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# Access to Bare Necessities of Life and Incidence of Poverty among Slum Dwellers in Selected States of India: Evidence from NSS Data

Ayushee Gautam and H R Sharma\*

*The paper, using unit level data available in the 69th and the 76th NSSO rounds, examines access to bare necessities of life and the incidence of poverty among slum households in selected states of India. The results show that while around three-fifths of the slum households in India and in selected states with the exception of Karnataka are monetarily non poor, they are poor in terms of their deprivation score in access to bare necessities of life. The results also show that among five different dimensions of bare necessities of life, access of these households to water, sanitation and housing is particularly low. The insights from the experiences of poverty and deprivation among the slum dwellers call for targeted interventions to ensure inclusive development and hence enhance their overall well-being and quality of life.*

**Keywords:** *Slums, Bare necessities, Urban India, Poverty, Deprivation, Basic facilities, Amenities*

## I. INTRODUCTION

Slum proliferation is a global issue and is emerging as an impediment to healthy urban planning and development. According to UN- HABITAT (2021), there are 1 billion slum dwellers which account for 24.20 per cent of the urban population of the world, implying that one in every four urban dwellers lives in slums. Further, about 85 per cent of the world's slum population resides in three regions, namely, (i) Central & Southern Asia (359 million); (ii) Eastern & South Eastern Asia (306 million) and (iii) Sub-Saharan Africa (230 million) (UN, 2022). Asia alone accounts for 62.74 per cent of the world's slum population. India's slum population in 2020 is estimated at 236 million signifying that nearly half of its urban population lives in slums (UN-HABITAT, 2021). Recognising the global slum problem, Goal 11 of the UN- Sustainable Development Goals aims to "ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums by 2030" (UN 2015b).

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According to the UN-HABITAT Global Report (2017), there is evidence of “physical expression of inequality in built form” in which slums lie at the basal. As early as in the 1920s, urban theorists of Chicago schools, modelled the residential segregation of the city through concentric circles, where “slums” and “bad lands” were distinctively located in the “zone in transition” characterised by poverty, segregation, crime, disease and degradation and were lying closer to the inner city centre called “loop” (Park et al, 1925; Quinn, 1940). Frankenhoff (1967) describes slums as “staging areas” or “reception centers” for the poor unskilled migrants, who come to these places to minimize rental expenditure, hopeful of learning urban skills and securing a better livelihood and as the economy progresses, the trickledown effect facilitates an eventual integration of the slum dwellers into the urban setting, pulling them out from the informal housing arrangement, thus making slums as a “transitory” phase (Turner, 1968). Nevertheless, some studies have conceptualized slums as permanent traps of poverty, where an amalgam of socio-economic and political factors restrict and weaken the possibility of upward mobility among the slum dwellers (Marx et al, 2013; Rockefeller, 2013).

A number of studies on urban slums have considered slums to be homogeneous in structure and essence, and have explored the livelihoods of slum dwellers in relation to the better off strata of society. For example, Gilbert (2007), Mitlin (2005) and Yeboah (2021) state that a significant number of studies like Mike Davis (2006) and UN and other development organizations have adopted a homogeneous approach and portray a uniformly pessimistic view about slums and consider them deplorable. Consequently, based on the conventional perception of homogeneity, the interventions to upgrade slums in the early 1950s and 1960s ignored the diverse realities faced by the slum dwellers (Yeboah, 2021). This conventional perception is erroneous in that slums are complex and diverse urban arrangements affected by household and neighborhood level characteristics. In a departure from the conventional approach, Stokes (1962) exhibited the contrasting images of urban slums by describing them as places of both hope and despair. These contrasting faces of urban slums are attributed to the living standards of the people who reside in these slum clusters. Recognizing diverse reality, micro level attempts confined to a single or few cities have been made to identify heterogeneity in their living standards (Banerjee et al, 2012; De & Nag, 2016; Krishna et al, 2014; Ray, 2017; Roy et al, 2017). Similarly, some studies have also analyzed monetary aspects of the lives of the slum dwellers using indicators like income level, consumption pattern, saving behaviour and the extent of poverty. There are also studies that have explored socio-economic indicators of slum dwellers like education and health in comparison to better off strata of the society (Kundu & Kanitkar, 2002; Martinez et al, 2008; Patel et al, 2014). However, studies that have analyzed

