



INTERCONNECTIONS BETWEEN INCOME AND EXPENDITURE APPROACH TO MEASURE POVERTY IN NORTHERN RAJASTHAN

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Abstract: *The present study attempts to identify convenient poverty assessment in Northern Rajasthan. The study used primary data from 300 households following multistage random sampling process. In this study monthly per capita expenditure and monthly per capita income poverty lines were used as standard of measurement to measure poverty. To address dimension of poverty the study used, the FGT poverty measure that was introduced by (Foster, Greer, and Thorbecke, 1984). The study found that, income approach poverty line is 2.4 times higher than expenditure approach poverty line. Income approach estimated more number of poor than expenditure approach, 17.3 and 32 percent of sampled households are under poverty line in Northern Rajasthan using expenditure and income approaches, respectively. Expenditure approach result revealed, poverty is declining, whereas, income approach resulted poverty is increasing in the study area. Furthermore, income approach needs more resource than expenditure approach to lift households from poverty. 11.7 percent households were detected simultaneously by income–and expenditure poverty measure as poor. The poverty gap index was 0.04 by expenditure approach and 0.12 by income approach in the study area. On average 4 percent of the poverty line cash transfer needed to lift each poor person out of poverty following expenditure approach. But, on average 12 percent of the poverty line cash transfer needed to lift each poor person out of poverty following income approach.*

Key words: *Expenditure approach, Income approach, poverty, poverty gap index, Poverty Severity, Rajasthan, India*

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INTRODUCTION

Poverty measures are vital input to design, monitor and implement appropriate anti-poverty policies. Accurately measuring these indicators is no simple task, and philosophers still debate specifics of definitions. From a social researcher's point of view, poverty is a complex phenomenon influenced by a large number of factors and which can be studied from many different perspectives. The study and interpretation of poverty is not a simple task, as there are as many ways of measuring poverty as there are ways of defining it. Poverty is multifaceted, manifested by conditions that include malnutrition, inadequate shelter, unsanitary living conditions, unsatisfactory and insufficient supplies of clean water, poor solid waste disposal, low educational achievement and the absence of quality schooling, chronic ill health, and widespread common crime. However, monitoring poverty in its broad manifestations is a complex task conceptually and empirically (UN, 2005).

According to United Nation (*ibid*) there are four reasons to measure poverty. First, to keep the poor on the agenda; if poverty were not measured, it would be easy to forget the poor. Second, one needs to be able to identify the poor if one is to be able to target interventions that aim to reduce or alleviate poverty. Third, to monitor and evaluate projects and policy interventions those are geared towards the poor. And finally, to evaluate the effectiveness of institutions whose goal is to help the poor. Furthermore, it is important to measure poverty because the poverty line is used to determine eligibility for federal, state and district poverty alleviation programmes(*ibid*).

In India, poverty is neither a new nor it suddenly appeared, from 1947, late Prime Ministers Jawaharlal Nehru, up to current Narendra Modi, all fourteen Prime Ministers of India make poverty reduction part of their policy agendas. Government defines and measure poverty in ways that reflect its own circumstances and every policy is currently assessed in relation to its impact on poverty. There is increasing debate about researchers and policy makers on accuracy of poverty measures. What happened to poverty in India in the 1990s has been fiercely debated, politically and statistically. The effects on poverty remain controversial, and the official numbers published by the Government of India, showing a reduction of poverty from 36 percent of the population in 1993–94 to 26 percent of the population in 1999–00, have been challenged both for showing too little and too much poverty reduction(Deaton and Kozel,2004).Properly managed and committed policy should provide



answer to questions such as: how many poor people are there in states? How deep is their deprivation? and Has poverty risen since the last survey?

