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A Comparative Study of Income-based and Deprivation-based Poverty Approach: A Study on Pahadi Korwa Tribe of Chhattisgarh

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Abstract

The present paper is attempted to investigate the difference and discrepancy between the income-based and deprivation-based poverty measurement in poverty of Pahadi Korwa tribes of Chhattisgarh. Two international poverty measurement approach is considered for poverty measurement of Pahadi Korwa tribes, first income-based measurement developed by World Bank and second, Multidimensional Poverty Index developed by United Nation Development Program (UNDP). Research study is based on primary data of 80 household collected from 8 village of 2 block of Sarguja and Korba district (1 block each) of Chhattisgarh State. Results shows that 93% Pahadi Korwa peoples are poor in income-based poverty whereas, 48.16% Pahadi Korwa peoples are poor in deprivation-based poverty measurement. A difference of 44.84% is found in the measurement of poverty by both the poverty measurement approach and this discrepancy is more in income-based poverty as compare to multidimensional poverty measurement. The study also reveals that health facilities, Education, cooking fuel, sanitation and housing conditions are the major contributor in the poverty of Pahadi Korwa Tribes.

Keywords: Multidimensional Poverty Index, Income-based Poverty, Pahadi Korwa Tribe

Introduction

Poverty, a global phenomenon and biggest hurdle in the path of development. It is a challenge for economists, policymakers, and even government to understand it. Every developing country faces poverty as a big challenge. The effort which governments are taking in different nations to eradicate poverty in rural and urban areas are really appreciable but to reach tribal areas is a big challenge in itself. There are various measures of poverty, however, two international approach of poverty measurement, First income based developed by World bank and second Deprivation based multidimensional poverty index developed by United nation development Program is popularly famous in poverty measurement. But researcher and policy makers are



always debate between income-based and deprivation-based poverty measurement because of difference or discrepancy in the results of both the measures.

Sen (1992) in his book "Inequality Re-examined" written that poverty is not due to lack of income but it is deprivation in basic human capabilities. Income poverty seems poverty as a result of inability of the individual or family to congregate their basic needs (world bank, 2000). Still most of the nation developed or developing nation like India consider and using income or consumption expenditure of the people's to measure poverty (Santos and Alkire,2011). There is negative relationship between income and multidimensional poverty (Wang et.al,2016). There are some other literature studies which argues that the poverty is due to experience of various deprivations and non-monetary measure is complementary to monetary measure for measuring poverty (Alkire and Santos, 2010; Nishimwe-Niyimbanira, R ,2019; Salgotra et.al.,2020; Wang, X.,2022; Roy & Chakraborti, 2023)

The discussion above, revealed that there is some confliction and difference in the measurement value of poverty in both the approach and is related to development policies. This paper tries to measure the poverty in both the approach (income-based and deprivation Based) to find the difference and confliction in values of poverty in Pahadi Korwa tribes of Raigarh & Korba district of Chhattisgarh state. In the end this paper gives suggestions to policy makers, governments and researchers through they can reduce poverty significantly.

The paper is structured in 6 sections as follows: Section 1 presents the problem statement of research, Section 2 presents the objective of the research study, section 3 presents sources and nature of data, Section 4 presents theoretical and empirical Methodology, section 5 explains result & discussion and finally Section 6 deals with conclusion & suggestions.

Objective

The present research has a following objective:

- 1. To measure the income-based poverty in Pahadi Korwa Tribe.
- 2. To measure the deprivation-based (Multidimensional poverty) in Pahadi Korwa Tribe.
- 3. To compare the income based and deprivation-based poverty of Pahadi Korwa tribe.

Sources and Nature of Data

The data for the study chosen is primary by nature collected from Pahadi Korwa tribes of Chhattisgarh state. Purposive multistage mixed sampling was used to collect primary data. A 80 households from 8 villages (Bhudkudwa, Remhla, Devbhudu, Bendopani, Tokabhata, Daldali, Baghmara and Chhatasarai) from two block Lakhanpur of Sarguja district and Korba of Korba district of Chhattisgarh state was chosen as sample for the study. Data was collected through interview schedule and direct personal investigation method. The data was collected between December 2023 to April 2024. The data was analyzed in MS Excel with the help



of various statistical tools like average, percentage, scattered diagram etc.

Theoretical and Empirical Methodology:

In order to fulfil the above-listed objectives of the study, exploratory research design have been adopted. To measure the income-based poverty World Bank updated global poverty lines 2.15 (178.87) per person per day (September 2022) based on 2017 PPP (Purchasing Power parity) is used to measure the income-based poverty. For measuring multidimensional poverty of tribals Multidimensional Poverty Index developed by Oxford Poverty and Human development Initiative (Alkire-Foster Method) is used in which 10 indicators of 3 dimensions of poverty is taken into study namely Education, Health and Standard of living. Each dimension has indicators namely Years of Schooling, School attendance for education. Nutrition and Child Mortality for health. Cooking fuel, Sanitation, Drinking water, Electricity, Housing, Assets for standard of living. Indicators are equally weighted, if a person's deprivation is 1/3 or higher is considered multidimensionally poor. The 3 statistics used to report multidimensional poverty which are as follows;

| Dimensions | Indicators | Indicators Weight | Dimensions weight | |
|--------------------|--------------------|-------------------|-------------------|--|
| Education | Years of Schooling | 1/6 | . 1/3 | |
| | School attendance | 1/6 | | |
| Health | Nutrition 1/6 | 1/6 | 1/3 | |
| IItaitii | Child Mortality | 1/6 | | |
| Standard of living | Cooking fuel | 1/18 | | |
| | Sanitation | 1/18 | | |
| | Drinking water | 1/18 | 1/2 | |
| | Electricity | 1/18 | 1/5 | |
| | Housing | 1/18 | | |
| | Assets | 1/18 | | |

| Table 1: Dimensions and | indicators f Multidimensional | Poverty Index |
|--------------------------|-------------------------------|---------------|
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Source: Changes over time MPI Methodology Note -July 2020

For calculating multidimensional poverty each person according to her household's deprivation assigned a deprivation score in each indicator. The deprivation score of each indicator is summed to identify the household deprivation score and multidimensionally poor people.

The Headcount Ratio is the proportion of multidimensionally poor people in the population which is calculated as below:

 $Head \ Count \ Ratio = \frac{Number \ of \ people \ who \ are \ multidimentionalily \ poor}{Total \ Population}$



The Intensity of Poverty is the average proportion of the weighted component indicator in which multidimensionally poor people is deprived which is calculated as below:

 $Intensity of Poverty = \frac{\text{Deprivation score of } ith \text{ multidimensionally poor}}{\text{Number of people who are multidimensionally poor}}$

Multidimensional Poverty Index value is the product of head count ratio and intensity of poverty which is calculated as below:

Multidimensional poverty Index = Head Count Ratio X Intensity of Poverty

Contribution of dimensions (Education, Health and Standard of living) is the measurement of contribution of dimension in MPI, it provides information about the deprivation structure if the population in MPI which is calculated as below:

$$Contrib_d = \frac{\sum_{j \in d} \sum_{1}^{q} c_{ij}}{\frac{n}{MPI}}$$

Where,

d = Education, Health or Standard of living

n = Total population.

q = the number of people who are multidimensionally poor.

j = the sum of weights associated with each indicator of d .

 C_{ij} = weight associated with j indicator of . i^{th} multidimensionally poor.

Censored headcount rates of indicators is the proportion of people who are multidimensionally poor and deprived in each indicator which is calculated as below:

$$MPI = \sum_{i=1}^{10} C_i \cdot H_i$$

Where,

 C_i = weight associated with *i* indicator.

 H_i = Headcount rate of *i* indicator.

 $i = \text{Each indicator} (1, 2, \dots, 10)$



Result & Discussion

The first objective of the research study is to measure the income-based poverty of Pahadi Korwa tribes for that income of 80 household is collected and analysed. As per world bank global poverty lines \$2.15 (₹178.87) per person per day (September 2022) based on 2017 PPP. It is converted in per capita monthly income to ₹ 5366 and analysed. Figure 1 show the results of income-based poverty measurement, it reveals that 93% population is found poor in income-based poverty measurement. The poverty value shows 0.9305 household has below poverty line i.e., ₹ 5366 per capita monthly income. Results also shows that the concentration of population is in between the monthly income ₹ 100 to ₹ 4000, only few people is in between the monthly income ₹ 4000 to ₹ 6000 and only 07 household is found above the poverty line.



Figure 1: Income Based Poverty Measurement

Source: Authors calculation using Primary data.

The second objective is to measure deprivation-based poverty for that Multidimensional Poverty Index (MPI) developed by Oxford Poverty and Human development Initiative (Alkire-Foster Method) is used in which 10 indicators of 3 dimensions of poverty is taken into study namely Education, Health and Standard of living. Total 371 peoples in 80 households is analysed, Figure 2 shows the result of Deprivation Based (MPI) Poverty Measurement it reveals that the MPI value of Pahadi Korwa tribes is 0.4816 which means 48.16 % of population is deprived poor or multidimensionally poor and 51.84 % is considered less deprived or considered non poor category.





Source: Authors calculation using Primary data.



Figure 3: Percentage wise contribution of dimensions in MPI

Source: Authors calculation using Primary data.

Figure 3 shows the contribution of dimensions (Education, Health & Standard of living) in MPI. The result of deprivation-based poverty measurement shows the MPI value of 0.482 in which the contribution of education is 0.1572 (32.64%), contribution of health is 0.1259 (26.16%) and contribution of standard of living is 0.1984 (41.20%). Result shows that the deprivation in standard of living is contributed highest 41.20 % in MPI followed by education 32.64% and health facilities 26.16%.