diversities in the lives of the slum dwellers have two important limitations: First, these are restricted to singular cities (Banerjee et al, 2012; Gupta & Mitra, 2002; Kumar & Aggarwal, 2008; Latif et al, 2016; Roy et al, 2018); Second, the studies measuring well-being status of the slum dwellers through monetary criteria and classifying them into poor and non-poor do not unravel the realities and causes of their being poor (Bisiaux, 2013; Nolan & Whelan, 2009). A plethora of studies has pointed out that lack of basic services has an adverse impact on human capital, employment, productivity, living costs, vulnerabilities and safety of people living in the slums (Chaplin, 2011; Marx et al, 2013; Nolan, 2015; Pierce, 2017; Rains et al, 2018). Access to basic services reduces a household's vulnerabilities as a good housing structure protects it from hazards and good sanitation cum water facilities reduce the chances of slum dwellers being prone to waterborne diseases (Chaplin, 2011; Sanderson, 2009). However, even most of such studies have focused on the analysis of a single rather than a range of services required for healthy living (Mitra, 2005; Latif et al, 2016; Soma et al, 2021). And even studies that have analyzed access to multidimensional services have focused on a singular aspect of different basic services. For example, while assessing the provision of water service, the focus has just been on the type of source ignoring other equally important aspects like distance to the source, the extent of sharing etc (Baud et al, 2009; De & Nag, 2016; Goli et al, 2011; Goswami and Manna, 2013; Saharan et al, 2017).

The macro studies based on NSS slum level data have examined the effect of slum level characteristics like legal status, community associations, the intervention of government, type of slum land and size of slum on the accessibility of basic facilities (Nolan et al, 2017; Padhi et al, 2021). The underlying assumption of these studies is equal access to these facilities for different households in a slum. This particular approach of these studies may, however, be attributed to the fact that different NSS rounds beginning from the 31<sup>st</sup> (1977), 49<sup>th</sup> (1993), 58<sup>th</sup> (2002), 65<sup>th</sup> (2008-09) and 69<sup>th</sup> (2012) rounds have collected data at the slum level restricting our understanding of access to bare necessities and the extent of deprivation among slum dwellers. Though studies based on the slum/neighbourhood level data are useful for making community level interventions, a disaggregated analysis is essential to establish linkages between the household level characteristics and the extent of deprivation (Patel et al, 2014).

In brief, a review of available studies on different aspects of the levels of living of slum dwellers shows that there is a dearth of studies exploring heterogeneity among slum dwellers and their access to multidimensional services including the extent of deprivation. It is against this background that the present study examines access to bare necessities/multidimensional services to slum dwellers and quantifies factors which determine the probability of a slum household to fall below the poverty line and affecting its bare necessity deprivation score.

## II. DATA AND METHODS

The study uses unit level data available on slum households in the 69th (2012) and 76th (2018) NSS rounds Reports on “Drinking Water, Sanitation, Hygiene and Housing Conditions”. The data was collected from 95548 households in the former round and 106838 households in the latter round from the rural and urban stratum using a stratified multi-stage sampling method. A comparison of the definitions and concepts used in the two surveys reveals that data available in these rounds is broadly comparable. To ensure an adequate representation of slum households, we considered only those states for the study which had at least a sample of 100 slum households in both rounds. Accordingly, six states, namely, Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu, Maharashtra and West Bengal have been included in the study which accounts for more than seventy per cent of the slum dwellers in India.

The Bare Necessity Index (BNI) has been computed to capture aggregate state-wise access to bare necessities and examine improvement/deterioration in their accessibility over time. The bare necessity deprivation score has been computed using the counting approach suggested by Alkire and Santos (2010), where a higher bare necessity deprivation score of a household represents a lower standard of living. This approach entails the following steps (Alkire et al, 2015): (i) determining relevant dimensions and indicators; (ii) fixing nested weight, (iii) stating a deprivation threshold for all indicators; (iv) assigning “1” if the household does not pass the cut- off of that indicator (deprived) and “0” otherwise; (v) computing weighted sum of deprivations for each household. The weights assigned to different indicators have been given in the Appendix. The households with a bare necessity deprivation score equal to or more than the second-order cutoff are identified as poor/deprived in terms of bare necessities. The second-order cutoff has been set at 0.33, which is globally used as a standard cutoff. This implies that for a household to be considered poor/deprived of bare necessities, it should experience deprivation in at least 1/3rd of the weighted indicators.

The incidence of monetary poverty has been estimated through the head count ratio using Tendulkar Committee’s state specific per capita poverty line for urban areas for 2012 and 2018. A binomial logit model has been estimated to determine factors affecting a slum household’s probability of falling below poverty line. The functional form of logistic regression is given below:

*Logit* ( $p$ ) =  $a_0 + a_1x_1 + a_2x_2 + \dots + b_kx_k$ ; where  $x_i$ s are independent variables and the dependent variable is binary taking the value 1 or 0. Similarly, a linear multiple regression model has been estimated to quantify the factors affecting slum household’s bare necessity deprivation score. The functional form of the model is given below:

$$Y_i = a + b_1X_1 + b_2X_2 + \dots + b_kX_k + u_i \quad \text{for } i = 1, 2, \dots, n.$$

Where  $Y_i$  is a dependent variable,  $X_i$ ’s are independent variables,  $a$ ,  $b_1$ ,  $b_2$ ,.....  $b_k$  are parameters, and  $u_i$  is a stochastic disturbance term.