Clarification of how poverty is defined is extremely important as different definitions of poverty imply the use of different indicators for measurement; they may lead to the identification of different individuals and groups as poor and require different policy solutions for poverty reduction. In this context, a key ingredient is a set of poverty lines. A crucial question is how to discriminate the poor from the non-poor through the use of one (or several) poverty lines. A poverty line serves two roles: a normative role and a monitoring role. Defined as a social norm-in terms of per capita real income or consumption, it plays a normative role by dividing the population into poor, who do not meet the norm, and non-poor. It also serves a second role in monitoring the trends in poverty and the assessment of poverty alleviation policies.

In India, expenditure approach poverty measures have a long tradition. One should not be dogmatic about the use of consumption data for poverty measurement, however. Using income may have its own advantages. Relative to consumption, income is generally easier to report and is available for much larger samples, providing greater power to test hypotheses. Income can also be compared more easily to data from other sources, such as wages, which provides a check for the quality of the data in the household survey. Finally, when both income and consumption are available, the analyst might want to compute poverty measures with both indicators and compare the results. Therefore, the main objective of this study is to examine interconnections and differences between income and expenditure approach of poverty measurement.

METHODOLOGY:-SAMPLING TECHNIQUE

Multistage stratified random sampling procedure was adopted for the selection of 300 sampled respondents from Northern Rajasthan. Northern part of Rajasthan was purposively selected because state has given its 18th rank in poverty status among all the states of India indicates poverty problem availability which needs further study. In the second stage, out of seven districts, giving equal chance for each district, three districts namely Bikaner, Sri Ganganagar and Nagaur were selected. In the third stage, two *tehsils* from each selected district were selected randomly. Namely: in Bikaner district, Bikaner and Lunkaransar whereas in Sri Ganga Negar, Sadulshahar and Sri Ganganagar further in Nagaur, Merta and



Khinwsar *tehsils* were selected randomly. In the fourth stage, three villages from each selected *tehsil* were selected randomly. Thus, totally eighteen villages from six selected *tehsils* were selected for further selection of households. In the fifth stage, list of all households residing in each selected village from village *Patwari* and voters list available in the village *Sarpanch* were applied to pick out targeted households' using systematic sampling technique. From each district, hundred households were selected based on size proportional to household size from six randomly selected villages of a *tehsil* by using systematic sampling technique. Thus, total three hundred household's primary data collected with the aid of interview using schedules administered by the researchers were however found useful for this study.

ANALYTICAL TECHNIQUES

In this study, minimum consumption expenditure per person per month and median income per person per month are used as standard of measurement to measure poverty. When measuring poverty, analysts must have alternative ways of measuring. Measuring poverty in more than one method would increase the credibility and technical reliability of poverty measurement.

Poverty rates assessment involve three main decisions: choice of a welfare measure (basic need or relative income): choice of a poverty line (basic need poverty line or relative income poverty line) and choice of a poverty index for aggregation (we focus mainly on the P-alpha poverty indices (Foster, Greer and Thorbecke, 1984). Detail information on demographic and socio-economic characteristics is provided to strength the analysis.

WELFARE MEASURE

For welfare measure this study focused exclusively on household private consumption expenditure and annual income, although this is not to deny the importance of the many other dimensions of welfare or intra-household issues. We scale household private consumption expenditure and annual household income by per capita monthly expenditure and income equivalence scales and hence focus on consumption and income per adult equivalent.

DETERMINATION OF POVERTY LINES

Poverty line can be referred to as the level of welfare which distinguishes poor households from non-poor households. It is a pre-determined and well-defined measure of income or



value of consumption (expenditure). Poverty lines are often drawn either in relative or in absolute terms. In the former, a proportion of the mean expenditure is taken as the poverty line, usually the one-third (which defines the core poverty line) and two-third (which defines the moderate poverty line) of mean expenditure have been commonly used.