Table 2 shows the Censored headcount rates for each indicator in MPI. Results shows that, the indicator contribution in MPI are as follows: 0.106 by Nutrition, 0.020 by Child & Adolescent Mortality, 0.070 by Year of Schooling, 0.087 by School Attendance, 0 by electricity, 0.052 by Sanitation, 0 by Drinking water, 0.052 by Housing, 0.052 by Cooking Fuel and 0.042 by Assets. It also reveals the People who are multidimensionally poor and deprived in each indicator, which shows that 218 people deprived in Nutrition, 40 people deprived in Child & Adolescent Mortality, 143 people deprived in Year of Schooling, 179 people deprived in School Attendance, 0 people deprived in electricity, 318 people deprived in Sanitation, 0 people deprived in Drinking water, 318 people deprived in Housing, 318 people deprived in Cooking Fuel and 258 people deprived in Assets.

| Indicators | People who are multidimensionally poor and deprived in each indicator | Proportion of people who are multidimensionally poor and deprived in each indicator | Indicator contribution in MPI |
|------------------------------|--|---|-------------------------------------|
| Nutrition | 218 | 0.637 | 0.106 |
| Child & Adolescent Mortality | 40 | 0.117 | 0.020 |
| Year of Schooling | 143 | 0.418 | 0.070 |
| School Attendance | 179 | 0.523 | 0.087 |
| Electricity | 0 | 0.000 | 0.000 |
| Sanitation | 318 | 0.930 | 0.052 |
| Drinking water | 0 | 0.000 | 0.000 |
| Housing | 318 | 0.930 | 0.052 |
| Cooking Fuel | 318 | 0.930 | 0.052 |
| Assets | 258 | 0.754 | 0.042 |
| | | MPI | 0.482 |

| Table 2: Censored | headcount rat | es for each | indicator | in MPI |
|-------------------|---------------|-------------|-----------|--------|
|-------------------|---------------|-------------|-----------|--------|

Source: Authors calculation using Primary data.

Figure 4 shows the Percentage wise contribution of Indicators in MPI, result reveals that Nutrition contributed 22.10%, Child & Adolescent Mortality contributed 4.06%, Year of Schooling contributed 14.50%, School Attendance contributed 18.15%, Electricity contributed 0%, Sanitation contributed 10.81%, Drinking water contributed 0%, Housing contributed 10.81%, Cooking Fuel contributed 10.81% and Assets contributed 8.77%. result shows that Nutrition and school attendance contributed highest, Child & adolescent mortality and Assets contributed lowest whereas Electricity and Drinking water has no contribution in multidimensionally poverty.



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Figure 4: Percentage wise contribution of Indicators in MPI

Source: Authors calculation using Primary data.

Table 3: Difference in Income based and Deprivation based Poverty Measurement

| Poverty Measurement Approach | Poverty Value | Percentage of People Poor |
|------------------------------------|------------------|------------------------------|
| Income-based | 0.9300 | 93.00% |
| Deprivation-based | 0.4816 | 48.16% |
| Difference | 0.4484 | 44.84% |

Source: Authors calculation using Primary data.

The third objective of the research study is to compare the income based and deprivation-based poverty of Pahadi Korwa tribe. Table 3 & figure 5 shows the analyses results, it reveals that the value of poverty in income-based measurement is 0.930 which means 93% people of Pahadi Korwa tribe lies below poverty line whereas the deprivation-based poverty measurement shows the MPI value of 0.4816 which means the 48.16% people lies in poverty. The result shows that there is 0.4484 or 44.84% difference in poverty values between deprivation based and income-based poverty measurement.





Source: Authors calculation using Primary data.

Conclusion & Suggestion

Poverty is very important phenomenon to understand for the development of human lives. In individuals' life directly or indirectly income play very important role because it influences the standard of living and life, but it fails to give individuals or society outlook in various aspects like health, education etc. whereas nonmonetary measure gives deep outlook of individuals life or society. The present research study measures the poverty of Pahadi Korwa tribe of Chhattisgarh in both income-based and deprivation-based approach as well as tries to finds the difference between the poverty measurement values in both the approach. The study reveals the in income-based poverty measurement 93% peoples of Pahadi Korwa tribes is poor whereas, in deprivation-based poverty measurement only 48.16% peoples of Pahadi Korwa tribes are poor. There is difference or discrepancy of 44.84% is found in poverty values between both approaches. This study concluded that there is major conflict persist in both measurement approach, though income-based measurement give an idea of economically deprivation but multidimensional poverty approach give a deep understanding for intensity, magnitude and severity of poverty in Pahadi Korwa tribes, it shows that standard of living (41.20%) are major reason for their poverty, as well as in indicators Nutrition contributed 22.10%, Child & Adolescent Mortality contributed 4.06%, Year of Schooling contributed 14.50%, School Attendance contributed 18.15%, Electricity contributed 0%, Sanitation contributed 10.81%, Drinking water contributed 0%, Housing contributed 10.81%, Cooking Fuel contributed 10.81% and Assets contributed 8.77% for poverty in Pahadi Korwa tribes. On the basis of result of research study, it is suggested that government will have to focus more on health facilities specifically in nutrition, School Attendance, Year of Schooling, cooking fuel, sanitation and housing conditions to remove poverty from Pahadi Korwa Tribes of Chhattisgarh.



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