### III. ACCESS TO DIFFERENT DIMENSIONS OF BARE NECESSITIES OF LIFE

The per cent distribution of slum households and the proportion of notified to total slum households across six states are given in Table 1. The table shows that in 2018 the selected six states accounted for more than seventy per cent of the total slum households in the country with Maharashtra followed by Andhra Pradesh respectively accounting for around 29 per cent and 19 per cent of the total slum households. During 2012 and 2018, the share of slum households accounted for by these six states increased from about 63 per cent to 72 per cent. The table also shows that across these states, the proportion of notified to total slum households varies widely from around 38 per cent in Gujarat to as high as 73 per cent in Maharashtra.

Table 1  
Distribution and Proportion of Notified Sample Slum Households  
in Selected States of India: 2012 to 2018

States	2012		2018	
	Percent share of slum households	Proportion of notified slum households to total slum households	Percent share of slum households	Proportion of notified slum households to total slum households
Andhra Pradesh	15.21	82.69	18.80	63.98
Gujarat	4.81	8.98	5.38	38.28
Karnataka	7.65	67.32	5.85	69.78
Maharashtra	20.35	63.12	28.97	73.44
Tamil Nadu	6.36	45.27	4.42	56.19
West Bengal	7.77	45.04	8.07	57.29
Others	37.85	59.02	28.51	52.51
<b>Total</b>	<b>100</b>	<b>59.72</b>	<b>100</b>	<b>61.52</b>

Source: NSS 69th Round, 2012 & NSS 76<sup>th</sup> Round, 2018

Table 2 shows the access to various indicators defining 'bare necessities' among slum households across selected states and at the all-India level. The table shows that while nearly half of the slum households in India receive water into their dwellings through pipes, across selected states it varies from the lowest at around 23 per cent in West Bengal to the highest at 87 per cent in Maharashtra. Over the period, Tamil Nadu and Maharashtra have witnessed a significant improvement in the provision of water, whereas Andhra Pradesh and West Bengal have recorded a decline in the percentage of households having accessibility to piped- water. Approximately 60 per cent of the slum households in India have water source within their premises. Across states, West Bengal not only has the lowest per cent of households meeting the distance criterion, but it also shows a decline in the proportion of households having access to the source of water within their dwellings. Further, in terms of the method



of taking water only around 16 per cent of the slum households at the all-India level use a tap to take out water from the storage container while the remaining households rely on either pouring it out or dipping the vessel to take out water. The households having exclusive access to water (non-sharing) at the all-India level in 2018 is 39.77 per cent while across states the proportion of such households varies from as low as 7.51 per cent in West Bengal to as high as 68 per cent in Maharashtra. Regarding sanitary, more than 80 per cent of the households across states are using a latrine system equipped with a piped sewer system/septic tank/ single pit/ twin leach pit. Even though access to latrine depicts major improvement over time, there remains a wide gap in the provision of exclusive or non-sharing latrines, especially in West Bengal and Maharashtra. And among states, Karnataka and Gujarat have nearly 27-28 per cent of households who defecate in the open.

The data on housing shows that around 90% of slum households at the all-India level and in Andhra Pradesh, West Bengal and Maharashtra reside in dwellings with pucca roof and wall. The proportion of households who have access to independent dwellings among states is low except in Karnataka. The data on the structural condition of the dwellings further reveals that between 2012 and 2018 there has been an increase in the households in India that rank the condition of their dwelling as "bad" by 6.5 per cent. Similarly, all states except Tamil Nadu have witnessed a decline in the proportion of slum households with good condition dwelling structures. In the case of micro environment, more than half of the slum households across states had access to either underground or pucca drainage systems in 2018. Further, almost half of the slum households at the all-India level reported suffering from severe problem of flies or mosquitoes. However, among states, Tamil Nadu has recorded a 26.93 percentage point decrease in the proportion of households reporting the issue of flies or mosquitoes. The slum households lack the facility of separate kitchens as only one-fifth of such households at the all-India level have separate kitchens and across states this proportion varies from around 7 per cent in West Bengal to around 29 per cent in Andhra Pradesh. The proportion of households reporting ventilation facilities at the all-India level is 28 per cent whereas across states this proportion varies from around 10 per cent in Maharashtra to around 51 per cent in Andhra Pradesh. Access to bathroom facilities has shown a remarkable improvement in two aspects, namely, an increase in the access to bathrooms and having attached bathrooms. In India, the proportion of slum households reporting access to bathrooms increased from around 63 per cent to 74 per cent while the proportion of those reporting access to separate bathrooms also more than doubled. Another necessity to which more than 90 per cent of the households at the all-India level and across states except Gujarat have had access is electricity. Again, the data available on the type of cooking fuel used by slum

