An Analysis of Income and Expenditure Pattern of Cultivators in Haryana

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Under the Supervision of

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CERTIFICATE

This is to certify that the thesis entitled '**An Analysis of Income and Expenditure Pattern of Cultivators in Haryana**' being submitted by Mr. Mahtab Singh to the Department of Economics, Central University of Haryana in partial fulfilment of the requirement for the award of the degree of Doctor of Philosophy in Economics is appears as a record of original work done under my supervision. It has not been submitted in part or full for award of any Degree/Diploma of this University or any other institution. I deem the present research work fit for evaluation.

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DECLARATION

I hereby declare that the thesis entitled *'**An Analysis of Income and Expenditure Pattern of Cultivators in Haryana**'* submitted to Central University of Haryana in partial fulfilment of the requirement for the award of the degree of Doctor of Philosophy in Economics, is a record of original research work done by me under the supervision of Dr. Ranjan Aneja, Assistant Professor, Department of Economics, Central University of Haryana. The content of this thesis has not been submitted so far in part or in full for any degree or diploma in any other institution.

Place: CUH, Mahendergarh   **Mahtab Singh**

Date: Enrolment No.- CUH/28/2010

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Introduction

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INTRODUCTION

1.1 Introduction

Agriculture is an integrated set of activities that farmers perform in their farms under their resources and circumstances to maximize the productivity and net farm income on a sustainable basis. The farming system take into account the components of soil, water crops, livestock, labour, capital, energy and other resources, with the farm family at the centre managing agriculture and related activities. Farming system is related to the whole farm rather than individual elements, it is driven as much by the overall welfare of farming households as by goals of yield and profitability.

Agriculture system is a holistic approach, interrelated of component, matrix of soils, plants, animals, power, implements, labour, capital and other inputs, influenced by political, economic, institutional and social forces. Agriculture system are closely linked to livelihoods because agriculture remains the single most important component of most rural living peoples and also plays an important role in the lives of many people in semi-urban areas. Farming systems involve a complex combination of inputs, managed by farming families but influenced by environment, political, economic, institutional and social factors.

The need of agriculture system approach in the present scenario is mainly due to high cost of farm inputs, fluctuations in the market price of farm products, rich in crops harvest due to climate vagaries and biotic factors. Environmental degradation, depletion in soil fertility and productivity, unstable income of the farmer, fragmentation of operational holdings and low standard of living add to the intensity of the problem.

Before independence, agriculture had played an important role in the process of economic development in India. Agriculture provides food to nation, releases labour, provide saving and contributes to market of industrial goods and enhance foreign exchange revenue. Agriculture is the main sources of national income and occupation at the time of

independence. Agriculture and allied activities contributed nearly 50 percent to national income. Around 72 percent of total working population was engaged in agriculture during that time. This confirms that Indian economy was agricultural based economy at the time of independence. However after independence, the share of agriculture in total national income declined from 50 percent in 1950 to 17.08 percent in 2016-17. But still the agriculture sector is dominant sectorand 52 percent of workforce is still engaged in agriculture activities.

Agriculture is the mainstay of about 52 percent population in Haryana with contribution of 16.3 per cent in GSDP of the State. The Haryana quantum of food grain production, which was nearly 25.92 lakh tonnes at the time of inception of the State and it touched to 287.3 in 2016-17 registering a more than six fold increase due to crop intensification and increase in production of principal crops. Rice, wheat, jowar, bajra, maize, barley and pulses, sugarcane, cotton, oilseeds and potato are the major crops of the state.

Cultivators play an important role in the most developed state like Haryana consequently the consumption pattern of cultivators determines the growth of the state. These days every aspects of life are changing very rapidly, so the family budget of cultivators of Haryana is not an exception. The needs and demands of the family are very crucial issues in the contemporary era. In the age of globalization family development depends on income and expenditure.

The allocation of total household expenditure among goods and services in response to changes in prices and income of the household has been the main concern of demand theory. Besides these factors, a number of other factors such as size and composition of household, income, distribution, demographic distribution and socio-psychological factors are also expected to have their effect on the allocation of household expenditure. The price of a good or service, ceteris paribus, will have an inverse effect while income of

the consumer has a direct effect on the consumption of that good or service. The effect of changes in price, income and household size are usually measured in terms of price and size elasticity of demand respectively.

The ever increasing interest in demand studies can be attributed to the important role played by the magnitude of income (or total expenditure) and price elasticities of demand for decision making in both free and planned market economies. The planned development requires a balance between the supply of and the demand for these commodities otherwise the successful implementation of development programmes will be hampered.

The changing structure of industry over time depends crucially on the evolution of the elements of consumer's expenditure in response to increasing income while knowledge of price responses is an important element in the formulation of fiscal policy or any other type of economic controls. Thus the usefulness of disaggregated planning or prediction is likely to depend on its correct allocation of consumer's expenditure which is the largest item in the gross domestic product of most of the economies. Apart from eliciting the structure of demand, an important advantage of the utility based, complete system approach to demand analysis is the welfare interpretation of the estimated demand parameters that has allowed significant use of the demand estimates in such diverse areas as expenditure inequality measurement, calculation of true cost of living index, estimation of optimal commodity taxes, and determination of equivalence scales.

Given the level of development, regions differ from each other in terms of consumption pattern. The differences come from various economic, social, political and natural factors. This justifies the expectation of a sizable variation in the consumption pattern with respect to different consumer goods in different regions and between different social groups. A number of researchers have addressed the issue of the consumption pattern

since the formulation of the Engel's law, which states that the share of expenditure on food in total expenditure tends to decline with a rise in income.

Besides income, expenditure, household size is considered in analyzing consumption expenditure. Houthakker (1957) emphasizes that the coefficient of household size comprises to two types of effects, such as specific effects and income effect. The specific effect refers to the effect resulting from increase in the need for various commodities as household size increases, whereas the income effect arises because; a family becomes relatively poorer with as increase in the household size. The specific effect does not move proportionately with household size because of economies of scale in consumption which exists in the large households.

Therefore it hence intensities to analyse the changing pattern of household consumption expenditure under various changing phenomena of the society. For instance, out of household expenditure, consumption expenditure is increasing due to increase in urbanization, breaking up of the traditional joint family system, desire for quality food, lack of time which translates into an increased need for convenience.

1.2 Categories of consumption

Consumption categories are formed mainly on the basis of the commodities involved. Broadly speaking there are two categories: Food and non-food consumption. Consumption to gratify hunger and thirst needs is food consumption. The consumption that is not related to the above but meant for satisfaction of health, education, travel and recreational needs is regarded as non-food consumption. The quality of consumption budget expresses the level of welfare of the household. Food consumption pattern of household is an important indicator of individual welfare and well being in any country.

1.3 Nature of consumption

The dynamic nature of human needs gives consumption a dynamic character. Human needs are always subjected to change. The dynamic character of consumption depends on the nature of the society and economy. Variations in consumption are visible in different societies, as there exists, a difference in environmental, social, economic and cultural contexts. Human wants get transformed as the society grows and in turn cause substantial changes in the outlook of the people towards consumption of commodities.

1.4 Factors affecting consumption pattern

Individual consumers are assumed to be in the best position to judge their own needs, preferences and to make their own choices. It is unbiased to assume that people know what they are looking for and have reasons for their preferences when they choose one consumption pattern over another. Yet millions of people faces too narrow a range of consumptions, which prevents them from enlarging their capabilities. They may not be able to get enough food, may lack health care services or may have little access to transport beyond their own feet. There are many factors causing these constraints on consumption options. Income is not the only one. Other factors include the availability and facility of essential goods and services, information, social barriers and the household setting.

1.4.1 Income

Income gives people the ability to buy nutritious foods instead of eating only their own crops, to pay for motorized transport instead of walking, to pay for health care and education for their families, to pay for water from a tap instead of walking for many hours to collect it from a well.

The increasing dependence of much consumption on private income means that changes in income have a dominant influence on changes in consumption. When income rises steadily

consumption rises for most of the population. But for the same reason, when income decline, consumption also falls sharply, with devastating consequences for human wellbeing.

1.4.2 Social barriers

Income cannot always remove barriers to access to opportunities. This is particularly so when considerations of gender, class or ethnicity limit people's freedom to consume the goods and services they want. For example, people belonging to certain ethnic groups might be denied equal access to education, employment and other basic social services by the state, regardless of how much they earn.

1.4.3 Household decision making

A great deal of household consumption decision making is in the hands of one person-often the mother or the father of the family. Although this may lead to good outcomes, it can also be a source of inequity within the family. The education and background given to children early in life play a critical part in establishing their ability to make good use of the options available for living a full and fulfilling life.

1.4.4 Information

Information is the key too raising awareness of the range of consumption options available and enabling the consumer to decide which choices are best. Without information, there is no way of knowing that goods and services are available in the market, and what services are being provided by the state and are, by right, available to all. Advertising and public information campaigns play an important role in this respect.

1.4.5 Availability of infrastructure for essential goods and services

Many of the most basic essential goods and services like water, sanitation, education, health care, transport and electricity cannot be provided without an infrastructure.

Traditionally these facilities have been provided by the community and then by the state. As markets develop and the technology improves, the services increasingly are being provided by the private sector in areas where profit can be made.

1.5 Factors influencing patterns of household expenditure

Expenditure patterns of households can change over time for several reasons. These include changes in: disposable income, wealth, relative prices, age, health status and consumer preferences (tastes). Patterns of household expenditure can also be influenced by changes in the provision of government services and government social security and other income and tax transfers, and the conditions under which they are provided (such as in the areas of education and health).

1.6 Present economic scenario of Haryana

The economic growth of Haryana has been exemplary since its creation in 1966. The state economy grew at an excellent average annual growth rate of 8.64 percent during the period of (2008-09 to 2015-16), higher than the national average. Though, Haryana is geographically a small state accounting for only 1.3 percent of the total area of the country, the contribution of the state in the national GDP at constant (2004-05) prices has been recorded as 3.63 percent as per of 2015-16.

The growth in GDP of the State during 2015-16 was recorded as 8.7 percent, higher than the growth of 7.11 percent recorded by the Indian economy. During the period of the 11th Five Year Plan (2007-12), the State economy registered the growth of 8.7 percent in spite of the low growth posted in Agriculture & Allied (3.7 percent) and Industry (6.0 percent) Sectors. The Services Sector with the robust growth rate of 12.4 percent recorded during the 11th Plan period acted as the main catalyst for sustaining the economic growth of the State above 8.0 percent.

The same trend in structural transition has been observed in the national economy. The share of agriculture & allied sector in the national GDP has also decreased from 19.0 percent in 2004-05 to 17.32 percent in 2015-16 whereas the share of services sector has increased from 53.0 percent in 2004-05 to 53.66 percent in 2015-16. The share of industry sector in the national GDP has also increased from 28 percent in 2004-05 to 29.02 percent in 2015-16. This underlines a similar major structural shift in the Indian as well as state economy with economic growth becoming more vulnerable to the performance of industry and service sectors and less to the performance of agriculture sector. The general index of industrial production with 2004-05 as base year increased from 145.3 in 2011-12 and 173.0 in 2015-16.

1.7 Cultivators consumption pattern in Haryana

Consumption pattern of the households depends on many factors like assets, level of education, occupation and demographic characteristics. The sources of income in the rural household sector are various. In most of the households the main occupation is not the only source of income and in the cultivator households, more than 50 per cent of the household income originate from other sources. Non-agricultural sources are the main source of income for many households in the Haryana.

In Haryana expenditure on food items, the share of cereal grains, as expected, declined significantly in rural and urban areas, indicating a shift in consumption from cereal grains to other food products. An important feature of the food consumption pattern was the relatively higher expenditure on milk and milk and dairy products. In 2015 these products accounted for 49.44% of the expenditure on food and50.56% of the total household expenditure was spent on non-food items in rural areas. As a result, the share of these products in the total expenditure on food increased over time same period. Dairy products

have replaced cereal grains as the most important component of food expenditure in both rural and urban areas. Among the non-food items, the clothing and housing claimed 8.41% and 9.39% respectively of the total expenditure

The growth of agriculture has significantly shifted to pattern of household food consumption in favour of livestock products, particularly milk. Other livestock products, such as meet and eggs, have exhibited marginal increases in consumption of national average proportion, primarily because of the strong religious taboos on non vegetarian food. The possession of various household assets by the selected families is an indicative of their financial position and clearly reflects their standard of living.

1.8 Conceptual framework

Household: A group of person normally living together and taking food from common kitchen constitute a household.

Consumption: It refers to the use of goods and services for the satisfaction of human wants. In other words it is the destruction of utility.

Consumption Function: Relationship between aggregate consumption and aggregate income.

Demand Elasticity: Proportionate change in demand due to change in price or income.

Household Consumer Expenditure: The expenditure incurred by a household on domestic consumption during the reference period is the household's consumer expenditure. The household consumer expenditure is the total of the monetary value of consumption of various groups of items namely: i) Food, pan (betel leaves), tobacco, intoxicants and fuels and light, ii) Clothing and footwear; and iii) Miscellaneous goods and services and durable articles.

Total Household Expenditure: The total household expenditure is composed of expenditure of the household on broad group of items.

The results of total household consumer expenditure expressed are broadly classified under (a) Food total and (b) Non-food total.

Value of Consumption: Consumption out of purchase is evaluated at the purchase price. Consumption out of home produce is evaluated at ex-factory prices. Value of consumption out of gifts, loans, free collection and goods received in exchange of goods and service is imputed at the rate of average local retail prevailing during the reference period (30 days).

Monthly Per Capita Consumer Expenditure (MPCE): For a household, this is its 30 day's consumer expenditure divided by its size. A person's MPCE is understood as that of the household to which he or she belongs. For classifying households and persons by MPCE level, MPCE classes were formed. These classes correspond broadly to 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95% and 100% of population.

Groups of Consumption of Items: Results on break-up of MPCE over different items of consumption are presented for 19 broad item groups. These are Cereals, Gram, Cereal substitute, Pulses / Pulse products, Milk and Milk products, Edible oil, Meat Fish / Eggs, Vegetables, Fruits / nuts, Sugar, Salt, Spices, Beverages refreshments and processed Food, Pan Tobacco and intoxicants, Fuel & light, Clothing, Footwear, Miscellaneous goods & services, durable goods.

Durable Goods: Items included here all have a lifetime of one year or more and were distinguished from miscellaneous goods. Consumption expenditure on durable goods includes both expenditure on purchase and expenditure on repair and construction of household durables.

Miscellaneous Goods and Services: This is a residual category covering all items other than food, pan, tobacco, intoxicants, fuel and light, clothing, footwear, and durable goods. It includes expenditure on education, medical care, entertainment, conveyance, rent, and consumer taxes.

1.9 Objectives of the study

The present study has following objectives:

1. To analyze the income and consumption pattern of cultivators in Haryana by their sources.

2. To enquire into the socio-economic factors responsible for the perceived changes in variables over time.

3. To estimate the income elasticity of demand for commodities in Haryana.

1.10 Significance of the study

The available studies on consumption pattern are based on secondary data and concentrate on their educational and occupational structure and deal with its effects on their welfare. While studies done on the consumption expenditure of households for various expenditure classes, little effort has been made to study the consumption expenditure pattern in rural sector. These studies highlighted economic and technical aspects and neglected the socio-economic factors responsible for the perceived changes in variables over time. On the other hand the study on household consumption expenditure pattern is very important as it is related to poverty and standard of living of the society. It is necessary to study the change in pattern of food consumption in today's changing scenario. The analysis of changing consumption pattern over time would help in designing of appropriate policies related to food production and distribution.

1.11 Statement of the problem

The need to study the income and expenditure pattern in developing state like Haryana is felt because development brings a significant change in the size and structure of population, urbanization, attitudes and aspirations of various social classes and in the patterns of consumption. This study aims to examine the income and consumption pattern of the various categories of households. There is existence of large disparities in income and expenditure of cultivators according to size of holdings in Haryana. There is a need now to look at the problem more comprehensively. The outcome of study will help in understanding the income and expenditure pattern of cultivators and the dynamics changes in socio-economic factors of cultivators in Haryana.

1.12 Coverage of data

The study is comprehensive in nature and gives detailed according to agricultural holdings. In these holdings include were irrigated, unirrigated and remaining agricultural holdings were partly irrigated. The holdings have been classified according to various size groups to facilitate group-wise comparison of different inputs and outputs of farm cultivators. The study aims at analyzing sources of income and expenditure of the selected cultivators. An attempt has been made to find out the different sources of income, pattern of domestic expenditure, dietary habits, standard of living and proportion of consumption of goods produced at farm and purchased from outside. Various characteristics of cultivators income is Farm cultivation, Milk and milk products, Interest on capital investment and Income from miscellaneous sources of income. The expenditure made on food and non-food items, annual and daily consumption of food, input and output of milk production and overall financial position of the selected cultivators.

1.13 Rationality of the data

This study is based on secondary data. The major source of data is published annually by Directorate of Economic and Statistical Organisation, Planning Department and Government of Haryana. The source provides farm level information regarding expenditure on various items of consumption and size of families. The study is based on family budget of cultivators in Haryana to analysis the income and expenditure pattern of cultivators covering the data from 2002-03 to 2013-14. This time period is taken due to easily availability of data. Before the time of 2002-03, the govt had not published any reports regarding it. In the time of 2000, the govt. announced the policy of agriculture therefore govt. had to present the data. After 2002-03, the govt released the reports regarding it.

1.14 Organisation of the study

The present study contains seven chapters:

The first chapter presents a brief introduction about income and expenditure pattern, its structure, objectives and significance of the study.

The second chapter deals with the survey of literature. It plays an important role for a researcher in finalization and delimitation of a research problem.

The third chapter presents the data description and research methodology that is being adopted in the study.

The fourth chapter deals with the tabular and graphical analysis and its interpretation. This chapter shows growth of income and expenditure of cultivators in Haryana.

The fifth chapter deals with the tabular and graphical analysis and its interpretation. This chapter shows the trends of income and expenditure of cultivators in Haryana

The sixth chapter deals with the tabular and graphical analysis and its interpretation. This chapter shows the relationship between income and expenditure of cultivators.

Finally seventh chapter explain the major findings, recommendations and limitations of the study.

Chapter – 2
Review of Literature

CHAPTER - 2
REVIEW OF LITERETURE

2.1 Introduction

The review of literature is a critical discussion that is of general and specialized relevance to the particular area and topic of the research problem in statistics. Review of literature is first supervisor which help to frame the research and generate ideas about the methodology to work on different variables. It provides a right direction to the research to carry out his research. It also introduces the research to alternative methods of analysis which increases the scope and limitations of new areas for the research. So for proper understanding of the problem, sincere efforts have been made to review the literature regarding the current research problem. In this chapter an attempt has been made to summarize the results of the studies undertaken by the researchers on Analysis of income and expenditure pattern of cultivators. Some prominent theoretical and analytical studies are:

2.2 Review of literature of theoretical context

Keynes, J. M (1936) mainly looked at consumption in form of a macroeconomics perspective. He saw aggregate consumption expenditures as important components of national income. Keynes argued that with rises in income, consumption would also increase but not as fast like income. When income raises the marginal's propensity to consume (MPC) would go down as consumer needs are satisfied Keynes regarded effective demand by the consumer as the principal vehicle of economic growth.

Sen, A (1985) focused not on the ownership of commodities but on he uses to which they can be put in extending peoples capabilities. Commodities were important for enriching

human lives, but their effectiveness depends on personal characteristics' and social circumstances, variations in which contribute to inequalities in a society.

2.3 Review of literature of international context

Burney et al. (1991) discussed on the household consumption patterns separately for the urban and the rural sectors in Pakistan by estimating the marginal expenditure shares and expenditure elasticities for twelve broad commodity groups, using household level data for the year 1984-85. They estimated marginal expenditure shares that indicated in examining the household expenditure patterns one could safely assume that all the households in the sample face the same price structure. While the findings of the paper sports the validity of Engel's law, the estimates presented indicate that expenditure elasticities for different commodity groups very with income and in general, exhibit a cyclical pattern, which was explained in terms of quantitative as well as qualitative change in the household consumption basket.

The results indicated that as the level of income increases, the share of food and drinks in total household expenditure declines for households in both the urban and the rural sectors. The expenditure share of transport and communication was found to rise with the level of income, while that of clothing and footwear and fuel and lighting declines in the case of rural households. The results further indicated that the expenditure elasticity of food and drinks was less than unity in urban and the rural sectors as well as for household in different income groups within each sector.

Selim, R. (1995) analysed the changes in the expenditure patterns of Turkish household during this period, using data on household expenditure. Data had been taken from the Survey of Household Income and Consumption Expenditures conducted by the State Institute of Statistics (SIS) of Turkey for the years 1987 and 1994. . To find out the

factors cause these changes, consumption expenditure patterns of urban and rural households and the households at different income levels were also analysed. Total expenditure elasticities for eleven expenditure groups were estimated by using Engel curves. The method used for estimating regression equations was the weighted least squares. Total expenditure elasticities were estimated by using double-log function type. The Changes in total expenditure elasticities of four consumption expenditure groups were statistically significant. The total expenditure elasticities of transportation-communication, Restaurant and various commodities-services had increased significantly.

The clothing was the only expenditure category that showed significant decrease in the total expenditure elasticity. While the clothing was a luxury commodity in 1987, it moved up near to the necessity Commodity category in 1994. The total expenditure elasticity of housing was lower at rural areas than urban areas of the total expenditure elasticities of food, clothing and education were higher at rural areas than urban areas.

Ahmad and Karunakaran (1996) estimated that expenditure elasticities for the poor, middle income and rich Australian households using spline function on the working-leser Engel equations system. These elasticities are very substantially with the level of total expenditure. The main objective of the study was to examine the difference in budget allocation decision across rich and poor household in Australia. The study was based on primary data. These had been collected from the household Expenditure Survey 1988-89. In survey, 7225 household were taken. For analyzing the data, the working-leser Spline Functions and the simple Working-leser System were estimated by the OLS method. The results showed that the traditional argument which proposes that a tax imposed on a good that has income elasticity greater than one, affects only the rich income household.

Karunakaran et al. (1996) analyzed the total expenditure elasticities for the poor, middle and rich Australian households using Spline functions on the Working-Leser Engel

equations system. The results showed that the elasticities were very quiet substantially with an increase in total expenditure with a general declining trend. The consumption categories food & beverages, fuel and services had expenditure elasticities less than one at each of the four specified levels of total expenditure. In the case of personal care and health the elasticities among the poor household were almost equal to one. This means that relative to other consumption goods, personal care and health were considered to be equally important. From the lower middle income households towards the rich the expenditure elasticity for both personal care and health decline. The increased expenditure on alcohol was most likely to result from improved quality of alcoholic drinks that rich household could afford.

Fousekis and Lazaridies (2001) explained the food expenditure patterns of the urban and the rural households in Greece. Non parametric regression analysis and micro data from the family budget survey (FBS) were used in this paper to estimate and to compare the Engel Curve for food demand of the urban and the rural households. The empirical results suggested that the Characteristic Substitution Effects (CSEs) was not constant but very considerably with total consumption outlay. They also suggested that the working Leser hypothesis, according to which shares are linear in logarithmic expenditure, is consistent with the food demand patterns in Greece.

Pendakur, K. (2001) estimated the rate and depth of absolute adjusted consumption poverty in Canada over the period 1969 to 1998. Consumption was defined as annual expenditure flows on the following eight commodities: food purchased from stores, shelter, clothing, personal care, public transportation, private transportation operation, household operation, and household furnishing and equipment. Consumption was adjusted for differences in prices (over time and across area of residence in Canada) and for differences in household size and composition to get adjusted consumption. If

adjusted consumption was below the poverty line, then the household was called poor. The poverty rate for the population declined by more than four-fifths over the 1970s and 1980s, from 11.4 percent in 1969 to 2 percent in 1992. Unfortunately, this trend reversed in the 1990s, with poverty rising by more than one-half, to reach 3.4 percent in 1998.

Unlike relative poverty lines, such as Statistics Canada's Low-Income Measure, these absolute poverty lines were set at the same level of purchasing power throughout the three-decade period under study. Several findings emerged from this research. First, income poverty and consumption poverty measures told different stories. Second, the time pattern in consumption poverty in Canada was not encouraging. Poverty declined greatly from 1969 to 1992, and then rose from 1992to 1998. Third, the incidence of poverty among different age groups had changed over time.

Chern et al. (2002) analyzed the Japanese food consumption. This had been undergoing dramatic changes over the last 30 years. There had been increasing consumption of meats, particularly beef and dairy products, and decreasing consumption of rice, fish, fresh fruits, as well as fresh and processed vegetables in Japan. On the other hand, low income countries showed high values indicating that cereal consumption occupies an important place in the overall consumption of poor people. It was evident from the HES report of 1988-89, and from the study of Gupta (1973) that expenditure elasticity of all Cereals for Rural Bangladesh, Urban Bangladesh, Rural India, Urban India, Pakistan, Egypt, Ceylon, Rural Japan, Urban Japan, UK, Italy, Denmark, and Bangladesh (in 1965) were 0.58, 0.47, 0.63, 0.32, 0.29, 0.59, 0.48, 0.19,0.16, 0.23, 0.21, 0.11, and 0.44 respectably. Another important point that emerged from the above data that in Bangladesh and in India the demand for cereals in rural areas showed twice the response to income changes than in the urban ones where per capita incomes were higher. This indicated that the demand for cereals declines rapidly as incomes increase. The above data also showed that, except for developing countries, the elasticity coefficients were either negative or nearly zero.

This suggested that a rise in income in high-income countries would not cause the demand for cereals to change significantly. There might be some increase; of course as a result of rise in population. However, in Asia and African countries, the demand for cereals was influenced by two factors, both working in the same direction. These were increasing incomes and rising population. Therefore, unless both rich and surplus producing countries were in a position to meet the cereal requirements for developing countries, it might not be possible for the low-income countries to achieve rapid industrial development.

Browne et. al (2007) conducted a study on expenditure elasticities for rural household. The main objective of the study was to estimate expenditure elasticities for consumption goods and services of rural household in the Emboward of Umbumbulu Kwazulu- Natal. And to compare expenditure elasticities estimated for two main crop production seasons. This study was based on primary data. Data had been collected through interview session with the principle decision-matter of the household. For survey 171 household were selected as sample size. Budget share and expenditure elasticities were estimated for household consumption categories for the two study periods. The results showed that expenditure elasticities for consumer expendables, durables and transport were elastic, while expenditure elasticities for the aggregate food category were negative and highly inelastic. The analysis of the expenditure categories of tradable and non-tradable good and services showed expenditure on tradable non-farm goods and services to have the greatest potential for demand-led growth with expenditure elasticities of 2.88 and 2.91, respectively. A seasonal difference in expenditure patterns was apparent, suggesting that responses to income changes very at different times of the year.

Ganimagusa, Girne and Giizelyurt In this study total expenditure and income were used alternatively, as explanatory variables. The information obtained from this survey was used to estimate Engel curves and from them income elasticities. Grouped cross section

data based on household income and consumption expenditures surveys conducted by the State Institute of Statistics were used. The empirical findings indicated that expenditure on food, rent, electricity, water, gas, household services, transportation and communication were inelastic (less than 1), and expenditure on restaurants, clothing, furniture, health, personal care, culture, education, entertainment, and other commodities were elastic (more than 1). These results showed many similarities to various empirical results obtained for Turkey.

Castaldo et al. (2007) investigated the living standards measurement in Albania during 2002. The receipt of migrant remittances had an effect on the consumption patterns of recipient households. Domestic and international remittances were considered and differences in their impacts on household consumption patterns assessed. On the other hand, households who received remittances from abroad spend, on average and ceteris paribus, a lower share of their expenditure on food and a higher share on consumer durables compared to households who did not receive any type of migrant remittances. They ware estimated budget share equations for four broadly defined categories controlling for a number of variables including those capturing whether or not the household receives remittances from within Albania or abroad. The four categories of commodity considered were food, non-food, durables and utilities. The non-food category includes a range of goods, such as clothing, housing repairs, services, entertainment, alcohol and tobacco, which, if considered in isolation, could shed light on which members of a household benefit most from remittances (e.g., children, adults, the elderly, etc.).The lack of an effect of internal remittances on spending patterns might due to the small number of households which were in receipt of this type of remittance in the data used here.

Fabiosa et al. (2008) highlighted in their study the changes in consumption and expenditure behaviour of households in Egypt. With the limited data, it was estimated by the system of Working-Leser Engel functions for four expenditure categories namely (1)

bread and cereals (2) meat, fish, seafood, milk, cheese, and eggs (3) other food and (4) non-food. The data was formed from published by CAPMAS in the 1999/2000 and 2004/2005 Household Income, Expenditure, and Consumption Survey. The data showed that rural households spent a higher proportion of their income on bread and cereals and other food compared to urban households. They spent almost the same proportion on meat, fish, seafood, milk, cheese, and eggs, and a significantly lower proportion for the non-food category. The estimated income elasticity, project likely changes in the consumption pattern in the future with the expected economic growth in Egypt. This consumption expenditure pattern had an alleviating effect on the impact of a food crisis since a lower real income associated with a food crisis was accompanied by greater responsiveness of households to reduce their demand for food as their real incomes shrink. This adjustment behaviour was most obvious in the case of bread and cereals in rural areas, in which the expenditure elasticity increased from 0.50 to 0.91 as per capita income declined. The decline in expenditures of urban households would be larger, while the decline in expenditures of rural households would be marginal given that their elasticities were close to unitary for all categories except from the other food category.

Kuma (2010) analysed the consumption patterns changes in food in urban Ethiopia. The primary objective of the study was to help understand whether there is change in urban food consumption patterns and behaviour of household expenditure between 1994 and 2004 and to examine weather demographic and non-demographic factors explain changes in consumption patterns. This study was based on primary data. Total sample size of 1500 households was allotted in proportion to the size of the population residing in the selected urban centres. Systematic sampling was used to select households. Primary data had been gathered through questionnaire. Households were asked about expenditure and consumption. For analyzing the data, working-leser expenditure share model was employed. Regression analysis was used to examine the factors which influence the

demand for different food items. The result showed that the decomposition of per capita consumption in to different demographic and economic factors confirm that urban household consumption patterns have started to shift from staple food grains to high value food products. The simulations and estimated income elasticity of demand for cereals, pulses and spices were found to be much lower than those of non-staple high value products. The transition in food consumption patterns in turn needs government policy intervention to stimulate production of food items with high demand.

Caglayan and Astar (2010) investigated the determinants of household consumption expenditure in Turkey for both in urban and rural areas. This also examined the regional gaps for the entire distribution of consumption expenditure. The household consumption expenditure data gathered from Turkism Statistical Institute in 2009. Quantile regression is used to examine the correlates of consumption at different point on the distribution for both rural and urban areas. The findings showed that the age increased the consumption expenditures and urban estimations, while it decreased the consumption expenditure in rural estimations. The lower values of consumption expenditures of men then the consumption expenditure of women are rather close to the values obtained for the same variables in the urban estimates of all observation regard less of rural-urban distribution.

Sharma, A. R. (2010) investigated the impact of community forestry on income distribution in regard to the existing income inequality in Nepal. To quantify the contribution of community forestry on farm-household income and measure the effect of increased farm-household income from community forest particularly on the existing 'poor-rich' gap and to explore the level of utilization of forest products by wealth and caste in Nepal. The motive behind the research was to get insights on the issue of equity and accessibility in community forestry in Nepal. There had been 54 percent increase in agricultural land from 1961 to 2004. The average annual income of community forest is

Nepal regions (NRs) 17,887 while the average expenditure was Nepal regions (NRs) 12,038. The Forest User Groups (FUGs) were authorised to take decisions regarding the use of their fund. The estimated total annual income from the sale of forest products from community forest is Nepal regions (NRs) 246 million while the expenditure was in Nepal regions (NRs) 166 million in 2004. Almost one-fourth of such expenditures could be related with poverty alleviation efforts. The mentioned effort for poverty alleviation through community forestry was far below the required amount of Nepal regions (NRs) 37.72 billion1 (US $ 503 million) for the purpose. Lower income households relied mainly on off-farm (wage income and self-employment) sources.

Unny, C. J. (2011) examined the household sector contributes the lion's share of the total savings. In the household sector, rural households had tremendous saving potential which had not been considered seriously by the policy makers and hence, measures had not been chartered to mobilize these huge savings. In Kerala, in spite of low per capita income, the rate of savings was very high. There were various factors influencing the saving behaviour of the rural household sector in Kerala. This paper had tried to identify the factors influencing saving behaviour together with the nature of their influence on saving behaviour. The study was based on primary data and collected from one hundred households in selected from three villages in the three regions of the state. The study found that the propensity to save in the rural household sector was very high. Level of income, income inequalities, value of assets and level of education of the head of the household positively influence savings whereas number of male children, number of earners and dependency ratio has negative influence. Among the occupational groups, households engaged in non-farm sector had higher propensity to save.

It was found that, the youngest age group had recorded very high saving income ratio of 0.31. The study revealed that the old age dependency ratio and young age dependency ratio have negative effect on savings. Saving income ratio was found to be optimum for

the households in which the number of dependents is 2. The lowest saving income ratio of 0.11 was recorded by the households where the number of dependents was 6 more. The study had also found that 23 per cent of households in the top three income brackets account for 91.09 per cent of the total savings. These households shared 48.94 per cent of the income also. 42 percent of households in the bottom three income brackets get only 18.81 per cent of the total income and their cumulative contribution towards total income was -17.31 per cent.

The propensity to save in the rural household sector in Kerala in spite of low per capita income was very high. There were factors having negative and positive influence on saving behaviour of rural households. Whereas level of income, extent of income inequalities, value of assets and level of education exert a positive influence on savings, dependency ratio and numbers of male children had negative influence.

