

Multidimensional poverty index of totos- The smallest and primitive tribe in jalpaiguri district of West Bengal

Subhasis De[✉] and Kanchan Datta²

Department of Economics, University of North Bengal, India.

✉Corresponding author: subhasis.apd007@gmail.com

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Abstract

The Toto is one of the smallest and primitive tribe of our country. Due to isolation these people are able to preserve their primitive culture. They had settled only in a small village situated on the western bank of the river Torsha. This area located on the border area between India and Bhutan. Its distance from Jalpaiguri district town is 100 k.m. North –East and 67 km North –West from Alipurduar sub divisional town and 21 km North only from Madarihat. In the old days the Totos were exclusively dependent on the forest products. Hunting and gathering of timber, fruits and forest nuts constituted their main source of living. But in course of time they have brought changes in their style of living, since their initial sources of income gradually became harder. Later they worked as porters and carried oranges from Bhutan to the sellers of plain area for their subsistence and livelihood. Recently government has taken many steps to facilitate the living hood of Totos , primary school, high school and health centers are there in Toto para. In this paper an attempt has been taken to measure the Multi-dimensional Poverty Index of Toto community. Poverty was measured in Human Development Reports through the Human Poverty Index (HPI) from 1997-2009. In 2010, the MPI replaced the HPI. The MPI addresses the imperfections of HPI by allowing comparisons across countries or regions of the world, as well as within-country comparisons between regions, ethnic groups, rural and urban areas. The MPI reveals the combination of deprivation that strike a household at the same time. A household is considered as multidimensionally poor if it is deprived in some combination of indicators whose weight sum is 30% or more of the dimension.

Keywords: Human development, toto Community

The Toto is one of the smallest primitive tribe of our country. Due to isolation these tribal people are able to preserve their primitive culture. They had settled only in a small village situated on the western bank of the river Torsha. This area located on the border area between India and Bhutan. Its distance from Jalpaiguri district town is 100 k.m. North –East and 67 km North –West from Alipurduar sub divisional town and 21 km North only from Madarihat. The area of entire Toto para is 1996.96 acres (8.0814 sq.km). The Toto localities of the Village are sub divided in to six segments, Panchayatgaon, Mandolgaon, Subbagaon, Mitragaon, Pujagaon and Dumchigaon under Madarihat block. In the old days the Totos were exclusively dependent on the forest products. Hunting and gathering of timber, fruits and forest

nuts constituted their main source of living. But in course of time they have brought changes in their style of living, since their initial sources of income gradually became harder. Later they worked as porters and carried oranges from Bhutan to the sellers of plain area for their subsistence and livelihood. Recently government has taken many steps to facilitate the living hood of Totos, primary school, high school and health centers are there in Toto para.

The available data shows that during pre-independence era their numerical strength was few but rising. It is learnt often that the Toto is gradually decreasing but actually the picture is reverse (see Table). The increase in the population was possible due to the changed situation after independence

when intensive welfare programmes were launched by governmental and non-governmental agencies. The mortality rate among them is checked due to various health measure programme among them, moreover, they have now come in contact with outsiders which result borrow many ideas from them regarding the development of their way of life.

Table 1. Population of Totos of Totopara as per record

Years and Source	No. of house-holds	Male	Female	Total
1901 (Census)	36	72	99	171
1911 (Census)	60	125	110	235
1911 (Gait and Grierson)	60	149	110	259
1921 (Census)	60	140	131	271
1931 (Census)	---	130	204	334
1941 (Census)	---	159	162	321
1951 (Census)	69	161	160	321
1961 (Census)	85	423	193	616
1962 (I.S.I.)	85	206	189	395
1971 (Teacher-cum organizer)	96	332	318	650
1972 (C.Sanyal)	---	---	---	584
1976 (An. S.I.)	---	---	---	641
1979 (C.R.I.)	123	343	332	675
1980 (North Bengal University)	130	352	345	697
1981(Census)	135	357	349	706
1985(A. Sarkar)	147	407	378	785
1991(Census)	141	471	457	928
2001 [Tribal Welfare	238	610	565	1175
2011 Office, Alipurduar]	306	739	650	1389

Poverty is obviously an important element to consider in development, and indeed stated 'goals of development' often emphasize a reduction in poverty as a main source of success. However, poverty means very different things to different people. There have been many ways of formally identifying poverty over the years. An early example is the notion of 'subsistence' people are said to be in poverty if their incomes are not sufficient to maintain a minimum level of food, and clothing. Another view is the 'basic needs approach' adopted by the International Labour Organization (ILO) in the 1970's. This is a broader based definition that includes shelter, drinking water, sanitation, education, health care etc,

as well as food and clothing. Thus the measurement of poverty has long been a major concern, but due to differences in meaning there are problems.