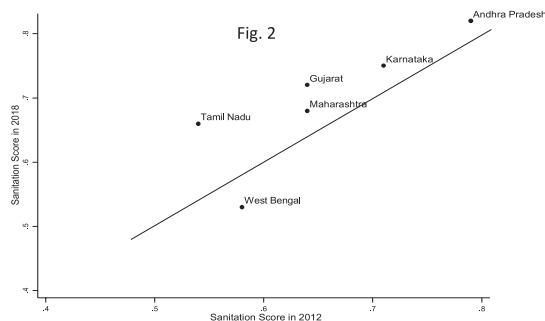
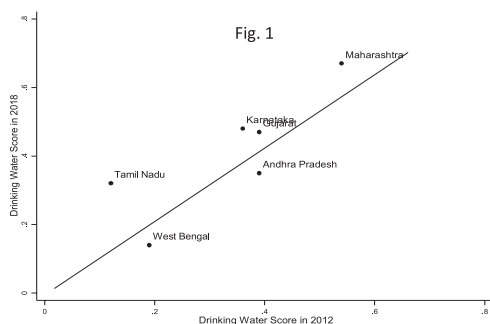


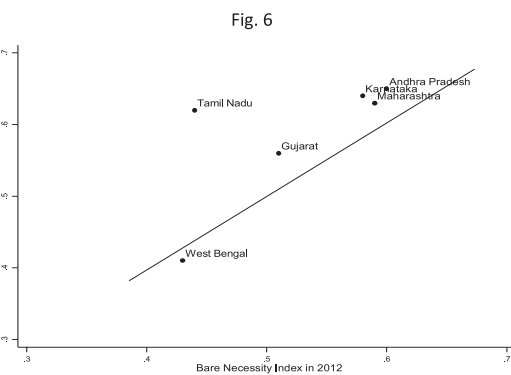
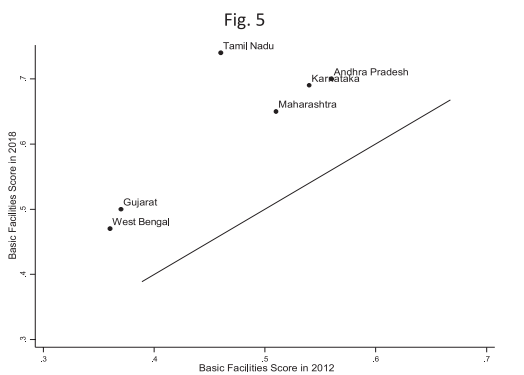
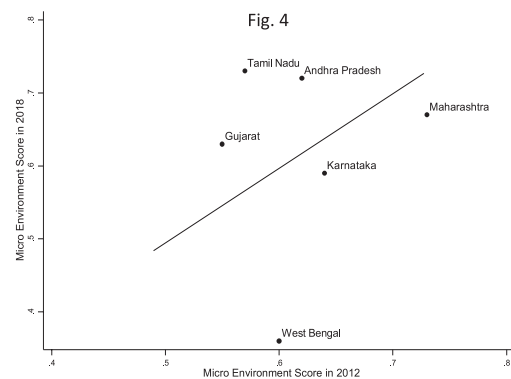
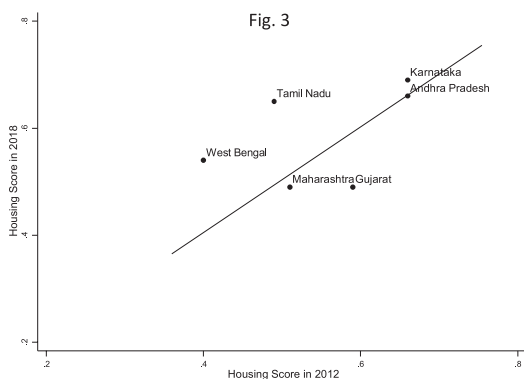
dwellers shows that around 82 per cent of the households at the all-India level use LPG and among states Tamil Nadu and Maharashtra report the highest percentage of LPG users and Gujarat the lowest at around 57 per cent.

The access to bare necessities in terms of dimension score and overall bare necessity index in six states has been given in Table 3 and Figure 1 to Figure 6. The table shows that among states, the water dimension score in 2018 is the maximal in Maharashtra and lowest in West Bengal. Two states, namely, Andhra Pradesh and West Bengal did not experience any improvement in the water score between 2012 and 2018 as depicted in Figure 1. As illustrated in Table 2 and Figure 2, with the exception of West Bengal, sanitation has shown significant improvement as at the all-India level, the bare necessities score increased from 0.67 in 2012 to 0.73 in 2018. The housing index at the all-India level has increased marginally while across states it has increased significantly in Tamil Nadu and West Bengal and either remained unchanged or even declined in Andhra Pradesh, Gujarat and Maharashtra (Figure 3). Similarly, there has also not been an enhancement in the microenvironment conditions of slum households as the index at the all-India level has increased marginally. As shown in Figure 4, across states, there has been a significant improvement in microenvironment in Gujarat, Andhra Pradesh and Tamil Nadu while it has deteriorated in West Bengal, Karnataka and Maharashtra. The index of other facilities has registered a significant improvement at the all-India level and also across states as demonstrated in Figure 5. The bare necessity index has increased significantly both at the all-India level and in states, with the exception of West Bengal where it declined (as evident in Figure 6), suggesting an improvement in the access to bare necessities to slum households.

