CHAPTER III

METHODOLOGY

The methodology adopted in the present study, "Rural Labour Out-Migration in Theni District: Determinants and Economic Impact among Migrant Workers in Cardamom Estates" is presented and discussed under the following heads:

1. Selection of the Study Area
2. Sampling Technique
3. Criteria for the Selection of the Sample Respondents
4. Collection of Data
5. Tools of Analysis
6. Concepts Used in the Study

1. SELECTION OF THE STUDY AREA

Theni district is one of the most predominant districts in Tamil Nadu in terms of significant agricultural development. Out of the total working population (5,20,280), more than 50 per cent of the population are engaged in agricultural work. The district lies at the foot of Western Ghats and is diversified by several ranges and hills. The area under horticulture and plantation crops works at to a mere 15 per cent of the total area under agriculture. Among fruits and vegetables cultivation, plantation crops like coriander and cardamom are cultivated in 1404 hectares in Western Ghats. Majority of the workers in the cardamom estates are from the rural areas of Theni district. Labour migration from the rural areas of Theni district to the cardamom estates has been a regular feature in the recent past. Normally, the rate of rural out-migration would be high in dry and non-fertile areas than from irrigated and fertile areas. Though Theni district has an established irrigation sources from various irrigational projects such as Periyyar and Vaigai irrigational schemes, it was observed that many rural people in the
district get in to the cardamom estates located in ranges of Western Ghats in the
district. This prompted the researcher for selecting Theni district as a study area.

1) PROFILE OF THE STUDY AREA

An attempt has been made to discuss the profile of Theni district in
general in terms of location, physical features, climate, rainfall and irrigation, land
utilisation, area and production of major crops, financial institutions, educational
institutions, electricity, transport, communication, medical and health and
demographic features.

i) LOCATION OF THE STUDY AREA

Theni district was carved out of the composite Madurai district and started
functioning with effect from 1st January, 1997. The district lies at the foot of the
Western Ghats between 9'39 and 10'30 on the north latitude and 77'00 and
78'30 on the eastern latitude. The district is bounded by Dindigul district to the
north, Madurai district to the east, Virudhunagar district to the southwest and
Idukki district of Kerala state to the west. A range of the hills which runs from
north to south parallel to Western Ghats separate the district from the
neighboring state of Kerala.

ii) PHYSICAL FEATURES

Theni district occupies an area of 3242.30 square kilo meters. The district
consists of two revenue divisions, five revenue taluks, six municipalities, eight
blocks, 22 town panchayats and 130 villages. Names and the numbers of the
district administration and local bodies are presented in Table 4.

The district has wide hill areas with vegetation and perennial streams.
This region is the most fertile area of the district. Cumbum Valley in
Uthamapayam taluk is a major centre for grapes production. The unique feature
here is the grapes are harvested throughout the year, while in most grapes
growing centre elsewhere the season ends with summer.
## TABLE 4
### DISTRICT ADMINISTRATION AND LOCAL BODIES IN THENI DISTRICT

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>Name of the Places</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Revenue Divisions</td>
<td>Periyakulam, Uthamapalayam</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>Revenue Taluks</td>
<td>Andipatti, Bodinayakanur, Periyakulam, Theni, Uthamapalayam</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Municipalities</td>
<td>Bodinayakanur, Chinnamanur, Cumbam, Gudalur, Periyakulam, Theni</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td>Panchayat Union (Blocks)</td>
<td>Andipatti, Bodinayakanur, Chinnamanur, Cumbum, Mailadumpari, Periyakulam, Theni, Uthamapalayam</td>
<td>8</td>
</tr>
<tr>
<td>5.</td>
<td>Town Panchayat</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>6.</td>
<td>Villages</td>
<td></td>
<td>130</td>
</tr>
</tbody>
</table>

Source: District Statistical Handbook, 2008-09

Cotton spinning mills and sugar mills are the major industries in this district. In Andipatti taluk, handloom weaving and power looms are flourishing. In Uthamapalyam taluk, the Highwavys estate produces tea. Bodinayakanur is a major market place for cardamom, coffee and black pepper. This town is also called ‘cardamom city’ because of the large quantity of cardamom is being traded in this area. It has an auction centre for cardamom.