Relative to consumption, income is generally easier to report and is available for much larger samples, providing greater power to test hypotheses. Accordingly, this study utilized the mean per adult equivalent household income (MPAEHI) as a measure of relative poverty line. The mean per adult equivalent household income of the sample respondents was determined by first dividing the total annual income of each household for all households adjusted for adult equivalent. Dividing mean per adult equivalent household income by 12 months would result to mean monthly per adult equivalent household income. Two-third ($2/3$) of the MPAEHI mean monthly per adult equivalent household income is poverty line. Hence, extremely (core) poor, moderately poor and non-poor household were identified based on poverty line. Those households whose income is less than one-third ($1/3$) of MPAEHI were classified as extremely poor, less than two-third ($2/3$) of the MPAEHI as moderately poor, while non-poor are those whose mean monthly per adult equivalent household income is more than poverty line.

In measure of extent of poverty, the choice of income or consumption expenditure as best indicator for living standard measurement of households is another point of debate. Government of India and most analysts prefer to use current consumption as an indicator of living standard measurement because income of the poor often varies over time. Rural households in developing countries also have the difficulty of excluding farm input costs from their revenue in estimating their income, and inaccuracy is tenable. Sometimes it is also common to have underestimated income figures as people are reluctant to give accurate information about their incomes (Atkinson, 1991; Chaudhuri&Ravallion, 1994; Deaton &Grosh, 2000; Deaton &Zaidi, 2002; Kyereme&Thorbecke, 1991). Expert group to review the methodology for measurement of poverty for India accepted consumption expenditure per person or preferably per household based poverty measurement is best approach than deprivations or other base approach (Rangarajan, 2014).Relative to consumption, income is generally easier to report and is available for much larger samples, providing greater power to test hypotheses.



In this study, to address dimension of poverty in the study area, the FGT poverty measure that was introduced by (Foster, Greer, and Thorbecke, 1984) was used. The first step was by distinguishing between the poor and non-poor using poverty line. Poverty line is a monthly per capita consumption expenditure per person or a cut of living standard level below which an individual is considered to be poor (Rangarajan, 2014, MoFED, 2013; Doyle, 2003; Ravallion, 1992). Individual household minimum consumption expenditure per person data, firstly, households was classified as poor and non-poor as compared with Rajasthan state rural poverty line standard. According to expert group of India (Rangarajan, 2014) monthly per capita consumption expenditure of Rs.1035.97 in rural areas and Rs.1406.15 in urban areas is treated as the poverty line at the Rajasthan state level. Any household failing to meet this level of consumption expenditure can be treated as a poor household. Hence, for this study, following (Rangarajan, 2014)Rs.1035.97 per adult equivalent per month in rural areas was employed as a cut-off value between poor and non-poor households. People are counted as poor when their measured standard of living (generally in any consumption expenditure) is below poverty line, otherwise non-poor (Rangarajan, 2014). Our focus here is on situations of absolute poverty as measured by a fixed poverty line, following government of India poverty line in rural Rajasthan.

Based on data from households, this study used three poverty dimension instruments that were identified by (Foster, Greer, and Thorbecke, 1984) to achieve the objective related to the extent of poverty in Northern Rajasthan. These included headcount index; the poverty gap index; and severity index or Foster-Greer- Thorbecke (FGT) index of poverty. Using these three poverty dimension instruments we identified the percentage of the poor (headcount index), the aggregate poverty gap (poverty gap index), and the distribution of income among the poor (poverty severity index).

The mathematical expression of the model in Foster, Greer, and Thorbecke (1984) for poverty measure is explained by considering, P_α as class of poverty measures. By levelling real per-adult (per capita) household consumption expenditure per person, Y_i as

$$Y_1 \leq Y_2 \leq \dots Y_q \leq Z < Y_q + 1 \dots \dots \leq Y_n \text{-----} (1)$$

Where

Z = is poverty line

n = is the total population



q = the number of poor

Then, P_α is given by

$$P_\alpha = \frac{1}{N} \sum_{i=1}^q \left(\frac{Z - Y_i}{Z} \right)^\alpha \text{-----(2)}$$

Where:

P_α = Poverty measure

Z = Poverty line

N = Population number

q = Number of persons/households below the poverty line

Y_i = real per capita consumption expenditure, in the equation, $Z - Y_i = 0$ if $Y_i > Z$.

