Human Development in Lakshadweep Islands: Household based HDI Approach

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Abstract

The study looks into the human development scenario at household level in Lakshadweep adopting Household Human Development Index (HHDI) approach and found that the human development scenario is not very dismal and not outstanding in Lakshadweep Island, it is almost moderate. 58 per cent household has achieved high level of human development. Moderate level of human development is attained by 42 per cent. The study also found that the gap between two extreme households in respect of HDI and three dimensional indices is comparably low and the inter-household variation in the level of human development in Lakshadweep islands very low.
Keywords: Development, Household HDI, Lakshadweep, Education, Health and Asset

Introduction

Emphasis on human development and the construction of human development index (HDI) have been the most important contribution of the development economists to economic literature. It has shifted the attention from 'quantity of growth' to the 'quality and structure of growth'. The success of economic growth nowadays is judged in terms of its real contribution to the quality of life. The World Bank has been ranking countries in the world in to developed, developing and under developed countries on the basis of percapita income. The development economist attacked the concept of using percapita income as a measure of development by viewing its serious limitations and shortcomings. One of the most important among was services of household is not taken in to consideration and it silent mode about the distribution of national income. The limitations of using percapita income as a measure of development forced to search for a novel comprehensive measure that would capture the various dimension of human development. This has first led to the formation of PQLI and then to the definition and construction of human development Index under the stewardship of Mahbub-ul-Haq in 1990. This Index, normally call HDI is a composite index comprising three distinct elements namely life expectancy at birth, adult literacy and school enrolment ration and real GDP percapita. The most striking achievement of this HDI is that, it could overcome the inadequate weights assigned to the health related factors of PQLI

formed by Morris. The UNDP then introduced the Gender related Development Index (GRDI) in order to measure the wellbeing of the males and females separately. But HDI is still acting as a standard measure of wellbeing of the people and countries.

Human development Index is the best indicator of human wellbeing as it is accepted since 1990 when the first Human Development Report was presented by UNDP. The base of human development lies in recognizing the improvement in living standard of all persons in the society. There has been always a critical trade-off between the growth of material resources and human resources in most of the countries. This Human Development Indicator is an alternative measure of several essential facilities. It considers three important aspects of wellbeing i.e. life expectancy, literacy and income. The idea behind this HDI is to obtain a comprehensive picture as possible for all aspects of human development. Human development as defined by UNDP is a process of enlarging people's choice, including to live a 'long and healthy life', to be educated and not to have access to resources needed for a decent living standard. In fact, human development has two sides, one is the formation of human capabilities-such as improved health, knowledge of skills and the other is to use people acquiring their capabilities for productive purposes. If the scales of human development do not finally balance the two sides, frustration may occur among people. Thus, the concept of human development includes development of human beings by considering improvement of economic, social, educational, health and cultural condition of human beings of a state.

It is worldwide accepted notion that as economic growth in essential for human development, human development is also necessary to economic growth. Thus, the links between human development and economic growth make them mutually reinforcing. Stronger links, they contribute to each other. But when links are weak, they become mutually stifling as any deficiency in one affects adversely to other. Today, the HDI is widely used in academia, the media and in policy circles to measure and compare progress in human development between countries and over time. Since the evolution of the human development index in 1990 there has been a lively debate on measurement and related issues of quality of human life among the nations. There have been various studies concerning with the calculation of Human Development Index. Anand and Sen (1992) and Ranis, Stewart and Samman (2006) pointed out several other dimensions of human wellbeing, such as security, political participation and human rights. Hicks (1997), Foster et al (2005) and Seth (2009) were concerned about the fact that the current HDI presents averages and thus conceals wide disparities in distribution of human development in overall population. UNDP based HDI is that it only looks at average achievements and thus, does not take into account the distribution of human development within a country or population subgroup (Sagar and Najam, 1998). It throws light

on human development issue only at macro level but remains silent about household based human development (Harttgen and Klasen, 2010). Harttege and Klasen (2010) and Torre and Moreno (2010) provided a method for calculating household level human development index.