### iii) CLIMATE

The climate of Theni district is hot and dry. As the district has hills and plains, the climate varies. The average maximum daily temperature rarely exceeds 39.5°C and the minimum daily temperature seldom falls below 25.8°C. The district is exposed to both south-west and north-east monsoons. Cumbum valley in Uthamapalyam taluk enjoys a very pleasant and salubrious climate.
during the monsoon period. The rest of the district on the whole is hot and dry with erratic rain pattern.

iv) RAINFALL AND IRRIGATION

The vast ranges of the Western Ghats act as a barrier and deprive the district of the full blast of south-west monsoon. However, the south west monsoon has a precipitation of about 1/3 rd of the normal rainfall received in Theni district which helps in taking up the rain fed cultivation. The district depends mainly on the north- east monsoon rains which are brought by the troughs of low pressure between October and December. The monthly average rainfall in the district has been 78.21 mm.

Theni district has achieved agricultural prosperity during the last two decades due to the increase in irrigational facilities and improvement in modern technological methods of cultivation. Periyar and Vaigai are the important irrigation schemes. Table 5 shows the sources of irrigation.

**TABLE 5**

**SOURCES OF IRRIGATION IN THENI DISTRICT**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>Area in Hectare</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Net Area Irrigated By</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Government Canals</td>
<td>10863</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Tanks</td>
<td>1362</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Tube Wells</td>
<td>8391</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Open Wells</td>
<td>42068</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>62684</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Area irrigated more than one source</td>
<td></td>
<td>10479</td>
</tr>
<tr>
<td></td>
<td>Gross area irrigated</td>
<td></td>
<td>73163</td>
</tr>
</tbody>
</table>

Source: District Statistical Handbook, 2008-09
Table 5 reveals that well irrigation is the chief source of irrigation in this district followed by canals. The total land area irrigated by wells was 50,459 hectares (tube and open wells). 10,479 hectares of the land in the study area were irrigated by more than one source.

v) LAND UTILISATION

Theni district predominantly engaged in agriculture and allied activities has a geographical area of 3,24,230 hectares. The utilisation pattern of land in Theni district in 2008-09 is shown in Table 6.

**TABLE 6**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Particulars</th>
<th>Area in Hectares</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Forest</td>
<td>134813</td>
<td>41.58</td>
</tr>
<tr>
<td>2.</td>
<td>Barren and Uncultivable Land</td>
<td>12225</td>
<td>3.77</td>
</tr>
<tr>
<td>3.</td>
<td>Land put to Non- Agricultural uses</td>
<td>24058</td>
<td>7.42</td>
</tr>
<tr>
<td>4.</td>
<td>Cultivable Waste</td>
<td>2864</td>
<td>0.88</td>
</tr>
<tr>
<td>5.</td>
<td>Permanent Pastures and other Grazing Land</td>
<td>315</td>
<td>0.10</td>
</tr>
<tr>
<td>6.</td>
<td>Land under Miscellaneous tree crops and Groves</td>
<td>1326</td>
<td>0.41</td>
</tr>
<tr>
<td>7.</td>
<td>Current Fallows</td>
<td>3481</td>
<td>1.07</td>
</tr>
<tr>
<td>8.</td>
<td>Other Fallows Land</td>
<td>29745</td>
<td>9.18</td>
</tr>
<tr>
<td>9.</td>
<td>Net Sown area</td>
<td>115403</td>
<td>35.59</td>
</tr>
<tr>
<td>10.</td>
<td>Total geographical area</td>
<td>324230</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: District Statistical Handbook, 2008-09