α = is the weight attached to the severity of the poor which takes the value 0, 1, 2 depending on the degree of concern about poverty.

Headcount index (P_0):-This is the share of the population whose monthly per capita consumption expenditure is below the poverty line, that is, the share of the population that cannot afford to buy a basic basket of goods. However, this index does not capture differences among the poor.

$$P_0 = \frac{1}{N} \sum_{i=1}^q \left(\frac{Z - Y_i}{Z} \right)^0 \text{-----(3)}$$

Poverty gap index (P_1):- indicates the depth of poverty or this provides information regarding how far households are from the poverty line. This measure captures the mean aggregate monthly per capita consumption expenditure shortfall relative to the poverty line across the whole population. In other words, it estimates the total resources needed to bring all the poor to the level of the poverty line (divided by the number of individuals in the population).

$$P_1 = \frac{1}{N} \sum_{i=1}^q \left(\frac{Z - Y_i}{Z} \right)^1 \text{-----(4)}$$

Poverty severity index (squared poverty gap) (P_2):-This takes into account not only the distance separating the poor from the poverty line (the poverty gap), but also the inequality among the poor, that is, a higher weight is placed on those households further away from the poverty line.



$$P_2 = \frac{1}{N} \sum_{i=1}^q \left(\frac{Z - Y_i}{Z} \right)^2 \text{-----(5)}$$

RESULT AND DISCUSSION

Poverty measures are vital input to design, monitor and implement appropriate anti-poverty policies. The measures will function well, as long as everyone agrees that when poverty numbers rise, conditions have indeed worsened (and conversely, when poverty measures fall, that progress has been made). In this section we can use aggregate survey data to compare poverty condition in Northern Rajasthan using expenditure and income approach poverty lines.

Table 1. Poverty line in expenditure and income approach

Character	Expenditure approach (Rs. per month)	Income approach (Rs. per month)
Poverty line in common measurement(Rupees)	1035.97(Rural Raj.)	2513

Source:-Survey data, 2015

Table 1 shows poverty line drawn and adopted from Government of India to compare expenditure and income approaches for assessing condition of poverty. Following expert group of India (Rangarajan, 2014) monthly per capita consumption expenditure of Rs.1035.97 in rural areas in Rajasthan state is treated as the poverty line. The relative poverty line (income approach) was drawn following our methodology discussed above. Income approach poverty line is Rs.2513. Income approach poverty line is 2.4 times higher than expenditure approach poverty line. The median per capita income was Rs.3472.2; it is also 3.35 times higher than the expenditure approach poverty line. To see the contribution of each line, dimension of poverty calculated and presented for each poverty line on table 2.

Table 2. Dimension of poverty under expenditure and income approach

Dimension of poverty	Expenditure approach	Income approach
Households categorized as poor out of 300	52	96
Headcount Index Ratio	0.173	0.32
Headcount Index Ratio in %	17.3	32

Source:-Survey data, 2015

Table 2 result depicts dimension of poverty in Northern Rajasthan using two approaches. The result indicates that, Out of three hundred sampled households in the study area, fifty two households were categorized as poor under expenditure approach and 96 households



were deemed as poor under income approach. Income approach estimated more number of poor than expenditure approach and income approach estimation was 1.8 times higher than expenditure approach. The headcount index result shows share of the population that is poor. The headcount index for expenditure approach is 0.173 and it is 0.32 for income approach. It shows the proportion of the population for which monthly per capita consumption expenditure and income is less than Rs.1035.97 and Rs.2513, respectively. This means 17.3 and 32 percent of sampled households are under poverty line in Northern Rajasthan. For 52 and 96 households monthly per capita consumption expenditure and income is less than Rs.1035.97 and Rs.2513, respectively. According to 2011/12 report of the expert group, Rajasthan state total percentage of the population below the poverty line was 21.7 percent. Expenditure approach estimated not only near to the state poverty dimension, but also it approves the declining trend of poverty status in the state. Whereas, the income approach estimated poverty level above the state average and showing that poverty is increasing.

