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**Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.isrj.org**

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# COMPARATIVE ANALYSIS OF HDI OF HILLY AND NON-HILLY AREAS IN KOLHAPUR DISTRICT

D. K. More[1] and Ashok V. Jadhav[2]
[1]Associate Professor & Head ,Department of Business Economics ,
Smt. K.R.P. Kanya Mahavidyalaya ,Islampur , Dist – Sangli (MS).
[2]Assistant Professor & Head ,Department of Economics ,
Shri V.Y. Arts &Science College,Peth-Vadgaon. Dist - Kolhapur (MS).

## ABSTRACT

Human Development of hilly and non-hilly area in Kolhapur district is separately analysed. Besides, in this paper, an attempt is made to comparatively analyse the human development of hilly and non-hilly areas in Kolhapur districts. As per educational scenario is concerned, there is large difference in the educational index found in hilly and non-hilly areas. Life expectancy is important for measuring the HDI, and it represents health status of that particular area. According to the study, life expectancy of people for non-hilly area is ahead to the hilly area. As hilly area remains backward, its income index also remains low if compare to the non-hilly area. Finally, with respect to all these index Human Development Index in hilly area also present comparatively dreadful scenario to the non-hilly area.

**KEYWORDS** :Human Development Report, Human Development Index, UNDP, Life expectancy, Mean year of schooling, Expected year of schooling, Per capita income.

## INTRODUCTION :

The Human Development Index was developed in 1990 by a Pakistani economist Mahbub-ul-Haq, Sir Richard Jolly, with the help of Gustav Ranis of Yale University and Lord Meghnad Desai of the London School of Economics. It is claimed that ideas of Indian Noble prize Winner Amartya Sen were influential in the development of the Human Development Index.

During the period 1950-60, many countries of the world were able to increase their national income but the standard of living of majority of population in these countries failed to improve. This compelled them to change the idea of development. Instead of increasing production and thereby increasing income, it became acceptable that development should address directly to the problems of poverty, unemployment and income distribution.

Now-a-days, the meaning of development has become more inclusive and comprehensive. It is not restricted to increase in per capita income but improve in quality of life of the people also considered.

The gross domestic product per person has been used for decades as a key indicator of progress of a nation in serving the needs of the people. This has tended to focus national attention narrowly on economic growth, to the detriment of other aspects of development such as education, health or welfare. In order to produce an index that better reflects how people meet their needs, several researchers have suggested the use of composite indicates. Thus, Liu (1976) made a comprehensive study of indicators of quality of life in United States. More recently, Johnston (1988), aiming to circumvent the lack of a common metric for compound indicators, suggested a "chain index" that would allow monitoring a nation's progress from year to year. Selen (1985) took a different approach to process the complex information contained in a bank of indicators, developing a method to present the information trading off between the conflicting demands for detail and lucidness. Johnston (1988) provides a recent introduction to literature.

To produce an index of Human development in a nation, the United Nations Development Programme (UNDP) sponsored a project in 1989, carried out by a team of economists and development professionals (Hart, 1990). The team created a Human Development Index (HDI) which they described and applied to rank the nations of the world in the Human Development Report 1990.

Human Development of hilly and non-hilly area in Kolhapur district is separately analysed. Besides, in this paper, an attempt is made to comparatively analyse the human development of hilly and non-hilly areas in Kolhapur districts. Kolhapur district has 12 talukas, out of them 08 talukas, situated at the western part of the district, have more than 50 per cent area hilly and rugged topography so these talukas are considered as hilly talukas. Out of these hilly talukas, two talukas i.e. Shahuwadi and Gagan Bavada are selected as a sample for this study. On the other had 04 tahsils, situated at the most eastern part of the district are considered as non-hilly. Out of them again two talukas viz. Hatkanangale and Shirol are selected as sample.

## OBJECTIVES OF THE STUDY

In the present study, an attempt is made to study the variation in the human development in hilly areas of Kolhapur district. The major objectives of the present study are as follows;

1.To study the educational status of hilly and non-hilly areas in Kolhapur district.
2.To study the economic status in hilly and non-hilly areas in Kolhapur district.
3.To calculate HDI in hilly and non-hilly areas of Kolhapur district

## RESEARCH METHODOLOGY

The entire study is based on both primary and secondary type of data. The primary data was collected by conducting personal interviews of rural people from the sample households at study area. The data has been collected with the help of planned and pre-tested schedules and also from the field observation. For that, Convenient Sampling technique was used.

The secondary data and other related information have been collected from the District Statistical Abstract, Socio-Economic Reports, Census Reports, Kolhapur Gazetteer, Various records of Government Offices like Tahsil offices, Collector Office, Grampanchayats, Zillah Parishad, Panchayat Samiti, etc. Besides, sources were assessed from Internet also.