Salim (2011) studied the changes in the expenditure patterns of Turkish household during 1987-1994 periods. Data had been taken from the survey of household income and consumption expenditure conducted by the state Institute of Statistic (SIS) of Turkey. Total expenditure elasticities for eleven expenditure groups were estimated by using Engel curves. The method used for estimating regression equations in the weighted least squares. Total expenditure elasticities were estimated by using double-log function type. The changes in total expenditure elasticities of four consumption expenditure groups are statistically significant. The total expenditure elasticities of transportation-communication, restaurant and various commodities-services have increased significant. The clothing is only expenditure category that showed significant decrease in total expenditure elasticity.

Dawoud, D. Z (2011) analysed the changes the food expenditure patterns over time in Egypt with special emphasis on the differences between urban and rural areas. Engel

Curves for food groups were estimated by using double-log function. The method used for estimating regression equations was the Weighted Least Squares (WLS). Data had been obtained from the household, income, expenditure and consumption survey conducted by the Central Agency for Public Mobilisation and Statistics (CAPMAS) of Egypt for five survey periods from 1990and 1991 to 2009 and 2010. Food consumption expenditure patterns have changed over the conseculative survey period as a result of economic changes. There were statistically significant variations between the urban and rural expenditure elasticity of most food commodities except for cereals, milk-eggs, fruits and beverages. Elasticities tend to be higher in rural areas then urban. The expenditure elasticities of food groups are lower at high income groups than low-income ones.

Kumar et al. (2011) studied the changes in food consumption pattern of Indian households and estimation of the demand parameters of major food commodities. A better understanding of demand elasticity's helped to predict future demand of food products under different scenarios of prices and income and could prove worthy for the policy planners on important policy decisions. The household data was collected under major rounds of National Sample Survey (NSS) covering the years 1983, 1987-88, 1993-94, 1999-00 and 2004-05 pertaining to 38th, 43rd, 50th, 55th and 61 rounds, respectively were used. Consumers were found to shift their budgetary allocation from cereals based food towards high-value commodities like fruits and vegetables, milk, fish, meat and meat products, etc. The study were attributed this structural shift to 'consumption diversification effect' arising out of changes in tastes and preferences, easier access to supply, variation in relative prices, etc. on the one hand and to 'pure income effect', resulting from the increase in income levels of the consumers. On the other hand, transition had significant implications on resource allocations and research priority setting and the state policy needs to be reoriented towards meeting the challenges arising from this structural change in food consumption. The income were a positive and significant

effect on demand for sugarcane (0.062), pulses (0.219), vegetables (0.259), edible oils (0.297), fruits (0.362), non-vegetarian food, viz. meat, fish and eggs (0.669), and other high-value foods (0.748). The net price effect on food demand was found negative with high in magnitude and the estimates were -0.344 for pulses, -0.760 for milk, - 0.496 for edible oils, -0.464 for vegetables, -0.682 for fruits, -1.22 for non-vegetarian food and -2.379 for high value food.

Oldiges, C. (2011) studied the relationship between per capita cereal consumption and per capita income in India human development survey 2004-05. The main findings were that per capita cereal consumption (PCCC) remains much the same at different levels of per capita income (PCI). It was influenced by factors such as education, occupation, region, demography and food habits. The findings were derived from a single data set and require corroboration from independent sources. It's stranded to reason that at very low levels of income there must have been a positive relationship between cereal consumption and per capita income. Unlike cereal consumption cereal expenditure does increased with per capita income. Richer people did not increase per capita cereal consumption but higher quality more expensive cereals. The non -food expenditure also increased with per capita income, quite sharply in the case of items such as fruits and meat. Richer people do eat better in both quality and quantity.

2.4 Review of literature of national context

Singh, B. (1972) studied on consumer behaviour. It was assumed that any two households with equal per capita/per unit income within a homogeneous group would display similar consumption pattern. In this study, it was proposed an iterative procedure which did not entail any such problems. Since the proposed procedure was also based on the same formulation of the Engel function as used by Prais and Houthakker. In this iterative procedure, he used the Engel function in which household members of different age-sex

characteristics had been assigned different weights in respect of specific items of consumption as well as overall consumption of the household. The weights which related to specific items constitute specific 'adult-equivalent,' or 'unit consumer' scales, and those which relate to the overall consumption of the household constitute income 'adult-equivalent' or 'unit consumer' scales. He estimated the income elasticities had been obtained according to three models of the Engel function. first, when both the composition and the economies scale effects were ignored, second, when only the economies of scale effects were ignored, and third when both the composition and economies of scale effects were taken into account.

Singh, B. (1973) estimated in their study the effects of household consumption of its consumption pattern of the rural households in West U. P. (India). Household members were weighted according to the specific and income scale estimated by the Singh Nager interactive technique. Engel curve were estimated using different function forms both in per capita and per unit terms. The Engel elasticities obtained and then analysed, together with the estimated adult-equivalent scale. The data used in the present study had been extracted from the duplicate schedules on consumer expenditure of the fifteenth round (July 1959-June 1960) of the National Sample Survey (NSS). These data related to the rural sector of the Western Uttar Pradesh (India).In analysing first the specific scales, it was found that Group 1 generally accounts for the largest proportionate expenditure on various consumption items with greater tendency in case of food items as compared to non-food ones. This seems justified because those included in Group I are involved in heavy manual work, have higher body weights and get priority over other household members for allegedly conventional and economic reasons.

The study found that these generalities did not hold well in many cases, since the initial and final critical levels were rather arbitrary and influenced by several economic and non-economic factors. B-type occupants have over elastic demand for "Amusement and

recreation' even though they allocated 31% of their budget to it. In remaining occupation-types, 'Rice' was regarded as a luxury item when it constituted 10-17% of their budget. Conversely, D-type occupants had negatively elastic demand for 'Gur and others' while their value shares of these items were almost negligible. Therefore, it might be argued that items with high value shares and at the same time having over elastic demand reveal strong consumers preferences for those items. The converse was true with items having low value shares and negatively elastic demand. Finally, no inferior item constitutes a very large fraction of household budget. This implied on the demand for inferior items satiates at a very low level.

Jakobson and Dahlberg (1976) explained the effect of different patterns of public consumption expenditures. The effects of an increase in public consumption on employment, imports and private consumption were found to differ considerably depending on which branch of the public sector was expanded. A special analysis of the implications for a medium term planning problem is the trade off between private and public consumption growth. This analysis threw new light on private or public consumption in an economy with highly differentiated production in the public sector the trade off was shown not to be unique. The sacrifice of private consumption growth corresponding to a given growth of public consumption expenditures would vary considerably according to the distribution of the public consumption growth within the different branches of the public sector. The analysis was carried out by the help of a simplified version of the IUI-model.

Kumar, S. (1979) focused on the consumption expenditure. The data had been drawn from NSSO reports for the period from 1960-61 to 1973-74 for rural areas in India. It was observed that the per capita expenditure at constant prices (total and also food) declined over the period with small fluctuation in intervening periods. Comparison of data by most of the groups indicated rise in per capita expenditure in 1973-74 (28th round) as

compared to that in 1964-65 (19th round). The decline in per capita expenditure was attributed to decline in the purchasing power of the consumers because of sharp rise in prices.

Capps, J. (1982) analysed the consumer expenditure patterns for fish and shellfish and this study also investigated the nature and magnitude of the influence of price, household income and socioeconomic and demographic varieties on aggregate sea-food expenditure in the United States. This study was based on primary and secondary data. Secondary data had been collected from BLS consumer expenditure diary survey and primary data was collected through diary questionnaire. This study hypothesized the quadratic function as from the aggregate fish and shellfish expenditure function. The findings showed that the logical generalization it to extend the analysis to focus on individual fish and shellfish species such as hard blue crabs, oysters, clams and food fin finch.

Singh et al. (1982) analyzed the variation in consumer expenditure between rural and urban areas of Muzaffar Nagar district in Uttar Pradesh using household survey data for the year 1976-77 collected with the help of structured questionnaires. It was observed that the total per capita expenditure (PCE) on food items especially on cereals, pulses, sugar and jaggery both in absolute and percentage terms was higher in rural areas than in urban areas.

The percentage of PCE on milk and milk products in Muzaffar Nagar was found to be much higher than the all India figure and Western U.P. Inequalities of PCE was found to be comparatively higher in urban areas for all the items together while that on cereals was higher in rural areas. The inequality in PCE in both rural and urban sectors was lower in terms of per capita income. The expenditure elasticity provided an idea of the consumer behaviour for food and non-food commodity groups but did not entail definite conclusions because of low explanatory powers of estimated Engel curves.

Malik, S. (1982) explained the regional differences in the share of expenditures devoted to food and various non-food items and found that urban households, on the average, were better off than their counterparts in rural areas. While the share of expenditure on food items tends to decline with increasing level of household expenditure, this share showed an increasing trend for non-food items. The main conclusions of the study, whether based on any analysis of expenditure elasticities or concentration ratios, were the same. We found rural-urban differentials in patterns of consumption. It also found that rural sector is much more homogeneous in its consumption than urban sector. Among different consumption items food and drinks, clothing and footwear and fuel and lighting appeared to be necessities. Housing showed an elasticity which was substantially higher than unity and thus a luxury. This was something one should expect since rising incomes would finance substitution in favour of better quality housing.

The higher concentration in 1972 indicated that the levels of living of the masses deteriorated during the period 1964-1972. This was despite the fact that improvement of such conditions was a major goal of our third five-year plan (1965-70). This indicated that the masses could not get their share out of the rising incomes of 1969's.

Nayak et al. (1984) conducted a study on the levels of living of the SC/ST vis-à-vis the non-SC/ST and inequality in the levels of living of the SC/ST and non-SC/ST in Karnataka during the 1973-74 and 1977-78. They were examining the disparities in the levels of education and the occupational structure of households in the different groups under study. In this paper, it was looked at the consumption expenditure distribution of the SC/ ST and the non SC/ST groups in Karnataka. It was found that the SC/ST have a lower standard of living than the non SC/ST. However, there had been a fall in the standard of living in real terms for both the SC/ST and non-SC/ST over the period 1973-

74 to, 1977-78. The decrease had been greater for the SC/ST, leading to a widening of the disparity. With respect to inequality, they found that there was generally less inequality within the SC/ST group as compared to the non SC/ST. This was not surprising either, since the SC/ST was more homogenous than the non SC/ST. Over the period of study, the inequality within the groups had increased. The increase in the inequality for the SC/ST had been of a higher magnitude than that for the non SC/ST. They found that a small percentage of the SC/ST in the urban sector had fared extremely well in comparison to their non-SC/ST counterparts, while the majority of the SC/ST suffered relatively more. The study also showed that only a minor proportion of the poor were SC/ST.

Subramanian et al. (1991) estimated a fairly flexible model of Engel curves including detailed demographic variables, and to test for the effects of gender on the pattern of demand. As we seen there were substantial gender related effects in the consumption of at last some goods. The role of gender in explained household consumption patterns for a number of food and non-food goods. The methodology was straightforward for estimated by Ordinary least Squares a set of Engel curves containing a range of household demographic variables.

The study found that gender plays an important role in consumption patterns. Basic foodstuffs, rice, wheat, other cereals, pulses, milk, meat, fruit and vegetables, and sugar were either gender neutral, or consumed in larger quantities. When there were more women in the household two foodstuffs, beverages and processed food in the gender effect indicating higher male consumption. For two key goods, milk and medical expenses, where they might expect to find pro-male effects consistent with the literature on excess mortality among young girls, they found either nothing, or pro-female bias, at least in the rural areas.

Ghose et al.(1995) conducted a study on the Indian NSS household budget data with a view to examining the effect of the reference period used for data collection on the estimated of Engel elasticities. NSS generally used the 'last month' reference period and so seasonal and other short-run factors might bias the estimates obtained from such data. The methodology adopted for choosing the best fitting Engel curve forms and for computing Engel elasticities from the chosen form. Per capita total consumer expenditure on all items per 30 days, used as a substitute for income, was calculated in two ways from the 38th round ungrouped data. Analysed the data from different NSS rounds showed that the elasticities for clothing and several other items declined dramatically when available last data for these items were used in place of corresponding 'last month' data. Grouped data from earlier rounds were also analysed in this study but only for rural and urban India. The items coverage clothing food grains, footwear and durables were added. In this study highlighted the need of special methods of estimated Engel elasticities from budget data relating to short reference periods like 'last month' or 'last week'.

Ghose et al. (1995) studied on Indian NSS household budget data with a view to examining the effect of the reference period used for data collection on the estimates of Engel elasticities. NSS generally used the last month reference period and so seasonal and other short run factors may bias the estimates obtained from such data. Analysis of data from different NSS rounds showed that the elasticities for clothing and several other items decline dramatically when available "last year" data for these items were used in place of corresponding 'last month' data. These results highlighted the need of special method of estimating Engel elasticities from budget data relating to short reference period like 'last month' or 'last week'. In this study estimates of Engel elasticities of consumption of certain items of the household budget, focusing on the effect of switching over from 'last month' to last year reference period for item groups like clothing. The

footwear elasticity changes from 1.9-2.1 to about 1.4 for rural India and from 1.7-1.9 to 1.2-1.3 for urban India. The durable goods elasticity was around 2.75 for rural India and 2.6-3.2 for urban India. The Medical care and education elasticity were smaller or declined. A small shift in elasticities was seen for food grains also but this shift was in the opposite direction, from about 0.4 to 0.5 for the rural sector. However, for urban India, no much shift was discernible.

Jain et al. (1996) explained the consumption pattern of food and non-food items in Haryana state. The average per capita total expenditure of urban households was higher compared to rural households. About one-fourth of the total consumer expenditure was allocated to milk and milk products in both the sections. Among the dairy products, the major allocation was towards liquid milk followed by ghee, butter and other milk products.

Nath et al. (2001) determined the economic of onion cultivation price spread marketing channels and marketing efficiency of onion in satara district. Satara district was leading in onion production; it covered 12.38 percent of total in the state. This study was on primary data. The primary data were collected by survey with the help of pretested schedule of questionnaire through personal interview. A sample of 180 onion growers was selected randomly from 20 villages in ten tehsil of Satara district of Maharashtra state. The selected cultivators were in to three categories- small, medium and large, based on land holding size of the farmers.

Ahmed, S. (2002) in their study investigated the impact of increased farm income and income distribution on expenditure pattern of cultivators in Haryana. It also estimated the effect of price and family size on the expenditure pattern of the cultivators, for the period 1968 to 1992.The expenditure elasticity depicted the nature of food, fuel & light as

necessities while that of clothing and other non-food as luxuries. The trends for food (0.4 percent) and clothing (0.1 percent) were negative and significant which means that these expenditure elasticities had declined significantly over the sample period. The trend rates for fuel & light and other non-food were also negative but insignificant. Qualitatively, the effect of the parameter estimates of entropy variable was negative on necessary commodities (food, fuel & light) and on luxury commodities (clothing and other non-food). The estimate of price elasticities showed that the own price elasticities of all the commodities were negative as expected in economic theory in the set of four commodities. In this study were found to confirm a positive effect of household size on household consumption of necessities and negative effect on luxuries.

Kumar et al. (2003) determined the extent of poverty in Delhi slums through consumption patterns, employment and educational status of the slum population. The study brought out significant social and economic aspects of the people living in Delhi's slums, including low level of education of the migrants, gender disparity in economic status and significant number of households below the poverty line. The results emphasized on the need for a positive employment generation policy among urban slum dwellers. There was also a need to generate employment and provide facilities at the origin of migration in order to check the influx into Delhi. Most of the slum population was mainly occupied in the informal sector or were self-employed, and every household with average size of five members had average 1.71 employed persons. The highest mean income was for self-owned tea-shop owner, i e, Rs 155.51 per day. Those who were engaged in auto rickshaw driving were getting the second highest mean income of Rs 87.48 per day. Petty traders (egg seller, fish seller, football seller, maize seller, etc) were earning the lowest mean income of all these professions, at Rs 61.49 per day. We found that, based on the poverty line of Rs 15.04 per capita per day food expenditure, 94 (48 per

cent) households with 57 per cent of the survey population were below the poverty line. It was analysed the below poverty line population revealed that these households also had large household size, low income and average expenditure on food.

Mathew, C. (2003) explained the consumption expenditure pattern of scheduled castes in Kerala for investigating the following aspects. (1) The consumption pattern among the Sc population (2) The average consumption expenditure of different docile groups of sample Sc population (3) The consumption expenditure elasticity of items in the consumption basket of Scheduled castes (4) The differences in the expenditure of Sc's between food, non-food and total expenditure (5) The association between consumption expenditure and variables such as income, education, occupation and area of residence. In case of rural Kerala for SC's average household size was higher than (5.24Rs.) the urban SC's (4.75Rs.). All India level also rural SC's had larger household size (4.85) than urban SC's (4.75).88.In rural India for percentage expenditure on food declined from 1983 to 63.23 in 1993-94. For urban Kerala general households the percentage expenditure on food increased from 1983 to 1987-88.For urban India general households the percentage expenditure on food changed only very little between 1983 to 1987-88. Average monthly per capita income of rural sample SC's (450Rs.) was lower than the same for urban sample (634.4Rs.). Average monthly per capita expenditure of rural sample SC's households (372.57Rs.) was found lower than the same for urban sample (526Rs.). Rural SC's MPCE on food constituted 56.88% and in urban45.46%. MPCE on non-food of sample SC's in rural constituted 43.12% where as in urban areas it was 54.54%. Those SC's livings in urban areas had adapted the life styles of the other communities and had more or less merged in to the mainstream of the community. Over the period from 1983 to 1993-1994 for all India and Kerala expenditures on all items had increased for SC's in both sectors.

Joshi, A. (2004) highlighted the changes in the levels of real farm income, investment and household consumption in rural Punjab from 1970-71 to 2000-01. the impact of the green revolution was clearly visible in this period in the state. The period of green revolution caused a significant increase in farm family in-comes. However, during the 1990s, farm family incomes appeared to be stagnating. The non-farm income could not keep up its earlier momentum. These issues need to be addressed properly. There was a need to diversify the rural economy, not only in farm diversification but also diversification to non-farm avenues. The increased production and income caused by the green revolution had resulted in higher farm investment and farm household consumption also increased. The consumption basket had undergone a significant change over time.

The proportion of expenditure on food items increased from 55.40 per cent in 1970-71 to 59.57 per cent in 1980-81 and came down thereafter to 40.94 per cent in 2000-01. Per farm real investments increased from Rs 68,948 in 1971-72 to Rs 1, 31,592 in 2000-01, a compound growth of 2.17 per cent per annum. Per capita real farm family consumption expenditure increased from Rs 740 to Rs 6,215 between 1971-72 and 2000-01. Encouraging both public and private investment in education would surely help the rural economy in diversifying.

Pujari, A.K. (2004) explained the household consumption pattern in rural and urban Orissa during 1999-00, for a basket of twelve commodities by using NSS household data. It was estimated by the Engel function for various commodity groups for rural and urban Orissa separately after controlling the effects of religious, social groups and occupational status. He found that the expenditure share on food items in rural areas was higher than that of urban area and similarly the share in case of non-food items was less in case of rural areas. The commodity groups like cereals, edible oil, vegetables, sugar, spices, fuel

and light showed clear evidence and they were treated as necessities in rural areas. The factors demonstrated the variation of budget shares of the commodities in most of the case. The difference came from the inherent structural difference among these areas which resulted from various demographic and social factors. In household size, it was found to have different effects on household consumption pattern in rural and urban regions.

Gangopadhyay et al. (2004) analyzed the empirical distribution of per capita total consumption expenditure. This calculated the empirical distribution of per capita total consumption expenditure (PCTE) for each of the four years 1983, 1987-88, 1993-94 and 1999-2000. Since we were comparing across different years, we had to express the PCTE in real terms. The objective of this study was to identify some important estimates of how households behave. It was a purely statistical exercise, suggesting what could be done, rather than what should have be done. In particular, it was not an econometric exercise. It was more of an exploratory trip, trying to identify issues that were worth examining in a more rigorous fashion. These two observations were based on the NSS data. Once we tried to match the NSS data with that of the NAS, there was a growing divergence in the two data sets. Either the NSS under estimates the total consumption or the NAS overestimates it. However, this divergence was not uniform across all commodity groups. More importantly, the direction of divergence was not the same. Thus, while the NAS estimates were lower than the NSS figures for the commodity group Fuel, it was higher for all the other groups. Also, the divergence between the NSS and NAS data on fuel consumption was very small.

Joshi, A. (2004) had attempted to highlight the changes in the levels of real farm income, investment and household consumption in rural Punjab from 1970-71 to 2000-01, the

period over which the impact of the green revolution was clearly visible in the state. During this period increased farm incomes and household incomes and also due to the technical necessities of modern production based on HYV seeds, irrigation and fertilizers. Real investment per hectare also increased from Rs 4,400 in 1971-72 to Rs 7,956 in 2000-01. Per capita real farm family consumption expenditure increased from Rs 740 to Rs 6,215 between 1971-72 and 2000-01. The com-pound growth rates of household income were 9.52, 8.38 and 1.21 per cent per annum during the 1970s, 1980s and 1990s respectively. The annual growth in consumption during the 1970s and 1980s was very high, at 9.41 and 8.35 per cent, but came down sharply to 1.30 per cent during the 1990s. This follows a similar slowdown in growth of farm household incomes during the 1990s.The share of education in total expenses always remained below 2 percent. Perhaps the very small expenditure on education had been the major reason for the failure of the rural economy to diversify (both in farm and non-farm areas).

Agrahar and Murugkar (2005) explained the food consumption pattern of the Khasitribals in 13 tribal villages of Ri-bhoi, Meghalaya in India. The dietary pattern was still traditional. Rice, meat, roots, tubers, fermented foods, green leafy vegetables and fruits were consumed every day. Dairy products and pulses did not play a significant part in the everyday diet. Alcohol, fermented food, betel nut and tobacco were widely consumed by both men and women. Farming played a significant role in consumption of cereals and fruits. Urbanization, higher education and income significantly influenced the consumption of non-traditional foods such as dairy products. Social factors had poor influence on food consumption pattern. The result indicated that an increase in income and educational level did not mean a proportionate improvement in the quality of food consumed.

Fan et al. (2007) had given details on household food expenditure patterns. The data had been taken from the Diary Survey component of the Consumer Expenditure Survey, an ongoing survey conducted by the U.S. Bureau of Labour Statistics (BLS) that provides a continuous flow of information related to the buying habits of American consumers. Data was analyzed with the help of the multivariate technique used to group households based on similarities in their budget allocation patterns through maximizing within-group similarities and between-group differences. The identification of clusters was empirically based instead of guided by theory. In this paper, the similarity measurement used in the Euclidian distance, and the centroid method of measuring similarity was employed because this method was more robust to outliers than most other hierarchical methods. 40 percent of the households in this survey typically spent between 40 to 50 percent of their food budgets on meals eaten away from home (including those eaten at work). Younger households are much more likely to be in the fast food dominated cluster, and less likely to be in the balanced cluster.

Bharti et al. (2008) conducted a study on the awareness and consumption pattern of rural consumer towards home and personal care products. This research was mainly depends upon primary sources of information, which were collected with the help of a structured questionnaire. The results were obtained with the help of frequency and percentage techniques. The chi-square test had also applied for demographic factors and other variables under study.

Consumers were found well exposed to the different media primarily to the television and newspapers. The younger rural consumers were found more variety seeking in comparison to their old aged counterparts. They were satisfied with the royal to the brand. The primarily consumers bought these products for their prime utilization value than

peripheral aspects. In the rural Haryana, consumers had been using the leading national brands in case of detergent and Nirma from amongst these leading brands. But in case of washing shops, the trend had been different as the locally produced soaps named Nirol had been the front runner. The bathing soaps Lux and Lifebuoy dominate the rural market of Haryana.

Pavithra, B. S. (2008) in their study to analysed the food consumption pattern in Karnataka with special reference to Mysore district. The household consumer expenditure data of the 50th round and 61st round of the National Sample Survey Organization (NSSO) was used for the study. The data was subjected to statistical tools and the main findings are summarized in the form of tables. The primary data was collected from sample respondents located in urban area, semi-urban area and rural area of Mysore district. A total sample of 135 respondents (45 urban, 45 semi-urban and 45 rural households) formed the sample for the study. Percentage was calculated to analyze the changes in the pattern of food consumption. The monthly per capita cereal consumption had declined from 13.15 kgs to 10.73 kgs in rural areas, while the corresponding decrease in the urban sector was from 10.87 kgs to 9.70 kgs. Thus, the consumption of cereals had declined in Karnataka over the periods. The monthly per capital consumption of pulses was almost stable over the two periods in rural and urban areas of Karnataka. The monthly per capita expenditure (MPCE) on food was Rs.167 during 1993-94 in rural areas and it increased Rs.283 during 2004-05. In urban area, the MPCE increased from Rs.236 to Rs.447. The expenditure elasticities for all food groups were less than unity in urban areas with the highest value being 0.96 for vegetables. The lowest expenditure elasticity was observed for cereals (0.70 in rural and 0.72 in urban areas). The monthly per capita food expenditure was Rs.730 for urban respondents Rs.601 for semi-urban respondents and Rs.483 for rural respondents of Mysore district. The total MPCE of the

respondents was Rs.2000 for urban, Rs.1231 for semi-urban and Rs.1032 for rural respondents. The functional analysis carried out to study the factors influencing food expenditure revealed that there would be an increase in the annual family expenditure on food with every increase in the family size to the extent of Rs.11143 in the case of urban consumers and Rs.7292 in the case of rural consumers.

Vatta et al. (2008) conducted a study on employment pattern and income sources in the rural areas of Punjab. The study was based on the primary data. The data had been collected from 315 rural households. The results had revealed a negative relationship between employment diversification and size of landholding. Distress nature of the rural labour markets had induced actualization of work in the absence of land for cultivation. A majority of the households had been found dependent on multiple sources of income, further confirming the distress nature of these income sources. The dependence on non-farm sector as a major source of income revealed a negative relationship with the land-size. More than two-thirds (66.9%) of the non-cultivating households had non-farm sector as the major source of their income. The study revealed the inability of an average non-cultivating and marginal or small cultivating household to achieve the overall average income of a rural household. The rural household income had been found to follow a highly skewed distribution. The incomes from crops and dairying had been observed highly unequally distributed, perhaps due to their strong association with the size of landholdings. On the other hand, rural non-farm income distribution seems to be least skewed.

The average annual income on per household as well as per capita basis was found to increase with increase in landholding size. The average non-cultivating, and marginal as well as small cultivating households were not able to achieve the overall average income

(Rs. 22242/capita/annum), the deficit being 48.3 per cent, 27.2 per cent and 21.5 per cent, respectively. For non-cultivating households, the major source of income was found to be the non-farm sector (59.0%), followed by rental income (17.8%) and livestock (8.3%). A similar pattern was observed for the marginal cultivating households. The small, medium and large cultivating households constituted one group in depicting the pattern of income source. For these categories of households, the major source of income was crop farming, followed by livestock and non-farm sector. Within these categories of households, the proportion of income from crop farming increased with increase in landholding size and decreased correspondingly in livestock and non-farming sector.

Akbay et al. (2009) investigated the relationship between consumers' fast food consumption frequency and their socio-economic/demographic characteristics and attitudes. The sign and significance of coefficients and marginal effects were used to ascertain consumer characteristics which were important to the frequency of fast food consumption. The results indicated that age, income, education, household size, presence of children and other factors, such as consumer attitude towards the price of fast food, health concerns and child preference, significantly influence the frequency of fast food consumption. The findings would help fast food managers to understand the critical factors that influence consumers' fast food consumption behaviour and help them to make improvements accordingly. This study showed that about 33% of consumers in our sample consumed fast food at least weekly basis. In general, various socio-economic and demographic factors significantly influenced the likelihood of consuming fast food. The smaller households were more frequently consume fast food products than larger households. Child preference had also statistically significant coefficient estimate at 1% significant level. Results indicated that respondents who perceived price as an important factor when eating out are less likely to consume fast food.

Ahcihoca et al. (2009) concerned how household expenditure on different groups of commodities changes when there were changes in the income of urban households in North Cyprus. For this purpose a survey was conducted on 300 households from Lefkosa,

Sethia (2010) studied the India's changing consumption pattern. The main objective of the study was to study the impact of economic reforms on changing consumption pattern and to compare the expenditure pattern of Indian households between pre and post reforms. This study was based on secondary data. Secondary data had been gathered from Central Statistical Organization, Reports on National Sample Survey of various years, National Accounts statistical of various year etc. the finding showed that the share of expenditure on food items in total aggregate consumptions expenditure had declined from 53.7 percent in 1970-71 to 48.4 percent at the end of pre-reform period. In the post reform period also, the food expenditure had declined from 49.9 percent in 1991-92 to 35.4 percent in 2004-05. The pre and post economic reform period indicated that there was significant difference in them.

Sukumar, M. (2010) discussed on the women's contribution to the total household income and their relative freedom to spend money for their personal choices and the influences, which affected their spending choices. This also looked into the mechanics of running the households by women even without a regular income. A support net of community transactions and mutual support established and maintained, mainly by women had revealed to us in our interaction with these women. It was neither mentioned in the mainstream discourse nor could be examined through the conventional tools of data collection. The study mainly depended on the secondary data and collected from the census, panchayats Development Report and primary data was collected from the households through surveys. In the total number of persons belonging to the sample

households, literacy and school education were almost universal. No such gender difference was visible in the number of people having a particular level of education. But in the sample, people having an education up to 10th standard were the largest group both among men and women. For acquiring better jobs, further training and better wages, their chances were not bright.62% of the total sample was consisted of households with 3-5 members at the time of study. This showed a typical nuclear family with husband, wife and 2-3 children. 19.5% households have only 3 members, which was a clear indication of nuclear family. The 18.5% of the family had more than 5 members. The reduced number household member's help to decrease the maintenance cost of the family but it also reduce the able hands to work and earn for the family and to share the burdens of responsibility. The expenditure of the households was and their preferences were worth studying. The income – expenditure comparison of the households showed that 85% of the households had more expenditure than income. Only 14% of the households were spending within the limits of their income. And 1% of households had a spending same as their income. 32% of the households had regular savings and in 30% households women had separate savings. 10% of the households had short term loans and 37% of the households had long-term loans. Households had different sources to avail loans. 86 households had co-operative banks loans, 3 had loans from housing societies, 23 household's loans from private finance establishments (popularly called blade banks) and 7 resorted to personal borrowing.

Mishra et al. (2011) conducted a study on 44 families of two selected villages of Bagh Block of Kukshi Tehsil of Dhar district to observe the food consumption pattern of Bhils, their various ways of obtaining food including the associated habits, beliefs and notions. Besides, information on special and selective foods had taken by them during pregnancy, lactation, illness including festivals and ceremonies were sought. Also the information

regarding change in food intake during different seasons and lean days were obtained. The local key peoples such as teachers, leaders, sarpanch and doctors were also interviewed to seek supportive information.

More than 90% of the Bhil populations of the two villages were primarily involved in agriculture. Only about 5 % of the population were engaged in occupation other than those of agriculture, cultivator or as agriculture labour. The size of land possessed by them was ascertained. It was found that average land per household of village Agar was around 6.6 bighas while in Goghdhadi, it was 8.1 bighas. Nearly 50% Bhils of the two villages possessed land below 5 bighas. Landless bhils in village Agar were 2.6% and it was 7% in Goghdhadi. It might be mentioned that the land size owned per household and in turn the crop yield was not significantly different which could reflect any variation among population of two villages. The wages were also earned by them through various other means. The cows, bullocks, popular birds and goats were reared to enhance their income. Female literacy rate was almost zero while the 15% male bhils of village Agar received education up to middle class with an exception of two medical graduates. The average size of the family was 6.3 in village Agar while in Goghdhadi it was 6.5. The difference in family size of two villages was not found to be significant. Twenty percent of the families had 7-8 members and nearly 10% of the families between 11-12 members in both the villages. This information indicated the number of mouths to feed. Houses of both the villages were kaccha hut type consisted of generally one room, kitchen and verandah. After obtaining the above preliminary information, the detailed information from both male and female members of the families were sought pertaining to the food consumption pattern, associated habits, beliefs and taboos vis-a vis to their socio-cultural pattern.

Geetha, K. T (2011) in this study analyzed the consumption pattern of the households in rural and urban areas to understand the changes that are taking place in the consumption habits among the population and they were also estimated the expenditure elasticity for selected food items for rural and urban households. The required data was collected by administering a pre-tested questionnaire to 50 households residing in Boluvampatti village and 50 households in Ganapathy town in Coimbatore city. He is analyzed by critical ratio test, chi-square test and regression analysis. The findings reveal a significant differentials in consumption expenditure not only between the groups (rural vs. urban) but also within the group. Education, income, occupation and location were significant determinants of consumption expenditure of the households. Low expenditure elasticity for cereals and high expenditure elasticity for other food items signifies a shifting food consumption pattern in both rural and urban areas as income increases.

Sharma (2011) analyzed the food consumption pattern. It was very important for related to poverty and standard of living of our society. It was necessary to study the changing situations of liberalization, privatization and globalization. He had analyzed the changing food consumption pattern over time would help in designing appropriate policies related to food production and distribution. Food expenditure pattern was an excellent indicator of economic well being of people. If the society was wealthy proportionately high expenditure well is made on secondary necessities, comfort, luxury product and conspicuous consumption. On the other hand, if the society was at subsistence level, people would spend proportionately more on food. This study analyzed the change in food consumption pattern and estimates the expenditure elasticites of demand for food in rural and urban India. In this study percentage method has used. It was suggested to increase income education and easy availability of ready to eat foods might bring about enormous changes in the food consumption pattern in the near future. Therefore

production, procession and distribution of processed foods should have priority in the policies of the government. All expenditure elasticities were less than unity; all the food items were treated as necessities. The lowest expenditure elasticity was observed for cereals (0.51in rural and 0.53 in urban India). This was because food was basic necessity for sustenance of life.