Table 3. Poverty dimension and its overlap under expenditure and income approach

Type of approach	Number of households categorized as poor	Share in %
Both on expenditure and income approach	35	23.6
At least expenditure or income approach	113	76.4
Total	148	100

Source:-Survey data, 2015

Table 3 result depicts how households analyzed by two approaches. Out of 300 sampled households 35(23.6%) were detected simultaneously by income–and expenditure poverty measure as poor, might be a better way of identifying the poorest of the poor. These households are the the destitute, or poorest of the poor. If we take out of total sampled households 11.7 percent households are both income–and expenditure–poor. Both poverty indicators identified them as poor and they are priority area of any poverty alleviation intervention. But, majority poor, 113 (76.4%) were identified by either expenditure or income approach. The result further shows, there are households who are currently income poor’s and not now income poor’s. Out of total poor, 73 % are currently income poor; this has contributed for their less monthly per capita expenditure and 27% poor currently have enough income to expend, but they are reluctant to expend and categorized as poor. In this study household further classified under income approach in to extremely, moderately and non-poor based on poverty line. The survey data result is presented on table 4.



Table 4. Poverty classification under income approach

Classification	Classification standard based on monthly per capita income	Frequency	Percentage
Extremely (core) poor	Less than 1/3 of poverty line	15	5
Moderately poor	Between 1/3 and poverty line	81	27
Non-poor	Above poverty line	205	68
Total		300	100

Source:-Survey data, 2015

Table 4 depicts classification of poverty based on income approach. Of all, 5 percent households are extremely poor, 27 percent are moderately poor and majority 68 percent are non-poor. As mentioned above, extremely poor and moderately poor reached 32 percent of the sampled household. To understand poor and non-poor households in more detail, sampled households maximum monthly per capita expenditure and income as well as minimum monthly per capita income and expenditure are presented as follows.

Table 5:- Sampled household maximum and minimum expenditure and income

District/Area	Maximum and Minimum monthly per capita expenditure and income			
	Poor		Non-poor	
	Maximum in (Rs.)	Minimum in (Rs.)	Maximum in (Rs.)	Minimum in (Rs.)
Expenditure approach	1034	714	9128	1088
Income Approach	2496	424	30237	2524

Source:- Own calculation data, 2015

The result depicted on table 5 clearly shows the difference in monthly income and expenditure difference among poor and non-poor families in the study area. Non-poor household monthly per capita income and expenditure are far from poverty line. Non-poor maximum monthly per capita expenditure is almost 9 times higher than the recommended poverty line and similarly, non-poor maximum monthly per capita income is more than 12 times higher than the poverty line. But, poor household's minimum monthly per capita expenditure needs 31 percent of poverty line to reach minimum level and poor household's minimum monthly per capita income needs 83percent of poverty line Rupee to achieve the minimum level. From this we can understand the income approach needs more resource than expenditure approach to lift households from poverty.



Table 6:- Poverty gap and severity indexes by expenditure and income approach

Approach used	Poverty gap index(poverty depth)	Poverty severity index
Expenditure approach	0.04	0.0121
Income approach	0.12	0.065

Source:-Survey Data, 2015

The result from data on table 6 shows poverty gap and severity indexes by expenditure and income approach. Poverty gap index indicates the extent to which monthly per-capita expenditure and income of the poor falls below the poverty line in Northern Rajasthan. The poverty gap index was 0.04 for expenditure approach and 0.12 for income approach in the study area. Expenditure approach poverty gap index result shows poverty is deeper among sampled households in Northern Rajasthan than income approach. Using poverty gap information to assess how many resources would be needed to eradicate poverty through cash transfers perfectly targeted to the poor is important. In Northern Rajasthan, on average 4 percent of the poverty line cash transfer needed to lift each poor person out of poverty following expenditure approach. But, on average 12 percent of the poverty line cash transfer needed to lift each poor person out of poverty following income approach. This shows income approach demands more resource to lift poor than expenditure approach.