From Table 6, one could infer that Theni district has been primarily an agricultural based district with net sown area of 35.59 per cent. But, the district has never been self-sufficient in rice and other food grains. The reason may be
that a major portion of the area of the district is covered by uncultivable lands and cash crops like millets, pulses, sugarcane, groundnut, gingelly and cotton alone are cultivated. The grazing lands, current fallows and cultivable waste lands further accentuate the problem.

vi) AREA AND PRODUCTION OF MAJOR CROPS

As the majority of the people in the study area are engaged in agriculture, 36 percent (net sown area) of the total geographical area has been under food crops. Table 7 shows the area under cultivation of major crops in Theni district.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Major Crops</th>
<th>Area in Hectares</th>
<th>Production (In tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Rice (Paddy)</td>
<td>14400</td>
<td>61992</td>
</tr>
<tr>
<td>2.</td>
<td>Millets</td>
<td>24614</td>
<td>95974</td>
</tr>
<tr>
<td>3.</td>
<td>Pulses</td>
<td>2083</td>
<td>2956</td>
</tr>
<tr>
<td>4.</td>
<td>Sugarcane</td>
<td>7658</td>
<td>88670</td>
</tr>
<tr>
<td>5.</td>
<td>Groundnut</td>
<td>2504</td>
<td>3468</td>
</tr>
<tr>
<td>6.</td>
<td>Gingelly</td>
<td>1364</td>
<td>459</td>
</tr>
<tr>
<td>7.</td>
<td>Cotton (bales of 170 kilograms)</td>
<td>1491</td>
<td>1929</td>
</tr>
</tbody>
</table>

Source: District Statistical Handbook, 2008-09.

It is inferred from Table 7 that the most predominantly cultivated crop with the yield of 95974 tonnes is millets followed by 88670 tonnes sugarcane and 61992 tonnes paddy.
vii) FINANCIAL INSTITUTIONS

Theni district is covered by 107 commercial banks under the service area approach. In addition to this, 3 insurance companies and 191 co-operatives were serving the people. Among the total co-operatives, primary agricultural credit society constitutes major proportion (81) followed by co-operative student stores (38), housing co-operative society (22) and employees co-operative thrift and credit society (21).

viii) EDUCATIONAL INSTITUTIONS

The numbers of educational institutions offering higher education are meager in Theni district. There are 11 arts and science colleges, one medical college, 10 technical educational institutions, two horticultural and forest colleges and four teacher training institutions. This indicates that higher educational status of the people tends to be low.

ix) ELECTRICITY

Theni district generates 578 million units of electricity through Hydro Electric System from power stations namely, Periyar, Suruliar and Vaigai Micro Hydal Power Station. In addition to this, 12.5 million units were generated from Windmills and 15.1 million units were purchased. In this district, almost all the villages are electrified. Consumption of electricity by sector-wise has been shown in Table 8.
### TABLE 8

CONSUMPTION OF ELECTRICITY IN THENI DISTRICT

<table>
<thead>
<tr>
<th>S. No</th>
<th>Category</th>
<th>Consumption (In million units)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Agriculture</td>
<td>280.61</td>
<td>51.28</td>
</tr>
<tr>
<td>2.</td>
<td>Industry</td>
<td>30.01</td>
<td>5.48</td>
</tr>
<tr>
<td>3.</td>
<td>Commercial</td>
<td>30.72</td>
<td>5.61</td>
</tr>
<tr>
<td>4.</td>
<td>Public Lightening and Water Works</td>
<td>25.01</td>
<td>4.57</td>
</tr>
<tr>
<td>5.</td>
<td>Domestic</td>
<td>170.62</td>
<td>31.18</td>
</tr>
<tr>
<td>6.</td>
<td>Miscellaneous</td>
<td>10.26</td>
<td>1.87</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>547.23</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: District Statistical Handbook, 2008-09.

