Chapter Four

THE DIMENSIONS OF THE PROBLEM AND METHODOLOGY

4.1 THE PROBLEM

The existence of poverty and inequalities in underdevelopment economies is abysmal. These are mainly due to low rate of development which is influenced by economic as well as non-economic factors. The economic inequalities and poverty in tribal and rural areas can be attributed to the low rate of gains of development. The latter leads to the inequalities in the distribution of income, wealth and consumption and hence causes variations in the standard of living of different sections of society. Dandekar and Rath (1971) rightly remarked that:

The problem of poverty and inequality is a problem of low national income and its unequal distribution; of slow pace of development and inequitable distribution of the small gains of development.

In India even after five decades of planned development and efforts made by Government and non-Government sector the gap between the 'haves' and 'have-nots' has not been reduced. In general about 75 per cent of the national income is shared by the top 25 per cent of the population,
whereas, 75 per cent population lives on remaining 25 per cent of national income. As a result of it about 40 to 50 per cent population is living below the poverty line. These poor people are suffering from unemployment and/or underemployment. They do not have enough to eat nor do they have any roof over their heads.

Even the growth theory according to which rapid industrialisation and structural transformation would spread the benefits of growth among the various strata of society eventually by ‘trickle down process’ has failed to reduce the poverty and inequalities in the Indian situation. In addition to growth aspect emphasis should also be laid on the redistributional aspect through the spread of education, wage creation and asset transfer policies so that the benefits of the development can reach directly to every down-trodden category of the society.

In our country several plans have been launched since 1951, to increase the rate of economic development. It was only after 1970’s that the ‘Growth with Social Justice’ was made one of the main objectives of the five year plans in India and a number of anti-poverty programmes have been launched to remove these inequalities. The special component plans for scheduled castes and scheduled tribes have been launched by the
Government with a view to uplifting the most down-trodden sections of the society. Therefore, in the context of economic development both social as well as economic factors together play an important role to determine the level of development as well as the standard of living of the people.

In India, we need to aim, as Prof. Amartya Sen (1995) put it, at expansions of basic human capabilities, including such freedoms as the ability to live long, to read and write, to escape preventable illnesses, to work outside the family irrespective of gender, and to participate in collaborative as well as adversarial politics, not only influence the quality of life that the Indian people can enjoy, but also affect the real opportunities they have to participate in economic expansion.¹

A nation aspires, as Ozay Mehmet puts it, to a standard of living for all its people as high as can be achieved with the resources available to it; equitable distribution of income, gainful employment and education to all in accordance with their talent; victory over disease; equality of social status; adequate facilities for transportation and communication so that the nation may be effectively united economically and socially.
4.2 DIMENSION OF THE PROBLEM

In the present socio-economic set-up of the country at large and State of Gujarat in particular due to unequal distribution of income and wealth i.e. productive assets, a large number of marginal and small farmers, agricultural labourers, rural artisans, scheduled castes and scheduled tribes households falls in the poverty trap. The tribals who remained backward and constitute poorest segment among the poor, are characterised by higher percentage of illiteracy. In Gujarat, only 36.45 percentage of tribal population is literate (Census, 1991). The tribals have higher proportion of dependents, lack of productive assets, lack of regular gainful employment, meagre household income, higher amount of debt burden and predominance of age old customs, traditions, faiths and beliefs. Most of the poor households, have either too little land which cannot be cultivated due to the rough topography or no land. They are suffering from disguised unemployment and/or underemployment. Their income falls short of their consumption expenditure and deficit is met out by taking loans from village money-lenders at very high rate of interest. The burden of loans taken from the money-lenders at very high rate of interest go on increasing from one generation to another and it is true in case of tribals that a person born in debt, live in debt and die in debt. The anti-poverty programmes are
implemented so carelessly that the better-off household benefited the most and the worse-off have been benefited the least. The nation stands at crossroads today, and looking back over almost half a century. Where state determined development – economic and social – felt its limitations to produce desired results. In our age of globalisation and liberalisation we look ahead where this course will largely be determined by market forces. Today along with decentralisation of resources from the centre to the village panchayats, social responsibilities have also been passed down to the lower hierarchical level. In view of these winds of change, the role of Non-Governmental Organisations (NGOs) has come into sharp focus to make on the responsibilities in terms of development of people and resources of this vast nation. The viability of NGOs in terms of range and reach with their comparatively lower overhead expenses makes them a good choice as change agents for development.

