption expenditure of female earners came only between Rs.50 to Rs.1500. That is, major share of female income went for family consumption expenditure. The proportion of income spend on family consumption expenditure by male members, on an average, was 0.508, but the proportion of female income spent on family consumption expenditure averaged 0.725. From this we can conclude that when about $3/4^{th}$ of female income of labour families spent on family consumption expenditure, if female labour were turned unemployed and left without income the implications are mainly decline in family consumption. With low family expenditure, labour families' consumption pattern change either to low priced low quality goods or to a position whereby labour families have to abstain from consumption of goods to meet even basic needs.

Table 7.6 Descriptive statistics regarding the Respondent-Labourers (N=76)

Variables	Statistic.....> Mini-mum	Maxi-mum	Mean	Std.Error of Mean	Standard deviation	Skewness Statistic	Skewness Std.Error	Kurtosis Statistic	Kurtosis Std.Error
Age of Respondent Labourers (Years)	30	65	51.75	1	8.695	-0.296	0.276	-0.532	0.54
Size of households	1	8	4.72	0.13	1.15	-0.191	0.276	1.531	0.54
Total household income per month (Rs.)	430	5000	1744	119	1041	1.131	0.276	0.98	0.54
Male members	0	4	2.28	0.09	0.793	-0.212	0.276	0.067	0.54
Income earning males	1	3	1.37	0.06	0.514	0.89	0.285	-0.492	0.56
Income of Males (Rs.)	250	3500	1372	86	726	0.694	0.285	0.012	0.56
Personal consumption spending by Males (Rs.)	100	2500	813	61	494	1.105	0.297	1.333	0.58
Family consumption spending by Males (Rs.)	0	2500	671	64	526	1.892	0.293	3.734	0.57
Proportion of Male income used for personal consumption	0.107	1	0.594		0.222				
Proportion of Male income used for family consumption	0	0.356	0.508	....	0.356	....	....	....	....
Female members	1	6	2.45	0.1	0.9	0.893	0.276	2.126	0.54
Income earning females	1	2	1.07	0.05	0.262	3.52	0.441	11.183	0.85
Income of Females (Rs.)	350	4000	1205	134	708	2.332	0.441	8.313	0.85
Personal consumption spending by Females (Rs.)	50	1500	568	84	367	1.055	0.524	1.102	1.01
Family consumption spending by Females (Rs.)	200	2500	813	87	453	2.167	0.448	6.775	0.87
Proportion of Female income used for personal consumption	0.125	0.667	0.412		0.149				
Proportion of Female income used for family consumption	0.4	1	0.725	....	0.229	....	....	....	....
Land holding (cents)	3	50	8.54	0.91	7.011	3.981	0.311	21.07	0.61
Income from land (Rs.)	0	500	135	61	192	1.07	0.687	-0.309	1.33
Plinth area of house (Sq.ft.)	15	1050	521	31	272	-0.511	0.276	-0.224	0.54

Source: Same as in Table 7.1

7.7 Conclusion

The increase in the percentage of labour households left without food for breakfast and lunch during the period 1990-98 had manifold implications. The female labour eased out from agricultural sector were left unemployed because other sectors did not absorb them as was prevailing cutthroat competition for employment by job seekers due to already increasing general unemployment. They didn't get adapted to any other work in household industry or so. Instead they were entangled in unemployment and poverty, starving as they abstained from one or two time meals per day. The labour households living on one meal a day will create serious health hazards and leave low quality labour for future both physically and in skill. The lack of opportunities for female labour due to cropping pattern change and increasing general unemployment had already led to a least consumption by labour families. The consumption pattern of labour families changed to a position of abstaining from consumption of food for breakfast and lunch and the same was experienced by the labour families, the female labourers of which turned unemployed due to changes in cropping pattern in favour of female labour saving crops. The present analysis of consumption pattern of labour families was not based on item-wise expenditure on consumption basket of labour households, studying in detail changes in expenditure on each item. This could be possible only if such expenditure on items in market basket of labour families and the changes introduced in the items of the market basket as well as the changes in expenditure on each item thereof over years has to be collected systematically at micro level. A static collected information at a sample survey

designed for a particular study and covering the experience over decades will be seriously limited to apply statistical techniques for analysis. Still, significant conclusions can be arrived at using the data, keenly studying it and describing what was observed. The present study therefore, although attained certain conclusions that consumption pattern of labour households changed to a deteriorating position due to unemployment of female labour in agriculture due to cropping pattern change, it opens up opportunities for further study using more information collected in a series, covering years, and including a large sample to conduct a more serious study of impacts of changes in cropping pattern in Kerala agriculture.

Chapter VIII

Summary and Conclusion

This chapter gives the summary and findings of the present study and the conclusions emerging out of that.

This study on '***Gender Issues in Development: Impact of Shift in Cropping Pattern in Kerala on Employment of Women, Family Income and Consumption***' is a novel study related to the subject. As there was no earlier study to guide, this falls within the purview of explorative studies. The study gains importance in the context of declining female labour force participation in Kerala vis-à-vis the talk on women's economic independence, gender equality and gender justice. Women's employment and their income earning capacity not only increases the status of women at home and in the society, but also acts as an anchor of family consumption expenditure of at least agricultural labourers. Many empirical studies reveal that income earning capacity of females enhance their decision-making capacity in the matter of income disposition. Studies also reveal that the major portion of the income of female labourers is spent on family consumption rather than on personal consumption.