Table 8 shows that agricultural sector consumed 51.28 per cent of the electricity available in Theni district. Besides, the usage of electricity by domestic purposes is greater (31.18 %) among all others.

x) TRANSPORT

The study area has proper road facilities in both rural and urban areas. The total length of Panchayat union road is greater (1112.58 kilo meters) followed by State highways (725.77 kilo meters).

xi) COMMUNICATION

Communication is needed for development. Theni district has communication facilities with 147 post offices doing postal business alone, 21 post offices doing post and telegraph business. There are 25 telephone exchanges and 38096 telephones in use by people.
xii) MEDICAL AND HEALTH

Theni district has 13 Government hospitals, 38 Primary Health Centers, 162 Health Sub- Centers, 8 Dispensaries and one Medical College and Hospital for providing adequate medical facilities to the people.

xiii) DEMOGRAPHIC FEATURES

The demographic features of Theni district are presented in Table 9

| TABLE 9 |
| DEMOGRAPHIC FEATURES OF THENI DISTRICT (CENSUS, 2001) |

<table>
<thead>
<tr>
<th>S. No</th>
<th>Particulars</th>
<th>Number</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Area in square kilometer</td>
<td></td>
<td>3242.3</td>
</tr>
<tr>
<td>2.</td>
<td>Population</td>
<td></td>
<td>1093950</td>
</tr>
<tr>
<td></td>
<td>1. Male</td>
<td>552986(50.55)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Female</td>
<td>540964(49.45)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1093950</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Rural Population</td>
<td>502109(45.90)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Urban Population</td>
<td>591841(54.10)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1093950</strong></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Population Density/ square kilometer</td>
<td></td>
<td>337</td>
</tr>
<tr>
<td>4.</td>
<td>Sex Ratio (per 1000 males)</td>
<td></td>
<td>978</td>
</tr>
<tr>
<td>5.</td>
<td>Literates</td>
<td></td>
<td>692797</td>
</tr>
<tr>
<td></td>
<td>1. Male</td>
<td>398150(57.47)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Female</td>
<td>294647(42.53)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>692797</strong></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Birth Rate (per cent)</td>
<td></td>
<td>16.2</td>
</tr>
<tr>
<td>7.</td>
<td>Death Rate (per cent)</td>
<td></td>
<td>14.1</td>
</tr>
</tbody>
</table>

Source: District Statistical Handbook, 2008-09
Note: Figures in Brackets indicates percentage

Table 9 shows that the total population of the area under study according to 2001 census was 10,93,950 of which 5,52,986 were males and 5,40,964 were females. Of the total population, 5,02,109 were living in rural areas and 5,91,841 in urban areas. It is to be noted that the number of people living in rural areas is lesser than the urban areas. The density of population was 337 per square kilometer. Birth rate is greater than the death rate in the study area.
The distribution of workers in different categories of the study area has been listed in Table 10.

**TABLE 10**

**WORKERS POPULATION IN THENI DISTRICT**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>Number</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Main Workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Male</td>
<td>298060 (62.92)</td>
<td>4,73,708</td>
</tr>
<tr>
<td></td>
<td>2. Female</td>
<td>175648 (37.08)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4,73,708</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Rural</td>
<td>247071 (52.16)</td>
<td>4,73,708</td>
</tr>
<tr>
<td></td>
<td>2. Urban</td>
<td>226637 (47.84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4,73,708</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Cultivators</td>
<td>50436 (10.65)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Agricultural labourer</td>
<td>245989 (51.93)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Workers in household industry</td>
<td>10959 (2.31)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Other workers</td>
<td>166324 (35.11)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4,73,708</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Marginal Workers</td>
<td></td>
<td>46,572</td>
</tr>
</tbody>
</table>

Source: District Statistical Handbook, 2008-09
Note: Figures in brackets indicates percentage