Roy (2011) explained the changing patterns of consumption expenditure of three broad classes the "upper" middle and bottom classes in the rural and urban India. The differences in consumption of necessaries across classes decline more the economy grown. In the cases of most of the food and non-food items especially, education and medical services the consumption expenditure in real terms was showing trends of a widening gap between the upper and the bottom classes.

Swamy et al. (2012) analyzed the existing buying behaviour of Instant Food Products by individual households and to predict the demand for Instant Food Products of Hyderabad city in Andra Pardesh. All the respondents were aware of pickles and Sambar masala but only 56.67 per cent of respondents were aware of Dosa/Idli mix. About 96.11 per cent consumers of Dosa / Idli mix and more than half of consumers of pickles and Sambar masala prepared their own. Low cost of home preparation and differences in tastes were the major reasons for non consumption, whereas ready availability and save time of preparation were the reasons for consuming Instant Food Products. Retail shops were the major source of information and source of purchase of Instant Food Products. The average monthly expenditure on Instant Food Products was found to be highest in higher income groups. The average per capita purchase and per capita expenditure on Instant food Products had a positive relationship with income of households. High price and poor taste were the reasons for not purchasing particular brand whereas best quality, retailers

influence and ready availability were considered for preferring particular brand of products by the consumers.

Pardhan, H. K. (2012) in their paper analyzed the pattern of consumption expenditure of rural households to show the frequent changes in both food and non-food consumption expenditure due to the changes in income and occupation of the people. Consumption expenditure is increasing due to increase in urbanization, breaking up of the traditional joint family system, desire for quality food, lack of time which translates in to an increased need for convenience. Increasing number of working women, rise in the per-capita income in forcible situations of other dominants, changing lifestyles and increasing level of affluence of the surroundings with lack of saving attitude and appropriate awareness brought a significant changes in the expenditure patterns among the rural communities. The study found the income elasticity of expenditure as proxy for income elasticity of quantity demanded for selected food and non-food commodities among different income and occupation class in Western Odisha through an Engel ratio analysis. To examine the impact, the actual distribution of monthly per capita incomes and other selected characteristics of different income classes had been taken. It was found that (considering all expenditure classes) the average MPCE of ST/SC's was lower than that of general households, also lower than the Muslim class. MPCE on both food and non-food is higher for general households. Tribal class belonging to top expenditure class spend more on food items like cereals, fish and egg, chicken and non-food items like pan, tobacco and intoxicants.

Rao et al. (2012) examined the different facets of the variation in the level and pattern of household consumer expenditure and related aspects of the standard of living of the rural households. It covered the socio-economic and demographic characteristics of sample

households such as Annual average per capita consumption expenditure, Literacy status of heads of sample households, Percent of drop outs in school going children of sample households, Average age of the heads of sample households, Share of food expenditure in the total household expenditure, Share of non-food expenditure in the total consumption expenditure and average household size over different rural occupational groups. The share of food expenditure in the total expenditure was 63 per cent for cultivators, 86 per cent for agricultural labourers, 61 per cent for other rural households and 65 per cent for all sample rural households. The expenditure elasticity was 0.82 for agricultural labours, 0.69 for cultivators, 0.62 for other rural households and 0.79 for combined group. Clothing had greater than unitary elasticity for almost all the groups. The expenditure elasticity was 1.45 for clothing for combined group.

Gupta, S. (2012) identified some trends and changes in India's food consumption basket in the last two decades by examine the per capita expenditure on the consumption of selected food articles. This study included the total food expenditure, five major food items (cereals, pulses, edible oil, milk (liquid) and sugar) for a detailed analysis. It was evident that some significant changes away from food consumption basket in India. Besides a shift away from food to non-food items (in all expenditure categories across both rural and urban areas), the data also confirmed the presence of a sustained shift with in food to non-cereals and within cereals away from traditional staples (Jower, bajra, maize) in pulses, all varieties (expect gram and peas) had witnessed a drop in consumption. The consumption of edible oil showed a significant increase over the years particularly in the other edible oil category that constitute edible oils excluding ground nut, mustard and vanaspati and its mainly palm oil . The consumption of milk was increased in both rural and urban areas. The intake sugar had fallen, at double the rate in urban areas as compared with rural areas.

2.5 Research gap

The importance of agriculture for poverty reduction is well established, less research has focused on how agriculture's contribution to the incomes of poor people influences nutrition outcomes. There are many papers that attempt to investigate the link between income or expenditure and expenditure patterns. Agricultural developments on either the supply or demand side clearly have substantial scope to influence the price of food relative to non-food prices (including wages), as well as the relative price of specific foods of particular nutritional importance. Thirty papers attempt to examine supply and demand factors on household food security, and to a lesser extent on nutrition. Most of these studies investigate the role of agricultural growth, policies, tastes, and price changes on consumption patterns.

Chapter – 3
Research
Methodology
Of The Study

CHAPTER: 3

RESEARCH METHODOLOGY OF THE STUDY

3.1 Introduction

Methodology is an important part of the research and it is used to know what are the methods applied for the analysis of the study. The following research methodology is adopted to fulfil the major objective of this study is i.e. to investigate the income and expenditure pattern of cultivators in Haryana over the period of 2002-03 to 2013-14.

3.2 Research design

The study is descriptive cum causal in nature that provides insights into, and an understanding of the various concepts related to analyze the income and consumption pattern of cultivators by their source of income, to estimate the income elasticity of demand for commodities and to enquire into the socio-economic factors responsible for the perceived changes in variables over time. These are following variables like; income, expenditure, food and non-food are used for fulfil the objectives of this study.

3.3 Data description and model formulation

The study is based on secondary data. There is no comprehensive source of entire data used in this study. The data used in this study was obtained from Directorate of Economics and Statistical Analysis, Government of Haryana.

In the present study simple regression method is used. Two linear simple regression methods are formulated on the basis of review literature. Model 1 focuses on analyzing the growth rate of income and expenditure pattern of cultivators in Haryana (3.7.1). Model 2 is annual growth rate (3.7.2) is used to check the socio-economic factors response for the perceived changes in variable over time. Model 3, percentage is used to

see the variation between three time periods (3.7.3). Model 4 Engel curve is used to see the relationship between income and expenditure (3.7.4). Model 5 is built to check the income elasticity of demand (3.7.5) for commodities with the help of double-log method.

3.4 Source of the data

This study is based on secondary data. The major source of data for the present study is based on the 'family budget of cultivators in Haryana' published annually by Directorate of Economic and Statistical Organisation, Planning Department and Government of Haryana. The source provides farm level information regarding expenditure on various items of consumption and size of families. For the main study i.e. "Economics of Farming in Haryana", 238 holdings were selected, two from the each block in all the districts of the State, keeping in view the size of holdings, willingness and capability of the cultivators in maintaining the day-to-day record of their income and domestic expenditure in the prescribed format, 119 out of 238 households, one from each block was selected for conducting the study on "Family Budget of Cultivators in Haryana". The results extracted in this study are purely indicative in nature because of the small sample size. The average number of members of per household is 7 and the total average number of household is 115. The total number of cultivators is classified into some categories according to the size of holdings is bleow-2.0, 2.0-4.0, 4.0-7.5, 7.5-10.0 and 10.0-above.

3.5 Method of data collection

The study is based on the data collected from the selected cultivators through District Statistical Agencies. Various farm operations were recorded by the selected cultivators in the registers especially prescribed/designed for this purpose. To ensure accuracy of data, the records were maintained by the farmers and supervised/checked by the staff of District Statistical Agencies as well as HQ Officers/Officials.

3.6 Sampling Design

Two cultivators from two different villages of each block were purposively selected depending on their co-operation, willingness and capability in maintaining the day-to-day records of farm operations. The particular holding was the ultimate unit of survey. As such, the results and conclusions arrived at in this report are based on the study of sample holdings and, therefore, cannot necessarily be taken to reflect the situation prevailing in the State as a whole.

3.7 Methods Analysis

As discussed in the review of literature different methods has been used to investigate the income and expenditure pattern of cultivator in Haryana. The present study, being a descriptive study, on the selection of methods made in such a way that the present study "An Analysis of Income and Expenditure Pattern of Cultivators in Haryana" might come out with a reliable, valid and sufficient conclusion. Descriptive studies are more than just a collection of data; they involve measurement, classification, analysis comparison and interpretation of the results.

3.7.1 Regression log-linear model

This analysis is used to determine relationships between a dependent variable and one or more independent or explanatory variables. A simple regression is concerned with the relationship between a dependent variable and a single independent variable. The relationship between income and time is analysed using a log-linear model. This methodology has been adopted to full fill the one of the objective which is of an analysis of income and expenditure pattern of cultivators. It can be written in mathematically as follows:

$$Y_i = \alpha + \beta X_i + \epsilon_i \qquad \text{(Simple regression)} \qquad (3.1)$$

Ln (Y_i) = $\alpha + \beta X_i + \epsilon_i$ (Log-linear model) .... (3.2)

Where the variables stand for-

Ln (Income) = $\alpha + \beta$(Time)$+ \epsilon_i$ .... (3.3)

α = intercept,

β = slope of the regression line (or the rate of change in X for a given change in Y),

X_i = independent variable (time)

Y_i= dependent variable (income)

Ln= natural log

ϵ_i = Error term

3.7.2 Annual Growth rate

Annual Growth rate is the rate of increase in size per unit time. Annual Growth rate is worked out by using the following formula:

AGR = (X2- X1)/ X1

Where

X1 = first value of variable X

X2 = second value of variable X

3.7.3 Percentage method

A percentage is defined as a number represented as a fraction of 100. It is used to compare things and also used in ratios. It is denoted by the symbol %. This methodology

has been utilised to full fill the one of my objective which is to enquire into the socio-economic factors responsible for the perceived changes in variables over time.

Mathematical formula of Percentage method can be written as follows:

Percentage = Required Value/total value*100

3.7.4 Engle curve method

It shows the relationship between income and expenditure or Engel curve shows that quantities of a good which the consumer will purchase at various income level, given his tastes, preferences and the price of the good in question. Engel in his "Law of Family Expenditure" analysed the relationship between quantity purchase and expenditure which is shown by an Engel expenditure curve and the relation between quantity purchased and income is shown by an Engel curve. Engel curves explain the change of expenditure for different goods as a function of income. In 1857 Ernest Engel attempted to investigate Engel curves and he studied how household expenditures on food vary with income. He found that food expenditures are an increasing function of income and of family size, but that food budget shares decrease with income. The study adopted a nonparametric approach to construct curves which are currently called regress grams. Since then much of the work on Engel curves involved use of parametric models.

For most of our analysis we will be concerned with assessing and generalizing the simple relationship between budget shares and total expenditure. A popular form that is consistent with household utility-maximizations provided by the Working-Leser specification (Working, 1943, Leser, 1963), which relates budget shares linearly to the logarithm of total household expenditure. In it is most austere form, this is expressed as:

$W_{ij}=\alpha_j+\beta_j \text{ in } (x_i) + \varepsilon_{ij}$...…………….............   (3.4)

Where w_{ij} is the budget share of good j in household i (i.e., the ratio of expenditure on Good j to total household expenditure), x_i is total household expenditure, αj and βj are Parameters to be estimated and ε_{ij} is an error term.

3.7.5 Double-log method (log-log method) regression model measure income elasticity of demand

This model is linear in the parameters α and β_1, linear in the logarithms of the variables y and x, and can be estimated by OLS regression. Because of this linearity, such models are called log-log, double-log or log linear models. This method has been utilised to meet the objective of this study which is to estimate the income elasticity of demand for commodities in Haryana.

If the assumptions of the classical linear regression model are fulfilled, the parameters of dependent variable can be estimated by the OLS method using a linear and double log specification, by letting

$Y_i = \alpha + \beta_1 X_i + u_i$ (linear model)... (3.5)

$Ln(X_i) = \alpha_1 + \beta_2 Ln(Y_i) + u_i$ (double-log model) ....…….. (3.6)

In (3.4) and (3.5), Ln denotes natural logarithm. α's denote the constant of regression and β's represent the slope coefficients. The double log model coefficients have more relevant marginal effects interpretation (percentage change in income associated with a percentage change in expenditure), but there is loss of information as non-positive values (zero and negative values) are dropped. One attractive feature of the log-log model, which has made it popular in applied work, is that the slope coefficient β_2 measures the elasticity of X_i with respect to Y_i, that is, the percentage change in X_i for a given percentage changes in

Y_i. Thus, if X_i represents the quantity of a commodity demanded and Y_i its unit change in income, β_1 measures the income elasticity of demand, a parameter of considerable economic interest. If there is relationship between quantity demanded and income, then the double-log transformation will give the estimate of the income elasticity.

Two special features of the linear model may be noted: the model assumes that the elasticity coefficient between Y_i and X_i, β_1, remains constant throughout, hence the alternative name constant elasticity model. In other word the change in Y_i per unit change in X_i remain the same no matter at which in X_i we measure the elasticity. Another feature of the model is that although α and β_1 are unbiased estimates of α_1 and β_2. It may also be noted that alternative functional forms like transcendental logarithm (trans log) has been employed in the literature (Rao and Chotigeat, 1981), but the use of the simpler versions in this paper is motivated by a preference for parsimony as this is a baseline investigation. The study is of relationship between returns to cultivation per hectare and size-class of land cultivated in India (S. Gaurav& Mishra, 2011).

Chapter – 4
Growth Of Income And Expenditure Of Size-Wise Holdings

CHAPTER-4

GROWTH OF INCOME AND EXPENDITURE OF SIZE-WISE HOLDINGS

4.1 Introduction

This chapter represent the growth behaviour of income and expenditure of cultivators in Haryana. The objective of this chapter is to analyze the income and consumption pattern of cultivators in Haryana by their source of income. There are many sources of income and expenditure of farmers such as farm cultivation, milk and milk products, capital investment, income from miscellaneous sources, food items and non food items.[1] The income and expenditure patterns of the cultivators is analyzed according to the size of holdings such as below 2.0, 2.0-4.0, 4.0-7.5, 7.5-10.0 and 10.0 & above.

Haryana is self-sufficient state in food production and the second largest contributor to India's central pool of food grains. Haryana remarkably contributed to the green revolution in India as a result of which the country has become self-sufficient in food production. In Haryana, the availability of milk for per capita per day is 800 grams in 2013-14. It has 2nd rank in the country as against the national average of 307 grams in 2013-14.

4.2 Cultivators income sources

The cultivators earn income from various sources like farm cultivation, milk and milk product, capital investment and miscellaneous. The most important source is through farm cultivation of crops in either the land possessed by the household or in a land leased by it. It accounted for 51.71 per cent of their total income of cultivators in Haryana. The other sources of income of cultivators include milk and milk product. The cultivators normally prefer to keep buffaloes for milk production because they yield more milk as

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[1] Food items includes cereals, pulses, milk and milk products, edible oils, sugars ,vegetables ,fruits, intoxicants, meat and meat products and miscellaneous. Non –food items includes housing, clothing's, marriage, social ceremony and education etc.

compared to cows. The cows were mainly kept for the purpose of supplying male calves to be ultimately used as bullocks in the fields. The other sources of income of cultivators are income from capital investment. 18.21 per cent of the annual income of the selected households. The imputed income by way of interest from capital investment on items such as milch and drought animals, farm equipment and machinery, farm and residential buildings, cattle sheds, wells, tubewells & pumping sets and durable goods. The other sources of income of cultivators are income from miscellaneous. The contribution of miscellaneous sources to the total income of cultivators was 24.35 percent. The income from miscellaneous sources are remittances received from outside, income from leased out land, fuel, rent, manure, pension, income from family labour and honorarium for keeping records of economic of farming and family budgets.

The income sources of cultivators have been classified into following five broad categories:-

1. **Farm cultivation**

   i.   Total income of farm cultivation

   ii.   Average per household Income

   iii. Average per capita income

   iv.   Average per adult male unit income

2. **Milk and Milk Production**

   i.   Total income of milk and milk production

   ii.   Average per household income

   iii. Average per capita income

   iv.   Average per adult male unit income

3. Income From Capital Investment

    i.   Total income of capital investment

    ii.   Average per household income

    iii.   Average per capita income

    iv.   Average per adult male unit income

4. Miscellaneous

    i.   Total income of miscellaneous

    ii.   Average per household income

    iii.   Average per capita income

    iv.   Average per adult male unit income

5. Income of cultivators according to size of holding of all sources

    i.   Total income of all families

    ii.   Average per household total income of all families

    iii.   Average per capita total income of all families

    iv.   Average per adult male unit total income of all families

4.3 Cultivators expenditure sources

The expenditure made on food and non-food items by cultivators on annual and daily consumption of food, input and output of milk production and overall financial position of the selected cultivators.

1. **Food expenditure**

   i.   Total food expenditure

   ii.   Average per household food expenditure

   iii.   Average per capita food expenditure

   iv.   Average per adult male unit food expenditure

2. **Non-food expenditure**

   i.   Total non-food expenditure

   ii.   Average per household non-food expenditure

   iii.   Average per capita non-food expenditure

   iv.   Average per adult male unit non-food expenditure

3. **Total expenditure of all families**

   i.   Total expenditure of all families

   ii.   Average per household total expenditure

   iii.   Average per capita total expenditure

   iv.   Average per adult male unit total expenditure

4.4 Income from farm cultivation

The net income from farm cultivation comprises of the gross income and expenditure on various items of input like hired manual labour, bullock labour, seeds, fertilizers, implements & machinery, tubewells & pumping sets etc. The income of cultivators increases with the increase in the size of holdings because farmers with large holding follow better agriculture practices and purchase better inputs for better production. The growth rate of farm cultivation is analysis according to size of holdings.

Table 4.1 Total income from farm cultivation according to size of Holdings			
Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below- 2.0	13.00 (0.00)	0.20 (0.00)	0.96
2.0-4.0	14.66 (0.00)	0.13 (0.00)	0.91
4.0-7.5	14.98 (0.00)	0.08 (0.00)	0.85
7.5-10.0	13.16 (0.00)	0.14 (0.00)	0.89
10.0 & above	13.29 (0.00)	0.15 (0.00)	0.90
Total	15.76 (0.00)	0.12 (0.00)	0.94
Note: Values in parentheses are P-values			

The table 4.1 shows the growth behaviour of total farm income of cultivators according to size of holdings. Farm income is an important part of farmer's livelihood and there are disparities in income of different farmers according to their farm size. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) trend is increasing, through the R^2 value differs across them. The annually growth in total income of farm cultivation was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is below-2.0 hectares and lowest in size of holding 4.0-7.5 hectares. However there is no clear pattern of increasing income of farm cultivation is emerging during the study, yet it can be inferred that a total income of cultivators is increasing in Haryana.

Table 4.2 Average per capita income from farm income of cultivators according to size of holdings			
Size of Holdings (Hectares)	Intercept (P-Value)	Growth Coefficients (P-Value)	R^2
Below- 2.0	10.05(0.00)	0.13(0.00)	0.90
2.0-4.0	10.94(0.00)	0.10(0.00)	0.94
4.0-7.5	11.29(0.00)	0.15(0.00)	0.97
7.5-10.0	11.89(0.00)	0.10(0.00)	0.95
10.0 & above	11.89(0.00)	0.15(0.00)	0.95
Total	13.09(0.00)	0.13(0.00)	0.89
Note: Values in parentheses are P-values			

Table 4.2 shows the average farm income per capita of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) trend is increasing, through the R^2 value differs across them. The annually growth in total income of farm cultivation was found 13 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 2.0-4.0 hectares. However there is no clear pattern of increasing income of farm cultivation is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.3 Average per adult male unit income from farm income of cultivators according to size of holdings

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below- 2.0	8.13(0.00)	0.14(0.00)	0.95
2.0-4.0	8.99(0.00)	0.11(0.00)	0.93
4.0-7.5	9.11(0.00)	0.17(0.00)	0.97
7.5-10.0	9.00(0.00)	0.19(0.00)	0.98
10.0 & above	9.65(0.00)	0.18(0.00)	0.96
Total	10.69(0.00)	0.17(0.00)	0.99

Note: Values in parentheses are P-values

Table 4.3 shows the average farm income per adult male unit of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) trend is increasing, through the R^2 value differs across them. The annually growth in total income of farm cultivation was found 13 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 2.0-4.0 hectares. However there is no clear pattern of increasing income of farm cultivation is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.4 Growth rate of per households average farm income according to size of holdings

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.28(0.00)	0.14(0.00)	0.94
2.0-4.0	9.23(0.00)	0.11(0.00)	0.94
4.0-7.5	9.33(0.00)	0.17(0.00)	0.97
7.5-10.0	9.47(0.00)	0.16(0.00)	0.94
10.0 & above	9.81(0.00)	0.17(0.00)	0.94
Total	11.09(0.00)	0.14(0.00)	0.87
Note: Values in parentheses are P-values			

Table 4.4 shows the average farm income per household of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) trend is increasing, through the R^2 value differs across them. The annually growth in total income of farm cultivation was found 14 percent annually during the study period. As per the size of holding it was found highest when size of holding is 7.5-10.0 hectares and lowest in size of holding 2.0 to 4.0 hectares. However there is no clear pattern of increasing income of farm cultivation is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

4.5 Income from milk and milk production

The net income of all the selected households from milk and milk products and milch animals was 5.73 percent during 2013-14. The increases in the size of holdings enhance the income of farmers. Due to this reason farmers use better agriculture inputs. The following table indicates the total number of milch animals owned, milk produced and the income accrued therein.

Table 4.5 Total income of milk production from all families according to size of holdings			
Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient(P-Value)	R^2
Below 2.0	11.70(0.00)	0.17(0.00)	0.95
2.0-4.0	12.66(0.00)	0.12(0.00)	0.96
4.0-7.5	12.57(0.00)	0.05(0.00)	0.85
7.5-10.0	11.00(0.00)	0.06(0.00)	0.65
10.0 & above	10.63(0.00)	0.06(0.00)	0.55
Total	13.59(0.00)	0.11(0.00)	0.98
Note: Values in parentheses are P-values			

Table 4.5 shows the total income of all cultivators from milk and milk production according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of milk and milk products was found 11 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 4.0-7.5 hectares. However there is no clear pattern of increasing income of milk and milk product is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.6 Average per households income from milk production according to size of holdings			
Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.67(0.00)	0.10(0.00)	0.88
2.0-4.0	9.02(0.00)	0.08(0.00)	0.90
4.0-7.5	9.05(0.00)	0.10(0.00)	0.83
7.5-10.0	9.46(0.00)	0.05(0.00)	0.84
10.0 & above	9.22(0.00)	0.16(0.00)	0.86
Total	10.71(0.00)	0.11(0.00)	0.98
Note: Values in parentheses are P-values			

Table 4.6 shows the average per household's income from milk and milk products of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of milk and milk products was found 11 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 7.5 to 10.0 hectares. However there is no clear pattern of increasing income of milk and milk products is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.7 Per capita average income from milk production according to size of holdings			
Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	6.83(0.00)	0.12(0.00)	0.86
2.0-4.0	7.03(0.00)	0.10(0.00)	0.95
4.0-7.5	6.84(0.00)	0.11(0.00)	0.81
7.5-10.0	6.81(0.00)	0.13(0.00)	0.94
10.0 & above	7.26(0.00)	0.15(0.00)	0.87
Total	8.59(0.00)	0.12(0.00)	0.97
Note: Values in parentheses are P-values			

Table 4.8 shows the average per capita income from milk and milk products of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of milk and milk products was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 2.0-4.0 hectares. However there is no clear pattern of increasing income of milk and milk products is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.8   Average per adult male unit income from milk production according to size of holdings

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below- 2.0	7.02(0.00)	0.11(0.00)	0.91
2.0-4.0	7.29(0.00)	0.09(0.01)	0.95
4.0-7.5	7.05(0.00)	0.11(0.00)	0.85
7.5-10.0	7.09(0.00)	0.11(0.00)	0.92
10.0 & above	7.61(0.00)	0.11(0.00)	0.91
Total	8.85(0.00)	0.11(0.00)	0.99

Note: Values in parentheses are P-values

Table 4.8 shows the average per adult male unit income from milk and milk products of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of milk and milk products was found 11 percent annually during the study period. As per the size of holding it was found highest when size of holding is 7.5-10.0 hectares and lowest in size of holding 2.0-4.0. However there is no clear pattern of increasing income of milk and milk products is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

4.6 Income from capital investment

The annual income of selected households was 14.60% from capital investment. The capital investment contains such items as milch and draught animals, farm equipments and machinery, farm and residential buildings, cattle sheds, wells, tubewells & pumping sets and durable goods. Cultivator income rise by increasing the size of holding. Because farmers with large holding follow better agriculture practices and purchase better inputs.

Table 4.9   Total income of capital investment according to size of holdings

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below- 2.0	11.47(0.00)	0.24(0.00)	0.92
2.0-4.0	13.39(0.00)	0.13(0.00)	0.94
4.0-7.5	13.48(0.00)	0.08(0.00)	0.90
7.5-10.0	11.54(0.00)	0.10(0.00)	0.82
10.0 & above	11.92(0.00)	0.05(0.00)	0.87
Total	14.32(0.00)	0.12(0.00)	0.95

Note: Values in parentheses are P-values

Table 4.9 shows the total capital investment income of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of capital investment was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 10.0 & above hectares. However there is no clear pattern of increasing income of capital investment is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.10 Average per households income from capital investment according to size of holdings

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.52(0.00)	0.17(0.00)	0.97
2.0-4.0	9.63(0.00)	0.11(0.00)	0.92
4.0-7.5	10.06(0.00)	0.12(0.00)	0.81
7.5-10.0	10.56(0.00)	0.03(0.00)	0.69
10.0 & above	10.51(0.00)	0.06(0.00)	0.92
Total	11.65(0.00)	0.09(0.00)	0.94

Note: Values in parentheses are P-values

Table 4.10 shows the average income per households from capital investment according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of capital investment was found 9 percent annually during the study period. As per the size of holding it was found highest when size of holding is 4.0-7.5 hectares and lowest in size of holding 7.5-10.0 hectares. However there is no clear pattern of increasing income of capital investment is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.11 Average per capita income from capital investment according to size of holdings			
Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	6.48(0.00)	0.20(0.00)	0.95
2.0-4.0	7.69(0.00)	0.12(0.00)	0.92
4.0-7.5	7.77(0.00)	0.12(0.00)	0.91
7.5-10.0	7.92(0.00)	0.09(0.00)	0.81
10.0 & above	8.39(0.00)	0.10(0.00)	0.97
Total	9.41(0.00)	0.12(0.00)	0.98
Note: Values in parentheses are P-values			

Table 4.11 shows the average per capita income of capital investment from cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of capital investment was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 7.5-10.0 hectares. However there is no clear pattern of increasing income of capital investment is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.12 Average per adult male unit income from capital investment according to size of holdings			
Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	6.82(0.00)	0.20(0.00)	0.94
2.0-4.0	7.84(0.00)	0.12(0.00)	0.92
4.0-7.5	8.03(0.00)	0.12(0.00)	0.91
7.5-10.0	7.90(0.00)	0.11(0.00)	0.91
10.0 & above	8.41(0.00)	0.14(0.00)	0.86
Total	9.53(0.00)	0.14(0.00)	0.96
Note: Values in parentheses are P-values			

Table 4.12 shows the average per adult male unit income from capital investment of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of farm cultivation was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 7.5-10.0 hectares. However there is no clear pattern of increasing income of capital investment is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

4.7 Income from miscellaneous sources

The contribution of miscellaneous sources to the total income of the cultivators was 25.66 percent. The income of cultivators increases with the increase in the size of holdings because farmers with large holding follow better agriculture practices and purchase better inputs for better production. The income from miscellaneous sources has been classified into nine different categories. The details are presented in below table.

Table 4.13 Total income from miscellaneous sources according to size of holdings			
Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	13.80(0.00)	0.11(0.00)	0.86
2.0-4.0	13.39(0.00)	0.18(0.00)	0.96
4.0-7.5	13.89(0.00)	0.04(0.00)	0.89
7.5-10.0	11.17(0.00)	0.11(0.00)	0.89
10.0 & above	11.37(0.00)	0.09(0.00)	0.88
Total	14.83(0.00)	0.12(0.00)	0.96
Note: Values in parentheses are P-values			

Table 4.13 shows the total income of all families from miscellaneous according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of miscellaneous was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is 2.0-4.0 hectares and lowest in size of holding 4.0-7.5 hectares. However there is no clear pattern of increasing income of miscellaneous is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.14 Average per households income from miscellaneous sources according to size of holdings			
Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	10.48(0.00)	0.07(0.00)	0.87
2.0-4.0	9.73(0.00)	0.15(0.00)	0.95
4.0-7.5	10.43(0.00)	0.10(0.00)	0.88
7.5-10.0	9.68(0.00)	0.09(0.00)	0.77
10.0 & above	10.16(0.00)	0.15(0.00)	0.90
Total	11.74(0.00)	0.11(0.00)	0.95
Note: Values in parentheses are P-values			

Table 4.14 shows the average per capita income from miscellaneous sources of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of miscellaneous sources was found 11 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 2.0 to 4.0 hectares. However there is no clear pattern of increasing income of miscellaneous sources is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.15 Average per capita income from miscellaneous sources according to size of holdings

Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.24(0.00)	0.12(0.00)	0.94
2.0-4.0	7.82(0.00)	0.16(0.00)	0.94
4.0-7.5	8.07(0.00)	0.14(0.00)	0.93
7.5-10.0	7.13(0.00)	0.13(0.00)	0.71
10.0 & above	7.46(0.00)	0.13(0.00)	0.95
Total	9.43(0.00)	0.14(0.00)	0.96
Note: Values in parentheses are P-values			

Table 4.15 shows the average per capita income from miscellaneous sources of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of miscellaneous was found 14 percent annually during the study period. As per the size of holding it was found highest when size of holding is 2.0-4.0 hectares and lowest in size of holding below 2.0 hectares. However there is no clear pattern of increasing income of miscellaneous is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.16 Average per adult male unit income from miscellaneous sources according to size of holdings

Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.24(0.00)	0.14(0.00)	0.96
2.0-4.0	8.03(0.00)	0.15(0.00)	0.94
4.0-7.5	8.40(0.00)	0.11(0.00)	0.89
7.5-10.0	7.28(0.00)	0.15(0.00)	0.75
10.0 & above	7.34(0.00)	0.23 (0.00)	0.84
Total	9.53(0.00)	0.16(0.00)	0.95
Note: Values in parentheses are P-values			

Table 4.16 shows the average income per adult male unit from miscellaneous sources of cultivators according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of miscellaneous sources was found 13 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 2.0 to 4.0 hectares. However there is no clear pattern of increasing income of miscellaneous sources is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

4.8 Income of cultivators according to size of holdings from all sources

This is observed that the size of holdings has a significant effect on the income of the cultivators. The average income of cultivators increases due to increase in the size of holdings because farmers with large holdings follow better agricultural practices and can afford a better package of inputs. The detail of income of cultivators according to size of holdings is given below.

Table 4.17 Total income of all sources according to size of holdings			
Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	14.03(0.00)	0.19(0.00)	0.96
2.0-4.0	15.23(0.00)	0.14(0.00)	0.97
4.0-7.5	15.43(0.00)	0.08(0.00)	0.84
7.5-10.0	13.28(0.00)	0.15(0.00)	0.96
10.0 & above	13.52(0.00)	0.12(0.00)	0.73
Total	16.25(0.00)	0.13(0.00)	0.97
Note: Values in parentheses are P-values			

Table 4.17 shows the total income of cultivators from all sources according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of all sources was found 13 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 4.0-7.5 hectares. However there is no clear pattern of increasing income of all sources is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.18 Average per households income from cultivators of all sources according to size of holdings			
Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	10.95(0.00)	0.13(0.00)	0.96
2.0-4.0	11.51(0.00)	0.11(0.00)	0.97
4.0-7.5	11.88(0.00)	0.13(0.00)	0.98
7.5-10.0	12.32(0.00)	0.09(0.00)	0.92
10.0 & above	12.19(0.00)	0.16(0.00)	0.97
Total	10.93(0.00)	0.13(0.00)	0.77
Note: Values in parentheses are P-values			

Table 4.18 shows the average income per households of cultivators from all sources according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of all sources was found 13 percent annually during the study period. As per the size of holding it was found highest when size of holding is 4.0-7.5 hectares and lowest in size of holding 7.5-10.0 hectares. However there is no clear pattern of increasing income of all sources is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.19 Average per capita income from cultivators of all sources according to size of holdings

Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	9.07(0.00)	0.14(0.00)	0.96
2.0-4.0	9.57(0.00)	0.12(0.00)	0.98
4.0-7.5	9.66(0.00)	0.16(0.00)	0.97
7.5-10.0	9.68(0.00)	0.16(0.00)	0.96
10.0 & above	10.07(0.00)	0.17(0.00)	0.99
Total	11.27(0.00)	0.15(0.00)	0.99
Note: Values in parentheses are P-values			

Table 4.19 shows the average income per capita of cultivators from all sources according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of all sources was found 15 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 2.0-4.0 hectares. However there is no clear pattern of increasing income of all sources is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

Table 4.20 Average income per adult male unit of cultivators of all sources according to size of holdings

Size of Holding (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	9.27(0.00)	0.15(0.00)	0.97
2.0-4.0	9.80(0.00)	0.12(0.00)	0.98
4.0-7.5	9.93(0.00)	0.15(0.00)	0.97
7.5-10.0	9.74(0.00)	0.17(0.00)	0.93
10.0 & above	10.37(0.00)	0.15(0.00)	0.97
Total	11.50(0.00)	0.15(0.00)	0.99
Note: Values in parentheses are P-values			

Table4.20 shows the average income per adult male unit of cultivators from all sources according to size of holdings. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total income of all sources was found 15 percent annually during the study period. As per the size of holding it was found highest when size of holding is 7.5-10.0 hectares and lowest in size of holding 2.0-4.0 hectares. However there is no clear pattern of increasing income of all sources is emerging during the study, yet it can be inferred that an average income of cultivators is increasing in Haryana.