Kerala agriculture was receptive to changes from very early days. This has resulted in the predominance of cash crops in Kerala Agriculture. Change in cropping pattern in favour of commercial crops, mainly tree/perennial crops, had serious impacts on the economy of the state. The major impact of such change in cropping pattern was

manifested on female employment in the agricultural sector. Changes in cropping pattern in favour of tree crops caused reduction in female employment in agriculture. A large number female labour previously employed in agriculture sector were left without any work and income. This has reduced their voice in family income disposition and adversely affected the family consumption pattern of the labour households.

As the household consumption pattern of labour families are influenced by income of female labourers, the policy makers and development planners have to target increasing employment opportunities to female labour.

8.1 Objectives

The overall objective of this study is to investigate the impact shift in cropping pattern on female labour force participation and the resultant changes in household consumption pattern. The specific objectives are:

1. to focus on the impact of change in the cropping pattern on employment, especially of women labour.
2. to study the impact of changed female employment (unemployment) situations resulting from the shift in cropping pattern on family consumption pattern, and
3. to study how women labour in agriculture sector got adapted to the situation of changing employment opportunities.

8.2 Chapter scheme

The study is divided into eight chapters including the introduction and concluding chapters. The importance and significance of the study is given in the introductory chapter. The objectives of the present study and the important hypotheses set are also given in this chapter. The detailed methodology, the sampling design, the concepts used, and the plan of the study as well as the limitations of the study are also given in the same chapter.

The second chapter gives a basis for the problem setting, of course by surveying the relevant literature. The reviewed literature have direct or indirect relevance to the present study. The third chapter gives female labour force participation. The work participation at state level, study area level, selected taluk level and panchayat level are analysed in this chapter. The industrial category-wise data as time series of Census data from 1961 to 1991 is used for analysis of state level participation rates.

In the fourth chapter a detailed analysis of shift in cropping pattern of Kerala is given. An analysis of the production pattern of major crops cultivated in the state also is given. The study has also analysed district level data vis-à-vis the state level data.

The fifth chapter presents the analysis of data with respect to respondents specific characteristics. The characteristic variables relating to farmer households and labour households are analysed separately in this chapter.

The sixth chapter analyses the impact of shift in cropping pattern on employment of female labour in agriculture at micro level. In the context of change in cropping pattern, it is analysed how female agriculture labour got adapted to the new situation. The analysis in this chapter is purely based on sample data.

The impact on family consumption pattern owing to changed female labour employment situation in agriculture is analysed in chapter seven.

In the last chapter, the summary of the findings of the study and the major conclusions that emerged from the study are given.

8.3 Data and Methodology

The study is based on both primary as well as secondary data. Primary data were collected from 100 sample households in Karukachal grama panchayat of Changanacherry taluk for micro level study on the impact of shift in cropping pattern on female employment and the resultant change in family consumption pattern. The secondary data on agriculture performance of Kerala were collected from (1) 'Statistics for Planning' 1986, 1993, & 2001, Directorate of Economics and Statistics, Government of Kerala, and (2) 'Economic Review' (various issues), State Planning Board, Kerala, Thiruvananthapuram. Industrial Category-wise and Sex-wise Distribution of Main Workers, Kerala is also used from Census reports since 1961 onwards.

The primary data were collected through a sample survey of Karukachal Grama panchayat of Changanacherry taluk, Kottayam district, Kerala. The main labour colonies of the panchayat are Anchani colony in Ward III, Umpidi in Ward IV, Kuttickal colony in Ward VII, Santhipuram in Ward IX and Writtenparamba in Ward X. Ward VII was selected to identify the households to be surveyed. A total of 100 households were surveyed, of which 76 were labour households and 24, full-time or part-time farmer households. (The labour households were designed to be 75 and other 25. However, after random selection of the households, while conducting the survey it was found that for one of the respondent households, wage income was the major source of income and agricultural income was meagre and land owned was only 10 cents, although the household was listed as a farmer household. Therefore the household was included in the labour household category and thus the number of households surveyed from labour and others became 76 and 24 respectively).

The households were selected at random. The household survey was conducted using a structured and pre-tested questionnaire (A copy of the questionnaire used is appended to the thesis). The survey was conducted as direct personal interview by the researcher herself. One member of the household was interviewed, the farmer respondents were all male, but labour respondents were from both sexes although male labourers interviewed were few. The female labour respondents were the major category of informants of the survey.

The reference period for the survey was about three decades prior to the survey date, from 1970 to 1998. Data on employment, wages, income, consumption, area of land owned, cropping pattern, and education were collected from the sample households.

The collected information was arranged in two way/three way tables and the percentages of respondents/households were taken to observe the intensity of functioning of variables involved. Method of analysis followed is descriptive.

The secondary data on work force participation of females were also analysed descriptively using two way classified data and the percentages of observations thereof.

