CHAPTER - EIGHT

INCOME AND EXPENDITURE

8.1. Introduction

In the previous two chapters we have elaborately discussed the status of wealth and income of the sample households. What do they own and how much do they earn? We have specifically discussed the structure of asset holding, wage structure, income structure, family structure etc. alongwith their implications on economic condition of the households. We have found that sample households dependent on agriculture have lowest amount of average daily income of Rs. 49.40 in comparison to average daily income of Rs. 88.92 of families dependent on construction activities (Please see table 7.3 of chapter 7). We have also seen that 48 percent of sample agricultural families are below the poverty line but only 18 percent of sample construction families are below the poverty line (Please see table 7.11 of chapter 7).

But many observers think that income indicates only the level of capacity to overcome poverty. What has actually happened can be more accurately realised from the level of actual consumption. An adequate knowledge of the economic condition does not involve only the knowledge of level of income. It also requires the knowledge of the consumption bundle they can afford to buy and actually buy. This may partially indicate their standard of living in terms of entitlement what Prof. Amartya Sen has used. So in continuation of the discussion now we shall discuss the relation of such income structure with the overall standard of living reflected in expenditure pattern of the sample households. Have they raised their consumption? As a first step towards addressing such questions, we make a disaggregated analysis of total expenditure and see the relative importance of different items on which they spend their daily income. In the second step we shall estimate consumption functions separately for three occupation groups. In this study we have used a wide range of information, including data from household surveys, administrative reports, and consultations with concerned group of people etc.

8.2. Expenditure on Different Items

It is well known that expenditure determines the actual or enjoyed economic condition of a family. At a given price level, a higher amount of per-capita expenditure of a family
roughly denotes a better standard of living. Considered from this viewpoint, families from which occupational category are better? To get the answer let us try to give an account of the actual expenditure as reported by head of the sample households.

Here it is to be admitted that it is very difficult to get actual amount of expenditure of a family. If any worker (as head of the family) is asked about the total expenditure of his family (daily, monthly or yearly) he would very often give a careless answer because they do not keep the account of their expenditure properly. To avoid such careless answers we asked them about their major items of expenditure. The major items as they have reported are - food, clothing, education, entertainment, and medicines. Now depending on the importance we have classified these items into three groups A. Food  B. Other  C. Medicines. Expenditure on medicines of the poor households has taken a substantial position and like food expenditure this is price inelastic. So we have kept these two items in two separate groups. On the other hand the attitude towards spending money on clothing, education, and entertainment is more or less same and these are generally price elastic. So we have grouped these items in the group of ‘other’ expenditures. On these three groups of items we have collected information of daily expenditure of each household and then calculated per-capita daily expenditure on these three items of each household under three occupational categories. The information on average level of expenditures is given below:

A. Food Expenditure : On food expenditure we have inquired about the daily purchase of rice for a family. Special attention has been given to the quantity consumed per person. For all items, estimates of consumption are given in value terms only. Taking the minimum price of rice which is about Rs.10 per kg. in 2001-02 in our study area we have got the daily expenditure on rice. The daily expenditure on spices and vegetables and sundry items differs from family to family depending on taste and income. We have taken these as reported by head of the family. On adding this expenditure with the expenditure on rice we get the total daily expenditure on food. Dividing this with the number of family members we get the per-capita daily expenditure on food of a family.

B. Other Expenditure : As stated above expenditures on clothing, education and entertainment are included in the group of other expenditure. Here we separately discuss the nature of expenditure on these items.
1. *Clothing:* We have drawn an over all idea about the approximate amount of per-capita per year clothing expenditure. This is roughly Rs.200. This we say as the critical minimum amount on which there has been almost a general consensus. The respondent then tried to estimate this amount for his own family and gave the most possible answer.

2. *Education:* In poor families also there may be some expenditure on education. Such expenditure includes — expenditures on books, paper, ink etc. and of course for private coaching. The critical minimum amount of this expenditure as we found is monthly Rs.50 per family. Here also a particular respondent gave the most justified answer on the basis of this amount.