Table 10 shows that agricultural labourers living in rural areas constituted a major work force in Theni district. Of the total main workers, 51.93 per cent were agricultural labourers, 35.11 per cent were employed in other industries, 10.65 per cent were cultivators and 2.31 per cent were in household industry.
2. SAMPLING TECHNIQUE

Theni district consists of eight development blocks, of which four blocks namely Andipatti, Bodinayakanur, Theni and Periyakulam were selected which consist of more number of village panchayats. From each block, five village panchayats were selected by simple random technique. Samples of 30 labourers were randomly selected from each village panchayat. Totally, 600 cardamom migrated labourers were selected from 20 villages of four blocks in Theni district. A small proportion of the respondents supplied information only for a part of schedule mainly because of their ignorance and lack of memory, so it was found that 29 interview schedules were incomplete and considered as rejection of samples. Thus, the total sample size is 571. The multi-stage sampling method was adopted in the selection of the district as universe, blocks as a stratum, village panchayats as a primary unit and the number of sample respondents as an ultimate unit. The following Figure 1 shows the selected names and number of blocks, village panchayats and the selected samples.
FIGURE 1
SELECTION OF THE SAMPLE SIZE

Note: 30 migrants were selected from each village panchayats.
3. CRITERIA FOR THE SELECTION OF THE SAMPLE UNITS

Cardamom workers, who were specifically drawn from the study area if he or she fulfills the following conditions:

1. The migrant should have completed 18 years of age and should not exceed 55 years of age at the time of survey.
2. The migrant should have migrated after 14 years of age.
3. Migration should be independent and voluntary.
4. The person should have migrated in search of employment or after getting a job.
5. Migration should be of a permanent nature or at least the person should be continuously out of the study area for a minimum period of one year at the time of survey.

4. COLLECTION OF DATA

The primary data were collected for the present study. In order to collect data, a well-designed pre-tested interview schedule (Appendix I) was used. Before undertaking the main survey, a pre-tested schedule was administered tentatively to five migrants in order to test the validity of the schedule. This pre-test interview schedule helped in the removal of unwarranted and the modified final schedule. Suitable cross checks and rechecks were carried out to minimize bias in the response. Direct Personal Interview method was adopted to collect the data pertaining to the socio-economic status, factors, remittances and the economic impact of migration and other aspects relating to the overall objectives of the study. The field survey was carried out from the month of April 2009 to May 2010.
5. TOOLS OF ANALYSIS

The following statistical tools were used to analyse the objectives of the study:

1) ATTITUDE SCALE

Since the attitude of the migrants is an abstract concept it cannot be measured directly in quantitative terms. However, it can be measured indirectly with the help of an appropriate scaling technique. An 'Attitude Scale' was developed by giving scores to measure the level of attitude. The response of the respondents to each statement was elicited with the help of Likert's five point scale. The selected migrants were asked to rate the identified statements on a five point scale namely 'Strongly Agree', 'Agree', 'Moderate', 'Not Agree', 'Strongly Not Agree'. The marks assigned to the above said scales are 5, 4, 3, 2, and 1 respectively. It reveals that the higher scores indicate the higher attitudes towards the factors and vice versa. The attitude scale was used in the following analysis:

1. Relationship between the socio-economic variables and the attitudes of the migrants towards their migration.
2. Factors determining the migration of the selected respondents.
3. Reasons for remittance sending by the migrants to their native places.
4. Infrastructural facilities in the destination places of the migrants.

2) CHI-SQUARE TEST

An attempt was made to study the relationship between the socio-economic variables of the migrants and the attitudes of them towards their migration decisions. For that, the attitudes of the migrants on 24 explanatory statements related with their post migration period were measured with the help of an attitude scale (Appendix II). Based on the individual scores, the respondents were classified into three categories namely High level, Medium level and Low level. Arithmetic mean score and standard deviation scores for all the 571 respondents were computed. Those who have scored above (Arithmetic mean+
Standard deviation) were classified as high level, those who have scored below (Arithmetic mean - Standard deviation) were classified as low level and those with scores in between (Arithmetic mean + Standard deviation) and (Arithmetic mean - Standard deviation) be named as medium level.