A commonly applied approach, although highly simplified, is to consider the notion of a 'poverty line'. This defines poverty in terms of an income below which people are deemed to be in poverty (i.e not able to afford all the requirements for subsistence or basic needs). It can be determined in various ways, but the typical approach is to set it in terms of financial income (usually daily). In terms of international figures for the poverty line, the notional values of US\$1 per day (adjusted for PPP of course) are often used by aid agencies and the media. Thus Poverty has traditionally been measured in one dimension, usually income or consumption. This analysis considers the minimum requirement to live a non-impecunious life, valued at the current prices. People having income insufficient to cover that requirement considered as poor. Generally there are three 'income based' indicators of poverty which employ the poverty line as a standard.

- Headcount Ratio (H)
- Income Gap Ratio (I)
- Poverty Gap Index (P)

Headcount Ratio (H)

The Headcount Ratio (H) is the simplest of the four indicators. It is the proportion of the population below the poverty line. $H = \frac{\text{Number of Poor}}{\text{Total Population}}$. It ranges from 0 (i.e no one is poor) to 1 (i.e every one is poor). But the main problem with the Headcount Ratio is that it does not take into account the depth of poverty (i.e how far below the poverty line people are).

Income Gap Ratio (I)

Income Gap ratio (I) was designed to focus on the depth of poverty below a nominal Poverty Line. It is the average deviation from the poverty line for people who are below the poverty line.

I= total deviation from the poverty line /number of people below the poverty line. The higher the value of the Income Gap Ratio, the greater the average depth of poverty. However, there is another problem in that, like all averages, the Income Gap Ratio can hide the variation in the gap.

Poverty Gap Index (P)

P= Headcount Ratio * Income Gap Ratio

The Poverty Gap Index adjusts or weights the value of the income gap ratio to take in to account the proportion of the population that are classified as poor in terms of the poverty line being used . Therefore, as with the other two indicators, the lower the value of P₁ the better and a P₁ value of zero means that nobody is poor. The Poverty Gap index does not cover the nature of the distribution of the income of poor people (i.e those below the poverty line)

The Income Gap Ratio only tells us about the average depth of poverty and the Headcount Ratio only informs us about the proportion of the population below the poverty line. Multiplying them together has provided a correction to I allowing for H, but that is all.

Though ‘income based’ indicators of poverty provide us with useful information, yet these one-dimensional measurements are unable to arrest multiple aspects that contribute to poverty. In 1997, Human Development Reports (HDRs) introduced a composite indicator, Human Poverty Index (HPI), to cover three basic dimensions of human life-a long and healthy life, knowledge and a decent standard of living. The HPI is realized seperately for developing countries (HPI-I) and a group of select high income OECD countries (HPI-II).

Indicators

HPI-I	HPI-II
Deprivation of Survival (P ₁)	Deprivation of Survival (P ₁)
Deprivation of Knowledge (P ₂)	Deprivation of Knowledge (P ₂)
Deprivation of decent standard of living (P ₃)	Deprivation of a decent standard of living (P ₃)
	Social exclusion (P ₄)
$HPI-I=[(P_1^3+P_2^3+P_3^3)/3]^{1/3}$	$HPI-II=[(P_1^3+P_2^3+P_3^3+P_4^3)/4]^{1/3}$

The HPI has some pullbacks due mainly to the fact that it does not provide the number of people below a certain ambit. Rather this composite index based on three components, provide the overall incidence of poverty.

Some critics ask, “Why are only 3 indicators included in the HPI?” More indicators could provide a more elaborate estimate of the other important causes of poverty.

Since life expectancy and adult literacy make improvements only in the long-run, the HPI becomes less fruitful for short-run resolution. For these reasons the Human Poverty Index (HPI) was replaced by Multidimensional Poverty Index (MPI) in 2010.

Multidimensional Poverty Index (MPI)

The Multidimensional Poverty Index (MPI) was developed in 2010 by Oxford Poverty and Human Development Initiative and the United Nations Development and uses different factors to determine poverty beyond income-based lists. The MPI is an index of acute multidimensional poverty. It shows the number of people who are multi-dimensionally poor and the number of deprivations with which poor households typically contend.

The MPI is an index designed to measure acute poverty. Acute poverty refers to two main characteristics. First, it includes people living under conditions where they do not reach the minimum internationally agreed standards in indicators of basic functionings, such as being well nourished, being educated or drinking clean water. Second, it refers to people living under conditions where they do not reach the minimum standards in several aspects at the same time. In other words, the MPI measures those experiencing multiple deprivations, people who, for example, are both undernourished and do not have clean drinking water, adequate sanitation or clean fuel.