The secondary data on agricultural performance of Kerala were analysed taking growth rates of area under crops, production and yield of crops, and measure of instability.

8.4 Female Labour Force Participation

Casualisation of work is increasing in the case of workers of both sexes. Female labour are being evicted from their traditional sectors of agriculture wage labour, household industries, etc. and were finding no opportunities in other industrial categories as the additional opportunities generated in all the categories were few. The percentage of women workers, in manufacturing industries other than household industries as well as in services other than transport, storage & communication, to total female workers increased

over the decade 1981-1991, but accommodating a low addition to female workers occurred in absolute terms. This growth in female employment in manufacturing and/or services sectors was not enough to accommodate the released agriculture labour, observed as a decline in employment both in absolute terms and proportionately. This poses several issues, which are gender specific and generated by development of decades. In the context of feminisation of work lead to feminisation of poverty, female labour being evicted from their traditional sectors of employment have serious implications on manifold aspects of life of labourers and their family. This view has to be centred again round the view that female labour incomes are spent mostly on household expenses rather than male income. The implication of changing work distributions of female labourers will be on family consumption pattern. The sample study of the present work concentrates on this aspect.

8.5 Agricultural Performance of Kerala

The analysis of agricultural performance in Kerala at state level and at the study area (Kottayam district) level revealed that agriculture sector is recovering from a decline since early 1980s. Total agriculture showed growth in production and yield due to shift in cropping pattern in favour of high valued non-food crops. The disparities in agriculture performance of state and the study area, is noticeable. Even non-food crops production and yield growth rates varied considerably. The peculiarity of cropping pattern change in Kottayam is that 75 per cent of total agriculture at present is of non-food crops and the important non-food crops in the district are perennial and tree crops like rubber, coconut,

and cocoa. Food crops in the district remaining only 25 per cent of total agriculture, has serious implications. The number of workers accommodated in food crops production due to the seasonal and labour intensive nature of food crops was high compared to that of non-food crops. When the cropping pattern shifted over years such that more than 50 per cent of the area under food crops was also brought under non-food crops, the number of employment in the food crops sector declined significantly. Even if the released area from paddy and other seasonal crops cultivation had been utilised in cultivating other perennial and tree crops like coconut and rubber, it was not possible to absorb the total released labour from paddy sector. This is because the perennial and tree crops are less labour intensive compared to paddy, tapioca, ginger, etc. Further, such a shift in cropping pattern affect female labour more than male, because of high female labour intensity in paddy sector as well as female labour saving nature of tree crops. This has implications in the context of, income of women labour in agriculture sector contributing much to the household income of the labour families and thereby determine the consumption behaviour of labour class. The impact of female labour saving cropping pattern is redistribution of employment and thereby income, in favour of male labour.

8.6 Shift in Cropping Pattern and the Impact on Female Labour at Micro Level.

The micro level analysis showed that change in cropping pattern had been adopted by farmers one or more times due to many reasons. The shift in cropping pattern was in favour of tree and perennial crops. The percentage of respondent farmers cultivating paddy declined from 54 in 1975 to 50 in 1980 and to 33.33 in 1985. Tapioca

cultivation also declined over the period. On the contrary, coconut cultivation increased over years as the percentage of farmers cultivating coconut increased from 4.17 in 1975 to 16.67 in 1985. Paddy cultivators declined to 16.67 percent of farmers in 1990 and none of the farmers included in our sample, cultivated paddy since 1995. Ginger also was not cultivated since 1980. The farmers have shifted to perennial commercial crops.

The percentage of respondent farmers in rubber cultivation increased from 4.17 in 1970 to 41.67 per cent in 1998. While stopping paddy and tapioca farmers shifted to mainly rubber and secondly, coconut. Although coconut and rubber in the initial one or two years of cropping are possible to be mixed cropped with tapioca, plantain, ginger and such seasonal crops, only an insignificant percentage of farmers resorted to such practices. Otherwise farmers who adopted mixed cropping with rubber opted for teak and arecanut, which are again tree and perennial crops.

The shift in cropping pattern from seasonal and food crops to perennial tree crops had introduced drastic changes in the employment pattern. The seasonal and food crops engaged more women labourers, but the tree/perennial crops were female labour saving. Therefore shift in cropping pattern left many of the female labourers unemployed due to their being evicted from their previous employment and their been not accommodated in the new cropping system. Increasing overall unemployment also introduced cutthroat competition for employment both by female and male workers keeping females again away from opportunities in the male dominated social set up of production sectors.

From 1975 to 1992 the major reason for whatever shift in cropping pattern was financial loss incurred by the previous cultivated crops. Analysis of primary data reveals that, from 1990 onwards farmers started seeking better options in commercial crops because of the opportunities expected by opening up of Indian markets to competition. However, in mid 1990s decline in price of rubber due to global competition had clearly indicated the vulnerability of local farmers in commercial agriculture. Still 50 percent of the farmers initiated a second shift in cropping pattern again to seek better options in commercial crops and the shift was from coconut, pepper and tapioca to rubber.