The significant relationship between the socio-economic variables such as, age, gender, education and so on and attitudes of the respondents were studied with the help of chi-square test. The following formula was applied for calculating the chi square ($x^2$) test.

$$\chi^2 = \frac{(O-E)^2}{E}$$

Where $O =$ Observed frequencies
\[E = \text{Expected frequencies}\]

If the calculated value is greater than the Table value at 5 per cent level of significance, it is to be concluded that there is a significant relationship between the socio-economic variables and their levels of attitude of the respondents and vice versa.

3) FACTOR ANALYSIS

Factor analysis was adopted to identify and analyze the important factors influencing migration. The perceptions of workers on a set of 35 statements about factors which determine the migration of cardamom workers were subjected to factor analysis. These statements were measured on a Likert's five point Scale (from 'strongly agree' to 'strongly disagree') regarding the perceptions of the migrants about the factors which determine their migration.

Each variable is expressed as a linear combination of underlying factors. The amount of variance, a variable shares with all other variables included in the analysis is referred as communality. The co-variation among the variables is described in terms of a small number of common factors plus a unique factor for
each variable. These factors are not over observed. If the variables are standardized, the factor model may be represented as:

\[ X_i = A_{i1}F_1 + A_{i2}F_2 + A_{i3}F_3 + \ldots + A_{im}F_m + V_i \]

Where,

- \( X_i \) = \( i^{th} \) standardised variable
- \( A_{ij} \) = Standardised multiple regression co-efficient of variables \( i \) on common factor \( j \)
- \( F_j \) = Common factor
- \( V_i \) = Standardised regression co-efficient of variable \( i \) on unique factor \( i \)
- \( U_i \) = The unique factor for variable \( i \)
- \( m \) = Number of common factors.

The unique factors are unconnected with each other and with the common factors. The common factors themselves can be expressed as linear combinations of the observed variables.

\[ F_i = W_{i1}X_1 + W_{i2}X_2 + W_{i3}X_3 + \ldots + W_{ik}X_k \]

Where,

- \( F_i \) = Estimate of \( i^{th} \) factor
- \( W_i \) = Weight or factor score co-efficient
- \( K \) = Number of variables

It is possible to select weights or factor score co-efficient, so that the first factor explains the largest portion of the total variance. Then, a second set of weight can be selected, so that the second factor accounts for most of the residual variance, subject to being uncorrelated with the first factor. This same principle could be applied for selecting additional weights for the additional factors. Thus, the factors can be estimated so that their factor scores, unlike the value of the original variables are not correlated. Furthermore, the first factor
accounts for the highest variance in the data, the second factor the second highest and so on.

The principal factor analysis was used for extracting factors and the numbers of factors to be retained were based on Latent Root Criterion, i.e. variables having Eigen values greater than 1. The factors having loadings greater than 0.50 are considered very significant while factors having loadings greater than 0.40 are considered important and factors with loadings greater than or equal to 0.30 are considered significant (Kumar and Sidhu, 2005).

A factor loading represents the correlation between an orthogonal variable and its factor. The signs are interpreted just like any other correlation co-efficient. On each factor 'like signs' of factor loading means factor loading and factors are positively correlated and 'opposite signs' of factor loadings means that factor loadings and factors are negatively correlated. One of the final outcomes of a factor analysis is called 'Rotated Factor Matrix' a table of co-efficient that express the ratios between the variable and the factor that have been prepared.

