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Beyond Income: Multidimensional Deprivation in Nizamabad District, Telangana, and the Role of Government Schools

A Secondary Analysis of NFHS-5 District Data

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Abstract
India's official Multidimensional Poverty Index (MPI) shows that the share of Telangana's population living in multidimensional poverty fell from 13.18% in 2015–16 to 5.88% in 2019–21. This paper asks what that average conceals. Using National Family Health Survey (NFHS-5, 2019–21) data for all 31 surveyed districts of Telangana, it profiles Nizamabad district across the health, education and living-standard dimensions of the MPI, builds a simple District Deprivation Score to rank districts, and tests how indicators move together across districts. Three findings emerge. First, Telangana's gains were uneven: improved sanitation rose from 52.3% to 76.2% and clean cooking fuel from 67.3% to 91.8%, yet child stunting rose from 28.0% to 33.1% and child anaemia from 60.7% to 70.0%. Second, Nizamabad ranks 14th most deprived of 31 districts, with education and health together accounting for 85% of its deprivation score and living standards only 15%; it ranks 6th worst for underweight children and 3rd worst for health-insurance coverage. Third, across districts, women's schooling is strongly associated with lower child underweight ($r = -0.56$) and child marriage ($r = -0.68$). The paper argues that deprivation in rural Telangana has shifted from infrastructure to human capital, and that government schools are well placed to interrupt the transmission of disadvantage across generations.

Keywords: *multidimensional poverty, NFHS-5, Telangana, intergenerational transmission, women's education, child nutrition, government schools*

I. Introduction

1.1 Background: Poverty as More Than Income

Poverty is usually described as a lack of income, but people and communities can be poor in ways that money alone does not capture. When households are deprived of the means of subsistence, their fundamental needs cannot be met: they may lack adequate housing, clean water, nutritious food, schooling or medical care even when their income sits above an official poverty line. Poverty is therefore a socio-economic condition produced by many interacting factors, including access to education, health, social identity and the physical environment in which a child grows up. This view draws on Amartya Sen's capability approach, which defines development as the expansion of the real freedoms people have to lead the lives they value (Sen, 1999).

The Multidimensional Poverty Index, developed by the Oxford Poverty and Human Development Initiative (OPHI) and UNDP, puts this idea into practice by counting the overlapping deprivations a household faces in health, education and living standards (Alkire & Foster, 2011). The Global MPI 2022 shows how quickly South Asia has moved on these measures. In Nepal, the share of people who were multidimensionally poor fell from 39% in 2011 to 25.7% in 2016 and 17.5% in 2019, and the largest single improvement came in sanitation, where deprivation dropped from 60.6% to 21.4% (Kathmandu Post, 2022). India reduced its global MPI headcount from 55.1% in 2005–06 to 16.4% in 2019–21, against a South Asian average of 20.5%.

India's own National MPI, published by NITI Aayog with 12 indicators, records a fall in the national headcount from 24.85% in 2015–16 to 14.96% in 2019–21, equivalent to about 135 million people leaving multidimensional poverty (UNDP India, 2023). Telangana did better than the national average, with its headcount falling from 13.18% to 5.88% (The Hans India, 2023). The same period, however, ended with the COVID-19 pandemic: UNESCO data indicate that students worldwide lost on average half a year of schooling, and the World Food Programme estimated that 193 million people were in food crisis or worse in 2021 (Kathmandu Post, 2022).

1.2 Existing Research

Studies of child poverty in India show that national gains have not been shared equally. Pradhan and Pradhan (2023) find that the incidence of multidimensional child poverty fell from 46.6% to 27.4% between 2015–16 and 2019–21, but that the child MPI in 2019–21 remained far higher for Scheduled Tribe (21.7) and Scheduled

Caste (15.1) children than for others (7.9), and for rural (15.6) than urban (4.2) children. Southern India recorded the lowest regional value (3.7), which suggests that the poverty remaining in states such as Telangana is concentrated in pockets. The Young Lives study, which has followed about 3,000 households across 20 sites in undivided Andhra Pradesh (including present-day Telangana) since 2002, links children's schooling and later work to their parents' education and occupation, and documents a steady shift of better-off families toward private schools, leaving government schools to serve the poorest households (Singh et al., 2018).

1.3 Research Gap

Dyer and Rose (2008) argue that research on chronic poverty and research on education have developed largely separately, and that the evidence on *how* schooling interrupts poverty passed from parents to children is weaker than policy rhetoric suggests. In addition, most discussion of Telangana's progress relies on a single state headcount. Few studies examine how the state's gains are distributed across its districts, or which dimensions of deprivation remain in districts such as Nizamabad, where many rural children attend government schools.