## SAMPLE SELECTION

In the present study, two types of sampling methods i.e. Random Sampling and Convenient Sampling have been used while selecting of takukas, villages and households from that villages.

There are 12 talukas in Kolhapur district. Accordingly 08 talukas are hilly and 04 talukas are non-hilly. Out of these talukas, two talukas from hilly area i.e. Shahuwadi and Gagan Bavada and two talukas from non-hilly area i.e. Hatkanangale and Shirol 73 were selected as a sample for this study, by using that Random Sampling technique. Moreover, 10 per cent villages from each taluka and 05 per cent households from each village were selected for collecting actual information. For that, again Random Convenient Sampling techniques were used respectively.

## DATA ANALYSIS

The present study is based on both primary and secondary sources of data. The collected data has been processed by using various appropriate quantitative and statistical techniques such as average, percentage, deviation, etc. Cartographic techniques are also used at appropriate places. Diagrams, photographs have been depicted and their interpretation support is given for better comprehension.

Apart from that, UNDP's new method (i.e. used from the year 2010) for measuring Human Development Index has been used for calculating the human development in hilly of Kolhapur district. By using this method Education Index, Life Expectancy Index and Income Index of the study area have been calculated. For calculation of Income Index, Per Capita Gross National Income (GNIpc) converted in US $ for that Per Capita Income of India in rupees (Rs. 90,688) and Purchasing Power Parity (PPP) in US $ ($ 5,855) of the year 2013-14 considered as base values. The details of this method are as follows –

1. $$\text{Life Expectancy Index (LEI)} = \frac{LE - 20}{85 - 20}$$

2. $$\text{Education Index (EI)} = \frac{MYSI + EYSI}{2}$$

3. $$\text{Mean Years of Schooling Index (MYSI)} = \frac{MYS}{15}$$

4. $$\text{Expected Years of Schooling Index (EYSI)} = \frac{EYS}{15}$$

5. $$\text{Income Index (II)} = \frac{\log (GNIpc) - \log (100)}{\log (75{,}000) - \log (100)}$$

6. $$HDI = \frac{LEI + EI + II}{3}$$

## MYS and EYS in Hilly and Non-Hilly Area

Mean Years of Schooling (MYS) and Expected Years of Schooling (EYS) are basic indicators of calculating Education Index, hence, they are presented in the following table

**Table 1**
**Actual Mean Year and Expected Year of Schooling in Hilly and Non-Hilly Area**

| Sr. No. | Taluka | Actual Mean Year of Schooling (MYS) | | | Expected Year of Schooling (EYS) | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Average | Male | Female | Average |
| 1 | **Hilly Area** | 10.94 | 5.02 | 7.98 | 12.18 | 6.70 | 9.44 |
| 2 | **Non Hilly Area** | 13.98 | 7.68 | 10.83 | 16.85 | 11.60 | 14.23 |

Source : Compiled by Researcher

Table 1 indicates that, actual mean year and expected year of schooling in hilly and non hilly areas of Kolhapur district. An actual mean year of schooling in hilly area is 7.98 years. Accordingly actual mean year of schooling for male is 10.94 years, for female it is 5.02 years and expected years of schooling is 9.44 years. Whereas, expected year schooling of year for male is 12.18 years and for female is 6.70 years. In hilly area gender wise inequality are shows in actual mean years and expected year schooling.

In non-hilly area of Kolhapur districts actual mean year of schooling is 10.83 years while actual mean year of schooling for male is 13.98 years and for female it is 7.68 years. It shows high difference as gender is concerned. Expected schooling year of is non-hilly area is 14.23 years, specifically expected year of schooling for male is 16.85 years and for female, it is 11.60 years. In expected years of schooling high variation is also found as gender is concern.

It is clear that, in hilly area actual mean year of schooling is 7.98 years and in non-hilly area actual mean year of schooling is 10.83 years. Similarly, expected year of schooling in hilly area is 9.24 years and in non-hilly area, it is 14.23 years. It means, non-hilly area is ahead of hilly area in both mean and expected year of schooling. Apart from that gender-wise inequality is also found in hilly and non hilly area.

## Educational Index of Study Areas

Concerning the sample villages, Educational Index (EI) is calculated for hilly and Non-Hilly Area.