The labourers turned unemployed was 68.42 percent of the labourers in the sample and the changes in cropping pattern had been a major cause of this unemployment. Another cause of unemployment was non-availability of work. Labour being evicted from agriculture sector and not finding job in any other secondary or tertiary sectors had still further implications on family income of labourers. This ultimately led to a permanent reduction in income of the family of the unemployed. The consequences were very low consumption of goods and services for maintenance of the labour. Because 89.47 percent of labourers in our sample were females, the unemployment of female labour due to shift in cropping pattern has implications on family consumption pattern of labour households.

8.7 Impact of Change in Employment Opportunities of Female Labour in Agriculture on Family Consumption Pattern

It was after the opening up of Indian markets for global competition, i.e., since 1992 onwards, the 80.77 percent of total unemployment of female labour occurred. The perceptions of farmers about trade liberalisation and the opportunities that brings had excited them to shift the cropping pattern in favour of commercial crops. This had ultimately resulted in unemployment of female labour and reduction in their family income. Majority of female labour replaced from agriculture did not find other works because of severe competition for work by the otherwise unemployed labourers and especially male labourers.

Unemployment of female labour due to change in cropping pattern adopted by farmers has serious implications on family income of female labourers. The spending pattern of female and male income earners, are different. Female earners spend more on family consumption, while male earners spend mainly on personal consumption. The sample study revealed that due to female labourers left unemployed, the family consumption expenditure was reduced. This reduction in family consumption expenditure introduced changes in family consumption pattern.

The increase in the percentage of labour households left without food for breakfast and lunch during the period 1990-98 had manifold implications. The female labour evicted from agriculture sector were left unemployed because other sectors did not

absorb them as was prevailing cutthroat competition for employment by job seekers due to already increasing general unemployment. They didn't get adapted to any other work in household industry or so. Instead they were entangled in unemployment and poverty, starving as they abstained from one or two time meals per day. The labour households living on one meal a day will create serious health hazards and leave low quality labour for future both physically and in skill. The lack of opportunities for female labour due to cropping pattern change and increasing general unemployment had already led to a least consumption by labour families. The consumption pattern of labour families changed to a position of abstaining from consumption of food for breakfast and lunch and the same was experienced by the labour families, the female labourers of which turned unemployed due to changes in cropping pattern in favour of female labour saving crops.

8.8 Conclusions

This section shows an attempt to sum up the conclusions derived on the present study in relation to the objectives set in the introduction chapter.

One of the conclusions regarding the labour force participation of females in Kerala is that participation is declining. Casualisation of work is increasing in the case of workers of both sexes. Female labour are being evicted from their traditional sectors of agriculture wage labour, household industries, etc. and were finding no opportunities in other industrial categories also as the additional opportunities generated in all the

categories were few. This poses several issues, which are gender specific and generated by development of decades.

The second conclusion derived on the present study is that agricultural performance in Kerala at state level and at the study area (Kottayam district) level is recovering from a decline, since early 1980s. Total agriculture showed growth in production and yield due to shift in cropping pattern in favour of high valued non-food crops.

The disparities in agriculture performance of state and the study area, is noticeable. Even non-food crops production and yield growth rates varied considerably. The peculiarity of cropping pattern change in Kottayam is that 75 per cent of total agriculture at present is of non-food crops and the important non-food crops in the district are perennial and tree crops like rubber, coconut, and cocoa. Food crops in the district remaining only 25 per cent of total agriculture.

The implications of shift in cropping pattern from food and seasonal crops to non-food and tree crops, is that labour employment opportunities declined in agriculture sector and female labour were the class evicted from new agriculture. The cropping pattern of Kerala shifted over years such that more than 50 per cent of the area under food crops also was brought under non-food crops, the number of employment in the food crops sector declined significantly. This has implications in the context of, income of women labour in agriculture sector contributing much to the household income of the labour families and thereby determine the consumption behaviour of labour class. The impact of female labour

saving cropping pattern is redistribution of employment and thereby income, in favour of male labour.

Another important conclusion of the study is that at micro level farmers adopted shift in cropping pattern two or more times and from 1975 to 1992 the major cause of such shift in cropping pattern was financial loss due to prevailing cropping pattern. However, primary data shows that since 1990 changes in cropping pattern in favour of perennial tree crops was due to farmers seeking better options in commercial agriculture promised by globalisation of Indian markets. Although agriculture performance improved, the impact on the society of labourers was unfavourable. Globalisation benefits commercialisation imperatives but labour class in the countries, which have weak bargaining position, suffers drastically. From the micro level analysis, it was 68.42 percent of labourers, who turned unemployed due to changes in cropping pattern.

The micro level sample study led to the conclusion that it was after the opening up of Indian markets for global competition, i.e., since 1992 onwards, the 80.77 percent of total unemployment of female labour occurred.

The spending pattern of female and male income earners, are different. Female earners spend more on family consumption, while male earners spend mainly on personal consumption. Thus, the micro level study reveals that due to female labourers left unemployed, the family consumption expenditure was reduced. This introduced changes in family consumption pattern.

The analysis of change in consumption pattern of labour families showed that the percentage of labour households left without food for breakfast and lunch, during the period 1990-98, had increased. The lack of opportunities for female labourers due to cropping pattern change and increasing general unemployment had already led to a least consumption by labour families. The female labourers evicted from agriculture sector did not get adapted to any work on their own in household industry or so, or not found any employment on payment in other sectors. Therefore, the consumption pattern of labour families changed to a position of abstaining from consumption of food for breakfast and lunch.