The squared poverty gap index is not easy to interpret as compared to headcount index and poverty gap index; however, it has the advantage of reflecting the degree of inequality among the poor, in the sense that the greater the inequality of distribution among the poor and thus the severity of poverty, the higher is the squared poverty gap index. The squared poverty gap index result using expenditure approach shows poverty is less severe among sampled poor's and the value of squared poverty gap index (0.0121) is not closer to one; rather it is closer to zero, which indicates poverty is not highly serious in Northern Rajasthan. But, as compared to expenditure approach, income approach poverty severity index value (0.065) is higher and relatively shows inequality status among poor in study area. This result indicates that income approach over estimates inequality among the poor in the study area than expenditure approach.

Socio-economic characteristics are helpful in understanding a sampled household's status and to express statistically how much they are connected with household's poverty. To analyze socio-economic characteristics of sampled households in the study area, we focused on total annual income and expenditure and we used basic summarized descriptive statistics



such as, easy to understand table statistics mainly mean, standard deviation, maximum, minimum and percentage distributions.

Total annual income

In this study, total income refers to the sum of farm income and non-farm income. Total income distribution among surveyed households in Northern Rajasthan is calculated and results are shown in table 7.

Table 7: Total income of households in Northern Rajasthan

Total income in (Rs.)	Non-poor		Poor		Total	
	N = 248	Percent	N = 52	Percent	N=300	Percent
< 100,000	26	10.5	43	83	58	19
100,000 – 200,000	45	18	9	17	82	27
> 200,000	177	71.5	0	0	160	54
Total	248	100	52	100	300	100
Mean	327,404		76,548		272,513	
SD	208,051		23,801		212,068	
Maximum	955,000		115,000		955,000	
Minimum	35,000		16,000		16,000	

Source: Authors' computations, based on household survey data, 2015

The family annual total income among overall sampled households in Northern Rajasthan varies from ₹955,000 to 16,000 with overall average total annual income of ₹272,513 with standard deviation of 212,068. The mean annual income for poor sampled was ₹76,548, for the non-poor it was ₹327,404. The non-poor total annual income is more than four times higher than the poor household total annual income. For majority 83 percent poor annual total family income was less than ₹100,000 and for the remaining 17 percent it was ₹100,000 to 200,000. More than seventy percent majority non-poor earns more than ₹200,000 annually, 15.5 percent earns ₹100,000 to 200,000 and only 10.5 percent earns less than ₹100,000 total annual income. Of overall sampled households, 54 percent earns more than ₹200,000, 19 percent earns less than ₹100,000 and the remaining 27 percent earns ₹100,000 to 200,000 total annual incomes. All the results show presence of income inequality among households in Northern Rajasthan.

Table 8: Income source and its share of households in Northern Rajasthan

Sources of income	Share from total income in (%)
Farm income(Annual)	61
Non-farm income(Annual)	39

Source: Authors' computations, based on household survey data, 2015



Table 8 depicts sources of household income and its share in the study area. Sources of income of rural households are diverse but agriculture is still the main source of income. In Northern Rajasthan farm income has been found to be the biggest source of income for sampled households, 79 percent of sampled households have reported having income from agriculture, and agriculture generates nearly 61 percent of the total income in the study area. The non-farm incomes, with a share of 39 percent in the total income, comprise the second largest income source after agriculture. This result coincides with output, analysed by Birthal et al.(2014), using NSSO, 2005 data, they found that agriculture makes up 41.4 per cent of the total income on an average in India and the non-farm business activities, with a share of 24.4 per cent in the total income, comprise the second largest income source after agriculture in the country.

