Measuring Multidimensional Poverty in the Nepalese Himalaya

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Aim

The Aim of the project was to measure Multidimensional Poverty in the Nepalese Himalaya. This region is incredibly remote and can be subject to devastatingly harsh conditions. Despite all of this, it remains a sanctuary of unrivalled beauty regarding both it's landscape and people.

Why Multidimensional Poverty?

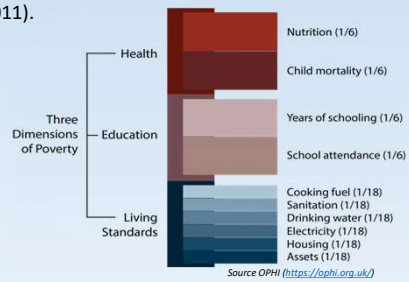
Multidimensional Poverty Index (MPI) was created by Oxford Poverty and Human development Initiative (OPHI) to capture the real poverty being experienced by the poor. Most unidimensional measures of poverty are based off measuring income which can overlook what is really going on. It can also lead to ill-informed policy making which can be damaging to the area.

Methodology

To generate an MPI for both Nepal and the Solukhumbu region I used the dual cut-off approach which is unique to the Alkire-Foster Method (2011). The data used to construct the MPI was from the most recent Demographic Health Surveys (DHS) for Nepal.

The two matrices oppose demonstrate how identification of deprivations and the dual cut-off approach which is unique to the Alkire-Foster method. The first matrix displays the data and the second, G0, is an identification matrix

The Deprivation cut-off (Z) is set for each dimension to determine when a household is deprived in each dimension.
A second cut-off value (K) is set to determine the Poverty- cutoff line. This is the dual-cutoff approach used in the Alkire-foster method (2011).



Source OPHI (https://ophi.org.uk/)

Figure 1: The Standard Multidimensional model created by OPHI. Each Dimension consists of Indicators which are all equally weighted (shown in brackets) This is the model which I used to generate the MPI for Nepal.

4x4 Matrix displaying data of households and dimensions

	Dimension 1	Dimension 2	Dimension 3	Dimension 4
Household 1	2.5 Hours	YES	Not Improved	1
Household 2	5 Minutes	YES	Not Improved	4
Household 3	0 Minutes	NO	Improved	7
Household 4	12 Minutes	YES	Improved	6
Deprivation cut-offs (Z)	**>30 Minutes**	**NO**	**Not Improved** (SDG guidelines)	**5**

G0 Matrix

This shows where a deprivation is present, [1 = Deprived] . The final column shows the total deprivations experienced by each household.

G0	D1	D2	D3	D4	Total
H1	1	0	1	1 *(0)*	3 *(2)*
H2	0	0	1	1	2
H3	0	1	1	0	2
H4	0	0	0	0	0

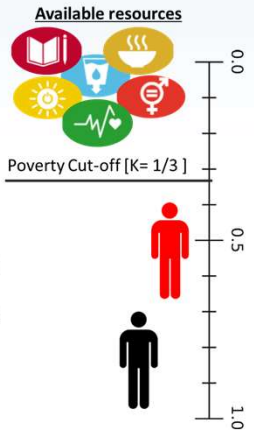
The Poverty Cut-off (K) is the number of deprivations a household must experience to be classified as MPI-poor. If we set [K=2]

Multidimensional Poverty Headcount ratio **(H)**	**3/4**
Intensity of poverty **(A)**	(3/4 + 2/4 + 2/4)/2 = **7/8**
Adjusted Headcount ratio **(M0)=(H*A)**	3/4 * 7/8 = **21/32**

Adjusted Headcount Ratio and Policy Making

Headcount Ratio (H)

MPI can improve targeting the right people for policies as well as reducing corrupt practices which can occur when a dashboard measure such as a headcount ratio is used. The headcount ratio Is commonly used to measure the proportion of people who live below the Poverty line. This can encourage policy makers to allocate their resources to people who sit just below the poverty line as this is the most cost efficient way to reduce the headcount ratio. If there is not enough resources to alleviate someone from poverty there is no incentive to spend the remaining resources to try to reduce the deprivations of the poorest. This is because the spending will not be reflected in **(H)** as seen in Figure 2.



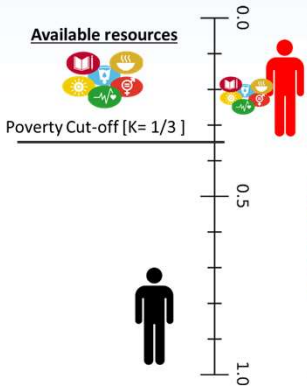


Figure 2

Adjusted headcount ratio M0

Unlike the headcount ratio, M0 can demonstrate a reduction in poverty for a person even if they remain below the poverty line. This satisfies the dimensional monotonicity axiom. This would be seen in figure 2 as spending the rest of the resources to bring the poorest person closer to the poverty line.

Numerical Example referring to G0 matrix :
Say Household 1 is no longer deprived in D4. The Headcount ratio (H) remains unchanged but the intensity of Poverty (A) falls to ¾ and M0 falls to 9/16.

If a policy maker was given a target to reduce M0 as opposed to H there would be an incentive to spend all the resources to help even the poorest.

Final results & Next Steps

Results

Primarily, the data demonstrates the necessity for targeted policy making to reduce multidimensional poverty within a region.

Figure 3 elucidates how a national policy to improve healthcare could be an inappropriate allocation of resources; as the poor in the Solukhumbu region are not experiencing deprivations related to Health.

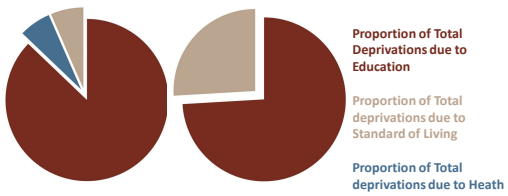


Figure 3: ***The proportion each dimension contributes to the total weighted deprivation of the poor in each district.***

Next Steps

The Rural poor face greater challenges to access government support. This became increasingly apparent during the Covid-19 Pandemic. Therefore, next year I will try to research remoteness and access to resources as another dimension around India and Nepal.