Gujarat has had a long history of voluntary work starting from the freedom struggle with an unchanged faith in development. But much of the work done with the best of intentions, whether at the rural or urban level, has suffered from a lack of organisational and managerial skills, required to increase their effectivity in the uprooting the problems of masses. This is the
challenge that today's reality is posing for NGO sector – to be able to bring about a change in their basic approach to the economic problem such as levels of living and inequality.

In view of the above realities Vedchhi Pradesh Seva Samit (VPSS) a Non-Governmental Organisation is working since last four decades in the tribal and rural areas of Valod and Vyara taluka of Surat district. Valod is one of the thirteen talukas of Surat district in South Gujarat. It has 40 villages in the taluka. The total population of the Surat district is 33,97,900 out of which 36.05 percentage are tribals. The total population of Valod taluka is 76,965 out of which 57,134 (74.23 per cent) are tribals. The tribals of Valod taluka belong to different tribes known as Chaudharies, Gamits, Dhodias, Halpatis, Koknis, Nayakas and Kothwadias. Most of them are small and marginal farmers and landless labourers.

5.2 LOCATION AND OBJECTIVES OF THE STUDY

Keeping in view the hard economic realities the present research aims to study the economic development accomplished by the non-governmental organisation – Vedchhi Pradesh Seva Samit (VPSS) in the tribal and rural areas of Valod and Vyara talukas in Surat district. It aims to analyse in detail the impact of development programmes on the distribution of household
assets, income and household expenditure launched by the NGO. It also aims to workout the extent of inequalities in asset, income and expenditure among beneficiaries of NGO and non-beneficiaries tribal population.

Thus, the present study on the economic development of tribal and rural areas through non-governmental organisation in Valod taluka of Surat district has been taken up for the detailed empirical verification with a view to achieve the following objectives:

1. To study the levels of living, assets, income and household expenditure on the different size of land holding groups of beneficiaries and non-beneficiaries population.

2. To examine the inter-relationship between assets income and household expenditure.

3. To estimate the extent of inequalities among the beneficiaries and non-beneficiaries with respect to assets, income and household expenditure in the different size of land holding groups.

4. To suggest suitable organisational modifications and changes in the line of action and sphere of operational activities of non-governmental organisations and to the government in the light of findings of the study.
4.4 HYPOTHESIS OF THE STUDY

Since there is a dearth of studies relating the non-governmental organisations working in the tribal and rural development field it is rather difficult to construct a working hypothesis for their tests. As such some empirical assumptions have been formulated on the basis of the field experiences and out of these ones hypothesis may be formulated for further studies.

Details as under:

1. The programmes implemented by the non-governmental organisation are more helpful for the economic development of tribal and rural areas. It is more effective to improve the levels of living, assets, income and household consumption expenditure.

2. The distribution pattern of household assets and income in the tribal and rural areas are uneven.

3. Inequality prevails with regard to assets, income and expenditure among the beneficiaries and non-beneficiaries sample households.

4. The interference of Government agencies exists in the working of the non-governmental organisation and it affects the NGOs activities.
4.5 RATIONALE AND IMPORTANCE OF THE STUDY

The last two decades have been an unprecedented growth of voluntary or Non-Governmental Organisations (NGOs) in India. While voluntarism has been an age old phenomenon. It is only in the last couple of decades that so much is being talked, written, debated and done about it. There is a good reason for this. Modern voluntarism is significantly different from the conventional voluntarism in form, content, intent and impact. Conventional voluntarism was primarily aimed at charity and relief or at best social welfare and social reform. It sprang out of religiosity and generosity. It was inspired by idealism rather than ideology.