3. *Entertainment:* There is no specific item covering this expenditure. Tea and tobacco is the source of entertainment to some workers, alcohol is the source of entertainment to some other workers or enjoying cinema / jatra is the source of entertainment to some others. Almost each family member spends some little amount towards entertainment. This expenditure is reported on a daily basis. The critical minimum amount is Re. 1.00 per-capita per day. Here also a particular respondent gave the most justified answer on the basis of this amount.

Now converting all monthly and yearly expenditures into daily we get per-capita daily ‘other’ expenditure by adding the above three expenditures. Here we find that benchmark amount on ‘other’ items is Rs.2.00 per-capita per day.

*C. Medical Expenditure:* Workers reported the expenditure on medicines on a monthly basis. This expenditure is related with some factors like season, family structure (existence of infants, pregnant woman and old-age persons), general habits and customs, practice of health-care etc. After a lengthy consultation with relatively more conscious heads of the family we roughly estimated that under the prevailing conditions and amenities available, actual per-capita medical expenditure (avoiding unusual illness) has been around Re.1.00 per day. The respondent was requested to give his own account depending on this benchmark expenditure. The respondent then tried to estimate this expenditure for his own family and gave the most possible answer.

Now we get daily per-capita consumption expenditure \((C) = \text{daily per-capita food expenditure (F)} + \text{daily per-capita other expenditure (O)} + \text{daily per-capita medical expenditure (M)}\).
expenditure (M). These three separate daily per-capita expenditures make the total expenditure of a family.

Let us see the relative importance of these three items in total expenditure for three groups of workers and its relevance to their economic conditions. For this we have calculated the mean or average values of each of the separate items of expenditures in each category of households. To get the average we have divided the total amount of each item by the number of sample households. We present the values in the following table.

**Table - 8.1**

**Average Per-capita Daily Expenditure**

<table>
<thead>
<tr>
<th>Household category</th>
<th>Average food expenditure (per-capita per day)</th>
<th>Average other expenditure (per-capita per day)</th>
<th>Average medical expenditure (per-capita per day)</th>
<th>Daily per capita consumer expenditure (DPCE)</th>
<th>Monthly per capita consumer expenditure (MPCE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>8.81 (71.68)</td>
<td>1.85 (15.05)</td>
<td>1.63 (13.27)</td>
<td>12.29</td>
<td>368.70</td>
</tr>
<tr>
<td>Agricultural</td>
<td>7.40 (72.26)</td>
<td>1.52 (14.84)</td>
<td>1.32 (12.89)</td>
<td>10.24</td>
<td>307.20</td>
</tr>
<tr>
<td>Sand-lifting</td>
<td>8.80 (69.84)</td>
<td>1.66 (13.76)</td>
<td>1.60 (13.26)</td>
<td>12.06</td>
<td>361.80</td>
</tr>
<tr>
<td>Construction</td>
<td>10.24 (70.23)</td>
<td>2.38 (16.32)</td>
<td>1.96 (13.44)</td>
<td>14.58</td>
<td>437.40</td>
</tr>
</tbody>
</table>

Source: Sample data relating to reference period 2002-03

Note: Figures in parentheses represent percentages to total of three average expenditures given by DPCE in column 5

**DPCE** – Daily per-capita consumer expenditure  
**MPCE** – Monthly per-capita consumer expenditure

Now considering the total expenditure on disaggregated items we see that for all the households in different categories, expenditure on food takes the major part (around 70 percent) of their total expenditure. Non-food expenditures captured in ‘other’ and ‘medical’ expenditures take minor and more or less equal (around 30 percent) positions in all the three categories of sample households. From the point of view of Engle’s law this indicates that all the households are in the poor strata of rural population and in poor economic conditions.

It also indicates that among the economically poor households in our study there occurs difference in the degree of incidence of poverty according to the occupations they are
engaged in. In the above table it is found that MPCE of households depending on construction activities is 42 percent more than MPCE of agricultural households. This amount is significant for poor labouring families concerned. So families in construction occupations enjoy a better economic condition than the families depending on agricultural occupation. MPCE of sand-lifting households is also 23 percent more than agricultural households. The difference, though not high as that of construction households, may make some difference in the economic conditions and standard of living of the families depending on sand-lifting compared to the agricultural households.

8.3. **Comparisons with NSS Findings on Expenditure**

The report of sixtieth round of NSS on ‘Household Consumer Expenditure in India’ carried out by NSSO was released on 23rd November, 2005. To get a comparative picture our findings have been compared with the NSS results.