Figure 1

**Dimension Score across States (Drinking Water): 2012- 2018; Figure. 2: Dimension Score across States (Sanitation): 2012- 2018; Figure. 3: Dimension Score across States (Housing): 2012- 2018; Figure. 4: Dimension Score across States (Micro Environment): 2012- 2018; Figure. 5: Dimension Score across States (Basic Facilities): 2012- 2018; Figure. 6: Bare Necessity Index across States: 2012- 2018**





#### IV. PER CAPITA CONSUMPTION EXPENDITURE AND INCIDENCE OF POVERTY

The changes in the levels of living of slum households over time have been measured by per capita monthly expenditure and the incidence of poverty among them. The relevant information has been provided in Table 4. The table shows that there has been an improvement in the living standards of slum households on both counts. It is evident from the increase in the average monthly per capita consumption expenditure both at current and constant prices and the decrease in the poverty incidence among such households at the all-India level and also across states except West Bengal. Across states, the incidence of poverty among states in 2018 is the highest in Karnataka and lowest in Andhra Pradesh while per capita expenditure at constant prices is highest in Maharashtra and the lowest in West Bengal.

Table 4  
**Monthly Per Capita Consumption Expenditure (MPCE) and Incidence of Poverty (HCR) among  
 Slum Households in Selected States of India: 2012 to 2018**

States	2012			2018		
	MPCE (Rs.)		HCR (%)	MPCE (Rs.)		HCR (%)
	Current Prices	Constant Prices		Current Prices	Constant Prices	
Andhra Pradesh	2149	995	18.59	3218	1117	4.40
Gujarat	1650	793	25.76	2577	941	14.46
Karnataka	1732	805	33.51	2740	945	29.36
Maharashtra	2078	971	22.17	3507	1177	10.85
Tamil Nadu	1558	779	19.67	2796	1039	8.31
West Bengal	1643	813	22.24	2341	830	28.25
All-India	1879	886	22.27	3014	1001	13.15

Note: (i) The CPI-IW (2001 =100) for respective states has been used to calculate changes at constant prices.

(ii) State specific poverty lines for 2011-12 computed following Tendulkar Committee methodology were adjusted for inflation using CPI-IW (July) for the respective years to determine HCR.

Source: Computed by authors based on unit level data from 69th and 76<sup>th</sup> NSS rounds.

The changes in the distribution of slum households in terms of monetary based poverty and multidimensional poverty/deprivation between 2012 and 2018 have been brought out in Table 5. According to these two criteria, slum households have been classified into four categories, namely, (i) households who are poor in terms of monetary criterion and are also poor/deprived of bare necessities; (ii) households who are monetary poor but are not poor/deprived of bare necessities; (iii) households who are monetary non poor but are poor/deprived of bare necessities; and (iv) households who are monetary non poor and are also non poor/not deprived of bare necessities. The table shows that in 2018 among different categories, households who are monetary non poor but are poor/deprived of bare necessities account for around 60 per cent or even more across selected states and at the all-India level with the notable exception of Karnataka where the share such households is around 36 per cent. The households who are non-poor both based on monetary and deprivation of bare necessities criteria come next whose share across these states varies from around 27 per cent to 35 per cent except West Bengal where their share is as low as around 6 per cent. Further, while

nearly one-fourth of the slum households in Karnataka and West Bengal are poor both in terms of monetary criterion and access/deprivation of bare necessities, the share of such households in the remaining four states is low and varies from around 3 per cent in Andhra Pradesh to around 12 per cent in Gujarat. Over the period, the share of those slum households who are poor on both the counts i.e. in monetary terms and also in terms of access to bare necessities has decreased significantly across selected states except West Bengal where the per cent share of such households has increased significantly. However, per cent share of slum households who are monetary not poor but are poor in terms of access to bare necessities increased in Maharashtra and Andhra Pradesh, decreased in West Bengal, Tamil Nadu and Karnataka and remained nearly unchanged in Gujarat.

## **V. FACTORS AFFECTING POVERTY AND BARE NECESSITY DEPRIVATION SCORE**

As mentioned above, a binomial logit model has been estimated using unit level data separately for 2012 and 2018 to quantify factors affecting the probability of a slum household being monetarily poor. Similarly, a linear multiple regression model has been estimated to quantify factors affecting a slum household's bare necessity index/deprivation score. The results of the logit model presented in Table 6 show that demographic factors like household size, head of the household being female, head of the household being illiterate, household depending on casual labour and the one belonging to other categories have a positive and statistically significant effect on the household's probability falling below the poverty line. Similarly, other factors like a household being situated in a non-notified slum, a household being located in the same slum for more than 20 years, bad housing structure and encroached land tenure status of the household increase the probability of a slum household being poor during both years. As far as the factors affecting the bare necessity/deprivation score are concerned, Table 7 shows that a household whose head is illiterate is more deprived while a household having members with graduation or higher education is less deprived of the bare necessities. Further, households who depend on casual labour are more deprived in comparison to those who seek their livelihood from self-employment or regular wage/salary. The results also show that factors like living in a non-notified slum, living on encroached land, non-possession of identification documents, and exposure to shocks and stress cause higher degrees of deprivation as is evident from the positive and statistically significant coefficients associated with these variables.