4.9 Expenditure of farmers according to size of holding

The expenditure of farmers has been classified into two parts as food and non-food items on annual and daily consumption of food, input and output of milk production and overall financial position of the selected cultivators. The detailed study of the household's expenditure has been made under the eleven major heads. The broad head wise household's expenditure per family, per capita and per adult male unit is shown in below tables.

4.10 Expenditure on food items

The expenditure on food items is 51.94% of the total household. All the food items have been summarized into various broad groups which are as under cereals includes wheat and wheat products, rice, maize and other cereals, millets include jowar and bajra pulses include gram, moong, moth, mash, arhar and other pulses milk & milk products include desi ghee and milk edible oils include vegetable oils, rape & mustard oil and other edible oils Meat and poultry products include eggs and meat of all types sugar includes gur, shakkar, khandsari and sugar fruits and vegetables include. All types of fruits and vegetables Salt and spices include Salt, red chillies, turmeric and other spices intoxicants include liquor, tobacco, opium, beverages and other intoxicants miscellaneous include jams and pickles, sweets and other articles of food not included under any other head. The cultivators' household expenditure per family, per capita and per adult male unit is given in Tables.

Table 4.21 Total expenditure on food items of all families according to size of holdings

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	13.36(0.00)	0.20(0.00)	0.96
2.0-4.0	14.21(0.00)	0.15(0.00)	0.98
4.0-7.5	14.28(0.00)	0.08(0.00)	0.76
7.5-10.0	12.80(0.00)	0.08(0.00)	0.75
10.0 & above	12.18(0.00)	0.07(0.00)	0.73
Total	15.23(0.00)	0.14(0.00)	0.96
Note: Values in parentheses are P-values			

Table 4.21 shows the total expenditure of food items of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in food expenditure of all families was found 14 percent annually during the study period. As per the size of holding

it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 10-above hectares. However there is no clear pattern of increasing food expenditure of cultivators during the study, yet it can be inferred that an average expenditure of cultivators is increasing in Haryana.

Table 4.22 Per households expenditure on food items of all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	10.32(0.00)	0.13(0.00)	0.94
2.0-4.0	10.49(0.00)	0.13(0.00)	0.97
4.0-7.5	10.33(0.00)	0.21(0.09)	0.83
7.5-10.0	11.34(0.00)	0.06(0.04)	0.73
10.0 & above	10.71(0.00)	0.15(0.00)	0.91
Total	12.21(0.00)	0.15(0.00)	0.98
Note: Values in parentheses are P-values			

Table 4.22 shows the per households expenditure on food items from all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in food expenditure of all families was found 15 percent annually during the study period. As per the size of holding it was found highest when size of holding is 4.0–7.5 hectares and lowest in size of holding 7.5-10-0 hectares. However there is no clear pattern of increasing food expenditure of cultivators during the study, yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

Table 4.23 Per capita expenditure on food items of all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.45(0.00)	0.14(0.00)	0.94
2.0-4.0	8.56(0.00)	0.13(0.00)	0.97
4.0-7.5	8.49(0.00)	0.15(0.00)	0.95
7.5-10.0	8.60(0.00)	0.14(0.00)	0.94
10.0 & above	8.51(0.00)	0.17(0.00)	0.97
Total	10.13(0.00)	0.15(0.00)	0.98

Note: Values in parentheses are P-values

Table 4.23 shows the Per capita expenditure on food items from all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 15 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 2.0-4.0 hectares. However there is no clear pattern of increasing expenditure of cultivators during the study, yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

Table 4.24 Expenditure per adult mail units on food items of all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.65(0.00)	0.14(0.00)	0.95
2.0-4.0	8.78(0.00)	0.13(0.00)	0.98
4.0-7.5	8,77(0.00)	0.14(0.00)	0.96
7.5-10.0	8.79(0.00)	0.14(0.00)	0.92
10.0 & above	8.73(0.00)	0.15(0.00)	0.96
Total	10.36(0.00)	0.14(0.00)	0.98

Note: Values in parentheses are P-values

Table 4.24 shows the expenditure per adult mail units on food items from all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in food expenditure of all families was found 14 percent annually during the study period. As per the size of holding it was found highest when size of holding is 2.0-4.0 hectares and lowest in size of holding 10 & above hectares. However there is no clear pattern of increasing expenditure of cultivators during the study yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

4.11 Expenditure on non–food items

The expenditure on non-food items is 48.06**%** of the total selected household. Among the non-food items, the clothing and housing claimed 7.73% and 10.45% respectively of the total expenditure. Hence, it is desirable to analyze the expenditure on these items in detail. The expenditure on housing includes expenditure on house construction/repairs, alterations and additions, utensils, furniture & fixtures, machinery and tools etc. Expenditure on clothing includes expenditure on readymade garments, bedding, footwear's, cosmetics and other miscellaneous items. The details of Garments include shirts, pants, dhotis, turbans, underwear's, sweaters, coats, towels, needles, thread and buttons etc. Beddings include bed sheets, bedcovers, quilts, blankets etc. Footwear's all types of leather, rubber, plastic and canvas shoes and chappals, boot polish and brush etc. are included under footwear. Cosmetics these include bathing soap, comb, tooth brush, mirror, face powder, cream, bangles etc. Miscellaneous include services rendered by tailor, barber, washer man, cobbler, drycleaner, weaver etc. The item wise breakup of the expenditure on clothing is set out in tables.

Table 4.25 Total expenditure on Non-food items of all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	12.96(0.00)	0.20(0.00)	0.97
2.0-4.0	14.46(0.00)	0.12(0.00)	0.91
4.0-7.5	14.51(0.00)	0.10(0.00)	0.98
7.5-10.0	12.25(0.00)	0.17(0.00)	0.90
10.0 & above	12.90(0.00)	0.12(0.00)	0.86
Total	15.52(0.00)	0.11(0.00)	0.95
Note: Values in parentheses are P-values			

Table 4.25 shows the total expenditure on non-food items of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 11 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 4.0–7.5 hectares. However there is no clear pattern of increasing expenditure of cultivators during the study, yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

Table 4.26 Expenditure per households on non-food items from all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	9.98(0.00)	0.13(0.00)	0.92
2.0-4.0	10.88(0.00)	0.06(0.00)	0.90
4.0-7.5	11.27(0.00)	0.09(0.00)	0.93
7.5-10.0	10.92(0.00)	0.13(0.00)	0.91
10.0 & above	11.38(0.00)	0.18(0.00)	0.91
Total	12.58(0.00)	0.13(0.00)	0.97
Note: Values in parentheses are P-values			

Table 4.26 shows the expenditure per households on non-food items of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 13 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 4.0–7.5 hectares. However there is no clear pattern of increasing expenditure of cultivators during the study, yet it can be inferred that an average expenditure of cultivators is increasing in Haryana.

Table 4.27 Per capita expenditure on non-food items from all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.17(0.00)	0.12(0.00)	0.93
2.0-4.0	8.80(0.00)	0.10(0.00)	0.87
4.0-7.5	9.15(0.00)	0.07(0.00)	0.96
7.5-10.0	8.16(0.00)	0.19(0.00)	0.82
10.0 & above	9.25(0.00)	0.18(0.00)	0.93
Total	10.41(0.00)	0.14(0.00)	0.97

Note: Values in parentheses are P-values

Table 4.27 shows the per capita expenditure on non-food items of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 14 percent annually during the study period. As per the size of holding it was found highest when size of holding is 7.5-10.0 hectares and lowest in size of holding 4.0–7.5 hectares. However there is no clear pattern of increasing expenditure of cultivators during the study, yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

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Table 4.28 Per adult male units expenditure on non-food items from all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.30(0.00)	0.14(0.01)	0.95
2.0-4.0	9.03(0.00)	0.10(0.01)	0.85
4.0-7.5	9.24(0.00)	0.14(0.00)	0.95
7.5-10.0	8.235(0.00)	0.19(0.00)	0.84
10.0 & above	9.44(0.00)	0.17(0.02)	0.94
Total	10.59(0.00)	0.15(0.00)	0.97
Note: Values in parentheses are P-values			

Table 4.28 shows the per adult male units expenditure on non-food items of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 15 percent annually during the study period. As per the size of holding it was found highest when size of holding is 7.5-10.0 hectares and lowest in size of holding 2.0-4.0hectares. However there is no clear pattern of increasing expenditure of cultivators during the study, yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

Table 4.29 Total expenditure of all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	13.87(0.00)	0.20(0.00)	0.97
2.0-4.0	15.06(0.00)	0.13(0.00)	0.97
4.0-7.5	15.22(0.00)	0.07(0.00)	0.90
7.5-10.0	13.13(0.00)	0.13(0.00)	0.95
10.0 & above	13.13(0.00)	0.16(0.00)	0.95
Total	16.04(0.00)	0.13(0.00)	0.99
Note: Values in parentheses are P-values			

Table 4.29 shows the total expenditure of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 13 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 4.0–7.5 hectares. However there is no clear pattern of increasing expenditure of cultivators during the study, yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

Table 4.30 Per households expenditure of all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-Value)	Growth Coefficients (P-Value)	R^2
Below 2.0	10.86(0.00)	0.13(0.00)	0.94
2.0-4.0	11.31(0.00)	0.11(0.00)	0.94
4.0-7.5	11.80(0.00)	0.09(0.00)	0.91
7.5-10.0	11.83(0.00)	0.09(0.00)	0.82
10.0 & above	11.79(0.00)	0.17(0.00)	0.94
Total	13.18(0.00)	0.12(0.00)	0.97

Note: Values in parentheses are P-values

Table 4.30 shows the per households expenditure of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is 10.0 & above hectares and lowest in size of holding 7.5-10.0 hectares. However there is no clear pattern of increasing expenditure of cultivators during the study, yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

Table 4.31 Per capita expenditure of all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	8.99(0.00)	0.14(0.00)	0.95
2.0-4.0	9.37(0.00)	0.11(0.00)	0.96
4.0-7.5	9.56(0.00)	0.13(0.00)	0.92
7.5-10.0	9.09(0.00)	0.17(0.00)	0.92
10.0 & above	9.80(0.00)	0.16(0.00)	0.91
Total	11.01(0.00)	0.14(0.00)	0.97

Note: Values in parentheses are P-values

Table 4.31 shows the per capita expenditure of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 14 percent annually during the study period. As per the size of holding it was found highest when size of holding is 7.5-10.0 hectares and lowest in size of holding 2.0-4.0 hectares. However there is no clear pattern of increasing expenditure of cultivators during the study, yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

Table 4.32 Expenditure per adult male unit of all families according to size of holdings (Hectares)

Size of Holdings (Hectares)	Intercept (P-value)	Growth Coefficient (P-Value)	R^2
Below 2.0	9.20(0.00)	0.14(0.00)	0.96
2.0-4.0	9.60(0.00)	0.12(0.00)	0.96
4.0-7.5	9.80(0.00)	0.12(0.00)	0.96
7.5-10.0	9.20(0.00)	0.19(0.00)	0.93
10.0 & above	10.08(0.00)	0.11(0.00)	0.8
Total	11.24(0.00)	0.13(0.00)	0.98

Note: Values in parentheses are P-values

Table 4.32 shows the expenditure per adult male unit of all families according to size of holding. The estimated coefficients as time are positive and statistically significant. This implies that for all cases the income (according to size of holding) the trend is increasing, through the R^2 value differs across them. The annually growth in total expenditure of all families was found 13 percent annually during the study period. As per the size of holding it was found highest when size of holding is 7.5-10.0 hectares and lowest in size of holding 10.0 & above hectares. However there is no clear pattern of increasing expenditure of cultivators during the study yet it can be inferred that a total expenditure of cultivators is increasing in Haryana.

4.12 Conclusion

This chapter analyzed the income and expenditure pattern of cultivators of Haryana. There are many sources of income such as farm cultivation, milk and milk production, interest on capital investment and income from miscellaneous sources. The cultivators made expenditure on food and non-food items. It was analyzed the total income through net income per household, per capita and per adult male unit of the selected cultivators. The income of cultivators is increasing with change of time. Thus, there is positive relationship between income and time. The cultivator's expenditure on items increases due to change in income. Hence there is also positive relationship between farmer's expenditure and income. Main findings-

- Farm income is an important part of farmer's livelihood and there are disparities in income of different farmers according to their farm size. The estimated coefficients as time are positive and statistically significant. The annually growth in total income of farm cultivation was found 12 percent annually during the study period.

- The annually growth in total income of all families from milk and milk products was found 11 percent annually during the study period. As per the size of holding it was

found highest when size of holding is below 2.0 hectares and lowest in size of holding 4.0-7.5 hectares.

- The annually growth in total income of cultivators from capital investment was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 10.0 & above hectares.

- The annually growth in total income of all families from miscellaneous was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is 2.0-4.0 hectares and lowest in size of holding 4.0-7.5 hectares.

- The annually growth in food expenditure of all families was found 14 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 10-above hectares.

- The annually growth in non-food total expenditure of all families was found 11 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 4.0–7.5 hectares.

Chapter – 5
Trends Of Income And Expenditure Of Cultivators

Chapter 5

TRENDS OF INCOME AND EXPENDITURE OF CULTIVATORS

5.1 INTRODUCTION

The main aim of this chapter is to figure out trends and patterns of consumption expenditure across consumption classes over the study period. It is fact that high growth in India had been accompanied by increasing income inequalities. A vast majority of Indian population depends on agriculture for its income and employment. Per capita income, the standard of living, the level of consumption etc are some of the important determinants of the economic status of the society. The standard of living of a household can be understood from the consumption pattern, and the quality of consumption budget clearly indicates the level of welfare of the household. Consumption clearly contributes to human development when it enlarges the capabilities and enriches the lives of people without adversely affecting the well-being of others India's faster economic growth over 1990s has raised per capita income (expenditure and has significantly impacted its food consumption patterns by causing a change in the structure of food consumption patterns observed earlier during pre-reforms period. This raises the relevance of looking at the composition of India's food consumption basket. They provide estimates of how food consumption is affected by changes in prices, income, and taxation policies (Dunne and Edkins, 2005). The benefits of knowledge and education go to higher income groups of rural households. Similarly in case of medical expenses and other necessary expenses are far away from these deprived masses which show a direct relationship with level of income. The present study relates the consumption patterns of households to show the frequent changes in both food and non-food consumption expenditure due to the changes in standard of living, income of the people and modernity of the society, especially due to the impact of Liberalization, Privatization Globalization (LPG) plans and policies.

Consumption is not the domain in which income inequalities are captured rather more the economy attains higher levels of development, inequalities in consumption across income classes is expected to decline. The rising income inequalities impact upon consumption expenditure of various groups of people. In simplistic notion that income levels solely determined consumption patterns of individuals nor we hold the reduction that individual consumption patterns are homogeneous within income classes.

5.2 Trend growth rate of cultivator's income

The main sources of income of cultivators are following as farm cultivation, milk & milk production, income from capital investment and miscellaneous. The trend growth rate of cultivators are according to total income, average income per household, average income per capita and average income per adult male unit.

Table 5.1 Trend growth rate of total income from all income sources							
Sources	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Farm cultivation	35.21	13.22	6.35	16.72	-62.46	-51.99	-81.98
Milk & milk production	15.70	10.11	10.32	11.71	-35.61	2.05	-34.29
Capital investment	7.75	17.48	18.75	15.29	125.58	7.31	142.07
Miscellaneous	5.56	23.46	11.17	14.11	321.67	-52.40	100.73
Total	21.23	15.49	9.46	14.86	-27.03	-38.92	-55.43
I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14 *In Percentage **Sources: Researcher calculations**							

The table 5.1 depicts the trend growth rate of total income from all income sources of cultivators such as farm cultivation, milk and milk production, capital investment and miscellaneous during the period of 2002-03 to 2013-14. The growth rate of all sources of cultivators was calculated into three time periods and the percent change is also presented

among them. In the first period (2002-03 to 2005-06), the highest growth rate of farm cultivation is 35.21 and the lowest of miscellaneous is 5.56. And in the same way the total growth rate of all sources is 21.23 in this period due to backward technology and not use of HYV seeds because of the economic condition of cultivators was poor. In the second period (2006-07 to 2009-10), the highest growth rate of miscellaneous is 23.46 and lowest of milk and milk product is 10.11. And the total average growth rate of all sources in second period is 15.49. In the third time period (2010-11 to 2013-14), the highest growth rate of capital investment is 18.75 and lowest of farm cultivation is 6.35 in this period due to increasing storage needs from emanating from higher farm production and the use of farm machinery and other farm equipments. The average growth rate of all sources in this period is 9.46. Thus in the same way the overall growth rate is also calculated of all sources, the highest overall growth of farm cultivation is 16.72 and lowest of milk and milk product is 11.71. So the overall growth rate of all sources of households is positively. Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is declined by 27.03. And the percent change between second and third time period that is declined by 38.92 percent. The third percent change between first and third time period that is declined by 55.43 percent. And in the last it can be stated that the percent change of households total growth rate in all three time periods is declining. This table is also shown in the diagram.

Figure 5.1 Trend growth rates of total income from all income sources

Trend growth rates of total income from all income sources
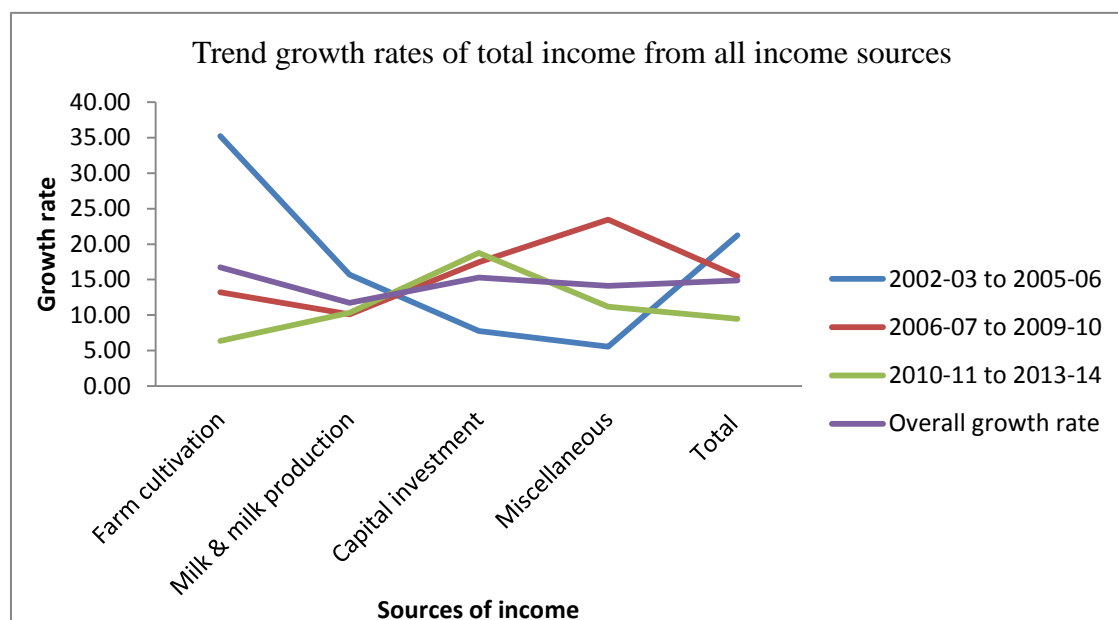
Table 5.2 Trend growth rate of average per household income from all income sources

Sources	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Farm cultivation	17.96	12.71	6.15	11.76	-29.23	-51.66	-65.79
Milk & milk production	1.52	9.64	8.93	7.17	533.77	-7.41	486.79
Capital investment	3.59	12.62	16.44	11.55	251.53	30.23	357.80
Miscellaneous	6.47	13.69	11.08	10.77	111.59	-19.09	71.21
Total	7.38	15.15	8.93	10.77	105.20	-41.05	20.96

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

The table 5.2 depicts the trend growth rate of average per household income from all income sources of cultivators such as farm cultivation, milk and milk production, capital investment and miscellaneous during the period of 2002-03 to 2013-14. The growth rate of all sources of cultivators was calculated into three time periods and the percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of farm cultivation is 17.96 and lowest of capital investment is 3.59. The growth rate of capital investment increased in time to time because increasing storage needs from emanating from higher farm production and the use of farm machinery and other farm equipments. And in the same way the total growth rate of all sources is 7.38 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of miscellaneous is 13.69 and lowest of milk and milk product is 9.64 in the period because 80% cultivators have livestock's. And the total average growth rate of all sources in second period is 15.15. In the third time period (2010-11 to 2013-14), the highest growth rate of capital investment is 16.44 and lowest of farm cultivation is 6.15. The average growth rate of all sources in this period is 8.93. Thus in the same way the overall growth rate is also calculated of all sources, the highest overall growth of farm cultivation is 11.76 and lowest of milk and milk product is 7.17. So the overall growth rate of all sources of households is positive. Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is increased by 105.20. And the percent change between second and third period that is declined by 41.05 percent. The third percent change between first and third time period that is increased by 20.96 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. This table is also shown in the diagram.

Figure 5.2 Trend growth rate of average per household income from all income sources

Trend growth rate of average per household income from all income sources
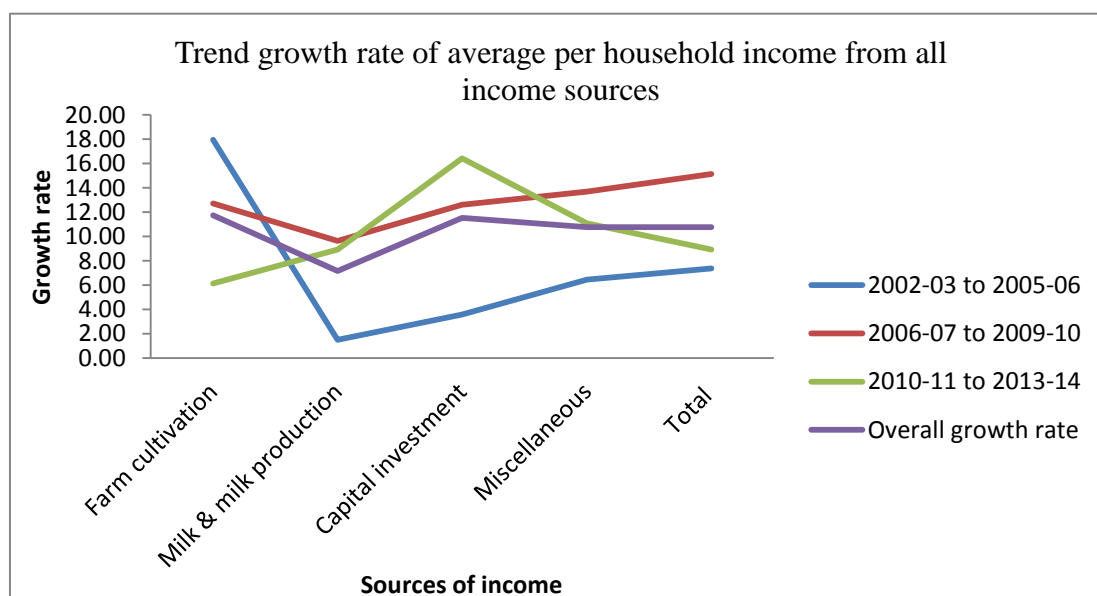
Table 5.3 Trend growth rate of average per capita income from all income sources

Sources	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Farm cultivation	18.24	17.34	7.27	13.92	-4.97	-58.06	-60.15
Milk & milk production	2.34	14.01	11.14	9.78	500.09	-20.48	377.17
Capital investment	8.73	21.96	19.68	17.52	151.46	-10.39	125.34
Miscellaneous	9.76	18.35	12.29	13.90	88.01	-33.03	25.91
Total	10.70	19.75	10.44	13.89	84.58	-47.15	-2.46

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

The table 5.3 depicts the trend growth rate of average per capita income from all income sources of cultivators such as farm cultivation, milk and milk production, capital investment and miscellaneous during the period of 2002-03 to 2013-14. The growth rate of all sources of cultivators was calculated into three time periods and the percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of farm cultivation is 18.24 and lowest of milk and milk product is 2.34. And in the

same way the total growth rate of all sources is 10.70 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of capital investment is 21.96 and lowest of milk and milk product is 14.01. And the total average growth rate of all sources in second period is 19.15. In the third time period (2010-11 to 2013-14), the highest growth rate of capital investment (19.68) and lowest of farm cultivation is 7.27. The average growth rate of all sources in this period is 10.44. Thus in the same way the overall growth rate is also calculated of all sources, the highest overall growth of capital investment is 17.52 and lowest of milk and milk product is 9.78. So the overall growth rate of all sources of households is positive. Thereafter the percent change is also shown among the time periods, first percentage change is calculated between first and second time period. Between this percent change is increased by 84.58. And the percent change between second and third period that is declined by 47.15 percent. The third percent change between first and third time period that is declined by 2.46 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. This table is also shown in the diagram.

Figure 5.3 Trend growth rate of average per capita income from all income sources
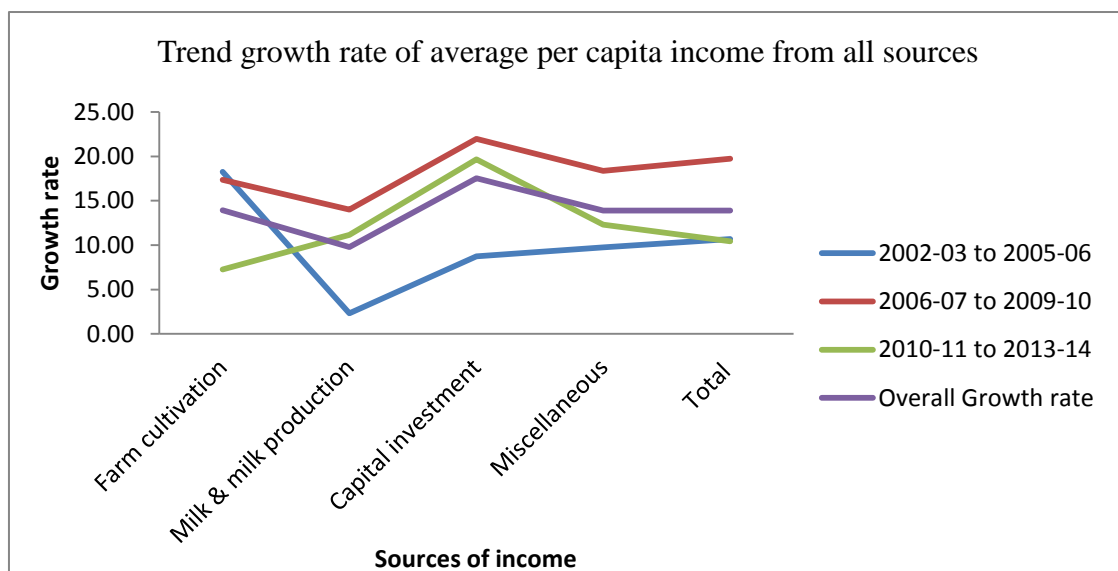
Table 5.4 Trend growth rates of average per adult male unit income from all income sources

Sources of income	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Farm cultivation	19.56	16.07	7.14	13.77	-17.85	-55.60	-63.52
Milk & milk production	3.01	12.88	10.94	9.48	328.36	-15.10	263.69
Capital investment	6.36	11.06	19.95	13.01	73.95	80.41	213.84
Miscellaneous	2.26	20.17	12.24	12.40	791.34	-39.32	440.89
Total	10.53	16.99	10.36	12.82	61.36	-39.02	-1.60

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

The table 5.4 depicts the trend growth rate of average per adult male unit income from all income sources of cultivators such as farm cultivation, milk and milk production, capital investment and miscellaneous during the period of 2002-03 to 2013-14. The growth rate of all sources of cultivators was calculated into three time periods and the percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of farm cultivation is 19.56 and lowest of miscellaneous is 2.26. And in the same way the total growth rate of all sources is 10.53 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of miscellaneous is 20.17 and lowest of capital investment is 11.06. And the total average growth rate of all sources in second period is 16.99. In the third time period (2010-11 to 2013-14), the highest growth rate of capital investment is 19.95 and lowest of farm cultivation is 7.14. The average growth rate of all sources in this period is 10.36. Thus in the same way the overall growth rate is also calculated of all sources, the highest overall growth of farm cultivation is 13.77 and lowest of milk and milk product is 9.48. So the overall growth rate of all sources of households is positive. Thereafter the percent change is also shown among the time

periods, first percent change is calculated between first and second time period. Between this percent change is increased by 61.36 percent. And the percent change between second and third period that is declined by 39.02 percent. The third percent change between first and third time period that is declined by 1.60 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. This table is also shown in the diagram.

Figure 5.4   Trend growth rates of average per adult male unit income from cultivators

Trend growth rate of average per adult male unit income from all income sources
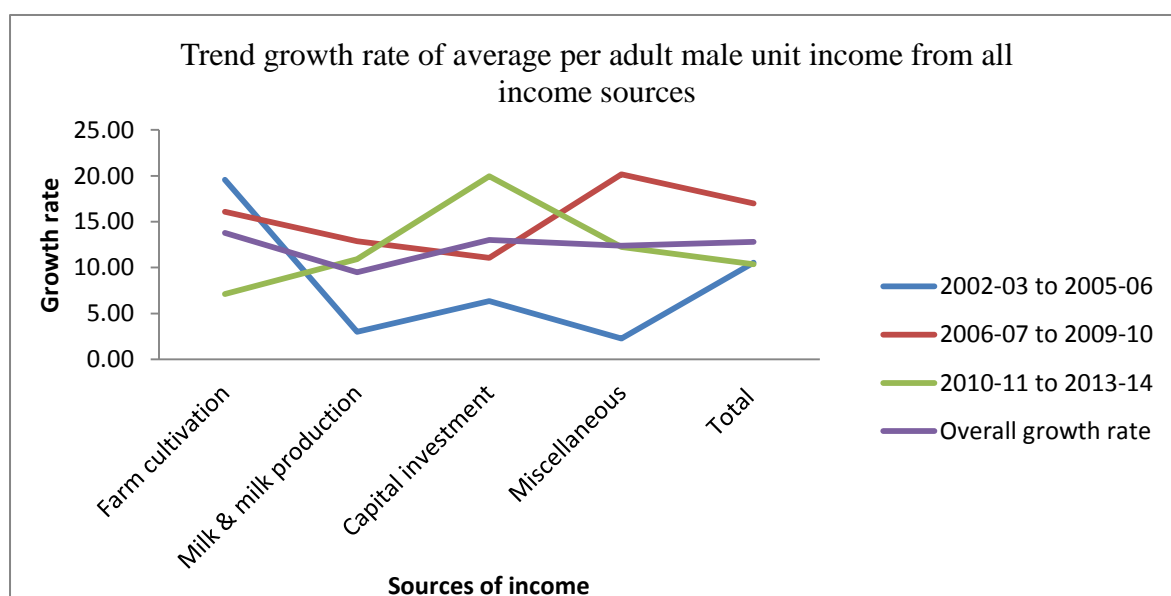
5.3 Trends growth rate of household's income according to size of holding

The income of cultivators is according to size of holdings (in hectares) like below 2.0, 2.0-4.0, 4.0-7.5, 7.5-10.0 and 10.0 & above. The impact of size of holdings on the total farm income of a household, the size-wise average income per household, per capita and per adult male unit have been worked out. The net income from farm cultivation has been worked out after taking into account the gross income and expenditure on various items of input like hired manual labour, bullock, seeds, fertilizers, implements & machinery,

tubewells & pumping sets etc. This shows the trend growth rate of income of household according to size of holdings.

Size of holdings (in hectares)	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Below 2.0	26.82	29.64	18.55	24.84	10.50	-37.41	-30.84
2.0-4.0	27.87	15.41	7.01	15.75	-44.71	-54.53	-74.86
4.0-7.5	31.76	13.21	4.19	14.99	-58.41	-68.28	-86.81
7.5-10.0	39.29	14.29	12.17	20.34	-63.62	-14.85	-69.03
10.0 & above	33.20	8.61	6.98	14.72	-74.08	-18.84	-78.96
Total	30.79	14.41	8.04	16.56	-53.19	-44.20	-73.88

Table 5.5 Trend growth rate of total income from farm cultivation (size-wise)

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

The table 5.5 shows the trend growth rate of total farm income from farm cultivation of cultivators according to the size of holdings (in hectares) such as below-2.0, 2.0-4.0, 4.0-7.5, 7.5-10.0 and 10 & above during the period of 2002-03 to 2013-14. The growth rate of all sources of cultivators was calculated into three time periods and the percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of 7.5-10.0 is 39.29 and lowest of below 2.0 (that is 26.82). And in the same way the total growth rate of all size of holdings is 30.79 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of below-2.0 (that is 29.64) and lowest of 10 & above (that is 8.61). And the total average growth rate of all size of holdings in second period is 14.41. In the third time period (2010-11 to 2013-14), the highest growth rate of below 2.0 hectares (that is 18.55) and lowest of 4.0-7.5 (that is 4.19). The average growth rate of all size of holdings in this period is 8.04. Thus in the same way the overall growth rate is also calculated of all size of holdings, the highest overall growth of below- 2.0 (that is 24.84) and lowest is of 10.0 & above (14.72). The main reason growth rate

increased of income is crop productivity per unit of land declined with an increase in farm size (Bardhan, 1973 and Berry, 1972) which provided strong support for land reforms, land ceiling and various other policies to support smallholders on ground of efficiency and growth. Subsequently, various analysts started exploring reasons or factors for higher productivity of smallholders (Raghbendra et al, 2000) and some of them even questioned the inverse relationship between farm size and productivity (Kadapatti and Bagalkoti, 2014). The percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is decreased by 53.19 percent. And the second percent change between second and third period that is declined by 44.20 percent. The third percent change between first and third time period that is declined by 73.88 percent. And in the last it can be stated that the percent change is declining across three time periods. This table is also shown in the diagram.