## Educational Index of Hilly Area

Education Index of Hilly Area is calculated in following manner –

$$\text{Mean Years of Schooling Index (MYSI)} = \frac{\text{MYS}}{15} = \frac{7.98}{15} = 0.532$$

$$\text{Expected Years of Schooling Index (EYSI)} = \frac{\text{EYS}}{18} = \frac{9.44}{18} = 0.524$$

$$\text{Education Index (EI)} = \frac{\text{MYSI} + \text{EYSI}}{2} = \frac{0.532 + 0.524}{2} = 0.528$$

### Educational Index of Non-Hilly Area

Education Index of Non- Hilly Area is calculated in following manner –

$$\text{Mean Years of Schooling Index (MYSI)} = \frac{\text{MYS}}{15} = \frac{10.83}{15} = 0.722$$

$$\text{Expected Years of Schooling Index (EYSI)} = \frac{\text{EYS}}{18} = \frac{14.23}{18} = 0.791$$

$$\text{Education Index (EI)} = \frac{\text{MYSI} + \text{EYSI}}{2} = \frac{0.722 + 0.791}{2} = 0.756$$

As above calculation, it is clear that there is huge difference in the education index of hilly and non-hilly area. Education Index of hilly area is 0.528, whereas in non-hilly area it is 0.756. Lack of

educational facilities, hard life, unawareness about schooling, customs and traditions in the family, educational as well as economical backwardness of the family, etc. are some weaknesses of hilly area and due to these reasons hilly area has remained backward in education as compared to non-hilly area.

### Life Expectancy in Study Area

Life expectancy from birth is a frequently utilized and analysed component for human development. It represents the average life span of a newborn and is an indicator of the overall health of a country as well as human development. Hence, it is necessary to calculate life expectancy through total age of the people at the time of death divided by total number of deaths.

**Table 2**
**Life Expectancy in Hilly and Non-Hilly Areas**

| Sr. No. | Particulars | Total Death | | | | | |
|---|---|---|---|---|---|---|---|
| | | Hilly area | | | Non-Hilly area | | |
| | | Male | Female | Total | Male | Female | Total |
| 1 | No. of Death | 55 | 44 | 99 | 381 | 292 | 673 |
| 2 | Life Expectancy | 67.02 | 68.08 | 67.55 | 70.15 | 72.51 | 71.33 |

Source : Official records of concern Grampanchayats of sample villages

Table indicates that life expectancy in hilly and non-hilly area of Kolhapur district. Total numbers of death in the sample villages in hilly area are 99, out of them there are 55 male and 44 female. Average age at the time of death is 67.55 years, whereas life expectancy of male and female in the hilly area is 67.02 years and 68.08 years respectively.

In non-hilly area, the total numbers of death in sample villages are 673, among them 381 are male and 292 are female. The overall life expectancy of non-hilly area is 71.33 years; further life expectancy of male is 70.15 years while female life expectancy is 72.51 years. The noteworthy thing is that female life expectancy of both in hilly and non-hilly areas is higher than the life expectancy of male.

It is clear from the above discussion that, life expectancy of hilly and non-hilly area of Kolhapur district has a huge variation. In hilly area, average age at the time of death is 67.55 years, whereas in non-hilly area average age at the time of death is 71.33 years. It means life expectancy of the people in hilly area is much less than the people in non-hilly area of Kolhapur districts.

### Life Expectancy Index of Study Area

As concerning the sample villages, Life Expectancy Index (EI) is calculated for hilly and Non-Hilly Area.

### Life Expectancy Index of Hilly Area

Life Expectancy Index of hilly Area is calculated in the following manner –

$$\text{Life Expectancy Index} = \frac{LI - 20}{85 - 20}$$
$$= \frac{67.55 - 20}{85 - 20}$$
$$= 0.732$$

### Life Expectancy of Non-Hilly Area

Life Expectancy Index of Non- Hilly Area is calculated in the following manner –

$$\text{Life Expectancy Index} = \frac{LI - 20}{85 - 20}$$
$$= \frac{70.15 - 20}{85 - 20}$$
$$= 0.772$$

Based on above calculation, it is clear that there is difference in the Life Expectancy Index of hilly and non-hilly area, but it is not too much. Life Expectancy Index of hilly area is 0.732, whereas in non-hilly area it is 0.772.