Statement of the problem

It is a universal thought that human development is indispensable for economic growth and development. In recent years the development economists attached more attention and emphasis on human development in describing the theories of economic growth. The issue of this work has derived from the limitation of HDI to analyze the position of household in human development. The study also realized that the average is a statistical tool and it doesn't have the power to demonstrate the real situation. It is a confirmed fact that the current HDI presents averages and thus conceals wide disparities in distribution of human development in overall population and does not take into account the distribution of human development within a population subgroup. As Harttgen and Klasen pointed out HDI concentrates only at macro level but remains silent about household based human.

There are enormous studies focusing on HDI, its methodology and limitations. But the study on Household Level Human Development Index based on household level data is not that much available. Thus a need was felt to calculate an alternative based on household level data which will present grass root level scenario of wellbeing. Since the total number of household in Lakshadweep is nearly 10000, the population are 64000 and variations in all economic indicators and economic inequality are very less, the study understand that it is better to appreciate a household based human development rather than aggregate based human development index. To get a real insight of human development, the study has made an attempt to construct a HDI for the households. This study helps to identify the exact condition of household human development in Lakshadweep. The findings from this study may helpful to the Government to improve both the quality and quantity in terms of facilities extended by the government.

Objectives

1) To look into human development scenario at household level in Lak shadweep.
2) To examine the inter-Island variations in human development.

Review of Literature

Anand and Sen (1992) in their study pointed out certain limitation of human development index. Their main argument was, HDI is based on three indicators such as education, health and income, there are large number of other factors also affecting the human development, and all these factors are needed to be considered in the construction of HDI. Ranis,

Stewart and Samman (2006) pointed out several other dimensions of human well being, such as security, political participation and human rights. Hicks (1997), Foster et al 2005 and Seth 2009 were concerned about the fact that the current HDI presents averages and thus conceals wide disparities in distribution of human development in overall population. They also suggest inequality adjustments to the HDI. Sagar and Najam (1998) focused on the most serious weakness in the HDI that it only looks at average achievements and does not take into account the distribution of human development within a country or population subgroup. Torre and Moreno (2010) provide method for calculating household level human development index. Proposed HDI at household level and individual level allows analyzing development levels for subgroups of population either by age, ethnic condition, sex and income or HDI deciles across time.

Harttgen and Klasen (2010) has addressed the issue of HHDI for 15 developing countries where they have constructed Household based Human Development Index for all those countries based on the Demographic and Health Survey (DHS) data. The work of Harttgen and Klasen, however, suffers from the limitation that it does not look into the issue separately for urban and rural households. It is quite comprehensible that the indicators affecting various dimensions of human development are bound to be different for urban and rural households as there is a great divide between rural and urban structure.

Alok Kumar Pandey and Annapurna Dixit (2012) constructed three indices such as Life expectancy index at household level, Education index at household level and Expenditure Index at household level and made an attempt to calculate HHDI for region wise, religion wise and social group wise using NSSO 63rd round unit level consumption expenditure survey data. Their study found that, expenditure index for all the states and union territories as lowest in comparison with life index and education index and the performance of UT of Lakshadweep is better than the national averages. Lakshadweep adjudged 0.682, 0.649 and 0.456 in Life Expectancy index, Education Index and Expenditure Index respectively, while national average were only 0.677, 0.499 and 0.416

Manash Roy and Rajumandal (2012) constructed a household development index to study household based human development in rural areas of Assam by utilizing the method of purposive sampling technique and taking 90 household primary data. The major aim of this study was to examine human development situation at household level in Nitai Nagar village of Hilakandi district of Assam. The study found that only one per cent household has achieved high level of human development, moderate level of human development is attained by 23 per cent households while the rest 76 per cent account for low level of human development. The study also revealed that a higher amount of inter household variation in the level of human development in Nitai Nagar village and high disparity

among households in the village is high in respect of asset while it is relatively low in case of health and education

Methodology

The present study is based up on a survey carried out in the entire Island except Minicoy. The study carried out entirely based on primary data which are collected from 255 household in Lakshadweep. The study adopted the sampling technique of 'purposive sampling' and selected 30 households from each island except Bitra. A pre-tested schedule was used for the purpose of data collection. The data collected were analysed with the help of simple statistical techniques such as percentages, averages, ratios etc. Further diagram and other statistical tools were also used in the analysis.