Modern voluntarism while incorporating some of the elements of conventional voluntarism is based on ideology rather than mere idealism. It aims at achieving development and social justice rather than relief and welfare. Therefore, the tools, techniques, approaches and objectives of modern voluntarism differ from that of the conventional. Modern voluntarism strives to change the social, economic and political position of the poor, the deprived, the oppressed and the weak. In the final analysis, therefore, it aims at redistribution of power status and wealth.
There was a growing realisation by the end of the 60s that the State and its political and public institutions had failed to do much about poverty, inequality and injustice, on the contrary the political processes and developmental policies had often led to the strengthening of the powerful and the rich and increased the stronghold of the dominant groups over the deprived. It was this realisation about deep pessimism about politics and government that led middle class educated sensitised youth to start voluntary action in the villages and urban slums separate and independent of existing political and governmental establishments. The voluntary work done by these groups has now raised the question of what role they have played, with what results and what challenges await the voluntary sector in the years to come. In view of this present study is an attempt to study economic development of tribal and rural areas through non-governmental organisation. It is presumed that this study would be helpful for planners, scholars, government agencies working for the upliftment of the tribal and rural people. It will help the non-governmental organisations for the further improvement in their services, and approaches to the tribal development. It will help to develop guidelines for the people’s participation and effective implementation of development schemes and programmes for the total integral and sustainable development of tribal and rural areas in our country.
4.6 LIMITATIONS OF THE PRESENT STUDY

Though the present study is among few of its kind in Gujarat state, yet it suffers from the following limitations:

a) The primary information on most of the variables have been collected at a particular point of time, hence, comparison about the levels of living as well as extent of inequalities among the rural and tribal groups of Surat district, over a period of time is not possible; and

b) This study relates only to the levels of living and inequalities among the beneficiaries and non-beneficiaries of the Vedchhi Pradesh Seva Samiti an NGO working in the Valod taluka of Surat district. The result of this study cannot be applied with hundred per cent precision to the entire rural and tribal economy of Gujarat state.

4.7 DEFINITIONS OF CONCEPTS

4.7.1 Tribes

The term 'tribe' commonly signifies a group of people speaking a common language, observing uniform rules of social organisation and working together for common purposes. Broadly, tribe is an aggregated group of people sharing social values, common dialect, territory and culture. But in a restricted sense, tribe means a group of people usually under a chief
and maintaining distinct culture tracts. As defined in the *Empirical Gazette of India*, “a tribe is collection of families bearing a common name, speaking a common dialect, occupying or professing to occupy a common territory and is usually endogamous, though originally it might have been so”. Thus, tribe is group of persons having a common definite territory, common dialect, common religion and a common culture. They are united by blood relationship maintaining distinct cultural tracts and have a peculiar political organisaton.

### 4.7.2 Levels of Living

The concept of levels of living includes the scales of preferences and satisfaction of wants of groups and communities. Different classifications of the component levels of living have been proposed, some by the United Nations and the specialised agencies and some by others. The main components recommended by the Report of the committee on International Definition and Measurement of Standard of Living (UN, 1959) are (i) food and nutrition; (ii) health; (iii) condition of work; (iv) education including literacy and skills; (v) employment situations; (vi) savings; and (vii) human freedom. The first component includes the minimum food requirements, and the remaining component consists of minimum non-food requirements.
Ganguli and Gupta\textsuperscript{5} analysed the levels of living by means of set indicators classified into eight components: nutrition, housing, medical care, education, clothing, leisure, security and environment. The first five components have been termed primary and the last three as secondary components. Further the first components includes the minimum food requirements and the remaining seven components consists of the minimum non-food requirements.