Figure 5.5 Trend growth rate of total income from farm cultivation (size-wise)

Trend growth rate of total income from farm cultivation (size-wise)

Table 5.6 Trend growth rate of average per household incomes from farm cultivation (size-wise)

Size of holdings (in hectares)	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Below 2.0	16.86	25.99	12.28	18.51	54.20	-52.75	-27.14
2.0-4.0	10.10	13.57	9.44	11.12	34.37	-30.44	-6.54
4.0-7.5	19.61	21.15	10.31	16.79	7.84	-51.24	-47.41
7.5-10.0	16.03	19.73	7.39	14.23	23.11	-62.54	-53.88
10.0 & above	22.56	13.00	15.33	16.46	-42.38	17.88	-32.07
Total	18.01	15.98	11.15	14.78	-11.28	-30.25	-38.12

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

The table 5.6 shows the trend growth rate of average per household income from farm cultivation of cultivators according to the size of holdings (in hectares) such as below-2.0, 2.0-4.0, 4.0-7.5, 7.5-10.0 and 10 & above during the period of 2002-03 to 2013-14. The growth rate of all sources of cultivators was calculated into three time period and percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of 10.0 & above is 22.56 and lowest of 2.0-4.0 (that is 10.10). And in the same way the total growth rate of all size of holdings is 18.01 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of below-2.0 (that is 25.99) and lowest of 10 & above (that is 13.00). And the total average growth rate of all size of holdings in second period is 15.98. In the third time period (2010-11 to 2013-14), the highest growth rate is of 10.0 & above (15.33) and lowest of 7.5-10.0 is 7.39. The average growth rate of all size of holdings in this period is 11.15. Thus in the same way the overall growth rate is also calculated of all size of holdings, the highest overall growth is of below- 2.0 (18.51) and lowest of 2.0-4.0 (that is 11.22). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is decreased by 11.28 percent. And the

percent change between second and third period that is declined by 30.25 percent. The third percent change between first and third time period that is declined by 38.12 percent. And in the last it can be stated that the percent change is declining across three time periods. This table is also shown in the diagram.

Figure 5.6 Trend growth rate of average per household incomes from far cultivation

Trend growth rate of average per households income from farm cultivation
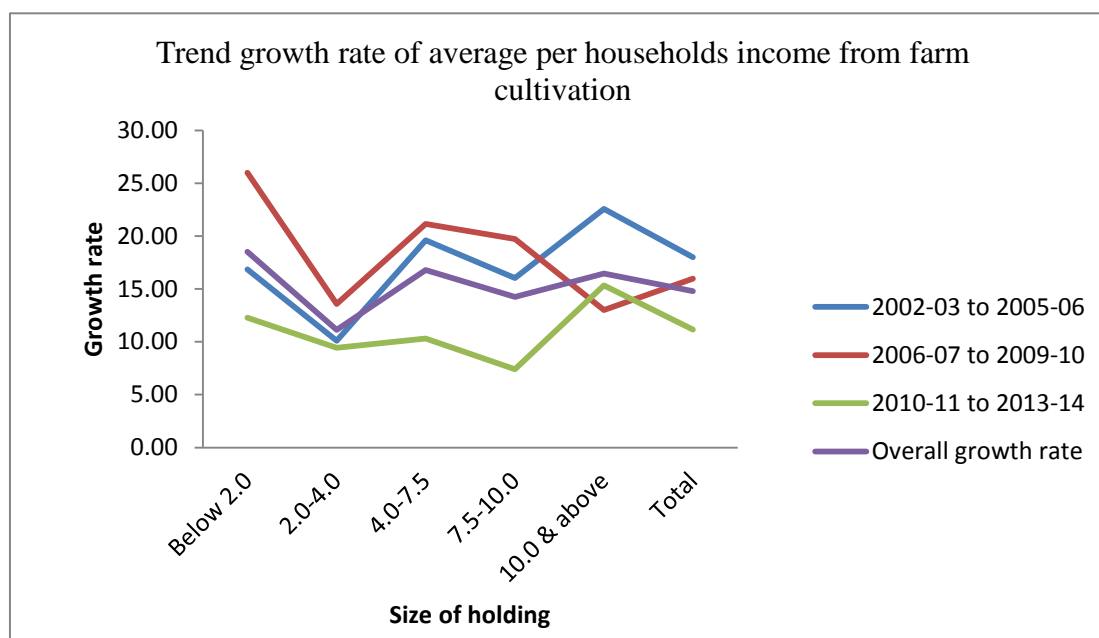
Table 5.7 Trend growth rate of average per capita incomes from farm cultivation (size-wise)							
Size of holdings (in hectares)	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Below 2.0	16.62	29.01	9.17	18.42	74.54	-68.38	-44.81
2.0-4.0	12.15	15.18	10.23	12.55	25.00	-32.61	-15.76
4.0-7.5	14.94	27.07	12.99	18.64	81.13	-52.02	-13.09
7.5-10.0	21.14	33.49	9.31	21.33	58.43	-72.21	-55.98
10.0 & above	30.84	17.21	13.69	19.65	-44.19	-20.45	-55.60
Total	22.31	21.58	11.64	18.16	-3.29	-46.03	-47.80
I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14 *In Percentage **Sources: Researcher calculations**							

The table 5.7 shows the trend growth rate of average per capita income from farm cultivation of cultivators according to the size of holdings (in hectares) such as below-2.0, 2.0-4.0, 4.0-7.5, 7.5-10.0 and 10 & above during the period of 2002-03 to 2013-14. The growth rate of all sources of cultivators was calculated into three time period and percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of 10.0 & above is 30.84 and lowest of 2.0-4.0 (that is 12.15). And in the same way the total growth rate of all size of holdings is 22.31 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of 7.5-10.0 (that is 33.49) and lowest of 2.0-4.0 (that is 15.18). And the total average growth rate of all size of holdings in second period is 21.58. In the third time period (2010-11 to 2013-14), the highest growth rate of 10.0 7 above (that is 13.69) and lowest of below-2.0 is 9.17. The average growth rate of all size of holdings in this period is 11.64. Thus in the same way the overall growth rate is also calculated of all size of holdings, the highest overall growth of 7.5-10.0 is 21.33 and lowest of 2.0-4.0 (that is 12.55). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is decreased by 3.29 percent. And the second percent change between second and third period that is declined by 46.03 percent. The third percent change between first and third time period that is declined by 47.80 percent. And in the last it can be stated that the percent change is declining across three time periods. This table is also shown in the diagram.

Figure 5.7 **Trend growth rates of average per capita incomes from farm cultivation (size-wise)**

Trend growth rate of average per capita income from farm cultivation
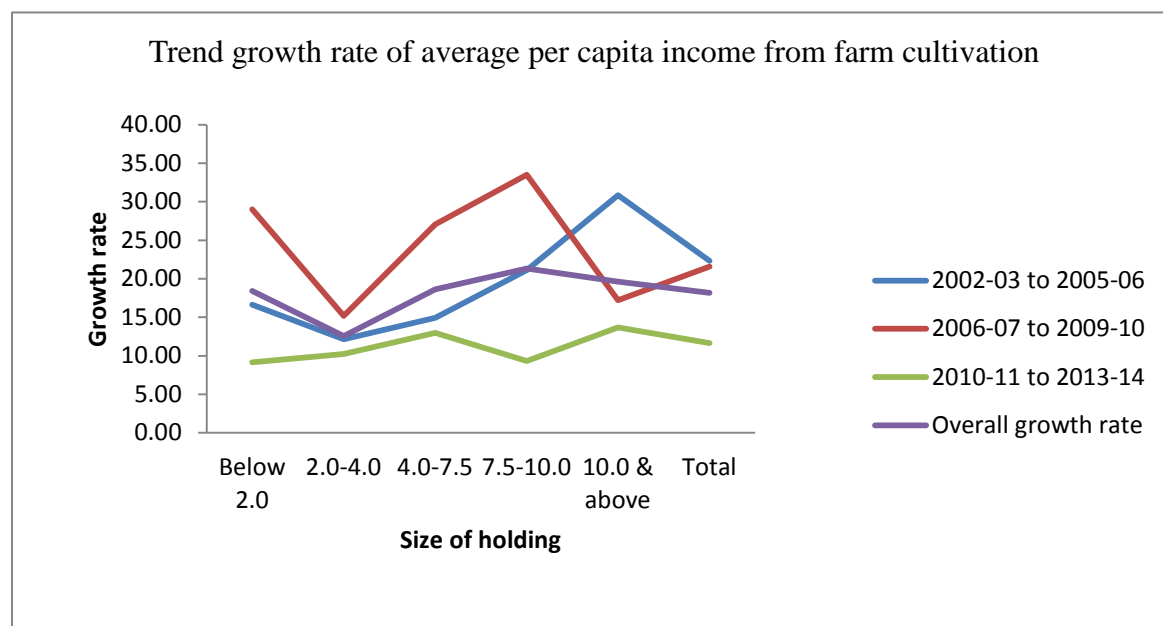
Table 5.8 Trend growth rate of average per adult male unit incomes from farm cultivation							
Size of holdings (in hectares)	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Below 2.0	19.28	21.32	10.20	16.72	10.54	-52.16	-47.12
2.0-4.0	13.03	14.38	9.75	12.33	10.42	-32.22	-25.16
4.0-7.5	19.85	24.63	12.89	19.06	24.04	-47.64	-35.05
7.5-10.0	22.49	31.18	16.82	23.59	38.61	-46.05	-25.21
10.0 & above	28.90	14.27	19.32	20.10	-50.60	35.38	-33.12
Total	21.87	20.37	14.51	18.65	-6.83	-28.76	-33.62
I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14 *In Percentage **Sources: Researcher calculations**							

The table 5.8 shows the trend growth rate of average per adult male unit income from farm cultivation of cultivators according to the size of holdings (in hectares) such as below-2.0, 2.0-4.0, 4.0-7.5, 7.5-10.0 and 10 & above during the period of 2002-03 to 2013-14. The growth rate of all sources of cultivators was calculated into three time period and percent change is also presented among them. In the first period (2002-03 to

2005-06), the highest growth rate of 10.0 & above is 28.90 and lowest is of 2.0-4.0 (that is 13.03). And in the same way the total growth rate of all size of holdings is 21.87 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of 7.5-10.0 (that is 31.18) and lowest of 10 & above (that is 14.27). And the total average growth rate of all size of holdings in second period is 20.37. In the third time period (2010-11 to 2013-14), the highest growth rate of 10.0 & above (19.32) and lowest of 2.0-4.0 is 9.75. The average growth rate of all size of holdings in this period is 14.51. Thus in the same way the overall growth rate is also calculated of all size of holdings, the highest overall growth of 7.5-10.0 is 23.59 and lowest of 2.0-4.0 (that is 12.33). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is decreased by 6.83 percent. And the percent change between second and third period that is declined by 28.76 percent. The third percent change between first and third time period that is declined by 33.62 percent. And in the last it can be stated that the percent change is declining across three time periods. This table is also shown in the diagram.

Figure 5.8   Trend growth rate of average per adult male unit incomes from farm cultivation

Trend growth rate of average per adult male unit income from farm cultivation (size-wise)
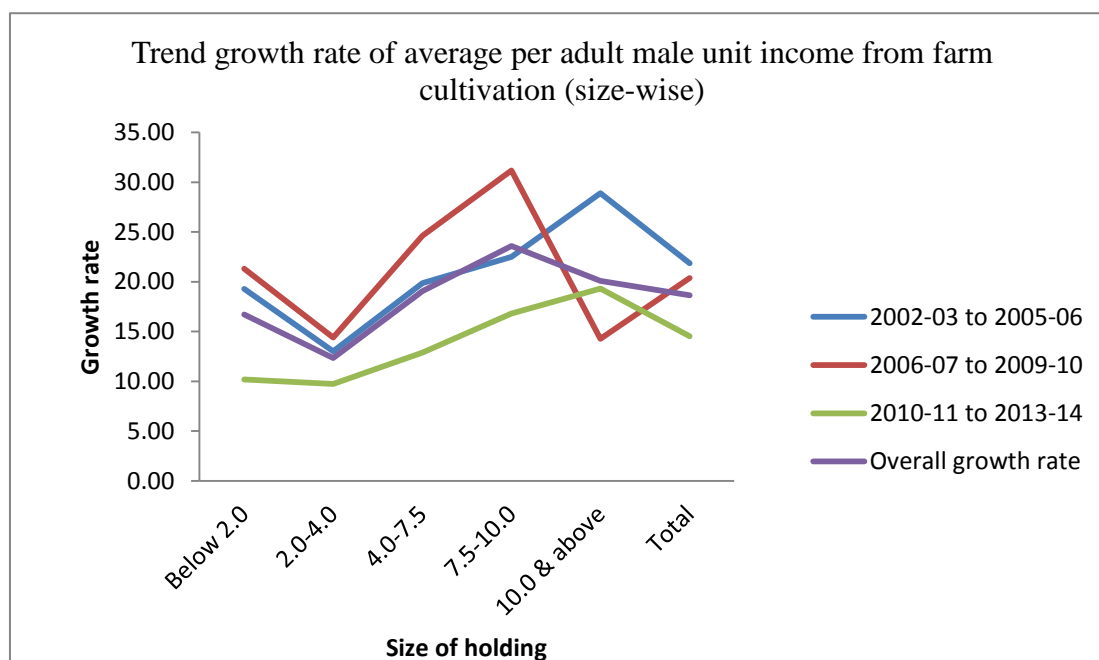
5.4 Trends growth rate of households Expenditure on food items

This shows the expenditure of cultivators on food items like cereals, pulses, sugar, milk & milk products, edible oil, vegetables, fruits, Intoxicants, Meat & meat products etc. The total food expenditure by cultivators is analyzed by calculating the following items such as per household, per capita and per adult male units. The total growth rate in expenditure during the 2002 to 2014 is shown.

Table 5.9	Trend growth rate of total expenditure on food items (all families)						
Items	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Cereals	12.88	8.76	5.04	8.51	-31.93	-42.49	-60.85
Pulses	17.61	13.59	1.37	9.98	-22.87	-89.94	-92.24
Milk & milk products	13.62	19.53	18.60	19.77	43.41	-4.79	36.54
Edible	8.22	12.24	9.34	10.32	48.98	-23.68	13.70
Sugar	24.04	10.55	3.84	11.79	-56.11	-63.59	-84.02
Vegetables	18.07	11.84	9.55	12.71	-34.51	-19.28	-47.13
Fruits	45.90	32.96	10.74	27.88	-28.19	-67.42	-76.60
Intoxicants	22.83	7.84	15.24	14.32	-65.64	94.32	-33.23
Meat & meat products	6.49	20.12	12.07	13.10	209.96	-40.00	85.99
Miscellaneous	13.25	10.07	12.40	11.75	-24.00	23.13	-6.42
Total	14.58	15.84	14.80	16.36	8.63	-6.53	1.54
I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14							
*In Percentage							
Sources: Researcher calculations							

The table 5.9 shows overall growth rate of total expenditure on food items from all cultivators. In food items, it includes cereals, pulses, milk and milk products, edible, sugar, vegetables, fruits, intoxicants, meat and meat products and miscellaneous. The growth rate of all food items of cultivators was calculated into three time periods and the percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of fruits is 45.90 and lowest of meat & meat products (that is 6.49). And in the same way the total growth rate of all food items is 14.58 in this period.

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In the second period (2006-07 to 2009-10), the highest growth rate of fruits (that is 32.96) and lowest of intoxicants is 7.84. And the total average growth rate of all food items in second period is 15.84 percent. In the third time period (2010-11 to 2013-14), the highest growth rate of milk and milk products (that is 18.60) and lowest of pulses is 1.37. The average growth rate of all food items in this period is 14.80. Thus in the same way the overall growth rate is also calculated of all food items, the highest overall growth of fruits is 27.88 and lowest of cereals is 8.51 because the cereals are important ingredients for the calories and hence nutrition of the people, it is worthwhile to discuss the trends of cereals consumption expenditure. In Haryana as well as in India the share of cereals and particularly the coarse cereals have shown a drastic decline over time. Though there are various factors – price and non price, the main factors behind the decline in cereal expenditure are change in taste and preference of the people (Meenakshi 1996, Mittel 2007, Priyabrata Sahoo, 2014). The main reason of high expenditure of fruit and vegetable is the maintaining the same level of nutrition with a declining cereal intake requires quite a high supplementary consumption of meat, fish, egg, fruits and vegetable and since these replacements in adequate amount are beyond the capacity of the poor, the change is likely to result in a fall in their nutrition levels (Satyaki Roy, 2011). These data are also shown through figure. The percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is increased by 8.63 percent. And the percent change between second and third period that is declined by 6.53 percent. The third percent change between first and third time period that is increased by 1.54 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. This table is also shown in the diagram.

Figure 5.9   Trend growth rate of total expenditure on food items (all families)

Trend growth rate of total expenditure on food items (all families)
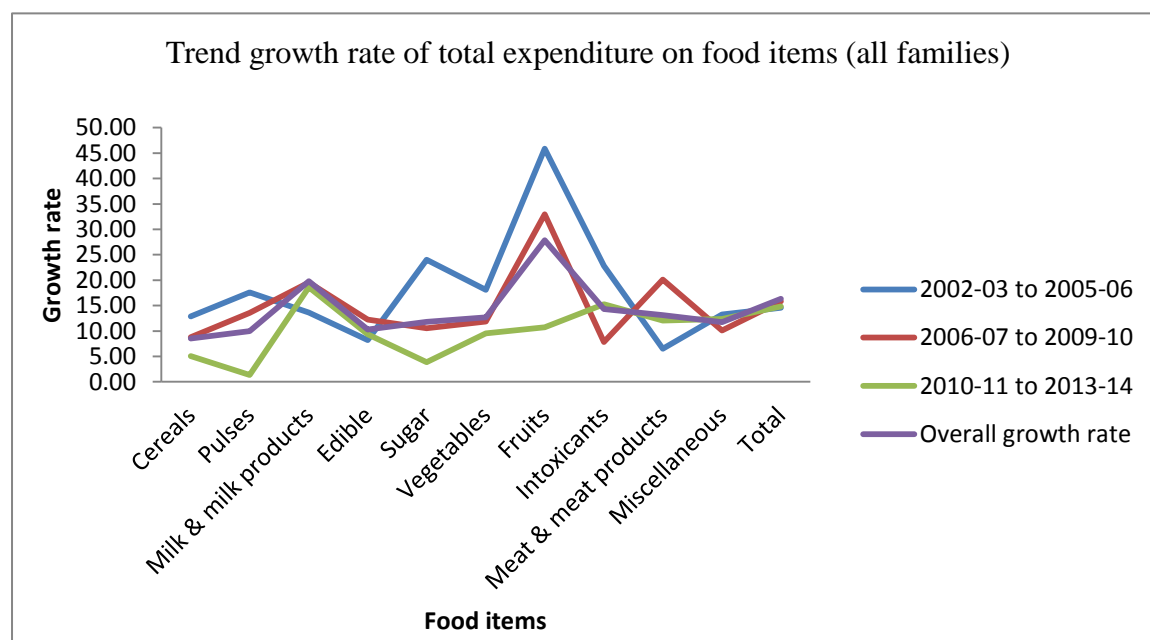
Table 5.10 Trend growth rate of per household expenditure on food items (all families)							
Items	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Cereals	3.36	8.24	5.14	5.78	145.56	-37.59	53.26
Pulses	5.70	13.13	7.90	9.20	130.43	-39.85	38.60
Milk & milk products	7.98	19.04	18.33	15.76	138.39	-3.72	129.53
Edible	5.65	11.79	8.82	9.04	108.70	-25.19	56.12
Sugar	8.01	12.01	3.67	7.89	49.95	-69.44	-54.17
Vegetables	4.42	11.23	9.30	8.67	154.28	-17.23	110.47
Fruits	26.82	31.73	9.48	22.30	18.29	-70.13	-64.66
Intoxicants	7.81	14.91	6.44	9.89	90.91	-56.83	-17.58
Meat & meat products	10.63	19.89	11.59	14.35	87.12	-41.77	8.97
Miscellaneous	3.28	7.27	7.31	6.20	121.87	0.47	122.91
Total	6.59	15.46	14.20	12.58	134.78	-8.16	115.61

 I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

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The table 5.10 shows overall growth rate of per household expenditure on food items from all cultivators. In food items, it includes cereals, pulses, milk and milk products, edible, sugar, vegetables, fruits, intoxicants, meat and meat products and miscellaneous. The growth rate of all food items of cultivators was calculated into three time periods and the percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of fruits is 26.82 and lowest of miscellaneous (that is 3.28). And in the same way the total growth rate of all food items is 6.59 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of fruits (that is 31.73) and lowest of miscellaneous is 7.27. And the total average growth rate of all food items in second period is 15.46 percent. In the third time period (2010-11 to 2013-14), the highest growth rate of milk and milk products is 18.33 and lowest of sugar is 3.67. The average growth rate of all food items in this period is 14.20. Thus in the same way the overall growth rate is also calculated of all food items, the highest overall growth of fruits (that is 22.30) and lowest of cereals is 5.78. The highest average percentage expenditure increased by cultivators on fruits due to high expenditure on fruits is to maintain the same level of nutrition. The lowest average expenditure on cereals because change in taste and preference of the people (Meenakshi 1996, Mittel 2007, Priyabrata Sahoo, 2014). The percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is increased by 134.78 percent. And the second percent change between second and third period that is declined by 8.16 percent. The third percent change between first and third time period that is increased by 115.61 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. This table is also shown in the diagram.

Figure 5.10   Trend growth rates of per household expenditure on food items (all families)
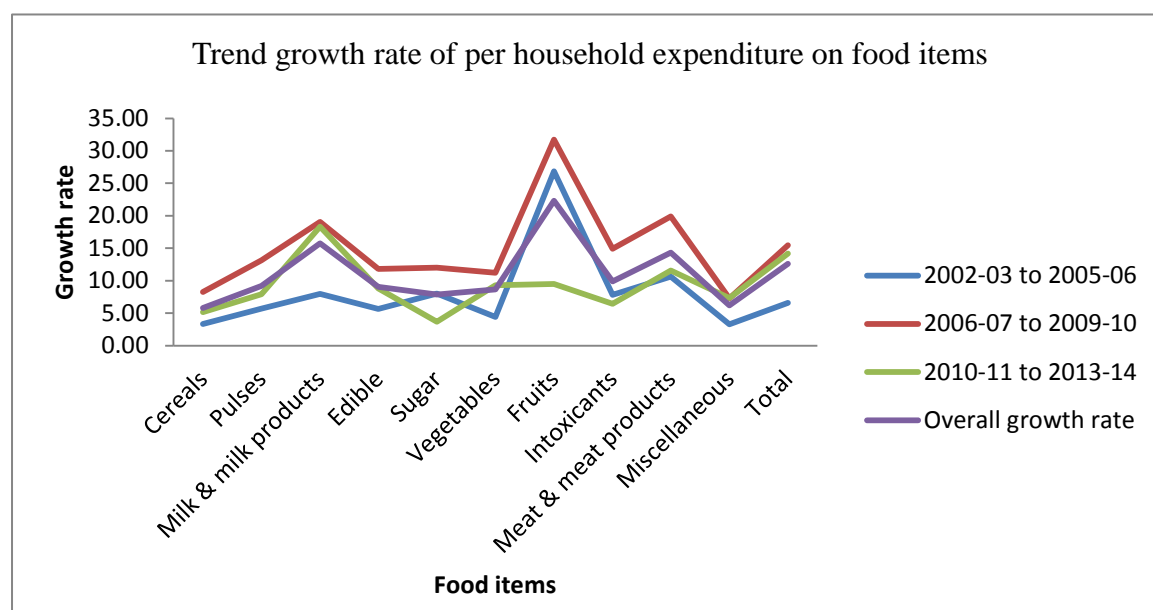

Trend growth rate of per household expenditure on food items

Table 5.11 Trend growth rate of per capita expenditure on food items (all families)							
Items	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Cereals	3.22	12.69	6.21	7.75	293.57	-51.10	92.45
Pulses	4.23	17.60	6.02	9.74	315.94	-65.82	42.17
Milk & milk products	8.75	23.62	19.51	18.07	169.97	-17.39	123.01
Edible	11.73	12.23	1.82	8.31	4.30	-85.11	-84.47
Sugar	19.18	10.31	3.12	10.11	-46.27	-69.77	-83.76
Vegetables	5.32	15.64	10.39	10.92	193.90	-33.61	95.11
Fruits	43.94	31.25	10.51	27.17	-28.88	-66.36	-76.07
Intoxicants	8.75	15.90	11.22	12.25	81.64	-29.44	28.16
Meat & meat products	12.77	17.09	13.00	14.42	33.87	-23.98	1.77
Miscellaneous	1.35	13.99	10.42	9.08	936.30	-25.49	672.16
Total	7.75	19.35	15.32	14.72	149.66	-20.85	97.61

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14

*In Percentage

Sources: Researcher calculations

The table 5.11 shows the trend growth rate of per capita expenditure on food items (cereals, pulses, milk & milk products, edible, sugar, vegetables, fruits, meat and meat products, intoxicants etc.) by cultivators. The growth rate of all food items of cultivators was calculated into three time period and percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of fruits is 43.94 and lowest of miscellaneous (that is 1.35). And in the same way the total growth rate of all food items is 7.75 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of fruits (that is 31.25) and lowest of sugar is 10.31. And the total average growth rate of all food items in second period is 19.35 percent. In the third time period (2010-11 to 2013-14), the highest growth rate of milk and milk products (that is 19.51) and lowest of edible oil is 1.82. The main reason of lowest expenditure by cultivators on edible oil is increased the price. The average growth rate of all food items in this period is 15.32. Thus in the same way the overall growth rate is also calculated of all food items, the highest overall growth is of fruits (27.17) and lowest of cereals (7.75). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is increased by 149.66 percent. And the second percent change between second and third period that is declined by 20.85 percent. The third percent change between first and third time period that is increased by 97.61 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. Due to increase the expenditure by cultivators it means the socio-economic status of cultivators is increased. This table is also shown in the diagram.

Figure 5.11 Trend growth rate of per capita expenditure on food items (all families)

Trend growth rate of per capita expenditure on food items

Legend:
- 2002-03 to 2005-06
- 2006-07 to 2009-10
- 2010-11 to 2013-14
- Overall growth rate

Y-axis: Growth rate
X-axis: Food items (Cereals, Pulses, Milk & milk products, Edible, Sugar, Vegetables, Fruits, Intoxicants, Meat & meat products, Miscellaneous, Total)
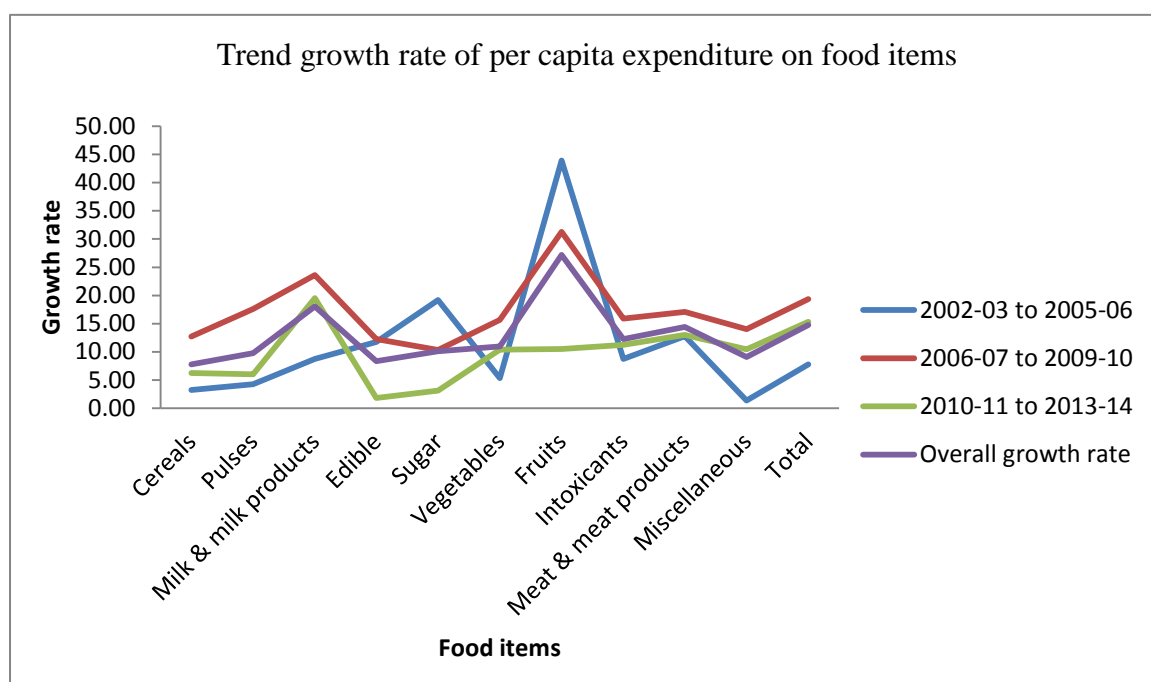
Table 5.12 Trend growth rate of per adult male unit expenditure on food items (all families)

Items	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Cereals	6.08	11.55	5.63	7.91	89.86	-51.22	-7.39
Pulses	4.94	16.49	4.85	9.11	233.48	-70.57	-1.87
Milk & milk products	9.58	22.39	15.57	16.41	133.84	-30.48	62.56
Edible	11.73	11.98	2.26	8.38	2.10	-81.15	-80.76
Sugar	13.26	12.48	4.61	9.83	-5.86	-63.03	-65.19
Vegetables	6.28	14.64	10.06	10.69	132.97	-31.29	60.07
Fruits	5.35	29.04	10.16	15.72	442.51	-65.02	89.79
Intoxicants	9.66	6.16	19.58	11.99	-36.30	218.00	102.58
Meat & meat products	4.47	14.70	13.33	11.41	229.05	-9.31	198.41
Miscellaneous	6.79	9.25	12.83	9.88	36.36	38.65	89.07
Total	8.43	18.04	12.90	13.55	114.03	-28.52	52.99

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

Table 5.12 shows the trend growth rate of per adult male unit expenditure on food items (cereals, pulses, milk & milk products, edible, sugar, vegetables, fruits, meat and meat products and intoxicants etc.) by cultivators. The growth rate of all food items of cultivators was calculated into three time periods and the percentage change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate of sugar is 13.26 and lowest of meat & meat products (that is 4.47). And in the same way the total growth rate of all food items is 8.43 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of fruits (that is 29.04) and lowest of intoxicants is 6.16. And the total average growth rate of all food items in second period is 18.04 percent. In the third time period (2010-11 to 2013-14), the highest growth rate of intoxicants is 19.58 and lowest of edible oil is 2.26. The average growth rate of all food items in this period is 12.90. Thus in the same way the overall growth rate is also calculated of all food items, the highest overall growth of milk & milk products (16.41) and lowest of cereals (that is 7.91). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is increased by 114.03 percent. And the percent change between second and third period that is declined by 28.52 percent. The third percent change between first and third time period that is increased by 52.99 percent. And in the last it can be stated that the percent change is fluctuating across all three time periods. This table is also shown in the diagram.

Figure 5.12   Trend growth rate of per adult male unit expenditure on food (all families

5.5 Trend growth rate of households Expenditure on non-food items

This shows the expenditure of cultivators on non-food items like fuel, clothing, housing, lighting, health, transport, education and marriage & social ceremonies. The total non-food expenditure by cultivators are analyzed by the fallowing items such as total expenditure, per household, per capita and adult male units. The annual growth rate in expenditure during the 2002 to 2014 is shown.