Table 6  
**Factors Affecting Probability of a Household being Poor: Results of Binomial Logit Model**

<i>Independent Variables/ Years</i>		<i>Dependent Variable: Household Below Poverty Line=1, Else=0</i>			
		2012		2018	
		<i>Coefficient</i>	<i>Marginal Effect</i>	<i>Coefficient</i>	<i>Marginal Effect</i>
Household Size		0.3174*** (0.0176)	0.0616	0.3325*** (0.0310)	0.0326
Gender of head: Female=1, Male=0		0.4870*** (0.1017)	0.0949	0.4381** (0.1870)	0.0466
Highest education among male	Below Graduate Level=1, Illiterate=0	-0.4864*** (0.1100)	-0.0984	-	-
	Graduation & above=1, Illiterate=0	-1.6534 (0.1892)	-0.3116	-	-
Highest education among female	Below Graduate Level=1, Illiterate=0	-0.3081*** (0.0862)	-0.0610	-	-
	Graduation & above=1, Illiterate=0	-0.8938*** (0.1972)	-0.1722	-	-
Education of head: Illiterate=1, Literate=0		-	-	0.4691*** (0.1423)	0.0485
Household type: Casual Labour=1, Others=0		0.5967*** (0.0723)	0.1191	1.0279*** (0.1438)	0.1173
Social Group: Others=1, General=0		0.3214*** (0.0764)	0.0625	0.5999*** (0.1613)	0.0546
Slum type: Non- Notified=1, Notified=0		-	-	0.4300*** (0.1352)	0.0433
Duration of stay:	5-20 years=1, Less than 5 years =0	0.0950 (0.1141)	0.0184	0.6982*** (0.2147)	0.0661
	More than 20 years=1, Less than 5 years =0	0.1782** (0.1059)	0.0346	0.3532* (0.2123)	0.0302
Housing structure: Satisfactory/bad=1, Good=0		1.0533*** (0.0768)	0.2112	0.3377** (0.1538)	0.0321
Tenure Status: Encroached=1, Owned/hired=0		0.4272*** (0.0934)	0.0841	1.5664*** (0.1726)	0.2134
Constant		-2.4448*** (0.1699)		-5.3856*** (0.3081)	
N		4750		2378	
Pseudo R- squared		0.1743		0.1917	

Notes: (i) \*, \*\*, and \*\*\* indicate significance at 1%, 5% and 10%, respectively.

(ii) Figures in parentheses are standard errors

Table 7

**Factors Affecting Household's Bare Necessity Deprivation Score: Results of Regression Analysis**

<i>Dependent Variable: Bare Necessity Deprivation Score<sup>a</sup></i>			
<i>Independent Variables/ Years</i>		2012	2018
Highest education among male:	Below Graduate Level=1, Illiterate=0	-0.0561*** (0.0114)	-
	Graduation & above=1, Illiterate=0	-0.1462*** (0.0142)	-
Highest education among female:	Below Graduate Level=1, Illiterate=0	-0.0546*** (0.0086)	-
	Graduation & above=1, Illiterate=0	-0.1141*** (0.0129)	-
Education of Head: Illiterate=1, Literate=0		-	0.0287*** (0.0086)
Household type: Casual Labour=1, Others=0		0.0704*** (0.0072)	0.0465*** (0.0092)
Slum type: Non- Notified=1, Notified=0		0.0565*** (0.0065)	0.0402*** (0.0076)
Tenure Status: Encroached=1, Owned/hired=0		0.1185*** (0.0109)	0.0924*** (0.0114)
Possession of documents: No document=1, Possesses=0		0.0585*** (0.0102)	0.0169* (0.0112)
Shock/ Stress: Experienced=1, Not Experienced=0		0.0439*** (0.0107)	0.0461*** (0.0156)
Water Benefit from Government Scheme: No benefit=1, Benefit Received=0		-	0.1185*** (0.0152)
Constant		0.4806*** (0.0114)	0.2026*** (0.0156)
N		3144	1649
R- Squared		0.2137	0.1009

Notes: (i) \*, \*\*, and \*\*\* indicate significance at 1%, 5% and 10%, respectively.