Regarding the household consumer expenditure, National Sample Survey Organization reports that during their survey period of January – June, 2004, the all India monthly consumer expenditure (MPCE) was Rs.565 for Rural India. In our study the MPCE of all household in three categories of occupations is Rs.368.70 which is much less than NSS estimate of Rs.565. A part of the gap can be explained by the type of households included in the sample. In NSS sample all types of rural households, from higher strata to lower strata are included but in our sample households only from the lower strata of the rural households are considered. So it is natural that MPCE of the lower strata will be less than MPCE of rural households as estimated by NSS. Still it indicates the extent to which expenditure of our sample households differs from all India level of rural expenditure and the position of the poor households in our study area to the all India rural households. It is found that NSS estimate of rural expenditure is 53 percent higher than our estimate of average expenditure of the sample households. Indication might be the miserable conditions of the sample households in our study area because their overall position is far behind the overall position of the poor households at national level. In the above NSS reports we find that approximately one-half of the rural population had MPCE below Rs.470 and about 20 percent had MPCE below Rs.340. In our study 66.66 percent of the total households have average MPCE above Rs.340 and the remaining 33.34 percent have average income level below Rs.340. So the percentage of population in the poor income bracket (i.e. average MPCE below Rs.340) in our study is more than the percentage of population in NSS study. Considering category of
occupations it is found that no households in any occupational category have reached the average MPCE level of Rs.470. Only construction households are close to that expenditure level. In that sense construction households are to some extent better than other category of households in terms of all India average rural expenditure.

In the above NSS reports it is reported that for rural India average MPCE of Rs.565 comprised Rs.305 for food and Rs.260 for nonfood items. In percentage, food expenditure is 54 percent and non-food expenditure is 46 percent in rural India as found in NSS 60th round report. As seen from the above table (table no.9.4) our sample households (taking all categories) spend 71 percent of their daily per-capita expenditure on food and only 28.32 percent on non-food items. This expenditure pattern reveals the extent of difference in the expenditure pattern of the poor households in our study area from the all India rural average expenditure pattern as estimated by NSSO. Although NSS estimates is a gross estimate of rural India and considers all types of rural households and affected by the inequalities in the expenditure levels among the rural poor households, the high deviation in the expenditure pattern of our sample households from all India level indicates the poor economic conditions of the poor labouring households in our study area.

8.4. Expenditure in relation to Income

We have started our analysis on economic conditions with a general assumption that level of expenditure determines the actual or enjoyed economic condition of a family. But we know that income very largely determines expenditure. In that respect which occupation is good? We have considered per-capita daily income and expenditure separately for each of the sample households. The following table gives per-capita daily average income and expenditure of the families in different occupational categories.

<table>
<thead>
<tr>
<th>Household category</th>
<th>Total of per-capita daily income (in Rs.)</th>
<th>Number of households</th>
<th>Average per-capita daily income (in Rs.)</th>
<th>Average per-capita daily expenditure (in Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4 (2/3)</td>
<td>5</td>
</tr>
<tr>
<td>Agriculture</td>
<td>551</td>
<td>50</td>
<td>11.02</td>
<td>10.24</td>
</tr>
<tr>
<td>Sand-lifting</td>
<td>669</td>
<td>50</td>
<td>13.38</td>
<td>12.06</td>
</tr>
<tr>
<td>Construction</td>
<td>944</td>
<td>50</td>
<td>18.88</td>
<td>14.55</td>
</tr>
<tr>
<td>All</td>
<td>2164</td>
<td>150</td>
<td>14.42</td>
<td>12.29</td>
</tr>
</tbody>
</table>

Source: Compiled and computed from primary data on income and expenditure
Note: Per-capita daily income of each household is calculated dividing daily income by family members of respective households in each category. The total is given in Col. 2
From the above table we see -

1. Income of agricultural families < Income of sand-lifting families < Income of construction families.

2. Expenditure of agricultural families < Expenditure of sand-lifting families < Expenditure of construction families.

3. Income and expenditure of sand-lifting families and of agricultural families are close to each other but income of the construction families is fairly higher than their level of expenditures. This indicates that construction families have to some extent better economic conditions as they have sufficient margin of income over expenditure.