1.4 Research Question and Objectives

Research question: *Which dimensions of multidimensional deprivation persist in Nizamabad district, and what do district-level patterns suggest about the role of government schools in interrupting the transmission of disadvantage across generations?*

- **Objective 1:** Describe how Telangana's MPI-related indicators changed between NFHS-4 (2015–16) and NFHS-5 (2019–21).
- **Objective 2:** Profile and rank Nizamabad against Telangana's other districts and the national average.
- **Objective 3:** Test how women's education, sanitation and child nutrition are associated across districts, and draw implications for schools.

The author's involvement with Bigala Krishnamurthy Zilla Parishad High School (ZPHS) in Makloor, Nizamabad, including fundraising for school development and teaching basic finance to its students, and with Humraahi, a volunteer programme for government-school students, motivated the choice of district.

II. Methodology

2.1 Data Source

The study uses published secondary data. District values come from the NFHS-5 (2019–21) district fact sheets for the 31 Telangana districts covered by the survey, accessed through an open compilation of the official fact sheets (Vardhan, n.d.). State and national values for NFHS-4 and NFHS-5 come from the corresponding state fact sheets. MPI headcounts come from NITI Aayog's National MPI as reported by UNDP India (2023) and The Hans India (2023). NFHS-4 district values were not used because Telangana's districts were reorganised in 2016, so district boundaries are not comparable across the two rounds.

2.2 Indicator Selection

NFHS fact sheets report district *rates*, not household-level data, so the household-level MPI cannot be recalculated. Instead, ten NFHS-5 indicators were chosen to mirror the three MPI dimensions (Table 1). Each was converted to a deprivation rate, so that a higher value always means more deprivation (for example, 100 minus the percentage of the population with improved sanitation).

Table 1. NFHS-5 indicators used, grouped by MPI dimension

Dimension	Indicator (expressed as a deprivation rate)	Corresponding MPI indicator
Education	Female population aged 6+ who never attended school	Years of schooling
	Women aged 15–49 with fewer than 10 years of schooling	Years of schooling
Health	Children under 5 who are stunted	Nutrition
	Children under 5 who are underweight	Nutrition
	Children aged 6–59 months who are anaemic	Nutrition / health
Living standards	Population without improved sanitation	Sanitation
	Households without clean cooking fuel	Cooking fuel
	Population without improved drinking water	Drinking water
	Population without electricity	Electricity
	Households with no member covered by health insurance	Financial protection*

Health insurance is not an MPI indicator; it is included as a proxy for a household's protection against health shocks, in the place of NITI Aayog's bank-account indicator, which is not reported at district level

2.3 Analysis

Three methods were used. First, **descriptive comparison**: each indicator for Nizamabad was compared with the Telangana and India averages and ranked among the 31 districts (rank 1 = most deprived). Second, a **District Deprivation Score (DDS)** was calculated by averaging the deprivation rates within each dimension and then averaging the three dimensions with equal weight, following the MPI's equal weighting of dimensions. Each dimension's share of the score was also calculated, mirroring the MPI's decomposition of poverty by indicator. The DDS is a descriptive summary of district rates, not an MPI: it counts how widespread each deprivation is, not how deprivations overlap within the same household. Third, **Pearson correlation coefficients** were calculated across the 31 districts to test whether pairs of indicators move together, with significance assessed using a two-tailed t-test (df = 29). Because the MPI headcount measures how many people are poor rather than how resources are distributed, Lorenz curves were not used; comparisons are shown as bar and scatter charts. All calculations were carried out in Python and checked in Excel.

2.4 Ethics

The study uses only anonymised, publicly available data, so no consent was required and no individual can be identified. No primary data were collected from students or families at ZPHS Makloor.

III. Results

3.1 Telangana's Uneven Progress

Figure 1 compares Telangana's state averages in NFHS-4 and NFHS-5. Infrastructure improved sharply: improved sanitation rose by 23.9 percentage points and clean cooking fuel by 24.5 points. Women's schooling barely moved (43.6% to 45.5%). Child nutrition worsened on every measure: stunting rose from 28.0% to 33.1%, underweight from 28.4% to 31.8%, wasting from 18.1% to 21.7%, and anaemia among children aged 6–59 months from 60.7% to 70.0%. Nationally, stunting, underweight and wasting all fell over the same period (stunting 38.4% to 35.5%; underweight 35.8% to 32.1%; wasting 21.0% to 19.3%), so Telangana's deterioration ran against the national trend.