(ii) Figures in parentheses are standard errors

(iii) # Bare Necessity Deprivation Score ranges between 0 (No deprivation) to 1 (Complete deprivation)

## VI. DISCUSSION AND CONCLUSIONS

Even though BNI (Bare Necessity Index) summarizes multidimensional issues and is a positive move towards evidence based or data driven policy evaluation, it is subject to criticism on grounds of subjectivity in the choice of dimensions and indicators of what constitutes a "bare standard of living" (Farrugia, 2007). Moreover, a uniform array of indicators may not be equally relevant across all diverse groups of people, which paves the way for broadening and customizing the set of indicators defining

“bare necessities” in order to make the approach forward looking and inclusive. Secondly, since BNI is a composite index and is based on a compensatory approach, it may lead to a high value of one indicator to compensate for the low value of the other; therefore, while interpreting the results, it is essential to look at the disaggregated picture across dimensions and indicators in order to direct the resources to the areas where gaps exist (Mazziotta & Pareto, 2013). The study shows that despite the increase in the per capita consumption expenditure and a decrease in the poverty incidence, a majority of slum households continue to be poor in terms of lack of access/deprivation score in bare necessities of life. The results show that while around three-fifths or even higher per cent of slum households in India and in selected states are non-poor by the conventional criterion of headcount ratio, around 60 per cent or more of such households are poor and deprived of bare necessities of life. Among selected states, the extent of deprivation is more pronounced in Karnataka, West Bengal and Gujarat, which articulates the imperativeness for bridging the gap. Even though the determination of factors responsible for heterogeneity in the deprivation of basic infrastructure across states is beyond the ambit of this study, this differential pattern could be attributed to political factors like having the same government at the state and centre level, fiscal factors, governance, efficiency, social composition and extent of infrastructural investment (Timilsina et al., 2022). On the whole, the results show that among the five dimensions of basic necessities of life, access of slum households to water, sanitation and housing is particularly low. The efforts therefore, need to be made towards the improvement of access to different dimensions of ‘bare necessities’ of life to uplift the overall living standard of the slum dwellers.

Results of regression analysis further show that factors such as illiterate head of the household, household depending on casual labour, non-notified status of the slum and encroached status of the dwelling site increase the probability of a slum household being poor. Similarly, factors such as living in a non-notified slum, dwelling on encroached land, non-possession of identification documents, exposure to shocks and stress in terms of fear of eviction and risk of floods and landslides cause higher degree of deprivation. Thus, the blended effect of loopholes at the institutional, social, political and economic levels makes the slum dwellers vulnerable to monetary poverty and bare necessities deprivation (Marx et al., 2013). Though this study attempts to analyze the inter- state heterogeneity in the access to various indicators, future studies could also decode the intra- state disparities at the district level, as it would be instrumental to unravel the extent of uniformity in the implementation of government schemes within the states. Therefore, it is significant to map the precise conditions of the slums, by capturing their heterogeneity, as a means of prioritizing interventions and well directed targeting. Further, there is a need for effective convergence at the three tier



levels of government (centre, state and local) for the effective implementation of government programmes. The findings of this study elucidate immediate action towards access to basic amenities and call for targeted interventions to free the slum dwellers from the shackles of poverty and deprivation.

Table 2  
Proportion of Slum Households Having Access to Bare Necessities in  
Selected States of India: 2012 to 2018

Dimensions	Indicators	Andhra Pradesh		Gujarat		Karnataka		Maharashtra		Tamil Nadu		West Bengal		All-India	
		2012	2018	2012	2018	2012	2018	2012	2018	2012	2018	2012	2018	2012	2018
Water	Source	49.89	45.99	53.76	55.35	43.73	57.4	70.63	87.24	16.84	40.87	26.91	23.93	51.55	53.53
	Distance	63.23	60.51	57.44	61.02	50.97	65.5	75.98	85.79	23.25	46.74	34.12	24.51	59.78	60.11
	Method of taking water	19.52	10.51	2.69	26.82	14.84	17.97	16.36	27.7	0.17	10.26	5.74	1.94	12.91	15.94
	Nature of access	22.67	23.1	40.11	45.34	36.17	51.43	53.9	67.67	6.23	30.68	9.64	7.51	35.35	39.77
Sanitation	Access to latrine	63.74	67.35	27.97	47	44.26	55.06	27.77	38.93	21.49	51.55	24.02	20.14	37.7	50.86
	Type of latrine	94.9	97.15	99.2	97.39	96.83	95.78	99.58	97.96	87.01	81.41	92.82	85.05	95.63	94.67
Housing	Condition of structure	59.48	58.15	34.09	20.77	45.44	41.54	28.87	14.53	25.98	50.13	14.61	7.16	34.8	32.18
	Type of the dwelling	47.39	43.35	54.34	51.83	72.06	82.83	30.5	36.81	44.12	56.98	29.33	23.42	44.14	48.31
	Pucca dwelling	91.93	96.09	88.15	68.99	79.13	81.45	94.92	95.37	77.8	87.57	77.09	91.59	88.08	89.89
Micro Environment	Drainage system	85.63	83.5	44.41	55.28	86.7	83.73	85.6	92.38	77.68	67.17	45.63	50.82	76.24	77.9
	Problem of flies/ mosquitoes	42.61	40.72	47.23	42.89	52.61	40.14	63.2	63.87	17.01	43.94	61.16	57.65	51.12	49.64
	Effort by the Local Bodies/State Government	56.69	72.81	72.95	43.45	52.23	34.21	71.24	71.24	77.63	96.44	73.35	66.70	59.98	61.38
Other Facilities	Kitchen type	12.68	28.7	1.75	7.11	10.78	14.68	17.33	15.65	1.94	23.35	3.25	7.34	11.88	19.17
	Ventilation of the dwelling unit	29.28	51.4	10.96	24.58	19.78	31.99	13.28	9.65	9.97	53.85	8.39	10.94	17.63	28.14
	Access to bathroom	83.77	90.93	41.23	57.94	64.37	89.93	64.31	70.27	47.14	85.3	39.08	50.41	62.59	74.07
	Type of bathroom used	24.26	44.75	24.38	61.4	40.7	83.7	38.5	84.97	29.97	66.24	10.07	32.08	31.09	63.64
	Access to electricity for domestic use	99.16	100	90.59	76.17	98.28	96.49	97.71	99.22	93.76	100	96.7	98.98	96.93	97.52
	Type of electric wiring	87.01	88.38	54.13	62.99	91.29	82.61	73.85	85.63	92.05	94.44	57.4	65.61	72.79	79.33
	Type of fuel used for cooking	-	83.77	-	56.51	-	80.12	-	92.38	-	96.33	-	61.65	-	81.6