The labour households living on one meal a day will create serious health hazards and leave low quality labour for future both physically and in skill. The female labourers being evicted from agriculture sector due to changes in cropping pattern have implications for policy initiation. As female income is the main determinant of consumption pattern of labour households, mainly in the matter of consumption for satisfying basic needs of family members, any policy interventions for the improvement of labour families shall take into account this. The policy interventions for development through increase in employment opportunities shall concentrate on female employment to derive desired results.

The present study concludes also that consumption pattern of labour households changed to a deteriorating position due to unemployment of female labour in agriculture

due to cropping pattern change, it opens up opportunities for further study using more information collected in a series, covering years, and including a large sample to conduct a more serious study of impacts of changes in cropping pattern in Kerala agriculture.

Bibliography

1. Agarwal, B. (1986), "Gender Relations and Food Security: Copping with Seasonality, Drought and Famine in South Asia", in L. Beneria and S. Feldman (ed) *Unequal Burden, Economic Crises, Persistent Poverty and Women's Work*, Westview Press, Boulder Co.

2. Ambannavar, Jaipal (1975), "Changes in Economic Activity of Males and Females in India", *Demography in India*, Vol. 14.

3. Anandaraj, R. (1992): "Cyclicality in Industrial Growth in India: An Exploratory Analysis", *Working Paper No. 249*, Centre for Development Studies, Thiruvananthapuram.

4. Anker Richard, M.E. Khan, and R.B. Gupta (1988), *Women's Participation in the Labour Force: A Methods Test in India for Improving its Measurement*, ILO, Geneva.

5. Banerjee Nirmala (1985), *Women Workers in the Unorganised Sector*, Sanyal Books, Hyderabad.

6. Bardhan Kalpana (1985), "Women's Work, Welfare and Status: Forces of Tradition and Change in India", *Economic and Political Weekly*, Vol. XX. No.51, 52.

7. Barewal, S. (1987), "Canadian Spending of Food Service Dollars", *Food Market Commentary*, 9.

8. Barrett Nancy (1979), "Women in the Job Market: Occupations, Earnings and Career Opportunities" in Ralph, E. Smith (ed), *Women at Work*, Urban Institute, Washington D.C.

9. Bhalla Shiela (1988), "Technological Change and Women Workers- Evidence from the Expansionary Phase in Labour Absorption in Haryana", *Paper presented at The Workshop on Women in Agriculture*, Centre for Development Studies, Thiruvananthapuram.

10. Blumberg Rae Lesser (1991) (ed): *Gender, Family and Economy: The Triple Overlap*, Sage Publications, U.S.A.

11. Blumberg Rae Lesser and Coleman (1989), "A Theoretical Look at the Gender Balance of Power in the American Couple", *Journal of Family Issues*, Vol. 2.

12. Boserup E. (1970): *Women's Role in Economic Development*, London, George Allen and Unwin, edition 1989, Earthscan Publications.

13. Byrone Patrick, J., Oral Capps Jr. and Atanu Saha (1996), "Analysis of Food-Away from –Home Expenditure Patterns for U.S. Households, 1982-89", *American Journal of Agricultural Economics*, August.

14. Chakrabarti, Snigdha and Ashok Rudra (1990): "Where is the Industrial Retardation?" in *Economic and Political Weekly*, September 29.

15. Chalton Sue Ellen, M. (1984), *Women in Third World Development*, West View Press, Boulder, Co.

16. Chatterjee Ruchira (1984), *Marginalisation and the Introduction of Women into Wage Labour*: The Case of Indian Agriculture, ILO, Geneva.

17. Chinchilla Norma, S. (1977), "Industrialisation, Monopoly Capitalism and Women's Work in Guatemala", *Journal of Women in Culture and Society*, Vol. 3.

18. Collier, P. (1992), *Women and Structural Adjustment Unit for the Study of African Economies*, Oxford University Press, Oxford.

19. Collver Andrew and Eleanor Langlois (1962), "The Female labour Force in Metropolitan Areas; An International Comparison", in *Economic Development and Cultural Change*, No. 10.

20. Dandekar, K. (1975), "Has the Population of Women in India's Population been Declining", *Economic and Political Weekly*, No.10.

21. Datar (1958), *Women in Employment 1901 to 1951*, Planning Commission, New Delhi.

22. Deitch Cynthia, H. (1980), *Sex, Inequality and the Labour Market; Earning Differences between Men and Women Workers 1959-1976*, Doctoral Dissertation, University of Massachusetts.

23. Devi Lakshmy (1995), "An Analysis of Female Labour Force Participation in Kerala", *Indian Labour Journal*, Vol. 36, No.10.

24. Devi Lakshmy (1996), "Determinants of Labour Force Participation Among Women in Kerala – Some Evidence from a Micro Level Study", *The Asian Economic Review*, Vol. 38, April.

25. Dreze Jean (1997), "Introduction", *The Indian Journal of Labour Economics*, Special Issue on Gender and Employment in India, Vol. 40, No. 3.