The Human Development is the process of enlarging human choices in three basic and critical dimensions of life viz., health, education and standard of living. The indicators or variables used in this study are shown in table 1.

Table 1: Indicators for Various Dimensions of Household based Human Development

Dimensions	Indicators
Health	1. Access to Safe Drinking Water
	2. Access to Ideal Toilet Facility
	3. Access to Primary Health Centres
Education	1. Educational Status of the Adult Members of the Rural Households
	2.Educational Status of the Non-Adult Members of the Rural Households
	Asset Holdings of the Rural Households
Asset	1. Cultivable Land (in hectare) 2. Housing Condition 3. Livestock 4. Vehicle 5. Financial Access of the Households

To look into our objective, the study has adopted a modified version of Human Development Index constructed by Manash Roy and Raju Mandal. The construction of the said index involves the following three steps.

Step 1: First some scores will be assigned to the various indicators based on self-selection approach and value judgment. The scoring procedure of the study is as follows:

Table 2: Scoring Procedure Adopted

Scoring of Accessibility to Safe Drinking Water	
Source of Drinking Water	Score
public authority Supply Water using by boiling or filtering	4
public authority Supply Water using without boiling or filtering	3
Water from tube well/hand pump by boiling or filtering	2
Water from tube well/hand pump without boiling or filtering	1
Water from pond/well with boiled or not boiled	0

Scoring of Accessibility to Ideal Toilet Facility	
Type of Toilet	Score
Modern well equipped	3
Slab used latrine	2
Bamboo made latrine	1
In open air	0

Scoring of Accessibility to Primary Health Centres	
Access to Primary Health Centres	Score
Good access	3
Average access	2
Bad access	1
No access	0

Scoring of Educational Status of the Adult Members of the Households	
Educational Status of the Adults	Score
Post graduate or above	7
Graduate	6
HS pass	5
HSLC pass	4
High school	3
Primary pass (5 to 7)	2
Below primary level	1
Illiterate	0

Scoring of Educational Status of the Non-Adult Members of the Households	
Educational Status of the Non – Adults	Score
Continuing education	12
Dropout after passing SSLC	11
Dropout after class ten	10
Dropout after class nine	9
Dropout after class eight	8

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Dropout after class seven	7
Dropout after class six	6
Dropout after class five	5
Dropout after class four	4
Dropout after class three	3
Dropout after class two	2
Dropout after class one	1
Illiterate	0

Scoring of Cultivable Land Area	
Type of Cultivable Land	Score
Large	5
Medium	4
Semi medium	3
Small	2
Marginal	1
No cultivable land	0

Scoring of Housing Condition	
Type of House	Score
Concrete	4
Semi concrete	3
Tiled	2
Semi tiled	1
Thatched and scientifically not ideal for living	0

Scoring of Livestock	
Livestock	Score
Cattle/buffalo	3
Goat/sheep	2
Hen/duck/dove	1
No livestock	0

Scoring of Vehicle	
Vehicle	Score
Bus/car/truck	5
Auto rickshaw/ power tiller	4
Two wheeler	3
Rickshaw/thela	2
Bicycle	1
No vehicle	0

Scoring of Financial Accessibility of the Households	
Type of Financial Access	Score
Having bank/post office savings account plus other investment policies	3
Having only bank/ post office savings account	2
SHG membership	1
No formal financial access [1]	0

Step 2: For all the indicators/variables an index will be constructed by following the UNDP's Max-Min approach i.e.

Variable index = $X_{ij} - X_{min}$; $0 \leq$ Variable Index ≤ 1

$$X_{max} - X_{min}$$

Where X_{ij} = Value of the jth variable for the ith household

X_{min} = Minimum value of the jth variable

X_{max} = Maximum value of the jth variable.