Here it is also to be noted that the gap between income and expenditure of agricultural families and sand-lifting families is very close. These two sectors are almost similar in this respect. But households in the construction sector have a significant level of excess income over their expenditures and they are at a significantly higher income and expenditure level than the sand-lifting families and agricultural families. Thus the above income expenditure pictures indicate that agricultural and sand-lifting families somehow manage their expenditure levels by their income levels. These families have every possibility to be indebted. This is a general phenomenon for agricultural labourers in India. Our sample households have little possibility to be an exception to this general picture. Sand lifting families by leaving agricultural works have not been able to improve their conditions in a significant way. Here we only find that economic conditions of families dependent on construction activities are to some extent better than agriculture and sand- lifting families. Their level of expenditure is high and they have a significant gap between income and expenditure so that they are capable of meeting the relatively high level of expenditure from their income.

But comparing only the absolute expenditure levels and considering income expenditure gap real economic conditions can not be explored properly. How the families reallocate their expenditures on food and non-food items as their income levels changes (with occupational migration) is a point to be investigated to see any upward movement of economic conditions of households of any occupational category. As described in Engle’s law families with higher income are expected to spend proportionately less on food
expenditure and more on non-food expenditures out of their incomes. Poor families spend their incomes largely on necessities of life, particularly on food. As income increases, expenditure on food goes up. There is however limits to the extra money that people will spend on food when their incomes rise. Consequently the percentage importance of food expenditure declines as income increases. On the other hand percentage importance of non-food expenditure increases as one moves out of the very poorest class and until high incomes are reached. In that respect is there any sign of upward movement of non-agricultural families with their higher levels of incomes? In particular we look into the proportionate expenditure on different items, food and non-food. Here non-food items include other items like clothes, education and entertainment and medical expenditures.

At first the percentage expenditures on food are given in the following table:

Table – 8.3
Level of Income and Percentage Expenditure on Food

<table>
<thead>
<tr>
<th>Household category</th>
<th>Average per-capita daily income (in Rs.)</th>
<th>Average per-capita daily expenditure on food (in Rs.)</th>
<th>Percentage of income on food expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>11.02</td>
<td>7.40</td>
<td>67</td>
</tr>
<tr>
<td>Sand-lifting</td>
<td>13.38</td>
<td>8.80</td>
<td>66</td>
</tr>
<tr>
<td>Construction</td>
<td>18.88</td>
<td>10.24</td>
<td>54</td>
</tr>
<tr>
<td>All households</td>
<td>14.42</td>
<td>8.81</td>
<td>61</td>
</tr>
</tbody>
</table>

Source: Sample data on income and expenditure

Here we see that absolute amounts of food expenditure increase as the level of incomes grow from agricultural households to sand-lifting and construction households. But the growth is not at the same rate as the growth in income. In the above table we see that expenditure on food as a percentage of daily income gradually diminishes as the households shift from agricultural activities to non-agricultural activities (from 67 percent to 54 percent). This change has occurred along with the change in income from agricultural occupation to construction occupation or from low income occupation to higher income occupation. Thus the percentage importance of food expenditure is highest for poorer agricultural families and lowest for relatively richer construction families. The overall change of this importance from
agriculture to construction households is itself an indication of betterment of economic condition from agriculture to non-agriculture occupations. Considering such pattern of food expenditure we may say that diversification of occupations give rise to improving conditions of the pattern of food expenditure among the sample households.

Here also it is to be noted that the change in proportion of food expenditure from agriculture to sand-lifting occupation is only by 1 percent but the change between agriculture and construction is very large by 13 percent. So considering the food expenditure as a proportion of income, a significant improvement is found in construction households over the agricultural households as the difference is considerable between agricultural and construction households.