26. Dreze Jean and Sen Amartya (1996), *India: Economic Development and Social Opportunity*, Oxford University Press, Oxford.

27. Duvry Nata (1988), *Work Participation of Women in India: A Study with Special Reference to Female Agricultural Labourers, 1961-1981*, ARTEP, ILO, Geneva.

28. Dwyer, Daisy and Judith Bruce (1988) (ed), *A Home Divided: Women and Income in the Third World*, Stanford University Press, Palo Alto, C.A.

29. Ehlers Tracy (1980), *Women and Development in Guatemalan Town*, Doctoral Dissertation, University of Colorado, Boulder.

30. Elson, D. (1993), "Gender Aware Analysis and Development Economics", *Journal of International Development*, Vol. 5.

31. Erturk, K. and Cagatay, N. (1995): "Macro Economic Consequences, of Cyclical and Secular Changes in Feminisation", *World Development*, Vol.23, No.11.

32. Frazao, E. (1992), *Food Spending by Female Headed Households*, US Department of Agriculture, Washington D.C.

33. Gonzalez Anna, B. (1977), "Philippino Women in Development: The Impact of Poverty", *Philippine Sociological Review*, Vol. 25.

34. Gupta, D. (1969), "Household Size and Expenditure", *Artha Vijnana*, Vol. II.

35. Gupta, D. B. (1970), *Consumption Pattern in India – A Study of Inter-Regional Variations*, Tata McGraw Hill Publishing Company, Bombay.

36. Guyer, J. (1980), "Household Budgets and Women's Incomes", African Studies Centre, *Working Paper 28*, Boston University.

37. Hill Annie, M. (1981), "Female Labour Force Participation in Japan", Paper read at the *50th Annual Meeting of Population Association of America*, Washington D.C.

38. Hopkins Jane, Levin Caroll and Haddad Lawrence (1994): "Women's Income and Household Expenditure Patterns: Gender or Flow? Evidence from Niger", *American Journal of Agricultural Economics*, Vvol.76.

39. Horton Susan (1996), *Women and Industrialisation in Asia*, Routledge, London.

40. Horton Susan and Cathay Campbell (1991), "Wife's Employment, Food Expenditure and Apparent Nutrient Intake: Evidence from Canada", *American Journal of Agricultural Economics*, August.

41. Iyengar, N.S. (1968), "Economies of Scale in Household Consumption – A Case Study", *Indian Economic Journal*, Vol. 15.

42. Jose, A.V. (1989), *Limited Options*, ILO, ARTEP, New Delhi.

43. Joseph, C.J. (983), '*Economics of Minor Irrigation in Kerala (A Case Study)*', Ph.D. Thesis.

44. Kabir, N. (1991), "Gender, Production and Well-being: Rethinking the Household Economy", *Discussion paper No. 228*, Institute of Development Studies.

45. Kalpagam, U. (1988), "Women in the Labour Force: An Analysis of NSS data", *Background Paper for the National Commission for Self Employed Women and Women in the Informal Sector*, New Delhi.

46. Kannan, K.P. and Pushpangadan, K. (1988), "Agricultural Stagnation and Economic Growth in Kerala: An Exploratory Analysis", *Working Paper No. 227*, Centre for Development Studies, Thiruvananthapuram.

47. Kannan, K.P. and Pushpangadan, K. (1990), "Dissecting Agricultural Stagnation in Kerala: An analysis across Crops, Seasons & Regions" in *Economic and Political Weekly* Vol. XXV, Sept. 1-8, 1990, pp 1991-2004.

48. Kiribanda Balasuriya, M. (1981), *Education, Female Labour Status and Fertility Interrelationship: A Study of Dynamics and Differentials in Sri Lanka in 1971*, Ph.D. Dissertation, University of Pennsylvania.

49. Kumar Rachel (1994), "Development and Women's Work in Kerala, Interactions and Paradoxes", *Economic and Political Weekly*, Vol. XXIX, No.51-52.

50. Kuttappan, M. (1979), *'Coconut Production in Kerala - An Economic Analysis'*, Ph. D. Thesis, University of Kerala.

51. Lelithabhai, K.N. (1993), *'Constraints to Productivity Growth in Kerala Agriculture- A Micro Level Study'*, M.Phil. Dissertation, Jawaharlal Nehru University, Centre for Development Studies, Thiruvananthapuram.

52. Lockwood, M. (1992), "Engendering Adjustment or Adjusting Gender? Some New Approaches to Women and Development in Africa", *Discussion paper No. 315*, Institute of Development Studies, Brighton.

53. Lustig Nora and Teresa Rendon (1979), "Female Employment, Occupational Status and Socio Economic Characteristics of the family in Mexico", *Journal of Women in Culture and Society*, Vol. 5.

54. Mahajan, V.M. (1971), *Consumer Behaviour in India: An Econometric Study*, Concept Publishing Company, New Delhi.

55. Malathy, R. (1983), *Women's Allocation of Time to Market and Non-Market Work: A Study of Married Women in Madras City*, Ph.D. Dissertation, University of Madras.