All the dimensional indices will lie between 0 and 1.

Step 3: The simple average of dimensional indices will give us Human Development Index for rural households (HDI ^{RH}).

HDI ^{RH} = $\dfrac{Health\ Index + Education\ Index + Asset\ Index}{3}$; $0 \leq$ HDI $^{RH} \leq 1$

Table 3: Criteria for Examining the Status of Human Development for the Households

HDI ^{RH}	Nature of Human Development
HDI ^{RH} = 0.9 to 1	Highest
$0.7 \leq$ HDI $^{RH} \leq 0.89$	High
$0.5 \leq$ HDI $^{RH} \leq 0.69$	Moderate
$0.1 \leq$ HDI $^{RH} \leq 0.49$	Low
HDI ^{RH} = 0	Lowest

Analysis of the data

Table 4: Nature of human development in Lakshadweep

Highest	High	Moderate	Low	Lowest
0	146 (57.2%)	109 (42.8%)	0	0

It is clearly evident from the table 4 that Lakshadweep enjoys high human development. No household has achieved highest development in human development index and none of household lags behind in HHDI. 57.2 per cent household has achieved high level of human development. Moderate level of human development is attained by 42.8 percent.

Table 5: Descriptive statistics

Statistics	Health Index	Education Index	Asset Index	HHDI
Mean	0.693529412	0.718194771	0.71418902	0.708637734
Standard Deviation	0.125968534	0.10160598	0.096768295	0.070858345
Kurtosis	1.48350241	0.221012347	0.813363797	0.1474993
Skewness	1.50400640	0.171989767	0.98641723	0.358959168
Range	0.46666666	0.531333333	0.488	0.335711111
Minimum	0.53333333	0.42	0.404	0.5474
Maximum	1	0.951333333	0.892	0.883111111

`   Table 5 shows the various descriptive statistics of the components of human development. The values of range indicates that the gap between two extreme household in respect of HDI and three dimensional indices is comparably low. But in the case of health and educational index, the gap is moderate.

HDI with mean value of 0.70 shows that the level of human development in Lakshadweep, on an average is high. It means that Lakshadweep people enjoys good standard of living and better human development. The mean educational and asset index is also high,which consistent with the fact of high literacy rate and low and equi-holding of land and other asset. Whereas the health index is moderate which is also consistent with the reality of low health infrastructure of Lakshadweep.

The lower rate if SD (0.07) indicates a lower amount of inter-household variations in human development in Lakshadweep. The inter-household variation is asset is low followed by education and high in the case of health. This means that the disparity among households in the island is high in respect of health and education and low in asset holding.

Table 6: Household based Development Scenario in Lakshadweep islands (in %)

Islands with high HDI (in %)			
Sl No	Island	Moderate	High	High HDI in %
1	Agati	0	30	100
2	Kavaratti	1	29	96.66667
3	Kalpeni	4	26	86.66667
4	Kadmat	13	17	56.66667
5	Kilthan	15	15	50
6	Androth	17	13	43.33333
7	Chethlath	21	9	30
8	Amini	23	7	77.77778
9	Bitra	15	0	0

The table 6 shows that Agati Island possess large number of households with high human development followed by kavaratti and Kalpeni. This is mainly because both the Island Agati and Kavaratti have a good drinking water (NIOT) and good health care institution. Bitra Island stand last as it doesn't have proper drinking water, bank facilities, health care and educational institution.

Table 7: Correlation coefficient between different indices

Indexes	Health Index	Education Index	Asset Index
Health Index	1		
Education Index	0.128103108	1	
Asset Index	0.018590067	0.300021031	1

Table 7 gives the correlation among the variables. As expected, all the indices have the positive correlation. Health index, education index and asset index are positively correlated with each other and thus supporting the theory but the degree of association is not that strong among them. Health index has a low correlation with asset index. However the correlation between education index and asset and health and education index is moderate.