But Engle's law also suggests that an upward shift in economic conditions is also reflected by a proportionate increase in expenditures on non-food items. Is there any change in this direction among different categories of our sample households? Let us consider the 'other' expenditure in the following table:

<table>
<thead>
<tr>
<th>Household category</th>
<th>Average per-capita daily income (in Rs.)</th>
<th>Average per-capita daily expenditure on other items (in Rs.)</th>
<th>Percentage of income on other expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture</td>
<td>11.02</td>
<td>1.52</td>
<td>14</td>
</tr>
<tr>
<td>Sand-lifting</td>
<td>13.38</td>
<td>1.66</td>
<td>12</td>
</tr>
<tr>
<td>Construction</td>
<td>18.88</td>
<td>2.38</td>
<td>13</td>
</tr>
<tr>
<td>All households</td>
<td>14.42</td>
<td>1.85</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Computed from sample data

In the above table it is found in col. 4 that percentage expenditure of income on other items is highest for agricultural occupation (14 percent) followed by construction (13 percent) and sand-lifting households (12 percent). This is something unusual as the agricultural occupation being the lowest income group spends proportionately higher amount on other items than the other income groups like sand-lifting and construction. Thus in this case Engle's law seems to be violated (of course all nonfood items have not been considered here).
Another expenditure which is found to be important in the total expenditure of the sample households is medical expenditure. Adding this expenditure to the other expenditures we get the total of non-food expenditures. Is the Engle's law valid considering the total non-food expenditure? We see it in the following table:

Table – 8.5

<table>
<thead>
<tr>
<th>Household category</th>
<th>Average per-capita daily income (in Rs.)</th>
<th>Average per-capita daily expenditure on other Items (in Rs.)</th>
<th>Average per-capita daily medical expenditure (in Rs.)</th>
<th>Average per-capita daily non-food expenditure (in Rs.)</th>
<th>Percentage of income on non-food expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>11.02</td>
<td>1.52</td>
<td>1.32</td>
<td>2.84</td>
<td>26</td>
</tr>
<tr>
<td>Sand-lifting</td>
<td>13.38</td>
<td>1.66</td>
<td>1.60</td>
<td>3.26</td>
<td>24</td>
</tr>
<tr>
<td>Construction</td>
<td>18.88</td>
<td>2.38</td>
<td>1.96</td>
<td>4.34</td>
<td>23</td>
</tr>
<tr>
<td>All households</td>
<td>14.42</td>
<td>1.85</td>
<td>1.63</td>
<td>3.48</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Compiled and computed from primary data

The result obtained in the above table is not in conformity with the Engle’s law for the poor labouring households in our study area. From col. 2 and 6 of the above table we see that households with low level of per-capita income such as in agriculture spends higher proportion (26 percent) of their income than households with higher income level such as construction spends (23 percent). Level of income increases from agriculture dependent households to construction dependent households but percentage of incomes on non-food items decreases rather than increasing.

However the variations of percentage expenditures on non-food items centered around 3 percent which seems to be insignificant and we can say that percentage expenditures on non-food items remains almost same across the different occupations. This fact indicates that variations in income levels are not so high as to affect the non-food expenditure of the households. Proportion of income spent on such non-food expenditure remains same for a wide range of income levels until the households go out of the poorest income class.

So we find that proportion of food expenditures diminishes for households in agriculture to construction occupation but the proportion of non-food expenditure remains same (as the fall is insignificant) for all categories of households. This pattern of relation
between income and expenditure encourages us to know the role of income as a determining
factor of expenditure. What is the importance of income in determining daily expenditure of
the labouring households? Do the variations exist in propensity to spend of the households in
various occupational categories? So in the next section we make a study on the income
expenditure relationship of the sample households.

8.5. Income Expenditure Relationship

Though the current trend is to give importance on the human development aspects of
development policy, we will consider per-capita income as a proxy for most aspects of
development. We consider that rising per-capita income ultimately and inevitably translate
into higher level of consumption – both for food and for non-food, clothing, education,
entertainment and also medicines. Expenditures on these lead to better health, nutritional and
educational standard in a population. It is therefore a useful exercise to see from cross section
data on per-capita income and expenditure of the households, how per-capita income is
related with per-capita expenditure. We believe that income has a causal effect on
expenditure but we like to know for different categories of households, the marginal impact
of per-capita daily income on per-capita daily consumption expenditure.

We start with the question that in case of such poor families how much importance is
given to income to justify expenditures. Has the increase in incomes through the variation in
occupations led to changed pattern of consumption? Do they take income as a determining
factor for their expenditure? In other words how actual consumption has responded to the
change in income level. In the present section we have examined the extent of association
between income and expenditure and tried to find out the MPC (marginal propensity to
consume) of different categories of households.