### GDP and PCI of Sample Households in Study Areas

Per Capita Income (PCI) of sample households from study area is calculated with the help of their Gross Domestic Product (GDP), which is represented in the following table

**Table 3**
**GDP and PCI of Sample Households in Hilly Area and Non-Hilly Area**

| Sr. No. | Particulars | Figures | |
|---|---|---|---|
| | | Hilly Area | Non Hilly Area |
| 1 | Total Population | 2714 | 5108 |
| 2 | GDP (in Rs.) | 11,87,93,794 | 44,53,76,108 |
| 3 | PCI (in Rs.) | 43,771 | 87,192 |
| 4 | GDPpc (in US $) | 2826 | 5629 |

**Source : Compiled by researcher from fieldwork and field observations**

Table reveal that, Gross Domestic Product (GDP) and Per Capita income (PCI) of sample households in hilly area and Non-hilly area of Kolhapur districts. In hilly area population of sample

households is 2714 and GDP of these households is Rs11,87,93,794, accordingly PCI of hilly area is Rs 43,771 and GDPpc is $ 2826. Likewise, population of sample households in non-hilly area is 5108 and GDP of these households is Rs 44,53,76,108, hence, PCI of non-hilly area is Rs 87,192 and GDPpc is $ 5629 as per PPP of the year 2013-14. Per Capita Income of non-hilly area is almost double to the Per Capita Income of hilly area. So, it is clear that, the economic inequality is found in the hilly and non-hilly area of Kolhapur districts.

### Income Index of Study Area

According to the above discussion, Income Index (II) for hilly area and non-hilly area is calculated with the help of UNDP's guidelines.

### Income Index of Hilly Area

Income Index (II) of hilly area is calculated in the following manner –

$$\text{Income Index (II)} = \frac{\log (GDPpc) - \log (100)}{\log (75000) - \log (100)}$$

$$= \frac{\log (2826) - \log (100)}{\log (75000) - \log (100)}$$

$$= \frac{3.45 - 2.00}{4.88 - 2.00}$$

$$= 0.504$$

As per above calculation, Per Capita Income (PCI) of hilly area is Rs. 43771 and GDPpc is $ 2826. Accordingly Income Index (LEI) of hilly area is 0.504, which is calculated with the help of UNDP's guidelines.

### Income Index of Non-Hilly Area

Income Index (II) of non-hilly area is calculated in the following manner –

$$\text{Income Index (II)} = \frac{\log (GDPpc) - \log (100)}{\log (75000) - \log (100)}$$

$$= \frac{\log (5629) - \log (100)}{\log (75000) - \log (100)}$$

$$= \frac{3.75 - 2.00}{4.88 - 2.00}$$

$$= 0.608$$

As per above discussion, Per Capita Income (PCI) of non-hilly area is Rs. 87192 and GDPpc is $ 5629. Accordingly Income Index (LEI) of non-hilly area is 0.608, which is calculated with the help of

UNDP's guidelines.

Again there is large difference found in the Income Index of hilly and non-hilly areas of Kolhapur district. Income Index of hilly area is 0.504, whereas in non-hilly area, it is 0.608. Hilly area is agriculturally as well as industrially less developed, besides, landless and marginal landholders are in large number. Hence, Gross Domestic Product (GDP) and Per Capita Income (PCI) of hilly area are found low compare to the non-hilly area.

As Per Capita Income (PCI) is calculated by considering total population including male and female, therefore, to calculate gender-wise separate Income Index is not essential. So Income Index is considered same for male and female.

### Human Development Index in Study Area

With the help of above calculated all the three index final Human Development Index (HDI) is calculated for hilly and non-hilly area of Kolhapur District.

### Human Development Index in Hilly Area

Human Development Index of hilly area is calculated with the help of guidelines of UNDP as under –

$$HDI = \frac{EI + LEI + II}{3}$$

$$= \frac{0.528 + 0.732 + 0.504}{3}$$

$$= 0.588$$

Educational Index (EI), Life Expectancy Index (LEI) and Income Index (II) are calculated and with the help of these indices Human Development Index (HDI) has been calculated for hilly area, which is 0.588.

### Human Development Index in Non-Hilly Area

Human Development Index (HDI) is calculated in the following manner –

$$HDI = \frac{EI + LEI + II}{3}$$

$$= \frac{0.756 + 0.772 + 0.608}{3}$$

$$= 0.712$$

Educational Index (EI), Life Expectancy Index (LEI) and Income Index (II) are calculated and with the help of these indices Human Development Index (HDI) has been calculated for non-hilly area, which is 0.712.

Again there is large difference found in the HDI value of hilly and non-hilly area of Kolhapur district. HDI of hilly area is 0.588, whereas in non-hilly area, it is 0.712.

## CONCLUSION

As per educational scenario is concerned, there is large difference in the educational index found in hilly and non-hilly areas. Life expectancy is important for measuring the HDI, and it represents health status of that particular area. According to the study, life expectancy of people for non-hilly area is ahead to the hilly area. As hilly area remains backward, its income index also remains low if compare to the non-hilly area. Finally, with respect to all these index Human Development Index in hilly area also present comparatively dreadful scenario to the non-hilly area.

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