\textit{4.7.3 Poverty}

A family is considered to be living in poverty if its total earnings were insufficient to obtain the minimum necessaries for the maintenance of merely physical efficiency. In developing countries areas where incomes are low absolute poverty is generally reflected mainly in inadequacy of food intake and the consequent under-nourishment on a mass scale though, the definition of subsistence appropriate to such countries/areas might (impact sound) also include other essential minimum needs such as clothing, housing, fuel light, education, health etc.\textsuperscript{6}

\textit{4.7.4 Poverty Versus Inequality}

Poverty as a concept is closely related to inequality. Given the average income level, a higher level of inequality (reflected by the usual measures)
will tend to be associated with a higher level of poverty. Further more, the so-called ‘poverty-line’ may sometimes be drawn in the light of the socially accepted “minimum” standard of living and the latter can be influenced by the average income level so that poverty measures, thus defined, may catch an aspect of relative inequalities as well.\textsuperscript{7} Poverty line is necessarily defined in relation to social conventions and the contemporary living standards of particular society, and in this way somebody in the United States may be termed poor even though he has higher income than the average person in India.\textsuperscript{8}

There are two broad concepts of poverty, relative poverty and absolute poverty. The relative poverty is measured in terms of inequality in the distribution of income; whereas absolute poverty is reckoned in terms of some kind of notion of subsistence considered appropriate to their circumstances of the country (or group of countries) concerned. In developing countries where incomes are low absolute poverty is generally reflected mainly in terms of inadequacy of food intake and the consequent under-nourishment on the mass scale, though the definition of subsistence appropriate include other essential minimum needs such as clothing, housing, fuel, light, education and health etc.\textsuperscript{9}
Both absolute and relative poverty are closely aligned to inequality in income distribution. ‘Relative Poverty’ crises entirely as a consequence of an unequal distribution of income irrespective of what the income level or the corresponding state of deprivation of the people at the bottom end of the income scale might be. ‘Absolute Poverty’ on the other hand expresses a collective view on deprivation in its some what physical manifestation. Thus, wherever be the line any society chooses to draw to separate deprivation from relative comfort, those on the wrong side of line are defined as poor irrespective of how comfortable or affluent the others may be. The fact that the sense of deprivation among the poor may also depend on how wide is the gap between their income and the income of those who are not poor, is not a consideration relevant to the notion of absolute poverty. Any measure of relative poverty is therefore, inextricably embedded in the measures of inequality, where as, a measure of absolute poverty primarily depends on an exogenous by determined standard or poverty line, which represents a socially acceptable minimum level of living.\(^\text{10}\)

**4.7.5 Household Income**

Household income includes current income of all members of the household from all sources. It consists of both farm and non-farm income.\(^\text{11}\)
4.7.6 **Literacy**

Those members of the family who can read and/or write and calculate and has formally joined institution dealing with such practices have been treated literate.

4.7.7 **Expenditure on Consumption**

Consumption implies utilisation of goods and services to satisfy the human desires and wants. The pattern of consumption varies from place to place and may be influenced by the socio-economic and psychological consideration. But for the purpose of general studies, consumption expenditure implies exclusively towards its non-productive domestic consumption, thus, excluding all expenditure towards the enterprise activities of the household, transfer payments in kind like loans advanced, charities, gifts and other payments, in kind are not considered in consumption expenditure. But any consumption out of transfer receipts in kind or free collection is considered for determining total consumption.\(^{12}\)

4.7.8 **Assets**

Everything that the household owns and which has a money value is classified as an asset. This assets of the households are those items from which he hopes to get an income or which he keeps to protect his interest.\(^{13}\)
In the present study the household assets have been divided into two categories viz. productive and unproductive assets (i.e. household durables). All these household assets (such as land, livestock, agricultural implements, household industries, commercial vehicles and rented out buildings etc.) have been termed as productive assets which provide gainful employment to the family human labour and directly add to the household income. The household durable constitute those assets which have no direct effect on household income and/or employment, but they indirectly help to raise the efficiency, skill as well as the levels of living of the households which include good housing conditions, electrical appliances, furnishing articles, beddings etc.