As a first step towards this end we have calculated correlation coefficients \[ r \]
between daily per-capita income(denoted by \( Y \)) and per-capita daily consumption
expenditure (denoted by \( C \)) of the families in each occupation. These give us the directions of
associations between income and expenditure. In the second step we will find the values of \( r^2 \)
(coefficient of determinations) which gives us the strength of associations between income
\( Y \) and expenditure \( C \). How much of variations in consumption expenditure may be
explained by income? In the third step we have computed three regression equations of \( C \) on
\( Y \) for the families under three categories of occupations by the method of OLS (Ordinary
Least Squares) despite the limitations of the method. The results of the first two steps are presented in the following table:

**Table - 8.6**

Correlation Coefficients and Coefficients of Determination between Expenditure (C) and Income (Y)

<table>
<thead>
<tr>
<th>Household Category</th>
<th>Value of $r_{xy}$</th>
<th>Value of $r^2$</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\ell$</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture</td>
<td>.912</td>
<td>.832</td>
<td>1.27</td>
</tr>
<tr>
<td>Sand-lifting</td>
<td>.875</td>
<td>.766</td>
<td>1.55</td>
</tr>
<tr>
<td>Construction</td>
<td>.804</td>
<td>.646</td>
<td>2.3</td>
</tr>
<tr>
<td>All</td>
<td>.870</td>
<td>.757</td>
<td>1.88</td>
</tr>
</tbody>
</table>

*Source: Calculated from sample data on income and expenditure.*

From the above table following observations are made –

The values of $r$ in all the categories of households are positive. It indicates that per-capita daily income and per-capita daily consumption expenditure are positively correlated for the families in all the occupations. As normally expected consumption expenditure increases as income of the households increases. But the magnitude of the relationships is not same for all the category of households. Correlation is relatively very strong for agricultural households and less so for construction households. It is relatively moderate for sand-lifting households.

Turning to the value of $r^2$ (coefficient of determination) we find that in all the categories of households, the values are more than 0.5. So the explanatory power of per-capita daily income is significant for determining per-capita daily expenditure of all categories of households. But the magnitude of such explanatory power varies from occupation to occupation. For agricultural households 83 percent of the variations in per-capita daily expenditure are due to variations in daily per-capita income. For sand-lifting and construction households 76 percent and 64 percent of the variations in per-capita daily expenditure respectively are due to variations in daily per-capita income. Thus for non-agricultural households these values are quite low in respect to agricultural households. So the importance of income in explaining the variations in consumption expenditure is low in
the case of non-agricultural households in comparison to agricultural households. To get a precise result let us compute the regression equations of consumption expenditure on income for three separate categories of households

8.5.1. Regression Analysis

To know the effect of diversification of occupations on poverty we have attempted an alternative estimate through highlighting the impact of income variation on consumption. We estimated consumption functions separately for three occupation groups from our collected data on income and expenditure. So we estimate the regression equations of C on Y for three different categories of households assuming a linear consumption function.

A. Regression Equation for Agricultural Households

Equation to be estimated –

\[ C = B + dY; \]

\( B \) = Autonomous consumption expenditure

\( d \) = Marginal propensity to consume (MPC)

On estimation we have found the following equation

\[ C = 4.38 + .53Y \]

\((.42) \quad (.035)\)

Notes: 1) figures in parentheses represent standard error of respective coefficients

2) Value of ‘t’ statistic for coefficient ‘B’ is 10.40
   At 95% confidence interval lower boundary of ‘B’ is 3.53 and upper boundary is 5.22

3) Value of ‘t’ statistic for coefficient ‘d’ is 10.40
   At 95% confidence interval lower boundary of d is .46 and upper boundary is .60

Thus marginal impact of income on consumption expenditure is .53. It shows that extra one rupee increase in per-capita daily income among the agricultural households will lead extra Rs. .53 (53 paisa) expenditure on total consumption. Next we will see whether this is higher or lower for non-agricultural households.
B. Regression Equation for Sand-lifting Households

Equation to be estimated –

\[ C = \text{E} + f \text{Y} \]

\[ \text{E} = \text{Autonomous expenditure} \]

\[ f = \text{Marginal propensity to consume (MPC)} \]