Table 8: Island wise HHDI

Household Based Human Development in Each Islands			
Islands/Statistics	Mean	SD	Range
Kalpeni	0.741311111	0.039217738	0.175555556
Agati	0.829948148	0.043730771	0.134222222
Chetlath	0.681259259	0.044950693	0.173333333
Kilthan	0.692844444	0.03612185	0.134444444
Kadmat	0.711688889	0.064647839	0.212444444
Amini	0.660104	0.046607	0.175333
Androth	0.695096296	0.053134846	0.191777778
Kavarathi	0.708340741	0.047528719	0.235333333
Bitra	0.524489	0.065579	0.226

Table 9: Ranking of Island in terms of Human Development

Ranking Human Development		
Island	Mean	Rank
Agati	0.829948148	1
Kalpeni	0.741311111	2
Kadmat	0.711688889	3
Kavarathi	0.708340741	4

Androth	0.695096296	5
Kilthan	0.692844444	6
Chetlath	0.681259259	7
Amini	0.660103704	8
Bitra	0.524488889	9

The above tables show the various descriptive statistics of different human development indices at island level. The mean value shows, the islands such as Agati, Kalpeni, Kadmat and Kavaratti recorded high human development whereas Androth, Kilthan, Amini, Chethlath and Bitrahas moderately developed. But none of the Island lag behind in the human development.

Table 10: Inter-Island variation in Human Development

Inter-house variation-Lowest in HDI		
Island	SD	Rank
Kilthan	0.036122	1
Kalpeni	0.039218	2
Agati	0.043731	3
Chetlath	0.044951	4
Amini	0.046607	5
Kavarathi	0.047529	6
Androth	0.053135	7
Kadmat	0.064648	8
Bitra	0.065579	9

The lower value of Standard deviation indicate a lower amount of inter-household variation in human development. Inter household variations in human development is very low in Kilthan, followed by Kalpeni and Agati and it is high in Bitra, Kadmat and Androth. But as a whole all the islands have very low disparity among households in the case of human development.

Table 11: Ranking of the Islands in terms of various Index

Islands	Health Index	Rank	Education Index	Rank	Asset Index	Rank
Agati	1	2	0.763977778	1	0.725866667	4
Amini	0.553333333	9	0.710511111	5	0.716466667	7
Androth	0.666666667	6	0.699688889	7	0.718933333	5
Bitra	0.7	4	0.624422222	9	0.492546667	9
Chethlat	0.625	7	0.706111111	6	0.712666667	8
Kadmat	0.666666667	5	0.740666667	3	0.727733333	3
Kalpeni	0.75	3	0.739933333	4	0.734	2

| Kavaratti | 1 | 1 | 0.687488889 | 8 | 0.770866667 | 1 |
| Kilthan | 0.616666667 | 8 | 0.744066667 | 2 | 0.7178 | 6 |

The health index comprises of access to safe drinking water, access to ideal toilet facility and access to health centres. In all these indicators, Kavaratti and Agati stood first followed by Kalpeni and Amini stood as last followed by Kilthan and Cethlath. The educational index comprises of two indicators like educational status of the adult members and non-adult members. In Educational index Agati stood first and Bitra last. The asset index is a combination of many indicators such as cultivable land, housing conditions, livestock, vehicle and financial access. In this regard Kavaratti stood fist and Bitra as least.

Table 12: Human Development Index

Year	HI	EI	YI	HDI	Rank
1996	0.755	0.632	0.671	0.686	5
2006	0.729	0.63	0.73	0.697	10

HI is the Index of 'A long and healthy life' based on Infant Mortality Rate and Life Expectancy at age 1; EdI is the Index of 'Knowledge' based on 7+ Literacy Rate and Mean Years of Education for 15+ age group; YI is the Index of 'A decent standard of living' based on Earned Income and HDI is the 'Human Development Index'.

The second largest losses in rank were happened in the case of Lakshadweep within 10 years. The value of the health index or 'A Long and Healthy Life' Index declined over the decade for Lakshadweep due to worsening of the infant mortality rate in 2006.