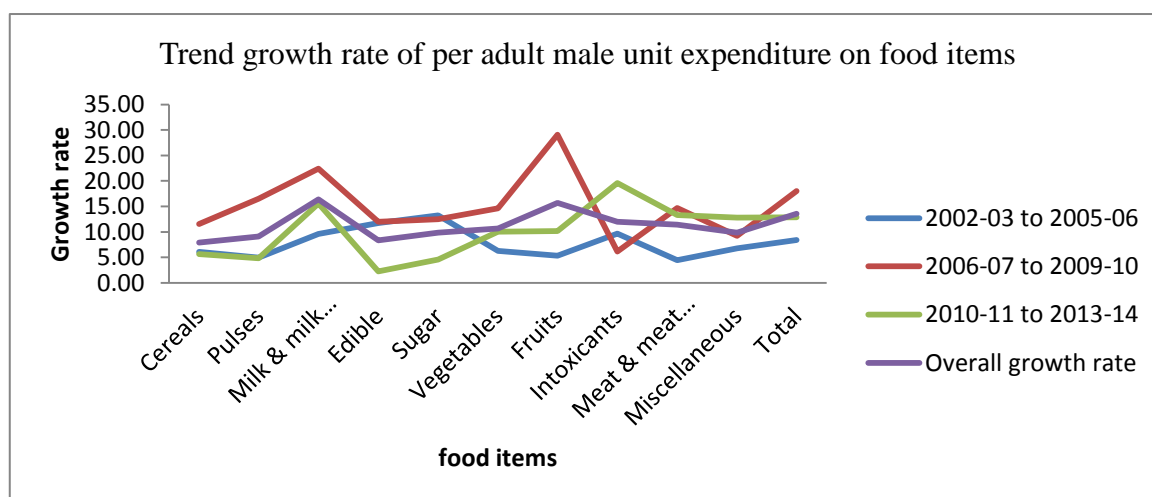| Table 5.13 Trend growth rate of total expenditure on non-food items (all families)							
Items	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Fuel	15.12	2.22	8.57	8.63	-85.33	286.47	-43.31
Clothing	15.89	10.03	10.57	12.16	-36.89	5.45	-33.45
Housing	27.58	2.02	22.44	17.34	-92.68	1010.78	-18.65
Lighting	11.43	7.06	8.32	8.94	-38.19	17.77	-27.21
Health	19.03	11.12	28.20	19.45	-41.57	153.62	48.18
Transport	17.06	26.55	9.58	17.73	55.62	-63.93	-43.87
Education	23.92	9.44	34.40	22.59	-60.56	264.60	43.79
Religious ceremonies	23.36	38.24	1.76	21.12	63.70	-95.39	-92.46
Marriage & Soc. Ceremonies	7.36	9.49	4.25	7.03	28.96	-55.25	-42.29
Others	40.03	17.89	2.69	20.20	-55.30	-84.99	-93.29
Total	17.96	8.62	14.65	13.74	-52.00	69.95	-18.43
I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14 *In Percentage **Sources: Researcher calculations**							

The table 5.13 shows the trend growth rate of total expenditure of selected cultivators on non-food items (non-food items are includes fuel, clothing, housing, lighting, health, transport, education and religious ceremonies etc.). The growth rate of all non-food items of cultivators was calculated into three time periods and the percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate in

non-food items of others is 40.03 and lowest is of marriage & social ceremonies (that is 7.36). And in the same way the total growth rate of all non-food items is 17.96 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of religious ceremonies (that is 38.24) and lowest of housing is 2.02. And the total average growth rate of all non-food items in second period is 8.62 percent. In the third time period (2010-11 to 2013-14), the highest growth rate of education (that is 34.40) and lowest of religious ceremonies is 1.76. The average growth rate of all non- food items in this period are 14.65. Thus in the same way the overall growth rate is also calculated of all non-food items, the highest overall growth of education is 22.59 and lowest of marriage & social ceremonies (that is 7.03). The main reason for high expenditure on education by cultivators is to positive effect on economic growth or promoting equal opportunities as well as social mobility and inclusion (Roshan Kishor, 2015) and concern proposals for reforms of educations of education polices and systems and raises questions as to the development of labour force skills for the future, for the benefit of individuals (Planning articles, 2015). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is decreased by 52 percent. And the percentage change between second and third period that is increased by 69.95 percent. The third percent change between first and third time period that is decreased by 18.43 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. Due to increase the expenditure by cultivators it means the socio-economic status of cultivators is increased. This table is also shown in the diagram.

Figure 5.13 Trend growth rate of total expenditure on non-food items (all families)

Trend growth rate of total expenditure on non-food items
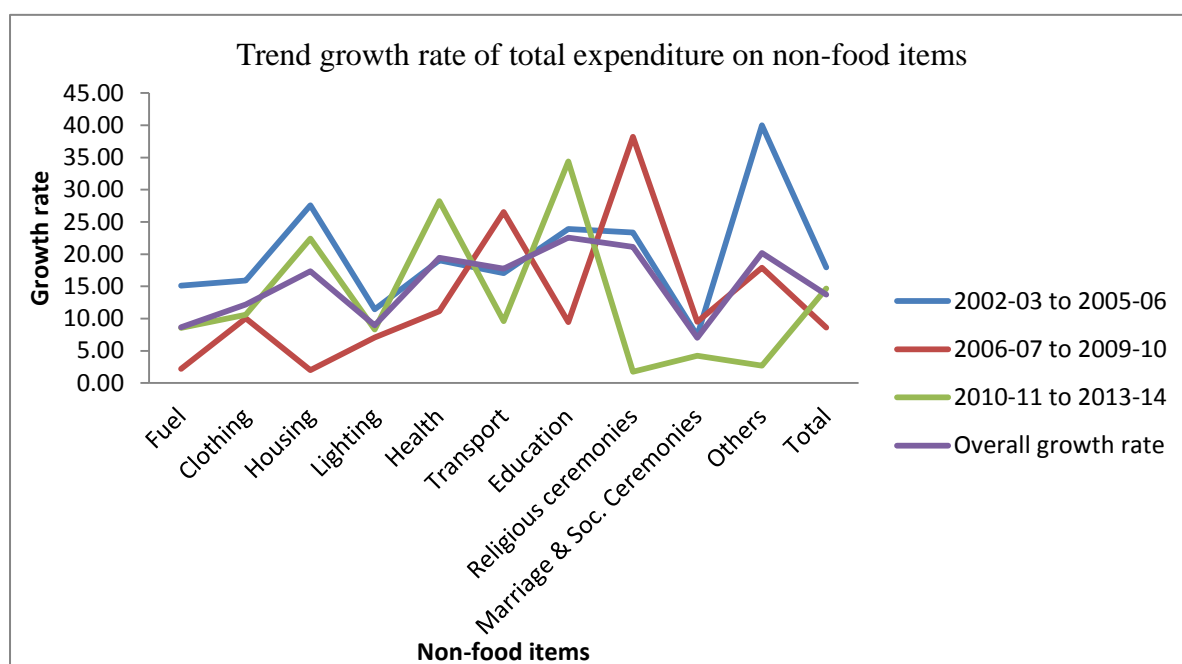
Table 5.14 Trend growth rate of per household expenditure on non-food items (all families)

Items	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Fuel	3.04	-1.50	10.29	4.03	-149.35	-785.86	238.44
Clothing	2.07	11.45	8.32	7.75	452.54	-27.35	301.43
Housing	10.27	2.38	22.20	11.74	-76.86	833.58	116.05
Lighting	3.18	3.20	10.24	5.75	0.69	219.98	222.20
Health	4.87	17.71	6.42	10.10	263.94	-63.77	31.86
Transport	14.03	26.05	7.76	16.12	85.69	-70.23	-44.71
Education	8.26	30.84	6.16	15.71	273.36	-80.01	-25.38
Religious ceremonies	16.31	28.31	3.17	15.90	73.53	-88.81	-80.57
Marriage & Soc. Ceremonies	11.29	2.18	6.26	6.15	-80.69	187.43	-44.49
Others	9.91	9.80	8.85	9.49	-1.13	-9.62	-10.64
Total	7.61	10.23	9.33	9.19	34.39	-8.74	22.64

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

The table 5.14 shows the trend growth rate of per household expenditure of selected cultivators on non-food items (non-food items are includes fuel, clothing, housing, lighting, health, transport, education, Religious ceremonies etc.). The growth rate of all non-food items of cultivators was calculated into three time periods and the percent change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate in non-food items of religious ceremonies is 16.31 and lowest of clothing (that is 2.07). And in the same way the total growth rate of all non-food items is 7.61 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of education (that is 30.84) and lowest of fuel (is declined by 1.50 percent). And the total average growth rate of all non-food items in second period is 10.23 percent. In the third time period (2010-11 to 2013-14), the highest growth rate of housing is 22.20 and lowest of religious ceremonies is 3.17. The average growth rate of all non- food items in this period are 9.33. Thus in the same way the overall growth rate is also calculated of all non-food items, the highest overall growth of transport is 16.12 and lowest of fuel (that is 4.03). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is increased by 34.39 percent. And the second percent change between second and third period that is decreased by 8.74 percent. The third percent change between first and third time period that is increased by 22.64 percent. And in the last it can be stated that the percent change is fluctuating across all three time periods. This table is also shown in the diagram.

Trend growth rate of per household expenditure on food items

Table 5.15 Trend growth rate of per capita expenditure on non-food items (all families)

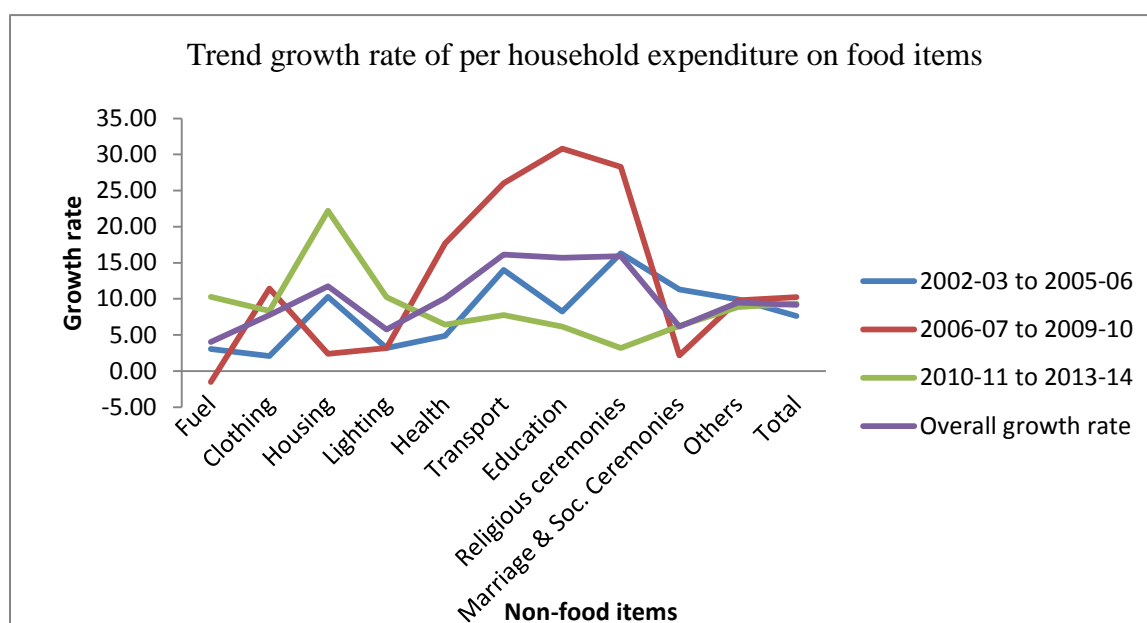| Items	I	II	III	Overall growth rate(2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Fuel	2.93	4.35	9.94	6.00	48.32	128.47	238.86
Clothing	2.91	14.65	11.11	10.16	403.05	-24.17	281.45
Housing	12.31	7.12	18.66	12.73	-42.13	162.00	51.63
Lighting	6.37	7.18	6.97	6.88	12.65	-2.85	9.44
Health	5.67	15.30	19.08	14.05	170.03	24.66	236.62
Transport	17.26	27.35	8.28	17.67	58.43	-69.73	-52.04
Education	9.04	35.60	7.13	18.00	293.68	-79.97	-21.13
Religious ceremonies	29.23	25.18	5.09	18.98	-13.84	-79.77	-82.57
Marriage & Soc. Ceremonies	10.45	5.74	2.25	5.76	-45.02	-60.79	-78.44
Others	18.49	12.87	5.58	11.75	-30.42	-56.65	-69.84
Total	8.67	14.07	9.74	11.02	62.20	-30.77	12.30

I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14
*In Percentage
Sources: Researcher calculations

The table 5.15 shows the trend growth rate of per capita expenditure of selected cultivators on non-food items (non-food items are includes fuel, clothing, housing, lighting, health, transport, education, Religious ceremonies etc.). The growth rate of all non-food items of cultivators was calculated into three time periods and the percentage change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate in non-food items of religious ceremonies is 29.23 and lowest of clothing (that is 2.91). And in the same way the total growth rate of all non-food items is 8.67 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of education (that is 35.60) and lowest of fuel is 4.35. And the total average growth rate of all non-food items in second period is 14.07 percent. In the third time period (2010-11 to 2013-14), the highest growth rate of health is 19.08 and lowest of marriage & social ceremonies (that is 2.25). The average growth rate of all non- food items in this period are 9.74. Thus in the same way the overall growth rate is also calculated of all non-food items, the highest overall growth of religious ceremonies is 18.98 and lowest of marriage & social ceremonies (that is 5.76). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is increased by 62.20 percent. And the percent change between second and third period that is decreased by 30.77 percent. The third percent change between first and third time period that is increased by 12.30 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. This table is also shown in the diagram.

Figure 5.15 Trend growth rate of per capita expenditure on non-food items (all families)

Trend growth rate of per capita expenditure on non-food items

Table 5.16 Trend growth rate of per adult male unit expenditure on non-food items (all families)

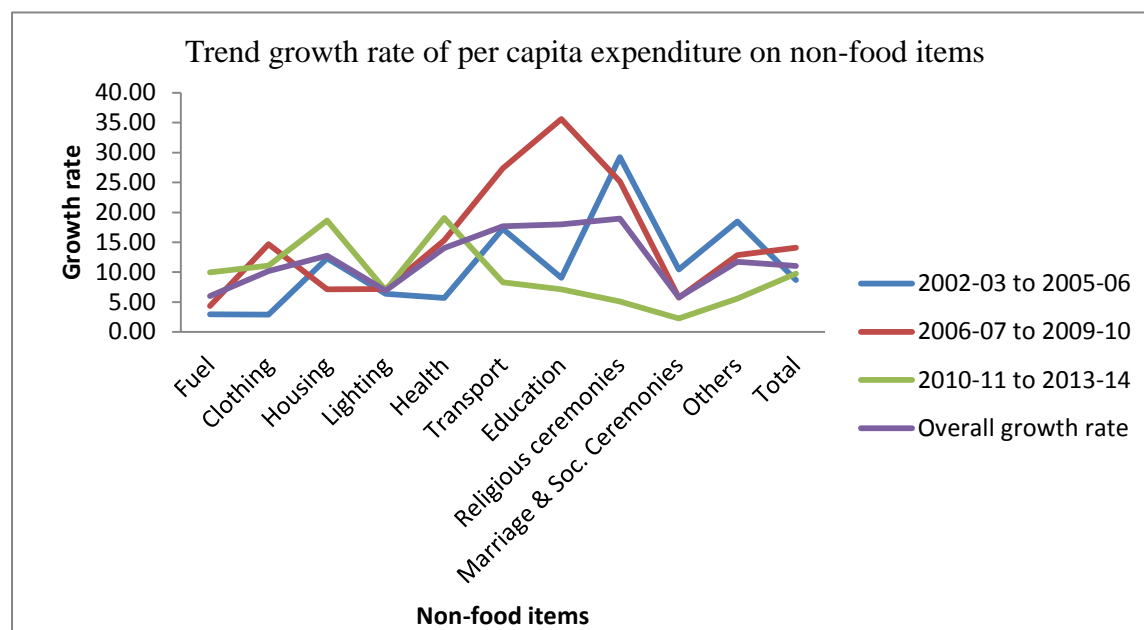| Items	I	II	III	Overall growth rate (2002-14)	Change* between I & II	Change* between II & III	Change* between III & I
Fuel	2.76	2.91	11.24	5.92	5.37	286.43	307.19
Clothing	3.77	13.68	10.63	9.84	262.75	-22.30	181.85
Housing	14.79	3.64	19.14	12.49	-75.37	425.58	29.44
Lighting	1.46	6.08	11.29	6.64	316.44	85.71	673.38
Health	6.59	13.69	16.81	12.89	107.88	22.77	155.22
Transport	8.64	27.49	12.10	16.75	218.32	-55.98	40.13
Education	9.82	34.53	6.96	17.55	251.56	-79.84	-29.14
Religious ceremonies	51.04	15.84	4.81	21.43	-68.97	-69.63	-90.58
Marriage & Soc. Ceremonies	10.89	0.97	1.42	3.63	-91.13	46.60	-86.99
Others	10.63	13.72	9.96	11.68	29.03	-27.40	-6.32
Total	8.97	11.82	10.27	10.47	31.82	-13.08	14.59
I = Time period 2002-03 to 2005-06, II = Time period 2006-07 to 2009-10, III = Time period 2010-11 to 2013-14 *In Percentage **Sources: Researcher calculations**							

The table 5.16 shows the trend growth rate of per adult male unit expenditure of selected cultivators on non-food items (non-food items are includes fuel, clothing, housing, lighting, health, transport, education, Religious ceremonies etc.) .The growth rate of all non-food items of cultivators was calculated into three time periods and the percentage change is also presented among them. In the first period (2002-03 to 2005-06), the highest growth rate in non-food items of religious ceremonies is 51.04 and lowest of lighting (that is 1.46). And in the same way the total growth rate of all non-food items is 8.97 in this period. In the second period (2006-07 to 2009-10), the highest growth rate of education (that is 34.53) and lowest of marriage & social ceremonies is 0.97. And the total average growth rate of all non-food items in second period is 11.82 percent. In the third time period (2010-11 to 2013-14), the highest growth rate of housing (that is 19.14) and lowest of marriage & social ceremonies is 1.42. The average growth rate of all non- food items in this period are 10.27. Thus in the same way the overall growth rate is also calculated of all non-food items, the highest overall growth of religious ceremonies is 21.43 and lowest of marriage & social ceremonies (that is 3.63). Thereafter the percent change is also shown among the time periods, first percent change is calculated between first and second time period. Between this percent change is increased by 31.82 percent. And the percentage change between second and third period that is increased by 13.08 percent. The third percent change between first and third time period that is increased by 14.59 percent. And in the last it can be stated that the percent change is fluctuating across three time periods. Due to increase the expenditure by cultivators it means the socio-economic status of cultivators is increased. These data are also shown through figure. This table is also shown in the diagram.

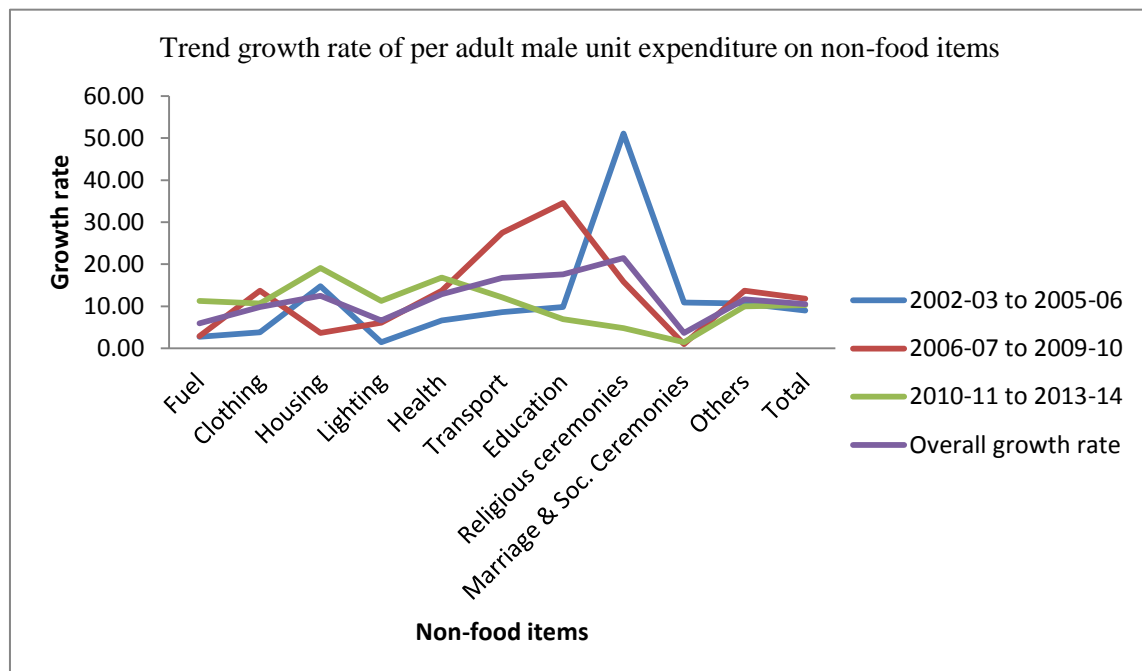**Figure 5.16 Trend growth rate of per adult male unit expenditure on non-food items (all families)**

Trend growth rate of per adult male unit expenditure on non-food items

5.6 Reason of Small landholder's cultivator's high income growth

1. The advantages of smallholders disappear as countries develop and more efficient to have progressively larger and more mechanized farms.

2. In experience shows that there are ways to eliminate poverty even with high concentration of workforce in agriculture and predominance of smallholders.

3. Irrigation coverage on smallholdings was 39%. As landholding increased, the percentage of area under irrigation decreased.

4. The small land holders use the fertilizer per hectare of areas remained the highest in the bottom category of farm size and it declined with an increase in farm size.

5. Small holders made higher use of fertilizer because of higher coverage of irrigation.

6. The lower size of holdings in Haryana have been using higher doses of inputs, making more intensive use of land and adopting new technology on a much larger scale compared to farms in the large size categories.

5.7 Conclusion

On the basis of figure analysis it can be concluded that income of cultivators is declining from their sources and according to size of holding. While the expenditure of cultivators on some food (edible oil, Cereals, pulses, Miscellaneous) items and non-food items (Religious ceremonies, Marriage & Soc. Ceremonies, Transport, Fuel) are also declining. The cultivators are expending more on non-food items (education, health, clothing and housing) and food items (vegetable, Meat & meat products, fruits, milk and milk product). It means the socio-economic status of cultivators is upgrading.

Main findings –

- The growth rate of all sources was 21.23 percent in 2002-03 to 2005-06 and 9.46 percent in 2010-11 to 2013-14. It means the income of cultivators declined by the rate of 55.43 percent. But overall average growth rate of cultivator increased by 14.86 percent.

- The trend growth rate of total farm income from farm cultivation of cultivators according to the size of holdings. The average income of cultivators under all the size of holdings is 30.79 in 2002-03 to 2005-06 and 8.04 percent in 2010-11 to 2013-14. And the average income of cultivators declined by nearly 73.88 percent between both time periods. The overall average growth of total farm income of cultivators increased by 16.56 percent.

- The highest average expenditure growth rates on food items in 2002-03 to 2005-06 was 14.58 percent and 14.80 percent was average expenditure growth rate on food items in 2010-11 to 2013-14 by cultivators. But in the time period 2010-11 to 2013-14 the average expenditure growth rate of farmers on food items increased by 1.54

percent. The overall average growth rate of total food items is increased 16.36 percent.

- The highest average expenditure growth rates on non-food items was 17.96 in 2002-03 to 2005-06 and 14.65 percent was average expenditure growth rate on it in 2010-11 to 2013-14 by cultivators. But the percentage change between these two time periods is declined by 18.43 percent.

- The overall total growth rate, per household growth rate, per capita growth rate and per adult male unit growth rate of non-food items like fuel, clothing, housing, lighting, health, transport, education and marriage & social ceremonies are positive.

- The overall total growth rate, per household growth rate, per capita growth rate and per adult male unit growth rate of food items like cereals, pulses, milk & milk products, edible oil, sugar, vegetables, fruits, intoxicants and meat & meat products are positive.

Chapter – 6

Relationship Between Income And Expenditure Of Cultivators

CHAPTER-6

RELATIONSHIP BETWEEN INCOME AND EXPENDITURE OF CULTIVATORS

6.1 INTRODUCTION

The main objective of this chapter is to find the relationship between the cultivator's income and expenditure with the help of Engel curve. This shows relationship between income and consumption expenditure. Engel curves explain the change of expenditure for different goods as a function of income (or total expenditure). Ernst Engel (1857) made the first attempt to investigate Engel curves; he studied how household expenditures on food vary with income. He found that food expenditures are an increasing function of income and of family size, but that food budget shares decrease with income. The relationship between consumption, income and prices is transformed into the well known consumption income relationship.

Another purpose of this chapter is to analysed income elasticity of food and non food items. Income elasticity of demand expresses the responsiveness of a consumer demand (expenditure or consumption) for any good to the change in his income. It may be defined as ratio of percent change in quantity demanded of a commodity to the percentage change in income. In the words of Lipsey, the responsiveness of the demand for a product to changes in income is termed income elasticity of demand.

The basic relationship represented by an Engel curve is that of consumption and income. However, the consumption patterns of households also respond to demographic characteristics. For example, it is reasonable to expect a family with two children to spend more on food than a family with one child. Knowledge of the way income effects differ

across household types is critical in understanding the impact of tax and welfare programs on expenditure patterns (Blundell et al., 1998). In the context of Engel curves most empirical studies allow demographic and other household characteristics to enter parametrically resulting in semi parametric specification.

6.2 Total income and total expenditure of households

The food and non-food expenditures are an increasing according to income and of family size, but that food budget shares decrease with income. The relationship between consumption, income and prices is transformed into the well known consumption income relationship.

Table 6.1 Total income and food expenditure of households (In lakhs rs.) at constant price of 2011-12		
Years	Total Income	Food Expenditure
2002-03	201.90	41.98
2003-04	299.87	61.76
2004-05	295.67	62.80
2005-06	315.47	72.90
2006-07	387.62	77.50
2007-08	430.78	90.88
2008-09	395.20	102.40
2009-10	391.58	127.32
2010-11	388.88	145.90
2011-12	405.05	164.15
2012-13	417.67	174.72
2013-14	418.77	217.77
Sources: Department of economic and statistical analysis, Haryana		

Table 6.1 reveals the relationship between total income and food expenditure. In the year 2002-03, the total income was 201.90 lakhs from which 41.98 lakhs was spent on food expenditure and in 2003-04 the income was 299.87 lakhs and food expenditure was 61.76 lakhs and in year 2004-05, the income was 295.67 lakhs from which 62.80 lakhs was spent on food expenditure. During 2005-06, the total income of all household was 315.47 lakhs and from this income 72.90 lakhs was spent on food expenditure by all cultivators. In the year 2006-07, the total income was 387.62 lakhs from which 77.50 lakhs was spent on food expenditure by all household and in year 2007-08, the total income of all cultivators was 430.78 lakhs and from this income 90.88 lakhs was spent on food expenditure. During 2008-09, the total income of all cultivator was 395.20 lakhs from which 102.40 lakhs was spent on food expenditure by all household. In the year 2009-10, the total income of all household was 391.58 lakhs and total expenditure of their income on food was 127.32 lakhs and in the year 2010-11, the total income of all cultivator was 388.88 lakhs and from this income 145.90 lakh was spent on food by all household. In 2011-12 the total income was 405.05 lakhs from which 164.15 lakhs was spent on food expenditure by all household. During 2012-13, the total income was 417.67 lakhs from which 174.72 lakhs was spent on food expenditure by all household and in the year 2013-14, the total income was 418.77 lakhs from which 217.77 lakhs was spent on food expenditure by all household. This is also represtened by digram.

Figuer 6.1 Relationship between total income and food expenditure of households

Engel curve of total income and food expenditure of households
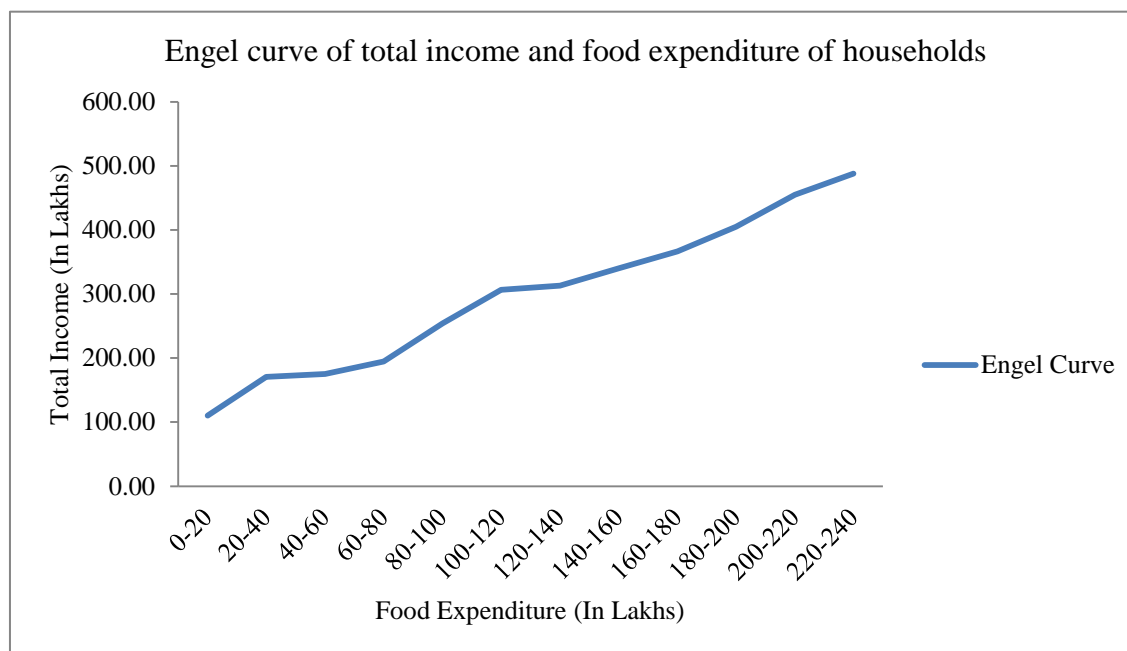
Table 6.2 Total income and non-food expenditure of households (In lakhs rs.) at constant price of 2011-12		
Years	Total Income	Non-food Expenditure
2002-03	201.9	50.5
2003-04	299.87	80.77
2004-05	295.67	87.06
2005-06	315.47	79.81
2006-07	387.62	93.36
2007-08	430.78	101.75
2008-09	395.2	124.42
2009-10	391.58	121.84
2010-11	388.88	142.35
2011-12	405.05	151.08
2012-13	417.67	161.67
2013-14	418.77	186.92
Sources: Department of economic and statistical analysis, Haryana		

Table 6.2 shows the relationship between total income and non- food expenditure. In the year 2002-03, the total income was 201.90 lakhs from which 50.50 lakhs was spent on non-food items and in 2003-04 the income was 299.87 lakhs and non-food expenditure was 80.77 lakhs of all household. In the year 2004-05, the total income was 295.67 lakhs from which 87.06 lakhs was spent on non- food items by all cultivators. During 2005-06, the total income of all household was 315.47 lakhs and from this income 80.06 lakhs was spent on non-food items by all cultivators and in 2006-07, the total income was 387.62 lakh from which 93.36 lakhs was spent on non-food items by all household. During 2007-08, the total income of all cultivators was 430.78 lakhs and from this income 101.75 lakhs was spent on non-food items and in 2008-09, the total income of all cultivator was 395.20 lakhs from which 124.42 lakhs was spent on non-food items by all households. In the year 2009-10, the total income of all household was 391.58 lakhs and total expenditure of their income on non-food items was 121.84 lakhs and in 2010-11, the total income of all cultivator was 388.88 lakhs and from this income 142.35 lakhs was spent on non- food items by all households. During 2011-12, the total income was 405.05 lakhs from which 151.08 lakhs was spent on non- food items by all household. In this sequence 2012-13, the total income was 417.67 lakhs from which 161.67 lakhs was spent on non- food items by all households. During 2013-14, the total income was 418.77 lakhs from which 186.92 lakhs was spent on non- food items by all household. This is also represtened by digram.

Figure 6.2 Engel curve of total income and non-food expenditure of household's

Engel curve of total income and non-food expendoture of households
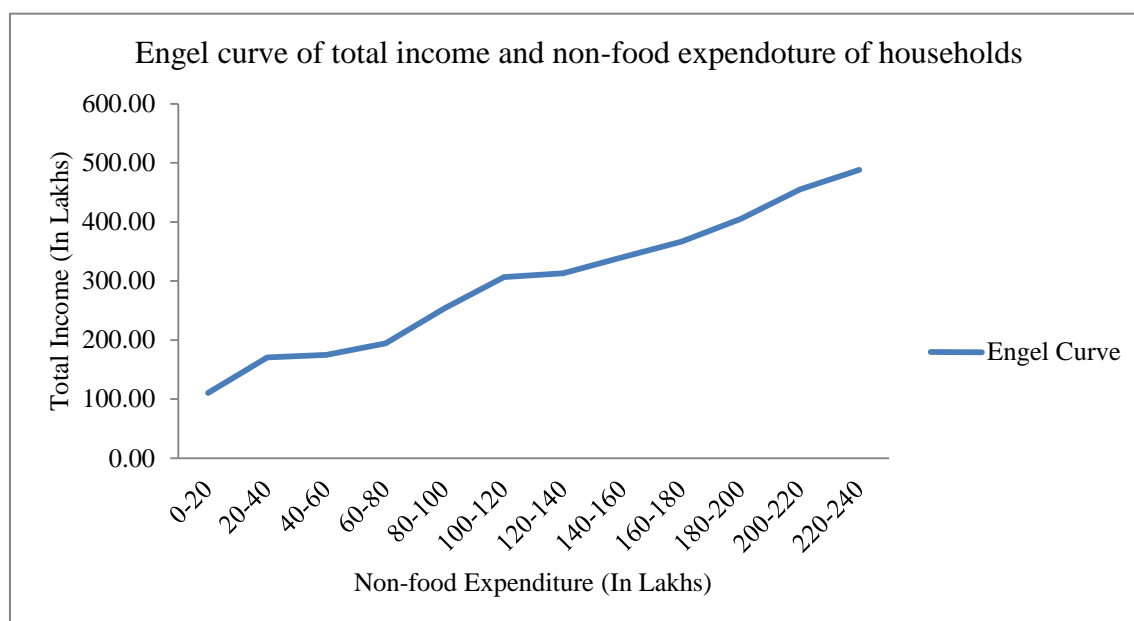
Table 6.3	Total income and total expenditure of households (In Lakhs rs.) at constant price of 2011-12	
Years	Total Income	Total Expenditure
2002-03	201.90	92.48
2003-04	299.87	142.53
2004-05	295.67	149.87
2005-06	315.47	152.71
2006-07	387.62	170.86
2007-08	430.78	192.63
2008-09	395.20	226.82
2009-10	391.58	249.15
2010-11	388.88	288.24
2011-12	405.05	315.22
2012-13	417.67	336.39
2013-14	418.77	404.69
Sources: Department of economic and statistical analysis, Haryana		

Table 6.3 shows the relationship between total income and total expenditure (total expenditure is the sum of all food items and non- food items expenditure). In year 2002-03, the total income was 110.42 lakhs from which 92.48 lakhs was total expenditure of all cultivator. During 2003-04, the total income was 170.55 lakhs and total expenditure was 142.53 lakhs of all household. In year 2004-05, the total income was 175.13 lakhs from which 149.87 lakhs was spent on both items by all cultivators. During 2005-06,the total income of all household was 194.50 lakhs and from this income 152.71 lakhs was the total expenditure of both items by all cultivators. In year 2006-07, the total income was 254.04 lakhs from which 170.86 lakhs was the total expenditure of both items by all household. During 2007-08, the total income of all cultivators was 306.57 lakhs and from this income 192.63 lakhs was spent on both items. In year 2008-09, the total income of all cultivator was 313.06 lakhs from which 226.82 lakhs was spent on both items by all household. In year 2009-10, the total income of all households was 340.13 lakhs and total expenditure of their income on both items was 249.15 lakhs. In year 2010-11, the total income of all cultivator was 366.56 lakhs and from this income 288.24 lakhs was spent on both items by all households. During 2011-12, the total income of all cultivator was 405.05 lakhs and from this income 315.22 lakhs was spent on both items by all households. In year 2012-13, the total income of all cultivator was 455.05 lakhs and from this income 336.39 lakhs was spent on both items by all households. During 2013-14, the total income of all cultivator was 488.17 lakhs and from this income 404.69 lakhs was spent on both items by all households. This is also represented by digram in 6.3.