56. Malik Patricia (1981), *Factors Related to Women's Choices of Careers in Life Sciences and Letters – A Comparison of a Non-Traditional with a Traditional Discipline*, Ph.D. Dissertation, Indiana University, Indiana.

57. Mary E. John (1996), "Gender and Development in India, 1970s-1990s – Some Reflections on the Constitutive Role of Contexts", in *Economic and Political Weekly*, Vol. XXXI, No. 47, November 23, 1996.

58. Mason Karen, O. and V.T. Palan (1981), "Female Employment and Fertility in Peninsula Malaysia", *Demography*, Vol. 18, November.

59. Mathew E.T. (1997), *Employment and Unemployment in Kerala, Some Neglected Aspects*, Sage Publications, New Delhi.

60. Mc Cracken, V. and J. Brandt (1987), "Household Consumption of Food Away from Home: Total Expenditure and by Type of Food Facility", *American Journal of Agricultural economics*, November.

61. Mehra Rekha and Saradamani (1983), *Women and Rural Transformation*, Concept Publishing Company, New Delhi.

62. Mencher, Joan (1988), "Women Work and Poverty: Women's contribution to Household Maintenance in two Regions of South India", in Judith Bruce and Daisy Dwyer (ed), *A Home Divided: Women and Income in the Third World*, Stanford University Press, Palo Alto, C.A.

63. Mies Maria (1986), *Indian Women in Subsistence and Agricultural Labour*, Vistas Publications, New Delhi.

64. Miller Baila, M. (1980), *Equal Access to Equal Work: A Study of Inter Firm Variation in the Occupational Inequality of Women*, Ph.D. Dissertation, University of Illinois.

65. Mincer Jacob (1962), "Labor Force Participation of Married Women", in H.G. Lewis (ed), *Aspects of Labour Economics*, Princeton University Press, Princeton.

66. Minhas, B.S. and Vaidyanathan A. (1965): "Growth of Crop Output in India, 1951-54 to 1958-61: An Analysis by Component Elements" in *Journal of the Indian Society of Agricultural Statistics*, Vol. XVII, No. 2, December 1965.

67. Ministry of Labour, Government of India, (1988), *National Perspective Plan for Women: 1980-2000 A.D.*, New Delhi.

68. Ministry of Labour, Government of India, (1988), *Report of the National Commission for Self- Employed Women and Women in the Informal Sector*, New Delhi.

69. Moorthy Krishna, J. (1982), "Ground Level Technology", *Seminar Paper, ISST*, New Delhi.

70. Mukherjee, C. and Thomas Issac, T.M. (1994), *A Review of the Self-Employment Programmes for Educated Unemployed*, Centre for Development Studies, Thiruvananthapuram.

71. Mukhopadhyay Ghosh (1982), "Sources of Variation in Female Participation Rate: A Decomposition Analysis", *Seminar Paper, ISST*, New Delhi, April.

72. Nair, K.N. and Narayana, D. (1983), "Linking Irrigation with Development- The Kerala Experience", *Economic and Political Weekly.*

73. Nancy Folbre (1995), *Annual World Bank Conference on Development Economics, 1995 - Engendering Economics: New Perspectives on Women, Work, and Demographic Change.*

74. Narayana, D. (1990), "Agricultural Economy of Kerala in the post-seventies: Stagnation or Cycles?" *Working paper No. 235*, Centre for Development Studies, Thiruvananthapuram.

75. Narayana, D. and Nair, K.N. (1989), 'Trends in Area, Production and Productivity of Coconuts in Kerala' in *Indian Journal of Agricultural Economics*, Vol.44, No.2

76. National Institute of Urban Affairs (1987), "Gender Bias in Employment of Women in the Urban Informal Sector", *Research Study Series*, No. 20, New Delhi.

77. Neera Desai and Maithreyi Krishnaraj (1990), *Women and Society in India*, Ajanta Publications (India), Delhi

78. Ninan, K.N. (1984), "Labour Use in Agriculture: Case Studies of Tapioca and Paddy" in *Economic and Political Weekly*, Vol. 19, No. 51 & 52, December 22-29.

79. Oommen M.A. (1992), "The Acute Unemployment Problem in Kerala – Some Explanatory Hypothesis", *IASSI Quarterly*, Vol. 10, No.3.

80. Palmer, I. (1991), *Gender and Population in the Adjustment of African Economies*, ILO, Geneva.

81. Panikar, P.G.K. (1980), "High Yielding Varieties of Rice - A study of Selected Areas in Kerala", *Working Paper No.140*, Centre for Development Studies, Thiruvananthapuram.

82. Parthasarathy, C. and Rao (1981), *Women in the Indian Labour Force*, ARTEP, ILO, Geneva.

83. Paul Jacob (1982), "The Low Female Participation Rates and Related Issues, Observation based on N.S.S.", *Seminar Paper ISST*, New Delhi.

84. Pillai, Renuka (1999): *Gender Influence on Consumption Pattern: A Study of the Impact of Women's Income on Household Consumption*, Ph.D. Dissertation, Department of Applied Economics, Cochin University of Science and Technology, Cochin.