The score for the Knowledge Dimension decreased by 0.002 for Lakshadweep. In the case of Gender related HDI also, the largest losers were Lakshadweep. The GDI score declined over the decade by 0.025 points. While gender imbalances exist in all States and UTs, in 2006 the imbalances were higher than the national average of 0.015 in 14 States and UTs. The differentials were largest in Lakshadweep (0.062)

Table. 13: Status of IMR in 1996 and 2006

		2006		1996		
State	Males	Females	Total	Males	Females	Total
Kerala	14	16	15	13	14	14
Lakshadweep	29	21	25	25.2	5.9	16.3
All India	56	59	57	71	73	72

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Table 14: Comparison between HDI and HHDI

Statistics	Health Index	Education Index	Asset Index	HHDI
HHDI	0.69	0.71	0.71	0.708
HDI	0.72	0.63	0.73	0.697
Difference	-0.03	0.08	-0.02	0.011

The above table shows that both HDI and HHDI are giving almost similar results. So in places like Lakshadweep, where limited number of people are living the HHDI method will give you as similar results. HDI is an overall average but HHDI is not purely average, it reflects the conditions of household.

Major Findings

1. Human development scenario is not high in Lakshadweep Island. 57.2 per cent household has achieved high level of human development. Moderate level of human development is attained by 48.8 per cent households. The Lakshadweep people enjoy a good standard of living and better human development

2. The gap between two extreme households in respect of HDI and three dimensional indices is comparably low (0.33), but in the cases of life expectancy and education index the gap is somewhat moderate. The inter-household variation in the level of human development in Lakshadweep Island is relatively low.

3. The disparity among households in the island is high in respect of health while it is relatively low in case of asset and education.

4. HHDI method is giving better and almost similar results as HDI giving. HDI presents over all averages and thus conceals wide disparities in distribution of human development in overall population and does not take into account the distribution of human development within a population subgroup. HHDI is not purely average, it reflects the human development of each of household.

References

Anand S. and A. Sen. 1992. 'Human Development Index: Methodology and Measurement', *Human Development Report Office Occasional Paper 12*, UNDP, New York.

Carmen Herrero& Ricardo Martínez& Antonio Villar. 2010. 'Improving the Measurement of Human Development," *Human Development Research Papers* (2009 to present) HDRP-2010-12, Human Development Report Office (HDRO), United Nations Development Programme (UNDP).

Foster J.E., L.F. Lopez-Calva und M. Sz´ekely. 2005. 'Measuring the Distribution of Human Development: methodology and an ap-

plication to Mexico', *Journal of Human Development*, vol. 6 no 1.

Harttgen K. and S. Klasen. 2010. 'A Household-Based Human Development Index', *Human Development Research Paper* 2010/22.

Ranis G., F. Stewart and E. Samman. 2006. 'Human Development: beyond the HDI', *QEH Working Paper Series* -QEHWPS135.

Sagar A.D. and A. Najam. 1998. 'The Human Development Index: A Critical Review', *Ecological Economics*, vol. 25, pp 249-264.

Harttgen, Kenneth and Stephan Klasen. 2010. "A Household Based Human Development Index." *United Nations Development Programme, Human Development Reports Research Paper* 2010/22.

Sagar A.D. and A. Najam. 1998, "The Human Development Index: A Critical Review", *Journal of Ecological Economics*, 25, pp 249-264.

Pandey A.K. and Dixit A. 2012. "Household Based Human Development Index: A study of Indian States", paper presented in the 48th Indian Econometric Society (TIES) conference, Pondicherry University.

Roy M and M Raju. 2012. " Household Based Human Development in Rural Areas: An Empirical Analysis from Hilakandi District of Assam", paper presented in the 48th Indian Econometric Society (TIES) conference, Pondicherry University.

Basic statistics. 2007. Planning and Statistics Department, Lakshadweep.

State Development Report of Lakshadweep. 2005. Planning Commission, Lakshadweep

www.Lakshadweep nic.com