4) MULTIPLE REGRESSION ANALYSIS

An attempt was made to find out the relationship between the factors influencing the migration and the overall migrating decision behaviour of the selected respondents in the study area. Multiple regression analysis was applied to identify the relationship between the push and pull factors and the overall migrating behaviour. The function in log form is as follows:

i) PUSH FACTORS

\[ \log y = \log b0 + b1 \log x1 + b2 \log x2 + \ldots \ldots + b6 \log x6 + eu \]

Where,

- \( Y \) = Overall mean score on migrating decision behaviour
- \( X_i \) = Lack of employment opportunity
- \( X_2 \) = Unviable land holding
$X_3 = \text{Low wages}$

$X_4 = \text{Indebtedness}$

$X_5 = \text{Social conflicts}$

$X_6 = \text{Family conflicts}$

$b_0, b_1, b_2, \ldots, b_6$ are the parameters of independent variables to be estimated.

$b_0 = \text{Regression constant}$

$e_u = \text{error term.}$

**ii) PULL FACTORS**

Multiple Regression Analysis was applied to identify the relationship between the identified pull factors and the overall migrating behavior of the respondents. The function in log form is as follows:

$\log y = \log b_0 + b_1 \log x_1 + b_2 \log x_2 + \ldots + b_5 \log x_5 + e_u$

Where,

$Y = \text{Overall mean score on migrating decision behaviour}$

$X_1 = \text{Better employment opportunity}$

$X_2 = \text{Higher wages}$

$X_3 = \text{Nature of job}$

$X_4 = \text{Security of job}$

$X_5 = \text{Skill of work}$

$b_0, b_1, b_2, \ldots, b_5$ are the parameters of independent variables to be estimated.

$b_0 = \text{Regression constant}$

$e_u = \text{error term.}$
5) DISCRIMINANT ANALYSIS

The discriminant analysis was applied to identify the discriminating factors of migration among the different age groups of migrants such as 'below 30', between '30-45' and 'above 45 years'. The discriminant function model tries to classify the employees into two or more mutually exclusive and exhaustive categories. The model is expressed explicitly as:

\[ Z = b_0 + b_1X_1 + b_2X_2 + \ldots + b_nX_n \]

Whereas

- \( Z \) = Individual discriminant score
- \( X_1, X_2, \ldots, X_n \) = Discriminant variables
- \( b_1, b_2, \ldots, b_n \) = Canonical discriminant function coefficients

In the present study, the two group discriminant analysis has been administered to identify the important discriminant factors in the attitudes towards migration among the different age groups. The score on eleven factors (6 push and 5 pull factors) of migration is considered as the score of discriminant factors.

The fitted two group discriminant model of push factor is:

\[ Z = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 \]

Whereas,

- \( Z \) = Discriminant score
- \( X_1 \) = Score on lack of employment opportunity
- \( X_2 \) = Score on unviable land holding
- \( X_3 \) = Score on low income
- \( X_4 \) = Score on indebtedness
- \( X_5 \) = Score on social conflicts
- \( X_6 \) = Score on family conflicts
\[ b_1, b_2, \ldots, b_n = \text{Discriminant coefficients.} \]

The fitted two group discriminant model of pull factor is:
\[ Z = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 \]

Whereas,
\[ Z = \text{Discriminant score} \]
\[ X_1 = \text{Score on better employment opportunity} \]
\[ X_2 = \text{Score on higher wages} \]
\[ X_3 = \text{Score on nature of job} \]
\[ X_4 = \text{Score on security of job} \]
\[ X_5 = \text{Score on skill of work} \]
\[ b_1, b_2, \ldots, b_n = \text{Discriminant coefficients.} \]

6) ANALYSIS OF VARIANCE

The researcher has attempted to assess the perceptions of the three classified age groups of migrants (below 30, between 30-45 and above 45 years) towards some aspects such as push and pull factors (35 statements), remittances by the migrants (six statements) and the infrastructural facilities in their destination place (26 statements). The mean score on each statement obtained by the three age groups of migrants were separately calculated. In order to reveal the significant difference in the mean score of the three groups of migrants, one way analysis of variance was administered.