4.7.9 Operational Holding

An operational holding includes all land which is wholly or partly used for agricultural production and is operated as one technical unit by the person alone as with others without regard to title, legal form, size or location. The technical unit is that which is under the same management and has the same means of production such as labour force, machinery and animals.
4.7.10 *Individual and Joint Holding*

If the landholding is operated either by one person alone or by a group of persons being members of the same household, the holding is called individual holding. If two or more persons belonging to different households share jointly (as partners) the economic and technical responsibility for the operation of the agricultural holding, the holding has been termed as joint holding.

4.7.11 *Land Holding Groups*

There are three different categories of land ownership is used in this study: (i) land less group; (ii) marginal farmer's category (0.1 to 2.5 acres of land); (iii) small farmer's category (2.51 acres and above).\(^{14}\)

4.7.12 *Agricultural Labourer*

A person without any land but having a homestead and deriving more than 50 per cent of his income from agricultural wages have been termed agricultural labourer.\(^{15}\)

4.7.13 *Non-Agricultural Labourer*

A person whose total income from wage earning does not exceed Rs.200 per month is termed as non-agricultural labourer. Persons who derive their income partly from agriculture and partly from other source can also be
brought under this category provided at least 50 per cent of their income is from non-agricultural sources. They need not have a homestead but must be residents of the village in which they are identified.16

4.7.14 Earner
All such household members who contribute financially towards the total family income are called earners. An earner is defined as one whose income is sufficient for his (or her) maintenance and earning dependent as one whose income is not adequate to his (or her) maintenance and non-earning dependent as one who earned no income at all is dependent for his (or her) maintenance on others.17

4.7.15 Universe
The whole group from which the sample is to be selected is technically called universe or population.

4.7.16 Sample and Sampling Unit
A small group of selected representative of the universe is called sample and in order to draw a sample from the universe, the unit of sample in terms of either a house, a family, an individual or a group has been decided which is termed as sample unit.18
4.7.17 Sampling

Sampling is simply a process about the universe/population on the basis of the sample drawn from it. A number of methods are used for drawing a sample. Random sampling is one where the individual units constituting the sample are selected at random and probability of the inclusion of each of the universe in the sample is equal. The selection of item is thus entirely objective. Purposive sampling means selecting the items of the sample in accordance with some purposive principle and the probability of inclusion of some units of the universe in the sample is very high, while the probability of inclusion of selection is first laid down and items are selected in accordance with it. In mixed sampling there is a mixture of random sampling and purposive sampling. The universe is first divided into some groups on the basis of purposive sampling and then from each sub-division certain items are selected in accordance with random sampling. If the universe is first divided into 'strata' by purposive method and thus from each stratum some units are selected by random sampling, the method is called stratified random sampling.19

4.7.18 Reference Period

Reference period means the period to which survey data refers.
4.7.19 *Household*

A household is a group of family members normally living together and taking food from a common kitchen, constituted a household for the purpose of this study.

4.8 **NATURE OF DATA AND SAMPLING PROCEDURE**

Both secondary as well as primary data have been used in the present study. The secondary data have been collected from different government and individual publications as well as from the various levels of administrative machineries such as District Panchayat, District Rural Development Agency (DRDA), Tribal Sub-Plan (TSP). The related information have also been collected from the Directorate of Economics and Statistics, Gandhinagar, Gujarat.

The required primary data have been collected with the help of 200 sample households. Out of which 100 sample households are beneficiaries of NGO (VPSS) and 100 sample households are non-beneficiaries of the same villages. They are from Ambiya, Buhari, Degama, Mangolia and Valod of Vyara and Valod taluka of Surat district.
The information pertaining age and sex, caste, religion, marital status, education and occupation, income, expenditure and values of assets have been recorded as existed at the time of survey during 1996-97.