85. Prais, S.J. and Houthakkar, H.S. (1955), *The Analysis of Family Budgets*, Cambridge University Press, Cambridge.

86. Prakash B.A. (1988), "Educated Unemployed in Kerala", *Working Paper No. 224*, Centre for Development Studies, Thiruvananthapuram.

87. Prakash Jain (1975), "Women in Industry", *Indian Labour Journal*, Vol. 16., No.8.

88. Raj, K.N. and Tharakan, Michael (1983), 'Agrarian Reform in Kerala and Its Impact on the Rural Economy - A Preliminary Assessment' in Ajit Kumar Ghose edited, *Agrarian Reform in Contemporary Developing Countries*, Croom Helm, St Martins Press, New York, pp 31-90.

89. Reddy Narasimha (1977), "Female Work Participation in India – Acts, Policies", *Indian Journal of Industrial Relations*, Vol. 15, No.2, October.

90. Reddy, V.N. (1978): "Growth Rates" in *Economic and Political Weekly*, Vol. XIII No. 19, May 13, 1978, PP. 806-809.

91. Richard W. Franke and Barbara H. Chasin (1996), "Female Supported Households- A Continuing Agenda for Kerala Model", *Economic and Political Weekly*, Vol. XXXI, No.10.

92. Rogers Barbara (1980), *The Domestication of Women*, Kegan Paul Limited, London.

93. Roos Patricia (1985): *Gender and Work; A comparative Analysis of Industrial Societies*, State University of New York Press, Albany.

94. Roy, J. and Laha, R.G. (1954), "Preliminary Estimates of Relative Increase in Consumers Deman" in Ganguly A. et. al., (ed), *Studies in Consumer Behaviour*, Asia Publishing House, London.

95. Sen, A. (1990), "Gender and Co-operative Conflicts", in Tinker (ed), *Persistent Inequalities: Women and World Development*, Oxford University Press, Oxford.

96. Sen, Gita (1983), "Womens Work and Agricultural Labourers: A Study of the Indian Census", *Working Paper No. 159*, Centre for Development Studies, Thiruvananthapuram.

97. Sinha, J.N., *Census of India 1961*, Vol. 1, Monograph No. 11, Government of India.

98. Sivanandan, P.K. (1985): *'Kerala's Agricultural Performance: Differential Trends and Determinants'*, M.Phil. Thesis, Centre for Development Studies, Thiruvananthapuram.

99. Smith Ralph E. (1979): "The Movement of Women into the Labour Force" in Ralph E. Smith (ed) *The Subtle Revolution: Women at Work*, The Urban Institute, Washington D.C.

100. Smoke Audrey (1981), *Women's Education in Developing Countries; Opportunities and Outcomes*, Praeger Publishers, New York.

101. Standing Guy (1989): "Global Feminisation through Flexible Labour", *World Development*, Vol. 17, No.7.

102. Subramanian Shanker and Angus Deaton (1991), Gender Effects in Indian Consumption Pattern", *Sarvekshana*, April-June.

103. Tendulkar Suresh D. and L.R. Jain (1995): "Economic Reforms and Poverty", *Economic and Political Weekly*, Vol.30, No.23.

104. Thomas Joseph (1988), *Some Economic Aspects of Higher Education in Kerala – Special Reference to Education, Employment and Income Linkages*, Ph.D. Thesis, University of Kerala.

105. Thomas, D. and Chen, C.L. (1993), *Income Shares and Shares of Income: Empirical Tests of Models of Household Resource Allocation*, Rand Corporation, U.S.A.

106. Thorner Alice (1962), "The Sexual Trend in the Indian Economy 1881-1951", *Economic and Political Weekly*, Vol. 14.

107. Tina Wallace and Candida March (ed) (1991): *Changing Perceptions*, Writings on Gender and Development, Oxfam, Oxford.

108. Tinker Irene, Michele Bo Bramson and Mayra Buvenic (1976), (ed), *Women and World Development*, Praeger Publishers, New York.

109. Unni, Jeemol (1981), *An Analysis of Change in the Cropping Pattern in Kerala with Particular Reference to the Substitution of Coconut for Rice - 1960/61 to 1978/79*, M.Phil Dissertation, Centre for Development Studies, Thiruvananthapuram.

110. Visaria Praveen (1996), "Women in the Indian Working Force: Trends and Differentials", *Working Paper*, Gujarat Institute of Development Studies, Ahemdabad.

111. Waite Linda, J. (1981), "U.S. women at work", *Population Bulletin*, Vol. 36, May.

112. Westwood, S. (1991), "Gender and the Politics of Production in India", in H. Afsher (ed), *Women Development and Survival in the Third World*, Longman, London.

113. Whitehead, A. (1990), "Rural Women and Food Production in Sub Saharan Africa, in Dreze and Sen (ed), *The Political Economy of Hunger, Vol. I, Entitlement and Well-being*, Clarendon Press, Oxford.

114. Working Hollbrook (1943), "Statistical Laws of Family Expenditure", *Journal of American Statistical Association*, Vol. 38.

115. Young, K. (1993), *Planning Development with Women: Making a World Difference*, Macmillan, London.

116. Youssef Nadia (1974), *Women and Work in Developing Societies*, Population Monograph Series 15, University of California, Berkley.