The MPI reveals the combination of deprivation that strike a household at the same time. A household is considered as multidimensionally poor if it is deprived in some combination of indicators whose weight sum is 30% or more of the dimension.

The MPI combines two key pieces of information to measure acute poverty: the incidence of poverty, or the proportion of people (within a given population) who experience multiple deprivations, and the intensity of their deprivation - the average proportion of (weighted) deprivations they experience. Poverty was measured in Human Development Reports

through the Human Poverty Index (HPI) from 1997-2009. In 2010, the MPI replaced the HPI. The MPI addresses the imperfections of HPI by allowing comparisons across countries or regions of the world, as well as within-country comparisons between regions, ethnic groups, rural and urban areas, and other key household and community distinctions.

Indicators

The index uses the same three dimensions as the Human Development Index, health, education, and standard of living. These are measured using ten indicators.

Dimension	Indicators
Health	Child Mortality Nutrition
Education	Years of school Children enrolled
Living Standards	Cooking fuel Toilet Water Electricity Floor Assets

Each dimension and each indicator within a dimension is equally weighted.

Objective of the Study

To measure acute poverty that is the proportion of people who experience multiple deprivations and the intensity of such deprivations in Toto tribe.

Methodology of the Study

The Multi-dimensional Poverty Index (MPI) identifies multiple deprivations at the individual level in health, education and standard of living. The MPI value is the product of two measures. The multi-dimensional *head count ratio* and the *intensity of poverty*. The head count ratio H, is the proportion of the population who are multi-dimensionally poor, $H=q/n$, where q is the number of people who are multi-dimensionally poor and n is the total population.

The intensity of poverty A, reflects the proportion of the weighted component indicators, d, in which, on average, poor people are deprived. For poor households only, the deprivation scores are summed and divided by the total number of indicators and by the total number of poor persons.

$=\Sigma q.c/q.d$, where c is the total number of weighted deprivations of the poor experience and d is the total number of component indicators considered.

Each person is assigned a score according to his or her household’s deprivations in each of the 10 component indicators, (d). The maximum score is 10, with each dimension equally weighted, thus the maximum score in each dimension is 3.33. The Health and Education dimensions have two indicators each so, the component is worth 3.33/2 or 1.67. The standard of living indicators dimension has six indicators, so each component is worth 3.33/6 that is 0.56.

- ❑ The health thresholds are having at least one household member who is malnourished and having had one or more children died.
- ❑ The education thresholds are having no household member who has completed five years of schooling and having at least one school-age child (upto grade -8) who is not enrolled in school.
- ❑ The standard of living thresholds relate to not having access to clean drinking water, not having access to adequate sanitation, using dirty cooking fuel (dung, wood or charcoal) having a home with a dirt floor and owning no car, truck or similar motorized vehicle and owning at most one of these assets: bicycle, motor cycle, radio, refrigerator, telephone or television.

To identify the multi-dimensionally poor, the deprivation scores for each household are summed to obtain the household deprivation(C). A cutoff of 3, which is the equivalent of one third of the indicators is used to distinguish between the poor and non poor. If C is 3 or greater, that household (and everyone in it) is multi-dimensionally poor. Households with a deprivation count between 2 and 3 are vulnerable to or at risk of becoming multi-dimensionally poor. The computation of MPI is based on the following questions

Use of Indicators

The following ten indicators are used to calculate the MPI:

- ❑ Education (each indicator weighted equally at 1/6)
 - Years of Schooling: If no household member has completed five years of schooling
 - Child School Attendance: If any school-aged child is out of school in years 1-8
- ❑ Health (each indicator weighted equally at 1/6)
 - Child Mortality: If any child has died in the family
 - Nutrition: If any adult or child in the family is malnourished
- ❑ Standard of Living (each of the six indicators weighted equally at 1/18)
 - Electricity: If household does not have electricity
 - Drinking Water: If does not meet MDG definitions, or is more than 30 mins walk
 - Sanitation: If does not meet MDG definition, or the toilet is shared
 - Flooring: If the floor is dirt, sand, or dung
 - Cooking Fuel: If they cook with wood, charcoal, or dung
 - Assets: If do not own more than one of radio, tv, telephone, bike, motorbike, or refrigerator and do not own a car or truck.