On estimation we have found the following equation:

\[ C = 5.59 + 0.48 \text{Y} \]

\[ (0.56) \quad (0.038) \]

Notes: 1) Figures in parentheses represent standard error of respective coefficients

2) Value of ‘t’ statistic for coefficient \( \text{E} \) is 9.90;
   At 95% confidence interval lower boundary of ‘E’ is 4.47 and upper boundary is 6.72

3) Value of ‘t’ statistic for coefficient ‘f’ is 12.54;
   At 95% confidence interval lower boundary of ‘f’ is .40 and upper boundary is .55

In case of sand-lifting households marginal impact of income on consumption expenditure is .48 which is lower than the agricultural households. It shows that extra one rupee increase in per-capita daily income among the sand-lifting households will lead extra Rs. .48 (48 paisa) expenditure on total consumption.

C. Regression Equation for Construction Households

Equation to be estimated –

\[ C = \text{G} + h \text{Y} \]

\[ \text{G} = \text{Autonomous consumption expenditure} \]

\[ h = \text{Marginal propensity to consume (MPC)} \]

On estimation we have found the following equation:

\[ C = 8.12 + 0.34 \text{Y} \]

\[ (0.76) \quad (0.037) \]

Notes: 1) Figures in parentheses represent standard error of respective coefficients

2) Value of ‘t’ statistic for coefficient ‘G’ is 10.67;
   At 95% confidence interval lower boundary of ‘G’ is 6.59 and upper boundary is 9.66

3) Value of ‘t’ statistic for coefficient ‘h’ is 9.36;
At 95% confidence interval lower boundary of ‘h’ is .26 and upper boundary is .41.

In case of construction households marginal impact is only .34 which is very much lower than the agricultural households. It shows that extra one rupee increase in per-capita daily income among the construction households will lead extra Rs..34 (34 paisa) expenditure on total consumption.

D. Regression Equation for All Households

Equation to be estimated –
\[ C = A + bY; \]
\[ A = \text{Autonomous Expenditure} \]
\[ b = \text{Marginal propensity to consume (MPC)} \]

On estimation we have found the following equation

\[ C = 6.00 + .43Y \]

\[ (.33) \quad (.020) \]

Notes: 1) Figures in parentheses represent standard error of respective coefficients

2) Value of ‘t’ statistic for coefficient ‘A’ is 18.13;
At 95% confidence interval lower boundary of ‘A’ is 5.34 and upper boundary is 6.65

3) Value of ‘t’ statistic for coefficient ‘b’ is 21.46;
At 95% confidence interval lower boundary of ‘b’ is .39 and upper boundary is .47

Taking all households together, marginal impact is only .43 which is very much lower than the agricultural households and higher than construction households.

The above regression equations give us the crucial values of two parameters, autonomous expenditure and marginal propensity to consume (MPC). These estimated values show the consumption behaviour of the households. To make a comparative analysis we put these values in the following table.
Table – 8.7
Estimated Values of Parameters

<table>
<thead>
<tr>
<th>Households category</th>
<th>Autonomous consumption expenditure</th>
<th>Marginal propensity to spend (MPE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural households</td>
<td>4.38</td>
<td>.53</td>
</tr>
<tr>
<td>Sand-lifting households</td>
<td>5.59</td>
<td>.48</td>
</tr>
<tr>
<td>Construction households</td>
<td>8.12</td>
<td>.34</td>
</tr>
<tr>
<td>All households</td>
<td>6.00</td>
<td>.43</td>
</tr>
</tbody>
</table>

Source: Estimated regression equations computed above

In section 8.4 of this chapter average income (per-capita per-day) and average expenditure (per-capita per-day) of different categories of households were given (Please see col. 4 and 5 of table 8.2). How much does those observed expenditures differ from estimated expenditures? Given the observed expenditures, thus, we shall seek how much estimated consumption expenditures differ from observed consumption expenditures given the average income in each category of households.

To get this we calculate the estimated expenditures corresponding to the average incomes from the above three estimated regression equations.