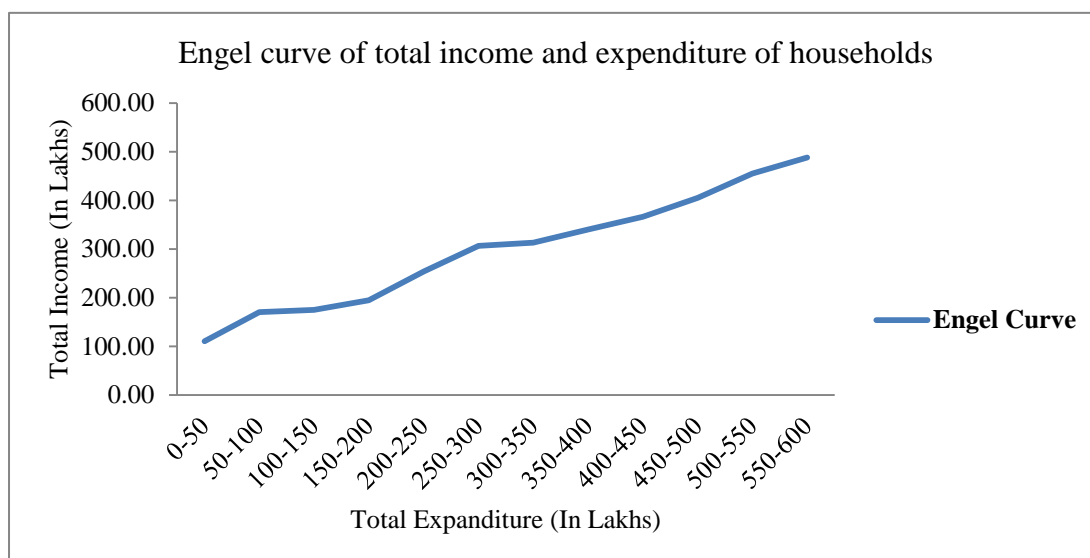**Figure 6.3 Engel curve of total income and total expenditure of households**

Engel curve of total income and expenditure of households

6.3 Percentage share of total income and total expenditure of households

The percentage share of total income are analyzed by their respective source such as farm cultivation, milk and milk products, income from capital investment and miscellaneous and total expenditure of households are calculated by the respective source of food items (such as Cereals, pulses, milk and milk products, edible oil, sugar, vegetable, fruits etc.) and non-food items (such as fuel, clothing, housing, health, education, transport etc.). Hereby, this states that the annual percent share of both food and non-food items are calculated separately.

Table 6.4 Percentage share of food items of households from total food expenditure	
Food items	Percentage share of food items
Cereals	11.89
Pulses	2.39
Milk & milk products	62.75
Edible	2.06
Sugar	4.62
Vegetables	4.87
Fruits	2.62
Intoxicants	2.14
Meat & meat products	0.41
Miscellaneous	6.24
Total	100
Sources: Researcher calculations	

The table 6.4shows the expenditure share of food items from total expenditure during the time period 2002-03 to 2013-14. We see in the food items cultivators highly expenditure on milk & milk products (that is 62.75 percent out of total food expenditure) due to taste and food habits of people across different agro-climatic regions and variation in milk availability in the area. And in the same way cultivators high expenditure on cereals items (that is 11.89 percent from total food expenditure). So the cultivators continued expenditure on the following food items. But cultivators expended low on meat and meat products (0.41 percent). The main reason of highly percentage share of milk and milk product in food expenditure due to taste and food habits of people across different agro-climatic regions and variation in milk availability in the area.

Figure 6.4 Percentage shares of food items of households

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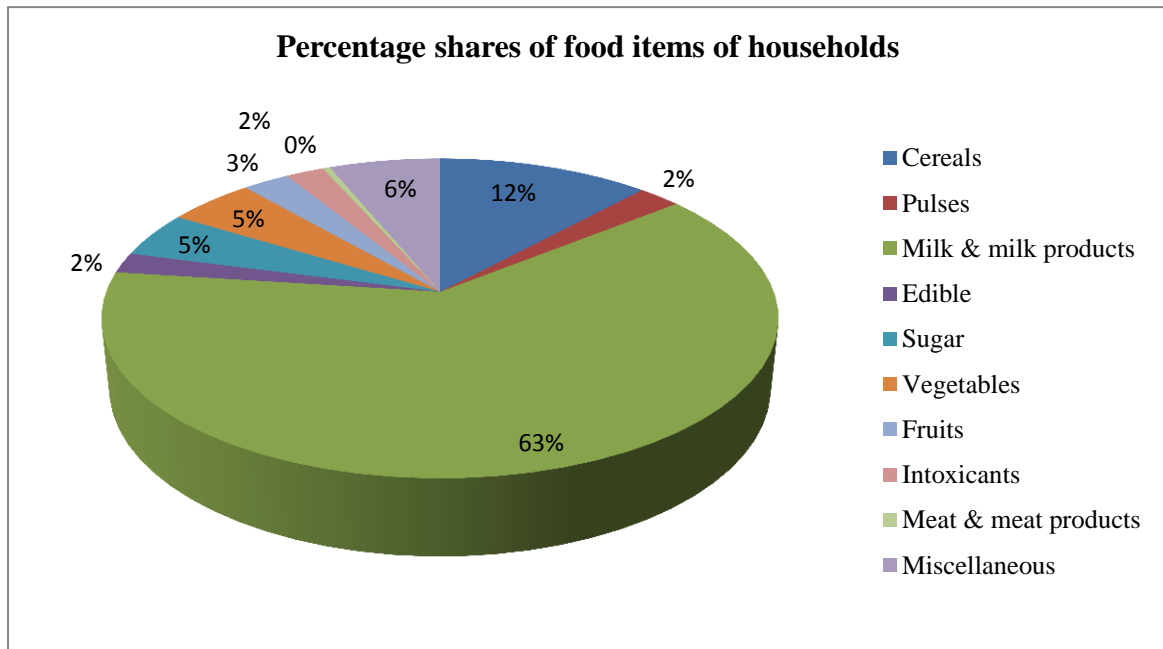
Percentage share of non-food items of household's expenditure

Table 6.5 Percentage share of non-food items of households expenditure	
Non-food items	Percentage share of non-food items of households
Fuel	5.47
Clothing	16.48
Housing	20.20
Lighting	4.06
Health	6.93
Transport	6.18
Education	19.68
Religious ceremonies	2.07
Marriage & Social ceremonies	15.27
Others	3.66
Total	100.00
Sources: Researcher calculations	

The table 6.5 shows the expenditure share of non- food items from total non-food expenditure during the time period 2002-03 to 2013-14. We see in the non- food items cultivators expended more on housing (that is 20.20 percent out of total food expenditure). And in the same way cultivators highly expended on education (that is 19.68 percent from total non-food expenditure). So the cultivators continue expenditure on the following non-food items. But cultivators expend low on religious ceremonies (that is 2.07 percent from total non-food expenditure). The cultivators highly expenditure on education, housing, clothing and social ceremonies it means the socio-economic status of households is increasing.

Figure 6.5 Percentage shares of non-food items of households

Percentage shares of non-food items of households

- Fuel
- Clothing
- Housing
- Lighting
- Health
- Transport
- Education
- Religious ceremonies
- Marriage & Social ceremonies
- Others
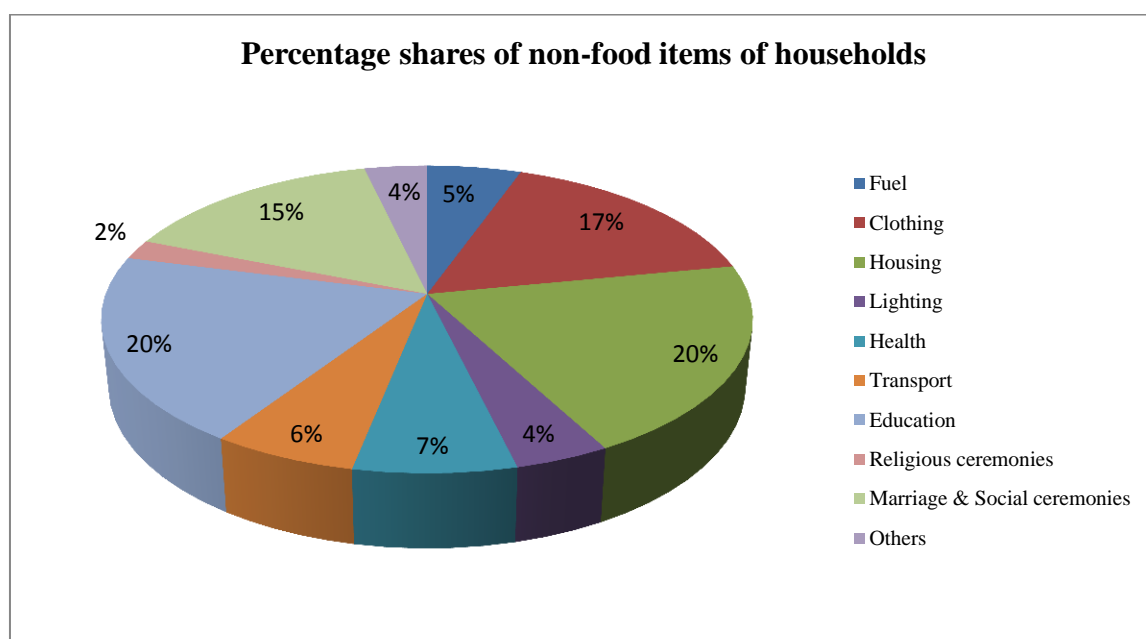
Table 6.6 Percentage share of food expenditure and non-food expenditure of households				
Years	Food Expenditure	Non-food exp.	Saving	Total
2002-03	38.02	45.73	16.25	100.00
2003-04	36.21	47.36	16.43	100.00
2004-05	35.86	49.71	14.43	100.00
2005-06	37.48	41.03	21.48	100.00
2006-07	30.51	36.75	32.74	100.00
2007-08	29.64	33.19	37.17	100.00
2008-09	32.71	39.74	27.55	100.00
2009-10	37.43	35.82	26.75	100.00
2010-11	39.80	38.83	21.36	100.00
2011-12	40.52	37.30	22.18	100.00
2012-13	38.40	35.53	26.08	100.00
2013-14	44.61	38.29	17.10	100.00
Sources: Department of economic and statistical analysis, Haryana				

The table 6.6 shows the percentage share of food expenditure, non-food expenditure and saving according to year wise. In year 2002-03, the expenditure on food was 38.02 percent, non-food expenditure was 45.73 percent and total saving in this period was 16.25 percent and in the year 2003-04 the total expenditure on food was 36.21 percent, total non-food expenditure was 47.36 and total saving in this period was 16.43 percent. During 2004-05, the total food expenditure was 35.86 percent, non-food expenditure was 49.71 percent and total saving in this period was 14.43 percent. In year 2005-06, the total food expenditure was 37.48 percent, the total non-food expenditure was 41.03 percent and total saving was 21.48 percent. During 2006-07, the total expenditure on food items was 30.51 percent, the total expenditure on non-food expenditure items was 36.75 percent and total saving of all household in this period was 32.74 percent. In year 2007-08, the total expenditure of all household on food items was 29.64 percent, the total expenditure of all cultivators on non-food items was 33.19 percent and total saving of all household was 37.17 percent. During 2008-09, the total expenditure of all cultivators on food items was 32.71 percent, non-food expenditure of all household was 39.74 percent and total saving in this period was 27.55 percent. In year 2009-10, the total expenditure of all cultivators on food items was 37.43 percent, non-food expenditure of all cultivators was 35.82 percent and total saving of all household in this period was 26.75 percent. During 2010-11, the total expenditure of all cultivators on food items was 39.80 percent, non-food expenditure of all household in this period was 38.83 percent and total saving of all cultivators in this period was 21.36 percent.

Table 6.7	Percentage share of total income from all sources of cultivators at constant price of 2011-12				
Sources	Farm cultivation	Milk & milk products	Income from capital investment	Miscellaneous	Total
2002-03	46.65	7.73	18.28	27.34	100.00
2003-04	55.15	6.32	15.26	23.27	100.00
2004-05	59.41	7.24	14.84	18.51	100.00
2005-06	62.43	6.64	12.79	18.14	100.00
2006-07	59.64	5.81	13.91	20.65	100.00
2007-08	57.08	5.17	14.89	22.85	100.00
2008-09	60.38	5.49	10.42	23.71	100.00
2009-10	58.12	5.57	13.24	23.06	100.00
2010-11	56.16	6.10	14.74	23.00	100.00
2011-12	56.79	5.91	14.38	22.92	100.00
2012-13	54.12	5.62	14.60	25.66	100.00
2013-14	51.71	5.73	18.21	24.35	100.00
Overall % share	56.47	6.11	14.63	22.79	100.00
Sources: Researcher calculations					

Table 6.7 reveals the share of all sources of income into total income. Whereas all sources of income of cultivators is contributing into gross income. The aggregate farm cultivation incomes share is highest into gross income and the aggregate Milk and milk products income share is lowest into gross income.

6.4 Relationship according to size of holding between total income and total expenditure

There is relationship between total income and total expenditure according to size of holding of households with the help of Engel curve. The size of holding is following such as below-2-0, 2.0-4.0, 4.0-7.5, 7.0-10.0 and 10.0 & above.

Table 6.8   Total income and total expenditure below-2.0 hectares (in Lakhs) at constant price of 2011-12

Years	Total Income	Total Expenditure
2002-03	30.97	14.09
2003-04	33.88	16.22
2004-05	32.39	17.86
2005-06	32.21	18.43
2006-07	47.26	29.27
2007-08	62.57	35.57
2008-09	66.48	42.93
2009-10	70.80	48.52
2010-11	71.08	59.51
2011-12	78.61	71.74
2012-13	99.30	86.09
2013-14	115.22	121.77

Sources: Department of economic and statistical analysis, Haryana

The table 6.8 shows the relationship between total income and total expenditure according to size of holding. Under below-2.0 (hectares) size of holding, the total income of all household was 30.97 lakhs under same size of holding in the year 2002-03 and the total expenditure of that income was 14.09 lakhs. In the year 2003-04, the total income of all household was 33.88 lakhs under below 2.0 size of holding and the total expenditure of their income was 16.22 lakhs. The total income of all household was 32.39 lakhs under the same size of holding in the year 2004-05 and total expenditure of their income was 18.43 lakhs. The total income of all cultivators was 32.21 lakhs under the same size of holding in the year 2005-06 and the total expenditure of their income was 18.43 lakhs. In the year 2006-07, the total income of all cultivators was 47.26 lakhs and their total expenditure was 29.27 lakhs. The total income of all household was 62.57 lakhs in the

year 2007-08 under same size of holding and their total expenditure was 35.57 lakhs. The total income of all household in the year 2008-09 was 66.48 lakhs under the same size of holding and their total expenditure from that income was 42.93 lakhs. The total income of all cultivators was 70.80 lakhs in the year 2009-10 under same size of holding and the total expenditure of their income was 48.52 lakhs. The total income of all cultivators was 71.08 lakhs in the year 2010-11 under same size of holding and total expenditure was 59.51 lakhs. The total income of all cultivators was 78.61 lakhs in the year 2011-12 under same size of holding and the total expenditure of their income was 71.74 lakhs. The total income of all cultivators was 99.30 lakhs in the year 2012-13 under same size of holding and the total expenditure of their income was 86.09 lakhs. The total income of all cultivators was 115.22 lakhs in the year 2013-14 under same size of holding and the total expenditure of their income was 121.77 lakhs. This is also represented by digram.

Figure 6.6   Engel curves of total income and total expenditure according to size of holdings (below 2.0 hectares)
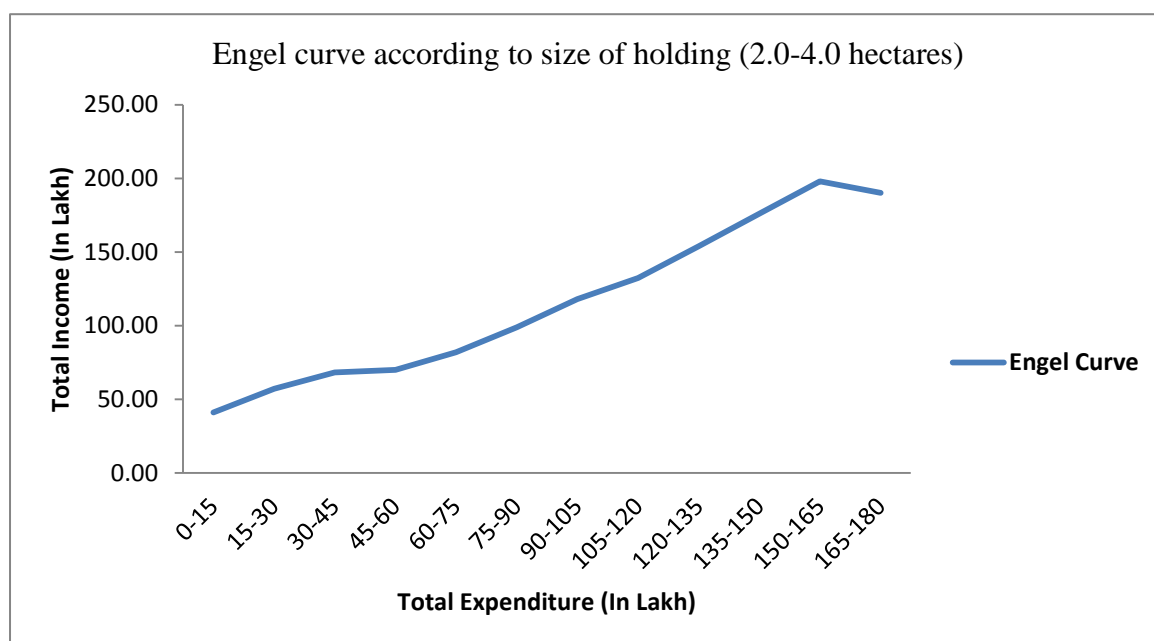

Engel curve according to size of holding (below-2-0 hectares)
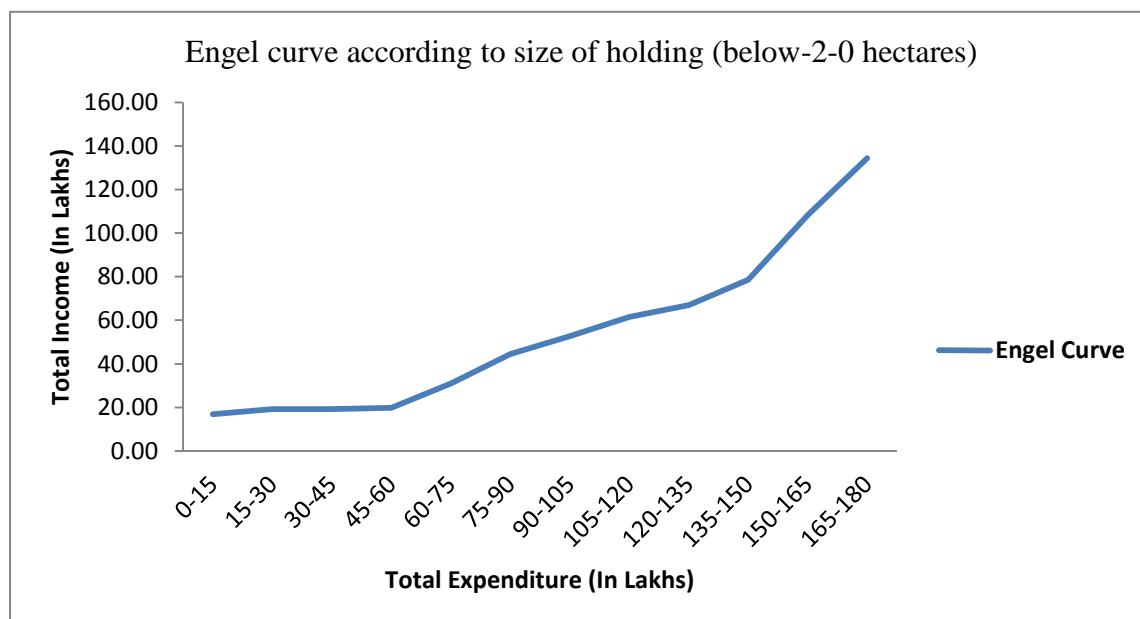
Table 6.9	Total income and total expenditure according to size of holdings 2.0-4.0 hectares (In Lakhs) at constant price of 2011-12	
Years	**Total Income**	**Total Expenditure**
2002-03	75.26	35.57
2003-04	100.58	50.60
2004-05	115.27	55.66
2005-06	113.66	58.80
2006-07	125.07	60.47
2007-08	138.96	69.76
2008-09	149.07	84.87
2009-10	152.44	105.14
2010-11	163.16	114.70
2011-12	176.08	132.19
2012-13	181.69	168.04
2013-14	163.15	178.27
Sources: Department of economic and statistical analysis, Haryana		

The table 6.9 shows the relationship between total income and total expenditure according to size of holding. Under 2.0-4.0 (hectares) size of holding, the total income of all household was 75.26 lakhs under same size of holding in the year 2002-03 and the total expenditure of that income was 35.57 lakhs. In the year 2003-04, the total income of all household was 100.58 lakhs under 2.0-4.0 size of holding and the total expenditure of their income was 50.66 lakhs. The total income of all household was 115.27 lakhs under the same size of holding in the year 2004-05 and total expenditure of their income was 60.47 lakhs. The total income of all cultivators was 113.66 lakhs under the same size of holding in the year 2005-06 and the total expenditure of their income was 58.80 lakhs. In the year 2006-07, the total income of all cultivators was 125.07 lakhs and their total expenditure was 60.47 lakhs. The total income of all household was 138.96 lakhs in the year 2007-08 under same size of holding and their total expenditure was 69.76 lakhs. The total income of all household in the year 2008-09 was 149.07 lakhs under the same size of

holding and their total expenditure from that income was 84.87 lakhs. The total income of all cultivators was 152.44 lakhs in the year 2009-10 under same size of holding and the total expenditure of their income was 105.14 lakhs. The total income of all cultivators was 163.16 lakhs in the year 2010-11 under same size of holding and total expenditure of cultivators was 115.14 lakhs. The total income of all household in the year 2011-12 was 176.08 lakhs under the same size of holding and their total expenditure from that income was 132.19 lakhs. The total income of all household in the year 2012-13 was 181.69 lakhs under the same size of holding and their total expenditure from that income was 168.04 lakhs. The total income of all household in the year 2013-14 was 163.15 lakhs under the same size of holding and their total expenditure from that income was 178.27 lakhs. This is also represtened by digram.

Figure 6.7   **Engel curves of total income and total expenditure according to size of holdings (2.0- 4-0 hectares)**
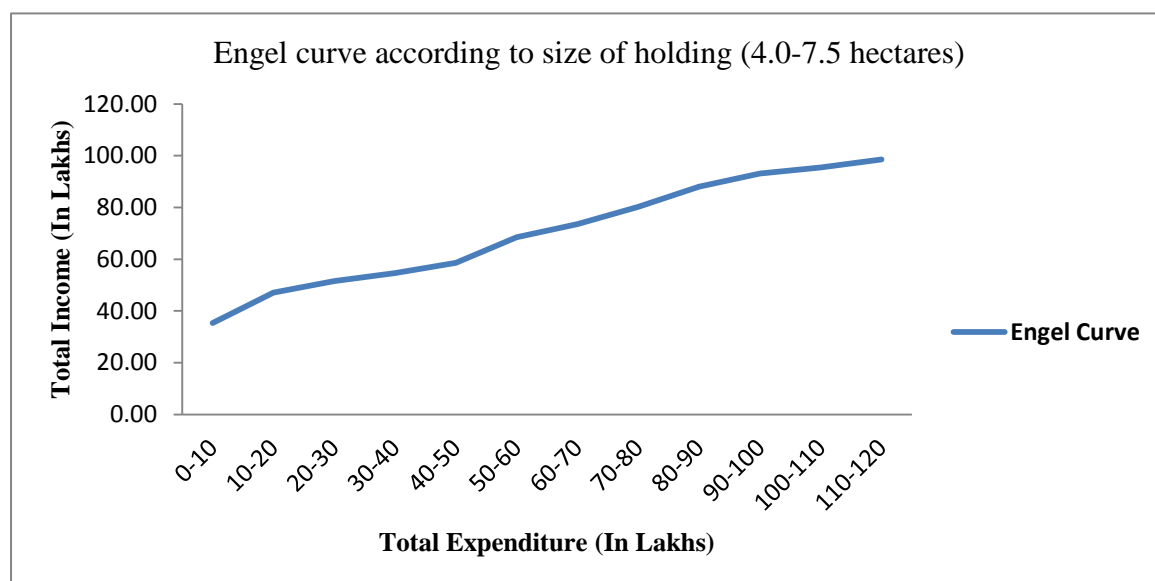

Engel curve according to size of holding (2.0-4.0 hectares)

Table 6.10 Total income and total expenditure according to size of holdings 4.0-7.5 hectares (In Lakhs) at constant price of 2011-12		
Years	Total Income	Total Expenditure
2002-03	75.80	35.38
2003-04	112.56	47.14
2004-05	111.77	51.54
2005-06	115.21	54.64
2006-07	117.42	58.58
2007-08	137.65	68.49
2008-09	136.08	73.61
2009-10	124.72	80.26
2010-11	115.14	88.02
2011-12	108.65	93.07
2012-13	100.83	95.42
2013-14	99.04	98.54
Sources: Department of economic and statistical analysis, Haryana		

The table 6.10 shows the relationship between total income and total expenditure according to size of holding. Under 4.0-7.5 (hectares) size of holding, the total income of all household was 75.80 under same size of holding in the year 2002-03 and the total expenditure of that income was 35.38 lakhs. In the year 2003-04, the total income of all household was 112.56 lakhs under 4.0-7.5 size of holding and the total expenditure of their income was 47.14 lakhs. The total income of all household was 111.77 lakhs under the same size of holding in the year 2004-05 and total expenditure of their income was 51.54 lakhs. The total income of all cultivators was 115.21 lakhs under the same size of holding in the year 2005-06 and the total expenditure of their income was 54.64 lakhs. In the year 2006-07, the total income of all cultivators was 117.42 lakhs and their total expenditure was 58.58 lakhs. The total income of all household was 137.65 lakhs in the

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year 2007-08 under same size of holding and their total expenditure was 68.49 lakhs. The total income of all household in the year 2008-09 was 136.08 lakhs under the same size of holding and their total expenditure from that income was 73.61 lakhs. The total income of all cultivators was 124.72 lakhs in the year 2009-10 under same size of holding and the total expenditure of their income was 80.26 lakhs. The total income of all cultivators was 115.14 lakhs in the year 2010-11 under same size of holding and total expenditure of cultivators was 88.02 lakhs. The total income of all cultivators was 108.65 lakhs in the year 2011-12 under same size of holding and the total expenditure of their income was 93.07 lakhs. The total income of all cultivators was 100.80 lakhs in the year 2012-13 under same size of holding and the total expenditure of their income was 95.42 lakhs. The total income of all cultivators was 99.04 lakhs in the year 2013-14 under same size of holding and the total expenditure of their income was 98.54 lakhs. This is also represtened by digram.

Figure 6.8   Engel curves of total income and total expenditure according to size of holdings (4.0-7.5 hectares)

Table 6.11 Total income and total expenditure according to size of holdings 7.5-10.0 hectares (In Lakhs) at constant price of 2011-12
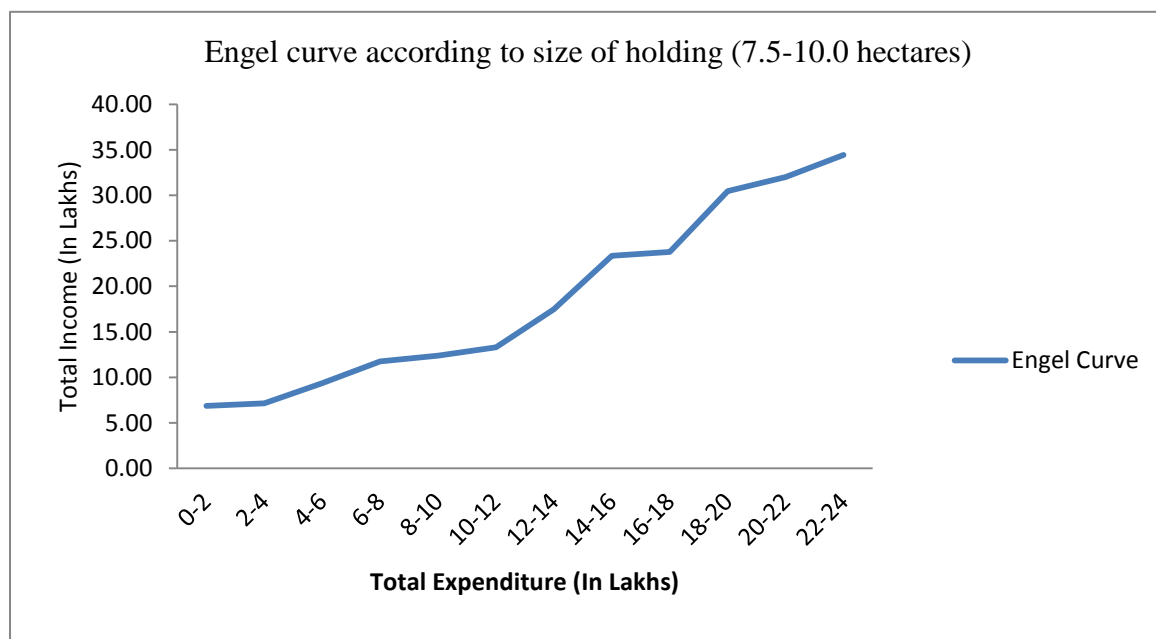
Years	Total Income	Total Expenditure
2002-03	12.52	5.43
2003-04	12.58	6.81
2004-05	15.78	7.69
2005-06	19.07	8.03
2006-07	18.92	8.53
2007-08	18.68	9.59
2008-09	22.09	12.44
2009-10	26.88	16.68
2010-11	25.24	18.44
2011-12	30.47	20.42
2012-13	29.38	22.78
2013-14	29.54	23.16

Sources: Department of economic and statistical analysis, Haryana

The table 6.11 shows the relationship between total income and total expenditure according to size of holding. Under 7.5-10.0 (hectares) size of holding, the total income of all household was 12.52 lakhs under same size of holding in the year 2002-03 and the total expenditure of that income was 5.43 lakhs. In the year 2003-04, the total income of all household was 12.58 lakhs under 7.5-10.0 size of holding and the total expenditure of their income was 6.81 lakhs. The total income of all household was 15.78 lakhs under the same size of holding in the year 2004-05 and total expenditure of their income was 7.69 lakhs. The total income of all cultivators was 19.07 lakhs under the same size of holding in the year 2005-06 and the total expenditure of their income was 8.03 lakhs. In the year 2006-07, the total income of all cultivators was 18.92 lakhs and their total expenditure was 8.53 lakhs. The total income of all household was 18.68 lakhs in the year 2007-08 under same size of holding and their total expenditure was 9.59 lakhs. The total income of

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all household in the year 2008-09 was 22.09 lakhs under the same size of holding and their total expenditure from that income was 12.44 lakhs. The total income of all cultivators was 26.88 lakhs in the year 2009-10 under same size of holding and the total expenditure of their income was 16.68 lakhs. The total income of all cultivators was 25.24 lakhs in the year 2010-11 under same size of holding and total expenditure of cultivators was 18.44 lakhs. The total income of all household in the year 2011-12 was 30.47 lakhs under the same size of holding and their total expenditure from that income was 20.42 lakhs. The total income of all household in the year 2012-13 was 29.38 lakhs under the same size of holding and their total expenditure from that income was 22.78 lakhs. The total income of all household in the year 2013-14 was 29.54 lakhs under the same size of holding and their total expenditure from that income was 23.16 lakhs. This is also represented by digram.