7) GARETT'S RANKING TECHNIQUE

In order to identify the reasons for visiting of the selected migrants to their native places, 'Garett's Ranking Technique' was adopted. For this, the sample respondents were asked to rank the reasons for visiting to their natives in the order of their importance. The order given by the respondents were converted into ranks by using the following formula.
Per cent Position of Rank = \[ \frac{100 (R_{ij} - 0.50)}{N_i} \]

Where,

\( R_{ij} = \) Rank given to the \( i^{th} \) factor by the \( j^{th} \) individual

\( N_j = \) Number of factors ranked by \( j^{th} \) individual.

The per cent position of the rank obtained was converted into scores according to the Ranking Table given by Garrett. Then, for each reason, the scores of various respondents were added and divided by the number of respondents to arrive at the mean score. The mean score thus obtained for each reasons were arranged in a descending order. The factor with highest mean score was given the first rank followed by second, third and so on.

8) **t-TEST**

The study made an attempt to analyse the impact of migration on the economic position of the sample migrants by taking six economic variables such as land holdings, income, expenditure, savings, investments and debt. It was measured by the extent of increase or decrease in the respective variables during the pre and post migration periods. All the selected variables were contributed either partially or fully towards measuring the economic impact. To study the significant change in the above said variables, the statistical paired \( t \)-test was applied which is an appropriate technique to test the significance of the difference between two dependent sample means. Two samples are said to be dependent when the elements in one sample is related to those in other in any significant manner. To carry out the test, the following formula was applied:

\[
t = \frac{d \sqrt{n}}{s} \quad \text{S} = \frac{1}{n-1} (d-d)^2
\]

Where,

\( d = \) Mean of the differences

\( s = \) Standard deviation of the differences, \( n = \) Number of respondents
6. CONCEPTS USED IN THE STUDY

MIGRANT DEFINED BY PLACE OF BIRTH

If a person born outside the village or town where he/she is being enumerated, the person is called as migrant by place of birth.

MIGRANT DEFINED BY PLACE OF LAST RESIDENCE

If the place of last residence of a person is different from the place of his/her enumeration, he/ she are called as migrant by place of last residence. It has been clarified by census that the place of birth of a person can also be counted as place of last residence, if a person is enumerated at a place other than his/ her place of birth and if he/ she had no other place of residence before coming to the place of enumeration.

ATTITUDE

Attitude may be defined as a person's feeling towards a particular object or situation. It is a state of preparation of readiness for response either positively or negatively to a certain set of factors. Attitudes have a powerful influence on everyone's likes and dislikes and on every one's behaviour. Positive attitudes give satisfaction and negative attitudes cause dissatisfaction to human beings.

PUSH FACTORS

Push factors are those that compel a person, due to different reasons, to leave that place and go to some other place.

PULL FACTORS

Pull factors refer to those factors which attract the migrants to an area.

CARDAMOM FIELD WORKER

Persons working in the areas where the cardamom cultivation is taking place. The workers involves in the work from the plantation stage to final stage such as ploughing, seeding, plantations, weeding, harvesting and others. The
migrants will get this work immediately after their migration. More number of women migrants are involved in cardamom field work.

**CARDAMOM FACTORY WORKER**

Persons engaged in drying process of cardamom belong to this category. Immediately after harvesting the cardamom are being dried in the heat chamber specially made for this purpose. This type of work is preferably done by male workers since it is more difficult than the other nature of work. Experienced male workers alone can do this work.

**SUPERVISOR**

More experienced and aged workers are working as a supervisor. Experienced male workers alone can be the supervisor.

**REMITTANCE**

Amounts sent by the migrants to their family members who are in their native place.

**CLASSIFICATION OF AGE GROUP OF MIGRANTS**

- **Group I** - Age below 30 years of migrants
- **Group II** - Age between 30- 45 years of migrants
- **Group III** - Age above 45 years of migrants