Household expenditure

In the measurement of poverty, use of consumption expenditure assumed best indicator for living standard measurement of households than income expenditure. This is because income of the poor often varies over time and consumption expenditure may reflect the purchasing power of households better than measured current income. Sometimes it is also common to have underestimated income figures as people are reluctant to give accurate information about their incomes (Deaton & Zaidi, 2002). In this particular study we classified monthly consumption expenditure in to monthly food expenditure and monthly non-food expenditure to see the weight given by sampled households. Accordingly, surveyed households total monthly expenditure is calculated and presented on table 9.

Table 9: Monthly expenditure in Northern Rajasthan

Monthly total expenditure in (Rs.)	Non-poor		Poor		Total	
	N = 248	Percent	N = 52	Percent	N=300	Percent
< 5,000	7	3	30	58	37	12
5,000 – 10,000	52	21	22	42	74	25
> 10,000	189	76	0	0	189	63
Total	248	100	52	100	300	100
Mean	14,703		4,968		13,015	
SD	11,789		1,952		11,361	
Maximum	16,900		12,133		16,900	
Minimum	3,693		2,020		2,020	

Source: Authors' computations, based on household survey data, 2015



As it is shown in the Table 9, of overall sampled households, 63 percent sampled households expended more than Rs.10,000 per month, 25 percent expended Rs.5,000 to 10,000 and 12 percent expended less than Rs.5000 per month for food and non-food items. Majority non-poor (76 percent) expended more than Rs.10,000, 21 percent expended Rs.5,000 to 10,000 and only 3 percent expended less than Rs.5000 per month on food and non-food items. As far as poor sampled households concerned, majority (58 percent) expended less than Rs.5000 per month and the remaining 42 percent expended Rs.5,000 to 10,000 per month on food and non-food items. Overall, sampled households in the study area on average spent Rs.13,015 per month for food and non-food items. Similarly, the average expenditure for poor and non-poor on food and non-food items was Rs.4,968 and Rs.14,703, respectively. The maximum and minimum monthly expenditure for poor and non-poor households vary from Rs.16,900 to 2,020, respectively.

Household expenditure budget share

How the budget of a household is allocated to buy different commodities is one of the most traditional topics in economics. Household budget shares, defined as the share of total household resources spent for purchasing a specific class of goods. Household expenditure shares for sampled household in Northern Rajasthan is calculated and presented on table 10.

Table 10: Expenditure budget share in Northern Rajasthan

Expenditure budget share	Share from total expenditure in (%)
Food expenditure (monthly)	64
Non-food expenditure (monthly)	17
Education expenditure (monthly)	15
Medical expenditure (monthly)	4

Source: Authors' computations, based on household survey data, 2015

Table 10 depicts share of some important household monthly expenditure variables. Food expenditure takes the lion share. Out of monthly total expenditure for sampled households in Northern Rajasthan, 64 percent goes to food purchase, 17 percent to non-food expenditure, 15 percent to education expenditure and the remaining 4 percent to medical expenditure monthly.

Ration card

Economic status of the family can be forecasted by the type of ration card he owned. Antyodaya (extreme poverty level), below poverty line (BPL) and above poverty line



(Normal) are currently used ration card by Indian government. Sampled households were assessed by the type of ration card they owned and the result is shown on table 12.

Table 12: Ration card owned in Northern Rajasthan

Type of ration card you have?	Non-poor		Poor		Total	
	N = 248	Percent	N = 52	Percent	N=300	Percent
Normal	208	84	19	37	227	76
BPL	40	16	33	63	73	24
Total	248	100	52	100	300	100

Source: Authors' computations, based on household survey data, 2015

The distribution of sampled households by the ration card they owned indicates that, no household has owned Antyodaya or extreme poverty ration card among sampled households. But, considerable proportion of the sampled households (63 percent of the poor and 16 percent of the non-poor) had below poverty line (BPL) ration card. Yet, most of the sampled households (84 percent of the non-poor and 37 percent of the poor) owned normal ration card. Similarly, out of 300 sampled households, 76 percent owned normal ration card and 24 percent owned below poverty line ration card.