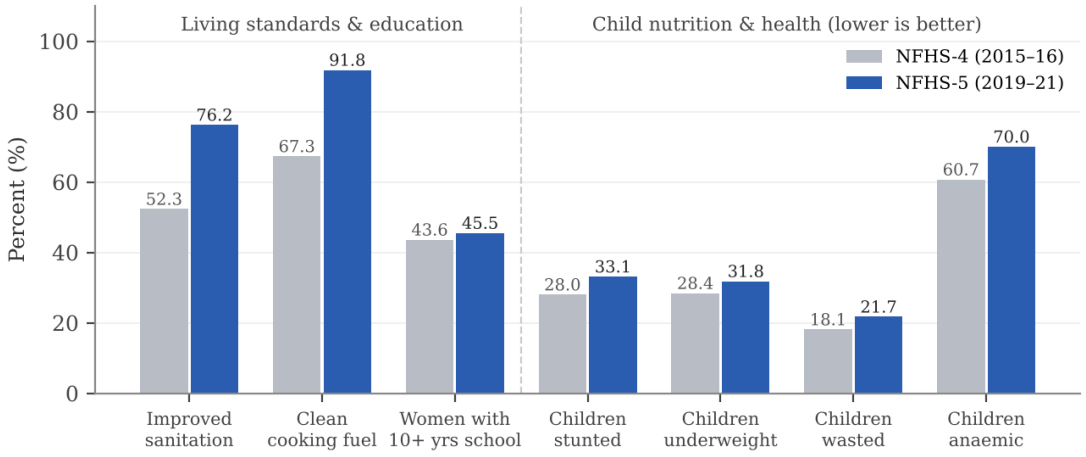


Figure 1. Selected indicators for Telangana, NFHS-4 (2015–16) vs NFHS-5 (2019–21). Source: NFHS state fact sheets.

3.2 Nizamabad in Context

Table 2. Nizamabad compared with Telangana and India, NFHS-5 (2019–21)

Indicator (%)	Nizamabad	Telangana	India	Rank of 31*
Population with electricity	99.9	99.6	96.8	27
Population with improved drinking water	99.4	98.7	95.9	18
Population with improved sanitation	72.5	76.2	70.2	9
Households using clean cooking fuel	92.4	91.8	58.6	17
Households with health-insurance coverage	52.3	60.8	41.0	3
Female population (6+) ever attended school	54.3	60.9	71.8	11
Women with 10+ years of schooling	42.4	45.5	41.0	18
Women 20–24 married before age 18	23.7	23.5	23.3	16
Children under 5 stunted	30.5	33.1	35.5	20

Indicator (%)	Nizamabad	Telangana	India	Rank of 31*
Children under 5 wasted	26.2	21.7	19.3	9
Children under 5 underweight	38.4	31.8	32.1	6
Children 6–59 months anaemic	65.3	70.0	67.1	24
Children 6–23 months with adequate diet	18.4	9.2	11.3	31

Rank among Telangana's 31 NFHS-5 districts, where 1 = most deprived on that indicator. Source: NFHS-5 district and state fact sheets

Nizamabad has closed most of the **infrastructure gap**: electricity and improved drinking water are almost universal, and clean-fuel use (92.4%) is far above the national level (58.6%). Its deprivation is concentrated elsewhere. It ranks among the most deprived districts for health-insurance coverage (3rd), underweight children (6th), wasting (9th), sanitation (9th) and female school attendance (11th). Only 54.3% of women and girls aged six and above have ever attended school, 6.6 percentage points below the state and 17.5 points below the national average. One indicator runs the other way: Nizamabad has the highest share of young children receiving an adequate diet in the state (18.4%), yet among the highest rates of wasting and underweight. This suggests that acute undernutrition there is driven less by feeding practices than by food insecurity, illness or poor sanitation.

3.3 District Deprivation Score

Table 3. District Deprivation Score (DDS) for selected Telangana districts

District	Education	Health	Living standards	DDS	Rank
Jogulamba Gadwal (most deprived)	62.4	57.9	16.3	45.6	1
Komaram Bheem Asifabad	59.2	50.0	21.0	43.4	2
Adilabad	50.2	58.0	21.8	43.3	3
Nizamabad	**51.6**	**44.7**	**16.7**	**37.7**	**14**
Telangana district average	49.3	45.4	14.9	36.6	–
Medchal-Malkajgiri	33.9	44.1	12.2	30.1	30
Hyderabad (least deprived)	28.2	37.6	13.5	26.5	31

Dimension scores are average deprivation rates (%); DDS is the equal-weighted mean of the three dimensions. Rank 1 = most deprived of 31 districts.