In the present study the household income include income from agriculture sector (farm income, farm labour income, income from livestock) and from non-agriculture sector (income from service, income from business income from NGO project and income from village labour).

The information about household expenditure includes both expenditure on food items such as cereals, pulses, vegetables, milk and dry fruits and other items and on non-food items such as expenditure on fuel-light, clothes, footwear, toilet expenditure, expenditure on health, expenditure on education, expenditure for religious work, expenditure for festivals-fair etc. and on other items. The household expenditure has been further divided into four main categories they are: expenditure on food, expenditure on consumer goods, expenditure on health and education and other expenditure.

In the present study the household productive assets includes land, animals (cows, bullocks, buffaloes, calf, other animals) hand driven
agriculture implements, bullock driven agriculture implements, sprayer/grafter/oil engines, residential and other buildings, furnishing articles, electrical appliances, utensils, bedding etc. which is further distributed into five main categories. They are land, livestock, agriculture implements, buildings, furnishing articles. Data have also been recorded pertaining to the non-governmental organisation such as: number of years of association of beneficiaries with NGO, association with particular NGO project. Also about the sample household opinion on NGO related questions. They are: what type of development has taken place through VIAS-NGO during year 1993-96 in your village? What in your opinion is the future of VIAS-NGO? What projects or programmes should be taken up by VPSS/NGO for the economic development of the area? Are the programmes of VPSS-NGO based on your real felt need? What economic activities of VPSS-NGO more required for the economic development of the area?

The information about the impact of rural development programmes of NGO on the indicators of the level of living mainly on household income, expenditure and assets have also been collected.

For the present empirical investigation, district Surat has been selected because it is one of the biggest district with high tribal population and has a
long history of voluntary work in Valod and Vyara blocks of the district with the Gandhian and modern approach to tribal and rural development. VPSS is one of the pioneer non-government organisation working in the tribal and rural belt more than 40 years.

At first stage 100 sample households who are beneficiary of the VPSS associated with their respective projects from the five different villages were selected randomly. The 100 beneficiary sample households are associated with different projects. Out of which 85 households are working in khadi project, 20 households associated with the village industries, 12 households are working in the housing project and 4 households are associated with mahila project.

Taking number of years of beneficiaries' association with NGO projects into consideration: 6 households are associated since last six years, 45 households are since last 5 years, 9 households are since last 4 years, 25 households are since last 3 years, 3 households are since last 2 years and 12 households are since one year. 100 non-beneficiaries sample households are of the same villages selected randomly. The beneficiaries and non-beneficiaries sample households were also selected on the basis of their land-holding. They are of three different categories of land ownership:
landless category, marginal farmer’s category (0.1 to 2.5 acres of land), small farmer’s category (2.51 to 12 acre). Almost equal number of beneficiaries and non-beneficiaries of sample households from the five different villages of Valod and Vyara blocks of Surat district have been selected. The total number of selected sample households in all the five villages scattered in two blocks of Surat district come out to 200. Out of which 180 households fall in the category of landless 12 household fall in the category of marginal farmers and 8 household fall in the category of small farmers.

4.9 ANALYSIS OF DATA

The primary data collected have been tabulated by classifying into homogenous categories and the appropriate tools and techniques (Statistical Package for Social Sciences, SPSS) have been applied to workout the results in order to achieve the objectives of the present study.

The measures of inequality that have been proposed in the economic literature fall broadly into two categories: On the one hand there are measures that try to catch the extent of inequalities in some objective sense. Usually employing some statistical measures of relative variation of income; and on the other hand, there are indices that try to measure inequality in
terms of some normative measures, notion of social welfare. So that a high
degree of inequality corresponding to a lower level of social welfare for a
given total of income.