CONCLUSION AND RECOMMENDATION

As the results of present study reveals income approach poverty line is 2.4 times higher than expenditure approach poverty line. The median per capita income was Rs.3472.2; it is also 3.35 times higher than the expenditure approach poverty line. Income approach estimated more number of poor than expenditure approach, 17.3 and 32 percent of sampled households are under poverty line in Northern Rajasthan using expenditure and income approaches, respectively. Expenditure approach estimated near to the state poverty situation by Government of India and the result approves the declining trend of poverty status in the state. Whereas, the income approach estimated poverty level above the state average and showing that poverty is increasing.

Out of total sampled households 11.7 percent households were detected simultaneously by income—and expenditure poverty measure as poor, these households are the the destitute, or poorest of the poor. But, majority poor, 113 (37.7%) were identified by either expenditure or income approach. Further, in income approach, of all, 5 percent households are extremely poor, 27 percent are moderately poor and majority 68 percent are non-poor. Extremely poor and moderately poor reached 32 percent of the sampled household.



The poverty gap index was 0.04 for expenditure approach and 0.12 for income approach in the study area. In Northern Rajasthan, on average 4 percent of the poverty line cash transfer needed to lift each poor person out of poverty following expenditure approach. But, on average 12 percent of the poverty line cash transfer needed to lift each poor person out of poverty following income approach.

Non-poor maximum monthly per capita expenditure is almost 9 times higher than the recommended poverty line and similarly, non-poor maximum monthly per capita income is more than 12 times higher than the poverty line. But, poor household's needs 31 percent of poverty line to reach minimum level and poor household's also needs 83percent of poverty line Rupee income to achieve the minimum level. From this we can understand the income approach needs more resource than expenditure approach to lift households from poverty.

The family annual total income among overall sampled households in Northern Rajasthan varies from Rs.955,000to 16,000 with overall average total annual income of Rs.272,513.The means annual income for poor sampled wasRs.76,548, for the non-poor it was Rs.327,404. The non-poor total annual income is more than four times higher than the poor household total annual income. Both the results show presence of income inequality among households in Northern Rajasthan. In Northern Rajasthan farm income has been found to be the biggest source of income and agriculture generates nearly 61 percent of the total income. The non-farm incomes, with a share of 39 percent in the total income, comprise the second largest income source after agriculture.

Of overall sampled households, 63 percent sampled households expended more than Rs.10,000 per month, 25 percent expended Rs.5,000 to 10,000 and 12 percent expended less than Rs.5000 per month for food and non-food items. Overall, sampled households in the study area on average spent Rs.13,015per month for food and non-food items. Similarly, the average expenditure for poor and non-poor on food and non-food items was Rs.4,968 and Rs.14,703, respectively. Food expenditure takes the lion share, out of monthly total expenditure64 percent goes to food purchase, 17 percent to non-food expenditure, 15 percent to education expenditure and the remaining 4 percent to medical expenditure monthly. Further, of total food expenditure, 28 percent spent on cereals and cereal substitutes, 22 percent spent on milk and milk products, 17 percent spent on vegetables, 7 percent spent on salt, sugar and oil, 7 percent spent on tea and coffee, 6 percent spent on



spices, 5 percent spent on pulses, 5 percent spent on fruits and insignificant amount also spent on egg and packed foods.

No household has owned Antyodaya or extreme poverty ration card among sampled households. But, considerable proportion of the sampled households (63 percent of the poor and 16 percent of the non-poor) had below poverty line (BPL) ration card. Yet, most of the sampled households (84 percent of the non-poor and 37 percent of the poor) owned normal ration card. The result shows presence of targeting problem to select the poor properly.

This study result helps to support many research scholars', use of consumption expenditure is best indicator for living standard measurement of households than income expenditure and Government of India poverty measurement tools are truthful to measures poverty.

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