Empirical Findings

Table 1

Total households = 49

Age Structure of the respondents	25-35	36-46	47-57	58-68	69-79
	10.2%	49%	28.6%	10.2%	2.0%

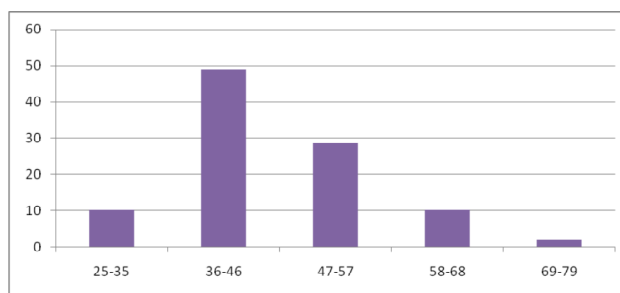


Figure 1. Age structure of the respondents is shown through bar diagram

Findings

The total sample is 49. This is almost 15% of the total Toto households. From the above bar diagram it is clear that the maximum respondents are with in the age group 36 to 46. Only 2% is with in the highest age category. It implies life expectancy of the Toto tribe is below the national average.

Table 2. Survey Statistics

S.No	Total members in household	Weighted deprivation	Whether the household poor?
1	6	3.33	yes
2	6	1.12	no
3	2	6.68	yes
4	5	6.12	yes
5	6	5.01	yes
6	4	8.90	yes
7	3	5.57	yes
8	2	7.80	yes
9	2	8.33	yes
10	4	10.0	yes
11	6	10.0	yes
12	6	7.77	yes
13	3	3.91	yes
14	3	7.24	yes
15	10	8.33	yes
16	8	7.77	yes
17	9	6.66	yes
18	5	6.68	yes
19	6	5.57	yes
20	4	3.35	yes
21	3	2.80	no
22	7	8.88	yes

23	4	1.68	no
24	3	3.35	yes
25	9	8.33	yes
26	7	2.79	no
27	6	7.77	yes
28	5	1.68	no
29	6	3.91	yes
30	4	7.80	yes
31	7	10.0	yes
32	5	8.33	yes
33	10	7.77	yes
34	6	3.35	yes
35	8	6.11	yes
36	6	7.77	yes
37	6	0.56	no
38	4	6.13	yes
39	7	0.56	no
40	9	7.77	yes
41	4	3.91	yes
42	6	3.91	yes
43	4	1.68	no
44	10	10.0	yes
45	7	7.24	yes
46	5	2.79	no
47	5	9.44	yes
48	3	0.56	no
49	4	3.35	yes

Table 2 shows out of 49 samples only 10 households are not multi dimensional poor, but the rests that is 39 households are multi dimensional poor, since the limit of the weighted deprivation is 3 below which one is not treated as poor.

Table:3 Calculation of Multidimensional Poverty Index (MPI)

Total population= 270
Total Multi dimensional poor population=220(81.5%) i.e H=0.8148
Total non-poor Population =50 (18.5%)
Intensity of deprivations i.e A= 0.70
Multi dimensional Poverty Index (MPI)= H* A=0.8148*0.70= 0.57

Table 3 shows total population of Toto tribe in this study is 270. Out of this total multidimensional poor population is 220 that is 81.5%. that is 81.5% of

people live in poor households Hence Head Count Ratio (H=0.8148). Intensity of Deprivation is 0.70. The average poor person is deprived in 70% of the weighted indicators. MPI is 0.57 i.e 57% of the population is multi-dimensionally poor ,adjusted by the intensity of deprivation suffered.

Conclusion

The MPI represents the share of the population that is multi-dimensionally poor, adjusted by the intensity of the deprivation suffered in this example it is 57%of population. This value is much higher than all India average and more or less equivalent to Ethiopia.The only limitation of this study is the number of sample, it is near about 10% of the total households in Toto para. So the result may differ for a large sample. But this study provides an opportunity for future researcher to inquire the various causes of their poverty, the effectiveness of government policies for poverty eradication etc. Though recently government of West Bengal has taken many steps to reduce this problem eg. Giving rice at ₹ 2 per kg etc. This year one Toto girl got government job, some Toto students passed in Madhyamic examination and a few students qualified in H.S. exams. All these results show that only government’s initiatives and their education can solve their acute poverty problem. Finally we conclude with the words of Rita Toto “There are facilities for studying till Madhyamik (class 10) at Totopara, but access to higher education is difficult. The tribe elders set in their ways, are not keen on education as they feel no opportunities open up for the educated youngsters. A government policy promising a job for every educated youth would go a long way in convincing tribe elders to send their children to schools”Rita Toto –the first women graduate from the dwindling Toto Tribe.

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