*Calculation of Estimated Consumption Expenditure*

**Agricultural Households**

Estimated consumption equation:
\[ C = 4.38 + .53 Y \]
At \( Y = 11.02 \), \( C = 10.22 \);
Where \( Y = \) Average/mean per-capita daily income and 
\( C = \) Estimated consumption expenditure

**Sand-lifting Households**

Estimated consumption equation:
\[ C = 5.59 + .48 Y \]
At \( Y = 13.38 \), \( C = 12.01 \)
Where \( Y = \) Average/mean per-capita daily income and 
\( C = \) Estimated consumption expenditure
**Construction Households**

Estimated consumption equation:

\[ C = 8.12 + .34Y \]

At \( Y = 18.88 \), \( C = 14.53 \)

Where \( Y \) = Average/mean per-capita daily income

\( C \) = Estimated consumption expenditure

**All Households**

Estimated consumption equation:

\[ C = 6.00 + .43Y \]

At \( Y = 14.42 \), \( C = 12.20 \)

Where \( Y \) = Average/mean per-capita daily income

\( C \) = Estimated consumption expenditure

The following table presents the observed values and estimated values corresponding to average incomes for all categories of households.

<table>
<thead>
<tr>
<th>Households category</th>
<th>Average per-capita daily income (in Rs.)</th>
<th>Average per-capita daily expenditure (in Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed</td>
<td>Estimated</td>
</tr>
<tr>
<td>Agriculture</td>
<td>11.02</td>
<td>10.24</td>
</tr>
<tr>
<td>Sand-lifting</td>
<td>13.38</td>
<td>12.06</td>
</tr>
<tr>
<td>Construction</td>
<td>18.88</td>
<td>14.58</td>
</tr>
<tr>
<td>All</td>
<td>14.42</td>
<td>12.29</td>
</tr>
</tbody>
</table>

*Source: Computed from sample data*

*Note: Observed values in col.3 are taken from col.5 of table 8.1*

From the table above we find that in case of per-capita daily consumption expenditure (C) observed value and estimated values do not differ significantly for all the categories of households.

Thus we can consider the above three regression equations as possibly the ‘best-fit line’ and we get the importance of income in determining expenditure of the families of
different sectors. In col. 3 of the table 8.7 we see that MPC for all households is .43. It indicates that if per-capita daily income of any poor households increases by one rupee the per-capita spending will increase by 43 paisa. This is the picture of incremental consumption propensity of any sample household in our study area. Both the agricultural and sand-lifting households have propensity above this value and construction households have propensity below this value. Agricultural families and sand-lifting families spend 53 percent and 48 percent of incremental incomes on consumption expenditure respectively. Construction sector is in sharp contrast to these sectors in this respect. They spend only 34 percent of their incremental income on daily spending. *In this sense also construction households show an upward movement in their economic conditions as they earn more (per-capita daily income is highest) but keep their marginal propensity to consume low and try to save something out of their income.*

Consumption expenditure of agricultural and sand-lifting households is more dependent on the level of their incomes. Average daily per-capita expenditure is highest but it is not so closely associated with income for the families in construction occupation as in the case of families in agricultural or sand-lifting occupations. Again the intercept term (autonomous consumption expenditure) is interpreted as the mean or average effect on C of all the variables omitted from the regression model. In our study this average effect is highest for families in construction activity (Refer to column 2 of table 8.7).

8.6. **Conclusion**

From the above discussion it is found that dependence of consumption expenditure on income is relatively low for the households of construction. It is relatively high for agricultural households and sand-lifting households. One possible explanation may be that expenditure does not depend on level of income alone for all categories of household. In other words income is not equally important for all categories. Security of food and security of income rather than level of income only may be possible determining factors for level of expenditure. We have seen that holding of land (although below the category of marginal holding) is higher in construction families which gives a food security for some months to them. Again they work in construction activities which give them stable employment and secured income. These factors together have significant impact on the consumption propensities of any household other than income. In our sample agricultural households are in lowest position in terms of food security (in terms of land holding) and employment security
(in terms of man-days available for work) and so in income security. They spend whatever they earn and are bound to live in a 'hand to mouth position' So their consumption propensities are high and expenditure chiefly depends on current levels of income.

The above analysis is quantitative only. But change in income may bring about the change in quality of consumption too. We tried to gather evidence of such qualitative change, if any, among the sample households. We will discuss this aspect of economic conditions in the following chapter.