Nizamabad ranks 14th most deprived of 31 districts, with a DDS of 37.7 against a district average of 36.6. The composition of the score matters more than the rank. In Nizamabad, education accounts for 45.6% of the DDS, health for 39.5% and living standards for only 14.8%, a pattern close to the state average (45.0%, 41.4% and 13.6%). Across Telangana, then, about 85% of measured deprivation now lies in human capital rather than in physical infrastructure. Living-standard deprivation is highest only in the tribal northern districts of Adilabad and Komaram Bheem Asifabad.

3.4 How Indicators Move Together

Table 4. Correlations between indicators across Telangana's 31 districts

Pair of indicators	r	t (df = 29)	Significance
Women with 10+ yrs schooling × child marriage before 18	−0.68	−5.01	$p < 0.001$
Women with 10+ yrs schooling × children underweight	−0.56	−3.62	$p < 0.01$
Women with 10+ yrs schooling × children stunted	−0.42	−2.48	$p < 0.05$
Women with 10+ yrs schooling × children anaemic	−0.40	−2.38	$p < 0.05$
Improved sanitation × children underweight	−0.69	−5.17	$p < 0.001$
Improved sanitation × children wasted	−0.51	−3.17	$p < 0.01$
Clean cooking fuel × children underweight	−0.70	−5.28	$p < 0.001$
Female ever attended school × children stunted	−0.34	−1.94	not significant

Districts where more women have completed ten years of schooling have significantly fewer child marriages and fewer underweight, stunted and anaemic children (Table 4, Figure 2). Sanitation and clean fuel are also strongly associated with lower underweight rates. Nizamabad lies above the trend line in Figure 2: its share of underweight children (38.4%) is higher than its level of women's schooling would predict (about 33%), which suggests that additional factors, such as sanitation and food security, are at work there.

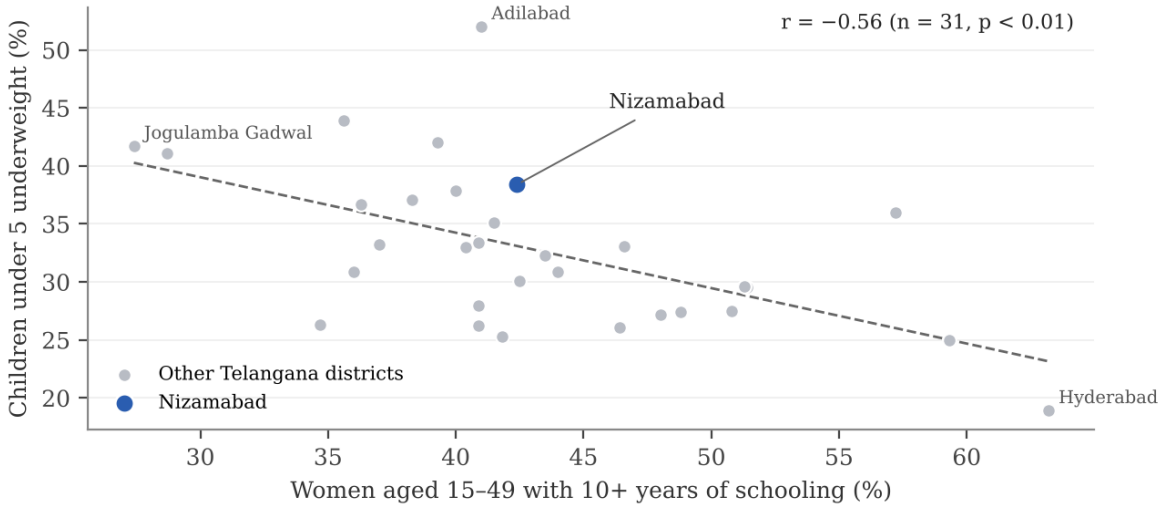


Figure 2. Women's schooling and child underweight across Telangana's 31 districts, NFHS-5. Dashed line: least-squares fit.