4.9.1 Test of Significance: Chi-Square Distribution

The mean value and the chi-square test has been used to establish
relation between attributes. Testing was done at two levels – 5 per cent level
of significance and 1 per cent level of significance to apply chi-square. The
sample households have been divided into two main categories: namely
beneficiaries of NGO project of the village and non-beneficiaries of the
NGO project of the same village.

The comparison between beneficiaries and non-beneficiaries in the
levels of living with respect to household income, household expenditure
and household assets have been done in two ways, namely comparison with
mean value and comparison with the help of chi-square value at 5 and 1
degree of freedom. If $X_1, X_2, \ldots, X_k$, are $k$ independent normal variables
with ‘zero’ mean and variance ‘unity’ then their sum of squares:

$$X^2 = \sum_{i=1}^{k} X_i^2$$

has the $X^2$ distribution with $K$ degrees of freedom.
The symbol $X^2$ is a Greek letter read as 'Chi-square' (Ki-square) and $C$ is a constant to be determined such that the total area under the $X^2$ distribution is "unity".

In general, if $X_1, X_2, \ldots, X_k$ are independent normal variables with means $m_1, m_2, \ldots, m_k$, and variances $\frac{2}{\sigma_1}, \ldots, \frac{2}{\sigma_k}$ respectively then

$$
\sum_{i=1}^{k} \left( \frac{X_i - m_i}{\sigma_i} \right)^2 = \sum_{i=1}^{k} Z_i^2
$$

has the chi-square distribution with $k$ degrees of freedom because

$$Z_i = \frac{X_i - m_i}{\sigma_i}$$

is $N(0,1)$ for all $i = 1, \ldots, k$.

### 4.9.2 Lorenz Curve

To measure the inequality which does not require any parametric representation was introduced by M.O. Lorenz. Income inequalities in different groups have been examined with the help of Lorenz Curve. The Lorenz curve shows the percentage of income received by the $X$ per cent of the population, $X$ varying from 0 to 100. The advantage of Lorenz curve
comparison is that we can say something about the comparative levels of social welfare without specifying anything very particular about the exact welfare function.

A higher Lorenz curve nearer to diagonal implies more social welfare (or more equal distribution of income) for the same total of income and vice-versa. If we compare two income distribution and the Lorenz curve of one distribution is uniformly above that of another, we are in luck as far as inequality measurement is concerned. Even if the total income varies we can say that the change from first to second involves an inequality increasing shift in the distribution of income combined with a change in total income.

The Lorenz curve is useful because it shows graphically the degree of dispersion of income. But sometimes distribution do not have this property and the Lorenz curve may cross. In the studies on the distribution of income and wealth, references is frequently made to a number of measures of concentration out of which the most popular measure is Gini-co-efficient.

4.9.3 *Gini- Coefficient*

Gini co-efficient is used to attach some absolute measures to the degree of inequality or give some idea whether the inequality is large or
small. Gini co-efficient is not purely statistical and it embodies implicit judgement about the weight to be attached to inequality at different points on the income scale. This co-efficient may be interpreted in two ways: First it may be seen geometrically in terms of Lorenz Curve.

\[
Gini\text{-Coefficient} = \frac{\text{Area between Lorenz curve and diagonal}}{\text{Total Area under diagonal}}
\]

The co-efficient may be seen to range from zero when income is equal (the Lorenz curve follows of diagonal) to one and at the other extreme (the Lorenz curve have > shape). Secondly it may be computed mathematically as follows:

\[
Gini\text{-Coefficient} = 1 - \sum p_i \left( Q_i + Q_i - 1 \right)
\]

where \( G(c) \) = Gini-coefficient value.

\( p_i \) = population share (%)  
\( Q_i \) = income share (%)
REFERENCES


This definition has been adopted by N.S.S. organisation in various N.S.S. rounds. Also see, V.K. Malhotra, (1985), *Studies in Consumption Expenditure: Development Profile of Himachal Pradesh*, Directorate of Economics and Statistics, Shimla, p.15.