Figure 6.9   Engel curves of total income and total expenditure according to size of holdings (7.5-10.0 hectares)

Table 6.12 Total income and total expenditure according to size of holdings 10.0 & above hectares (In Lakhs) at constant price of 2011-12		
Years	Total Income	Total Expenditure
2002-03	14.67	2.01
2003-04	17.93	4.75
2004-05	17.76	7.11
2005-06	17.48	9.30
2006-07	17.92	10.50
2007-08	16.70	11.22
2008-09	15.17	11.97
2009-10	13.19	12.55
2010-11	12.77	12.58
2011-12	12.23	12.79
2012-13	11.42	14.06
2013-14	11.82	14.95
Sources: Department of economic and statistical analysis, Haryana		

The table 6.12 shows the relationship between total income and total expenditure according to size of holding. Under 10.0-above (hectares) size of holding, the total income of all household was 14.67 lakhs under same size of holding in the year 2002-03 and the total expenditure of that income was 2.01 lakhs. During 2003-04, the total income of all household was 17.93 lakhs under 10.0 & above size of holding and the total expenditure of their income was 4.75 lakhs. The total income of all household was 17.76 lakhs under the same size of holding in the year 2004-05 and total expenditure of their income was 7.11 lakhs. The total income of all cultivators was 17.48 lakhs under the same size of holding in the year 2005-06 and the total expenditure of their income was 9.30 lakhs. During 2006-07, the total income of all cultivators was 17.92 lakhs and their total expenditure was 10.50 lakhs. The total income of all household was 16.70 lakhs in the year 2007-08 under same size of holding and their total expenditure was 11.22 lakhs. The total income of all household in the year 2008-09 was 15.17 lakhs under the same

size of holding and their total expenditure from that income was 11.97 lakhs. The total income of all cultivators was 13.19 lakhs in the year 2009-10 under same size of holding and the total expenditure of their income was 12.55 lakhs. The total income of all cultivators was 12.77 lakhs in the year 2010-11 under same size of holding and total expenditure was 12.58 lakhs. The total income of all household in the year 2011-12 was 12.23 lakhs under the same size of holding and their total expenditure from that income was 12.79 lakhs. The total income of all household in the year 2012-13 was 11.42 lakhs under the same size of holding and their total expenditure from that income was 14.06 lakhs. The total income of all household in the year 2013-14 was 11.82 lakhs under the same size of holding and their total expenditure from that income was 14.95 lakhs. This is also represtened by digram.

Figure 6.10   **Engel curve of total income and total expenditure according to size of holdings (10.0 & above hectares)**
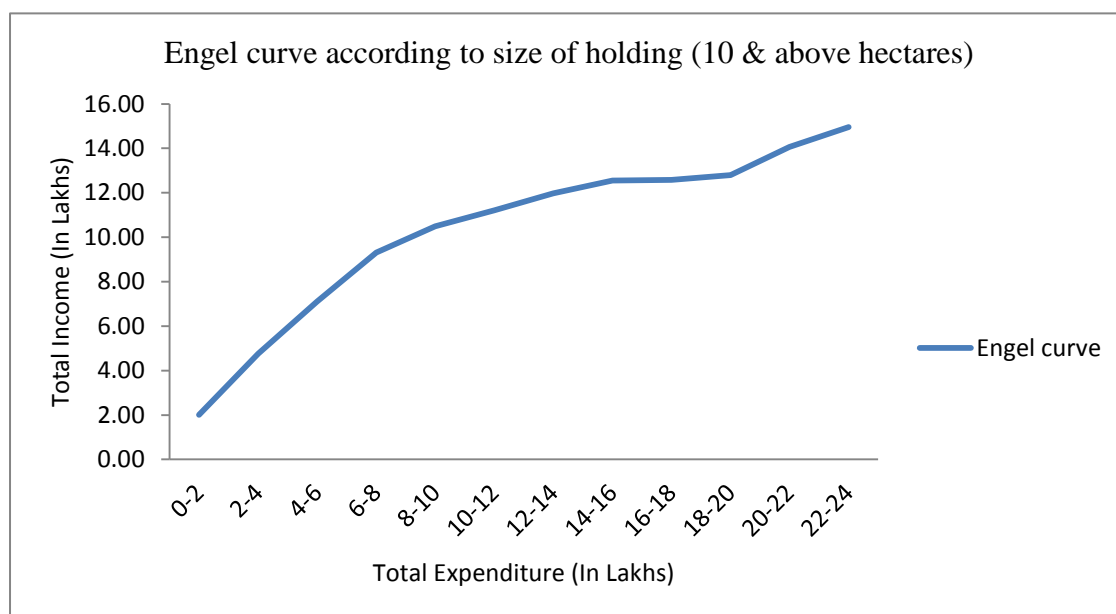
6.5 Income elasticity of demand of food and non-food items

The concept of income elasticity of demand expresses the responsiveness of a consumer demand (expenditure or consumption) for any good to the change in his income. It may be

defined as ratio of percent change in quantity demanded of a commodity to the percentage change in income. In the words of Lipsey, the responsiveness of the demand for a product to changes in income is termed income elasticity of demand.

The coefficient Ey may be positive, negative or zero depending upon the nature of a commodity. If an increase in income leads to an increased demand for a commodity, the income elasticity coefficient (Ey) is positive. A commodity whose income elasticity is a normal good because more of it is purchased as the consumer's income increases. On the other hand, if an increase in income leads to a fall in the demand for a commodity; its income elasticity coefficient (Ey) is negative. Such a commodity is called inferior good because less of it is purchased as income increases. If the quantity of a commodity purchased remains unchanged regardless of the change in income, the income elasticity of demand is zero (Ey=0).It is a necessity goods.

Normal goods are three types –necessaries, luxuries and comforts. In case of luxuries, the coefficient of income elasticity is positive but high Ey>1. Income elasticity of demand is high when the demand for a commodity rises more than proportionate to the increase in income.

In case of necessities, the coefficient of income elasticity is positive but low, Ey< 1. Income elasticity of demand is low when the demand for a commodity rises less than proportionate to the rise in the income.

In case of comforts, the coefficient of income elasticity is unity (Ey = 1) when the price for a commodity rises the same proportion as the increase in income.

In case of inferior goods, the coefficient of income elasticity of demand is negative. The consumer will reduce his purchases of it, when his income increases. If with increase in income, the quantity demanded remains unchanged, the coefficient of income elasticity is zero (Ey = 0).

6.5.1 Income elasticity of demand of food items

Table 6.13 Estimated income elasticity of demand for selected food items by cultivators		
Items	Elasticity	R^2
Cereals	0.59	0.98
Pulses	0.71	0.95
Milk	1.29	0.93
Edible	0.63	0.91
Sugar	0.75	0.94
Vegetables	0.79	0.94
Meat and Meat Products	1.72	0.96
Fruits	0.7	0.90
Intoxicants	1.02	0.80
Miscellaneous	0.79	0.92
Source: Researcher's calculation		

This table shows that the income elasticity of different food items. In this table the positive elasticity of food items on the expenditure. The highest income elasticity lies in Meat and meat products items and the lowest elasticity lies in cereals. The elasticity of Milk, Meat and Meat product and Intoxicant are greater than Unit and Pulses, Edible, Sugar, Fruits Vegetables, and Miscellaneous are less than Unit. The R square is shows that significant level of the variables.

6.5.2 Income elasticity of demand of non-food items

Table 6.14 Income elasticity of demand for selected non-food items by cultivators		
Items	Elasticity	R^2
Clothing	0.71	0.97
Housing	0.99	0.87
Lighting	0.55	0.95
Health	0.98	0.8
Transport	1.29	0.94
Education	1.21	0.86
Religious Ceremonies	1.55	0.93
Marriage & Soc. Ceremonies	0.55	0.94
Others	1.25	0.92
Total	0.83	0.93
Source: Researcher's calculation		

This table shows that the Income elasticity of different expenditure of non-food items. In this table presents the positive income elasticity of non-food items. The highest income elasticity lies in religious ceremonies items and the lowest income elasticity lies in Lighting and Marriage & Soc. Ceremonies. The elasticity of transport, education, religious ceremonies and others are greater than unit and lighting, clothing, housing, health, marriage &soc. ceremonies and total are less than Unit. The R^2 is shows that significant level of the variables.

6.6 Conclusion

In this chapter was analyses the income elasticity of demand for food and non-food commodities in Haryana and was estimated the relationship between income and expenditure with the help of Engel curve also measured. The Income elasticity of demand is different of all families expenditure on items of food and non-food items.

Main findings-

- There is positive elasticity of food items on the expenditure of all families. The highest income elasticity lies in Meat and meat products items and the lowest elasticity lies in cereals.

- There is positive income elasticity of non-food items. The highest income elasticity lies in religious ceremonies items and the lowest income elasticity lies in Lighting and Marriage & Social Ceremonies.

- The Engel curve shows the positive relationship between total income and total expenditure. If the total income increases then the total expenditure of cultivator is increase. The share of food is increasing over time period but the share of non-food is decline.

- The aggregate farm cultivation incomes share is highest into gross income and the aggregate Milk and milk products income share is lowest into gross income.

Chapter – 7
Major Findings and Recommendations

CHAPTER-7

MAJOR FINDINGS AND RECOMMENDATIONS

7.1 Conclusion

The main objective of the study is to analyze the income and consumption pattern of cultivators. Both are analyzed by the source of income and expenditure. The income of cultivators have been classified into four categories, these are following-(1) Farm cultivation (2) Milk and milk products (3) Income from capital investment (4) Income from miscellaneous. Farm cultivation income is an important part of farmer's livelihood and there are disparities of income among different farmers according to their farm size. The size of holdings is bleow-2.0, 2.0-4.0, 4.0-7.5, 7.5-10.0 and 10.0-above. The maximum average household size of 8 members was observed in the households belonging to the size of holding 10.0 & above hectares whereas it was minimum of 6 members in the household pertaining to holding size group of below 2.0 hectares. The size of holding such as 4.0-7.5 & 7.5-10.0 hectares have more household size while other size of holdings have less than the average household size. Farm income is an important part of farmer's livelihood and there are disparities in income of different farmers according to their farm size. The estimated coefficients as time are positive and statistically significant. The annually growth in total income of farm cultivation was found 12 percent annually during the study period. The income from milk production according to size of holdings is also an important part of cultivators. The total income from milk production of the entire selected household has been explained according to size of holdings to find out the correlation between the income from milk production and the size of holdings. The annually growth in total income of all families from milk and milk products was found 11 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size

of holding 4.0-7.5 hectares. To assess the impact of size of holdings on capital formation, the total imputed income from capital investment has further been classified according to various sizes of holdings. The income from capital investment according to size of holdings is also an important part of cultivators. .The annually growth in total income of cultivators from capital investment was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 10.0 & above hectares. The income from miscellaneous sources according to size of holding is also an important part of cultivators. The annually growth in total income of all families from miscellaneous was found 12 percent annually during the study period. As per the size of holding it was found highest when size of holding is 2.0-4.0 hectares and lowest in size of holding 4.0-7.5 hectares. In the last, it is stated that the total income of cultivators according to size of holding from all sources. The highest growth coefficient in size of holding is below- 2.0 and lowest is 4.0-7.5.Another thing for analyze is consumption pattern of cultivators. The expenditure of cultivators on both items (food and non-food items) was also analysed by the size of holding. The total expenditure of all families is under different size of holdings. The annually growth in food expenditure of all families was found 14 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 10-above hectares. The annually growth in non-food total expenditure of all families was found 11 percent annually during the study period. As per the size of holding it was found highest when size of holding is below 2.0 hectares and lowest in size of holding 4.0–7.5 hectares.

The second objective of the study is to enquire into the socio-economic factors are responsible for perceived changes. This is fulfilled by the trends growth rate in consumption expenditure of all households. The consumption expenditure of cultivators

reflects their socio-economic status. If an individual person is expending more on the both items (food and non-food items), this means that his status is good and not expending more on items, it means his status is low. Consumption expenditure of cultivators is reflected by three periods – each period contains four years. All periods tells about the consumption expenditure of all household, which depicts about the socio-economic status. For knowing the socio-economic factors are responsible for perceived change, we have calculated the period consumption expenditure by simple annual growth rate method. This tells us change in periods. Another factor of analyzing the socio- economic status of all cultivators is an income. By household's income, we come to know about the change in the period. The income of the households is unequal from the source of income.

The total income of all cultivators from all sources amongst three time periods trends shows their socio-economic status. From their total income the average income is calculated of all periods. It can be concluded that income of cultivators is declining from their sources and according to size of holding. While the expenditure of cultivators on some food (edible oil, Cereals, pulses, Miscellaneous) items and non-food items (Religious ceremonies, Marriage & Soc. Ceremonies, Transport, Fuel) are also declining. The cultivators are expending more on non-food items (education, health, clothing and housing) and food items (vegetable, Meat & meat products, fruits, milk and milk product). It means the socio-economic status of cultivators is upgrading. The growth rate of all sources was 21.23 percent in 2002-03 to 2005-06 and 9.46 percent in 2010-11 to 2013-14. It means the income of cultivators declined by the rate of 55.43 percent. But overall average growth rate of cultivator increased by 14.86 percent. The trend growth rates of total farm income from farm cultivation of cultivators are in according to the size of holdings. The average income of cultivators under all the size of holdings is 30.79 in 2002-03 to 2005-06 and 8.04 percent in 2010-11 to 2013-14. And the average income of

cultivators declined by nearly 73.88 percent between both time periods. The overall average growth of total farm income of cultivators is increased by 16.56 percent. The highest average expenditure growth rates on food items in 2002-03 to 2005-06 was 14.58 percent and 14.80 percent was average expenditure growth rate on food items in 2010-11 to 2013-14 by cultivators. But in the time period 2010-11 to 2013-14 the average expenditure growth rate of farmers on food items increased by 1.54 percent. The overall average growth rate of total food items is increased 16.36 percent. The highest average expenditure growth rates on non-food items was 17.96 in 2002-03 to 2005-06 and 14.65 percent was average expenditure growth rate on it in 2010-11 to 2013-14 by cultivators. But the percentage change between these two time periods is declined by 18.43 percent. The overall total growth rate, per household growth rate, per capita growth rate and per adult male unit growth rate of non-food items like fuel, clothing, housing, lighting, health, transport, education and marriage & social ceremonies are positive. The overall total growth rate, per household growth rate, per capita growth rate and per adult male unit growth rate of food items like cereals, pulses, milk & milk products, edible oil, sugar, vegetables, fruits, intoxicants and meat & meat products are positive.

The third objective of this study is to estimate the income elasticity of demand for commodities (food and non-food). The income elasticity of demand for commodities is of twelve years. The income elasticity of demand for food and non- food commodities in Haryana is analysed and to see the relationship between income and expenditure with the help of Engel curve. The Engel curve shows the positive relationship between total income and total expenditure. If the total income increases then the total expenditure of cultivators are increases. The Income elasticity of demand for food and non-food items is different. The share of food is increasing over time period but the share of non-food is decline.

7.2 Major findings

- The total average household expenditure by cultivator's on food items is 47.96% and on non-food items is 52.04%.

- The average income from farm cultivation 56.47 percent and milk and milk production 6.11 percent, together accounted for 62.58 percent of the total income of the cultivator households. Out of the remaining income of 37.42 percent, income generated from imputed interest on capital investment was 14.63 percent and from other miscellaneous sources such as remittances from outside, income from labour etc was 22.79 percent.

- In non-food items education accounted for 19.68 %, housing 20.20 %, clothing 16.48 %, marriage and social ceremony 15.27 % of the total domestic expenditure. The remaining 28.37 % was on fuel, lighting, health, transport, religious ceremonies and others.

- Milk and milk products formed the major portion of normal intake of a cultivator's food as on an average 62.75 % of the total food expenditure on food items was incurred on milk &milk products, 14.28 % on cereals & pulses, 7.49 % on fruits & vegetables, 4.62 % on sugar, 0.41 % minimum expenditure on meat & meat products and remaining 10.44 % on miscellaneous and other items.

- The share of food is increasing over time period but the share of non-food is decline.

- In this study found the inverse relationship between farm size (according to size of holding) and productivity.

- In this study found the positive income elasticity of different food items. The highest income elasticity of Meat and meat products items and the lowest income elasticity of cereals. The elasticity of Milk, Meat and Meat product and Intoxicant are greater

than Unit and Pulses, Edible, Sugar, Fruits, Vegetables, and Miscellaneous are less than Unit.

- In this study found the positive Income elasticity of different non-food items. The highest income elasticity of religious ceremonies items and the lowest income elasticity of Lighting and Marriage & Soc. Ceremonies. The elasticity of transport, education, religious Ceremonies and others are greater than Unit and lighting, clothing, housing, health, Marriage & Soc. Ceremonies and total are less than Unit.

- The Engel curve shows the positive relationship between total income and total expenditure. If the total income increases then the total expenditure of cultivators also increases.

- The income of cultivators is rising up in second time period than to first time period. The total expenditure of cultivators also increase in average time then the first average time period. The socio-economic status of farmers is upgrading with the increase of cultivators income.

7.3 Recommendations

Agriculture is mainstay of livelihood in rural Haryana. As reported in the findings of the study that there is an existence of disparities among the cultivators in respect of farm income. The study found no clear pattern of increasing income and expenditure, yet it can be inferred that the average income of cultivators and expenditure is increasing over the time. The socio-economic status of farmers is also upgraded with the increase of cultivator's income. Further, the Engel curve shows the positive relationship between total income and total expenditure. If the total income increases then the total expenditure of cultivators also increases. On the basis of this study, one may draw an inference that more stress needed to be given on formulation

of specific programmes for the development of cultivators. Following specific measures are recommended for addressing the issue in future.

- The magnitude of expenditure elasticity for milk and milk products is more than one except cultivator households, which implies that milk and milk products are very costly in family budgets of cultivators. The government should supply milk to these groups through cooperative diary firms at subsidiary rates.

- As the expenditure on health has a considerable higher share in the expenditures of all the cultivators, suitable health insurance programmes should be implemented.

- As the expenditure levels on alcoholic drinks are very high in the case of both agricultural labourers and cultivators, they should be counselled against alcoholism.

- The cultivators are illiterates and their decisions are very crucial in household decision making and hence they should be provided compulsory non-formal or adult education programmes which are very much relevant to rural economy.

- The government should formulate specialised programmers and implement properly for cultivators in order to attain one of the millennium development goals of compulsory primary education for all especially for cultivators.

- Marketing is the key to success in farming marketing system should be therefore more strong and efficient to serve the interest of the farmers.

- Lack of storage, primary processing the cold chain facilities, inadequate, uncertain and untimely supply of electricity are the major problems facing the farmers of Haryana. To address these problems government should develop these infrastructural facilities.

- The majority of the items of consumption of different categories of cultivators seem to be costly where the expenditure elasticities are greater than one. Therefore, the policy makers should consider these results in framing the rural development programmes and planning strategies.

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- Educational standard, social awareness and economic status should be developed among the agricultural labours in order to organize them.

- The traditional welfare and employment programmes of the government such as various rural development programme, wage employment programmes, self employment programmes, targeted public distribution system and nutrition programme should be continue.

- Government and non government organizations should come forward sincerely to help cultivators to achieve a decent living with self esteem.

- Improvement in agriculture sector must be brought by a consolidation of holdings, the spread of irrigation, the use of better seeds, fertilizers and other inputs, better transports and marketing facilities, double and multiple cropping and the development of rural sector together with a large reduction in indebtedness and increase in productivity of near landless agricultural labours and marginal farmer-cum agricultural labours that will provide employment to them all the year.

- For increasing demand of fruits, vegetables, milk and meat due to fast expenditure of cultivators are positive indicators (table 6.13). To take advantages of this increasing demand, there is need to continue the supply of these products. For this government should focus on development of infrastructure facilities such cold storage, warehouse, roads, transport etc.

- There is positive elasticity of food items on the expenditure of all families. The lowest elasticity lies in cereals and pulses (table 6.13). According to Indian council of medical research recommendation the level of consumption cereals 557 gms. per day per capita and pulses is 50gm per day per capita. The govt. should provide pulses at subsidy rate to the cultivators instead of high price rate.

7.4 Limitations of the study

There are many constraints in this study. This constraint comes in the forefront to carry out such an exercise, which does not have all the information at a single space. The

empirical study in social science, especially aggregate variables based on the secondary information to investigate the relationships cope with many problems. There are following limitations of the study:

- The aggregate data consisting of yearly data and hence will not capture the micro level information of the variable.

- This study covers the data from 2002-03 to 2013-14 on basis of availability.

- The variables taken in the study are selected on the basis of availability of data. However, the selected variables represent the phenomenon appropriately as a number of other studies have adopted almost similar variables for the purpose.

- The study is limited only Haryana state due to bound of time and resources.

7.5 Further research directions

- The present study is carried out at state level. Further the study can be conducted at more disaggregated level such as district or block level to have more micro level.

- The present study is based on the availability of data on different cultivator's development indicators. These are defiantly certain variables those have not been include in to the present study due to the non availability data. Hence one can extend this study by adding the information on the left out variables by conducting other sources of data.

- This study, further, can be extended to another state to compare their policy phenomena regarding the infrastructure development. Comparative analysis can be made among different state on the basis of this study.

Bibliography

Bibliography

Agrahar, D. (2006). Nterventions using wild edibles to improve the nutritional status of Khasi tribal women. *Human Ecology Special Issue No 14*, 83-88.

Agrahar, M. (2005). Food consumption pattern of the tribal's of Meghalaya and its relation with socio-economic factors. *Indian Journal of Nutrition and Dietetics, 42(2)*, 71-80.

Ahmad, S. (2002). An analysis of family budget of cultivators in Haryana. *The Indian Economic Journal Vol. 50, Nos. 3 & 4*, 116-128.

Ahmad, E. (1996). The use of splines on the Working-Leser Engel equation. *National Library of Australia, ISBN: 1-86451-250-4, No. 240*, 1-22..

Andrew, K. G. (2014). Household expenditures on vegetables in Malasia. *Journal of Agriculture and Applied Economics,* 615-634.

Aplay, S. (2002). Household demand in Kurkey: An application of almost ideal demand system with spatial cost index. *Economic Research Fourm, Paper No. 0226.*

Bhalla, G. S. (2009). Economic liberalisation and Indian agriculture: A statewise analysis. *Economic and Political Weekly*, 34-44.

Blundell, R. (1998). Semi parametric estimation and consumer demand. *Journal of Applied Econometric No. 13*, 435-461.

Browne, M. G. (2007). Expenditure elasticities for rural household in the embo ward, Umbumbula, kwazulu-natal. *Agrekon*, 566-583.

Blundell, R. (2006). Consumer demand and intertemporal allocations: Engel, Slutsky and Frisch. *Cambridge University Press*, 147-166.

Burney, N. A. (1991). Household consumption patterns in Pakistan: An urban-rural comparison using micro data. *The Pakistan Development Review*, 145-171.

Burney, N. A. (1992). Household size, its composition and consumption patterns in Pakistan: An empirical analysis using micro data. *Indian Economic Review, Vol. 27, Issue 1, July*, 57-72.

Castaldo, A. (2007). Do migrant remittances affect the consumption patterns of Albanian households. *South-Estern Europe Journal of Economics, Vol. No. -1*, 25-54.

Chai, A. (2008). At the origins of Engel curves estimation. *paper on Economics and Evolution, www.evopapers@econ.mpg.de,* 1-15.

Chai, A. (2010). Retrospectives Engel curves. *Journal of Economic Perspectives, Vol. -24*, 225-240.

Chand, R. (2011). Farm size and productivity: understanding the strengths of smallholders and improving their livelihoods. *Economic and Political Weekly*, 5-11.

Chern, W. S. (2002). Analysis of food consumption behavior by Japanese households. *Food and Agriculture Organization (FAO*, 1-80.

Davist, D. C. (1979). Farmer income and expenditure patterns in a wheat-sheep region", Review of Marketing and Agriculture Economics, Vol. 47. 26-50.

Delisle, H. (1990). Patterns of urban food consumption in developing countries: Perspective from the 1980's. 1-92.

Dev, S. M. (2009). Challenges for revival of Indian agriculture. *Agricultural Economics Research Review, Vol. 22, Jan-June*, 21-45.

Dev, S. M. (2010). "Agricultural price policy, farm profitability and food security" *Economic and Political Weekly, Vol. XLV*, 174-182.

Dwivedy, N. (2011). Challenges faced by the agriculture sector in developing countries with special reference to India . *International Journal of RuralStudies, Vol. 18, Article 4*, 1-6.

Emuh, F. (2011). Analysis of the adoption farm manure among small-scale farmers in delta state, Nigeria. *International Journal of Science and Nature, Vol. 2(4)*, 813-820.

Fabiosa, F. J. (2008). Egypt's household expenditure pattern: Does it alleviate a food crisis? *Agriculture and Rural Development, Lowa, www.card.iastate.edu., WP-475*, 1-20.

Fan, J. X. (2007). Household food expenditure patterns: A cluster analysis". *Monthly Labor Review*, 38-52.

Flinn, J. (1981). Production, income and expenditure patterns of Yoruba smallholders . *Africa: Journal of the International African Institute, Vol. 51, No. 4*, 825-835.

Fousekis, P. (2001). Food expenditure patterns of urban and the rural households in Greece: A Kernel regression analysis. *Agriculture Economic Review, Vol. No. I* , 5-19.

Gangopadhyay, S. (2004). Changing pattern of household consumption expenditure. *South East Regional Flok Alliance www.serfa.org*, 1-164.

Geetha, D. K. (2011). Consumption patterns among selected rural and urban households in coimbatore city . *Zentth International Journal of Multidisciplinary Research, Vol. 1, Issue 2,* 46-61.

Gong, C. H. (2007). Regional price differences in urban China 1986-2001: Estimation and implication. *Research School of Pacific and Asian Study*, 1-68.

Gujarati, D. N. (2003). *Basic Econometrics,* New York Gary Burke.

Harris, J. M. (2001). "Agriculture in globle perspective". *Global Development and Envirnment Institute*, 1-16.

Hasegawa, H. (2001). Bayesian analysis on Engel curves estimation with measurement errors and an instrumental variable,*Journal of Business and Economic Statistics, Vol. 19, No. 3, American Statistical Association*, 292-298.

Hayden S. N. B. (2003). Do income constraints inhibit spending on fruits and vegitables among low-income household?,*Journal of Agriculture and Resource Economics, 28(3)*, 465-480.

Hitchings, J. A. (1984). The Economics of cotton cultivation in India: supply and demand for 1980-90. *World Bank Working Papers No. 618 USA,* 1-88.

Houthakker, A. S. (1957). An international comparison of household's expenditure pattern commemorating the centenary of Engel's law,*Econometrica*, 532-551.

Johnson, D. S. (2001). A century of family budgets in the united states. *Monthly Labor Review, Bureau of Labor Statistics, Washington (202), 691-5899*, 28-45.

Joshi, A. (2004). Farm household investment and consumption. *Economic and Political Weekly, www.jstor.org Vol. 39 No. 4, Jan 24-30* , 321-323.

Kachru, R. P. (2007). "Agro-processing industries in India – Growth, status and prospects" status of farm mechanization in India. *Indian Council of Agricultural Research*, 114-126.

Kadapatti, R. G. S. T. (2014). Small farms and agricultural productivity- A macro analysis. *International Journal of Social Science Studies, vol. 2, No. 3,* , 123-135.

Kirigia, A. J. T. (2013). Characterizations of livestock manure market and the income contribution of manure trade in mukogodo, Laikipia, kenya African Journalof Agriculture Research, 5564-5871.

Kolawole, O. S. F. (2013). Determinants of household demand for fresh fruit and vegitable in Nigeria: A double hurdle approach. *Quarterly journal of International Agriculture, 52* (No.3), 199-216.

Krishnaswamy, R. (2012). Pattern of consumer expenditure in India. *Economic and Political Weekly (EPW), Vol. XLVII, No. 36*, 80-83.

Kumar, K. K. (2008). Engel curve method for measuring poverty. *Indian Institute of Management,* , 1-36.

Kumar, N. (2003). Patterns of consumption and poverty in Delhi slums. *Economic and Political Weekly*, 5294-5300.

Kumar, P. (2011). Estimation of demand elasticity for food commodities in India. *Agricultural Economics Research Review, Vol. No. 24*, 1-14.

Leser, C. E. (1963). "Forms of Engel function".*Econometrica*, 692-703.

Malik, S. (1982). Analysis of consumption patterns in Pakistan. *Pakistan Economic and Social Review, Vol. 20, No. 2*, 108-122.

Mblongo, V. (2013). Food expenditure patterns in south Africa: Evidence from the NIDS. *Southern Africa Labour and Development Research Unit, ISBN: 978-1-920517-64-9*, 1-24.

Mishra, S. G. (2011). Size-wise and returns to cultivation in India: A cold case reopened. *Indira Gandhi institute of Development Research Mumbai*, 1-25.

Mullen, J. D. (2008). The income and consumption experiences of a sample of farm families. *Australian Journal of Agricultural Economics*, 268-282.

Murugkar, D. (2006). Interventions using wild edibles to improve the nutritionstatus of Khasi tribal women . *Humen Ecology Specical Issue, No.14*, 83-88.

Nakamura, E. (2014). Are Chinese growth and inflation too smooth: Evidence from Engel curves. *NBER working paper No. 19893*, 1-25

Nath, T. K. (2013). Traditional biomass fuel consumption by rural households in degraded sal (shorea robusta) forest areas of Bangladesh. *International Journal of Emerging Technology and Advanced Engineering*, 537-544.

Nayak, V. (1984). On levels of living of scheduled castes and scheduled tribes. *Economic and Political Weekly*, 1205-1213.

Oldiges, C. (2011). Cereal consumption and per capita income in India. *Economic and Political Weekly, Vol. XLVII No. 6*, 63-71.

Oral, C. J. J. (1983). Determinants of household expenditure on fresh vegetables. *Southern Journal of Agriculture Economics*, 127-132.

Parsad, A. T. (2009). Agricultural development in India since independence: A study on progress, performance and derterminants. *Journal of Emerging Knowledge on Emerging Markets*, 63-92.

Pavithra, B. S. (2008). An economic analysis of food consumption pattern in Karnataka with special reference to Mysore district. *University of Agriculture Sciences, Dharwad*, 1-69.

Pendakur, K. (2001). Consumption poverty in Canada 1969 to 1998. *Canadian Public Policy- Analysis de Politiques, Vol. XXVII No. 2*, 125-149.

Rajeshwaran, G. N. (2014). Rising milk price - A cause for concern on food security. *IIBM-WP No. 472*, 1-38.

Raghavendra, H. N. (2007). An analysis of meat consumption pattern and its retailing: a case of Dharwad district. *Business Administration in Agribusiness*, 1-72.

Raghawan, M. (2008). Changing pattern of input use and cost of cultivation. *Economic and Political Weekly,* , 123-129.

Rao, A. V. (2011). Consumption expenditure pattern of rural household. *International Journal of Multidisciplinary Educational Research, ISSN: 2277-7881, vol. No. 1, Issue 1*, 237-245.

Roy, S. (2001). Trends and patterns in consumptions expenditure: A review of class and rural urban disparities. *Institute for Studies in Industrial Development, E-mail.info@isid.org.in* 1-24.

Prasad, S. (1984). "On levels of living of scheduled castes and scheduled tribes. *Economic and Political Weekly, July*, 1205-1213.

Sahoo, P. (2014). Trends in consumption patterns: A comparative study of Odisha and India . *The Asian Economic Review, Vol. 56, No. 4* , 145-162.

Samuelson, P. (1938). A note on the pure theory of consumer's behaviour. *Economica New Series Vol. 5 No. 17*, 61-71.

Selim, R. (1997). The changes in the consumption expenditure patterns in Turkey: 1987-1994. *State Institute of Statistics (SIS) İstanbul Technical University of Turkey*, 288-296.

Sharma, A. R. (2010). Impact of community forestry on income distribution: With case studies from Nepal. tribhuvan: lap lambert academic publishing.

Sharma, V. P. (2010). Fertiliser subsidy in india: who are the beneficiaries. *Economic and Political Weekly*, 68-76.

Singh, B. (1972). On the determination of economies of scale in household consumption. I*nternational Economic Review, Institute of Social and Economic Research Osaka, Vol. 13, No. 2*, 257-270.

Singh, A. (2013). Fundamentals of agriculture economics. New Delhi: Himalaya Publishing House.

Soni, R. N. (2012)."Leading issues in agriculture economics". Delhi: Vishal Publishing Co.

Subramanian, S. (1991). Gender effects in Indian consumption pattern. *Sarvekshana XIV (4)*, 1-12.

Sukumar, M. (2005). An analysis of income and expenditure pattern of working Women in the context of emerging consumer culture. 1-30.

Sulgham, A. (2006). A semi parametric approach to estimate Engel curves using the US micro data. *American Agricultural Economic*, 1-24.

Suneel, R. Q. (2010). Food consumption pattern and associated habits of the bhil tribe of Dhar district of Madhya Pradesh. *Proceeding of National Symposium on Tribal Health*, 1-10.

Suresh, R. (2009). "Comparative economics of buffalo and cow milk production in Karnal District of Haryana. *Indian Journal Animal Research, 43(3)*, 224-225.

Swamy, M. (2011). Buying behavior of consumers towards instant food products. *International journal of Research and Computational Technology, Vol. No. 2, ISSN: 0975-5465, WWW.ijrct.org*, 1-13.

Talik, J. B. (2002). Determinants of household expenditutre on education in rural India. *National Councial of Applied Economic Research, working paper No. 88*, 1-113.

Tey, Y. S. (2009). Evidence of Engel curves in food away from home. *Munch Personal Repec Archive, MPRA paper No. 14833*, 1-10.

Unny, C. J. (2012). Determinants of savings of rural households in Kerala" . 1-29.

Vatta, K. (2008). Rural employment and income: The inter-household variations in Punjab. *Agricultural Economics Research Review, Vol. 21, July-December*, 201-210.

Vepa, S. S. (2003). Impact of globalization on the food consumption of urban India globalization of food systems in developing countries: impact on food security and nutrition. 215-230.

Working, H. (1943). Statistical laws of family expenditure. *Journal of American Statistical Association 38*, 43-56.