IV. Discussion and Conclusion

4.1 Interpretation

The results point to a **second-generation poverty problem**. Large public programmes have brought electricity, water, toilets and LPG connections to most households in Telangana. What remains, and in the case of child nutrition what has worsened, is harder to deliver through infrastructure: the education of mothers, the nutrition of young children and the protection of household budgets against illness. From a sociological perspective, these are the channels through which disadvantage is passed from parents to children. A mother's schooling shapes her child's health, the age at which she marries and the support she can give her children's learning; limited cultural capital in the home, in Bourdieu's (1986) sense, affects how well children can convert school attendance into real achievement. The strong association between women's schooling and both child marriage ($r = -0.68$) and child underweight ($r = -0.56$) is consistent with this account. In Nizamabad, where only 54.3% of women and girls have ever attended school, the low level of female education is therefore not only a record of past deprivation but a predictor of the next generation's risk.

4.2 Comparison with Previous Studies

Nepal's experience offers a useful comparison: its multidimensional poverty fell fastest when sanitation improved, and the Global MPI 2022 links better sanitation to lower child mortality and better nutrition through reduced diarrhoeal disease (Kathmandu Post, 2022). The strong sanitation–underweight correlation in Telangana ($r = -0.69$) supports the same pathway, and Nizamabad's below-average sanitation (72.5%) suggests that it has not yet been fully used there. The findings also fit the Young Lives evidence that disadvantage in this region is transmitted through parental education (Singh et al., 2018), and Pradhan and Pradhan's (2023) finding that remaining child poverty in southern India is concentrated in pockets. Telangana's NFHS-5 fieldwork was completed in 2019–20, before the pandemic, so its worsening child nutrition cannot be blamed on COVID-19; given the global rise in food insecurity reported for 2021, conditions may since have deteriorated further.

4.3 Practical Implications for Government Schools

Because the remaining deprivation sits in human capital, the government school is one of the few institutions that reaches deprived households every day. Three implications follow.

- **Strengthen school meals.** India's Midday Meal Scheme reaches an estimated 139 million children. Young Lives found that in drought-affected households, drought reduced young children's height-for-age by 0.634 standard deviations, while receiving the midday meal raised it by 1.581 standard deviations, more than offsetting the shock (Porter et al., 2010). Extending meals to breakfast or school holidays would target the underweight and wasting seen in Nizamabad.
- **Keep girls in school to Class 10 and beyond.** Given the strong link between women's schooling and both child marriage and child nutrition, retention of adolescent girls is likely to have effects that reach the next generation. Schools can also host adult literacy and health-insurance enrolment sessions for mothers.
- **Protect funding through targeted taxes.** Governments often fund welfare programmes through 'sin' taxes on demerit goods such as tobacco, which in India attract the highest GST slab of 28%. Such taxes

discourage harmful consumption and raise revenue; earmarking part of it for school nutrition and sanitation would link the correction of a negative externality to the provision of merit goods. Rates must, however, be balanced against the risk of pushing consumers toward illicit markets.

Macroeconomic conditions also matter. India imports much of its LPG, so a weaker rupee raises the cost of cooking gas. When the rupee approached 80 to the US dollar in 2022 and the Reserve Bank of India raised interest rates to control inflation, household costs rose. Nizamabad's high clean-fuel figure (92.4%) measures the fuel a household mainly uses at the time of the survey; if refill prices rise, poorer households may return to firewood. Sustaining these gains requires attention to affordability, not only connections.

4.4 Limitations and Future Research

The study has four main limitations. First, it uses district averages, so the correlations describe districts, not individuals; it would be an ecological fallacy to conclude that any particular educated mother has a better-nourished child. Second, correlation does not establish causation: richer districts may have both more educated women and better-fed children. Third, the DDS uses equal weights chosen by the researcher; Ravallion (2011) argues that such composite indices depend heavily on the analyst's weights and that a dashboard of separate indicators can be more transparent, which is why indicator-level results are reported alongside the score. Fourth, Telangana's NFHS-5 data were collected before the pandemic and before later policy changes, so current conditions may differ. The natural next step is a household survey of students at ZPHS Makloor, applying the Alkire-Foster method directly to measure how deprivations overlap within families of government-school students.

4.5 Conclusion

Telangana's falling MPI is a genuine achievement, but its district data show that averages hide where poverty now lies. In Nizamabad, the remaining deprivation is concentrated not in wires and pipes but in the education of women and the nutrition of children, the very channels through which poverty is inherited. Government schools such as ZPHS Makloor sit at the centre of these channels, and that makes them a practical place to begin interrupting it.

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