Source: Computed by authors based on unit level data from 69<sup>th</sup> and 76<sup>th</sup> NSS rounds

Table 3  
Dimension Score and Index of Bare Necessities of Life (BNI) among  
Slum Households in Selected States of India: 2012 to 2018

States	Water		Sanitation		Housing		Micro Environment		Other Facilities		BNI	
	2012	2018	2012	2018	2012	2018	2012	2018	2012	2018	2012	2018
Andhra Pradesh	0.39	0.35	0.79	0.82	0.66	0.66	0.62	0.72	0.56	0.70	0.60	0.65
Gujarat	0.39	0.47	0.64	0.72	0.59	0.49	0.55	0.63	0.37	0.50	0.51	0.56
Karnataka	0.36	0.48	0.71	0.75	0.66	0.69	0.64	0.59	0.54	0.69	0.58	0.64
Maharashtra	0.54	0.67	0.64	0.68	0.51	0.49	0.73	0.67	0.51	0.65	0.59	0.63
Tamil Nadu	0.12	0.32	0.54	0.66	0.49	0.65	0.57	0.73	0.46	0.74	0.44	0.62
West Bengal	0.19	0.14	0.58	0.53	0.40	0.54	0.60	0.36	0.36	0.47	0.43	0.41
All-India	0.40	0.42	0.67	0.73	0.56	0.57	0.62	0.63	0.49	0.63	0.55	0.60

Source: Computed by authors based on unit level data from 69th and 76th NSS rounds

Table 5  
Percentage Distribution of Slum Households based on Monetary Poverty and  
Bare Necessities Poverty in Selected States of India: 2012 to 2018

	2012							2018						
	Andhra Pradesh	Gujarat	Karnataka	Maharashtra	Tamil Nadu	West Bengal	All-India	Andhra Pradesh	Gujarat	Karnataka	Maharashtra	Tamil Nadu	West Bengal	All-India
Monetary Poor & Bare Necessities Poor	13.82	21.76	29.07	17.46	19.29	22.16	18.70	3.09	11.77	24.4	6.82	7.34	27.23	11.24
Monetary Poor & Bare Necessities Non-Poor	3.76	4.00	4.44	4.72	0.38	0.08	3.57	1.31	2.69	4.96	4.03	0.97	1.02	1.91
Monetary Non-Poor & Bare Necessities Poor	54.21	58.46	38.36	54.42	77.17	71.47	57.07	60.95	58.00	35.63	61.67	60.34	65.78	58.50
Monetary Non-Poor & Bare Necessities Non-Poor	28.20	15.78	28.13	23.40	3.16	6.28	20.66	34.65	27.54	35.01	27.48	31.35	5.96	28.35

Source: Computed by authors based on unit level data from 69th and 76th NSS rounds

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## APPENDIX:

Table  
Dimensions, Indicators and Cut off for Constructing Bare Necessity Index

Dimensions	Indicators	Weights*		Bare Necessity Cut off
		2012	2018	
Water	Principal source of drinking water	1/20		Piped water into dwelling or piped water to yard/plot
	Distance to the principal source of drinking water	1/20		Within dwelling or outside dwelling but within premises
	Method of taking water	1/20		Through tap
	Nature of access	1/20		Exclusive use of the household
Sanitation	Access to latrine	1/10		Exclusive use of the household
	Type of latrine	1/10		Piped sewer system, septic tank, twin leach pit, single pit
Housing	Condition of structure	1/15		Good
	Type of the dwelling	1/15		Independent
	Pucca dwelling	1/15		Pucca wall and roof
Micro Environment	Drainage system	1/15		Underground, covered pucca or open pucca
	Problem of flies/ mosquitoes	1/15		Moderate or not faced
	Effort by the Local Bodies/State Government to tackle problem of flies/ mosquitoes	1/15		Yes
Other Facilities*	Kitchen type	1/30	1/35	Separate kitchen with water tap
	Ventilation of the dwelling unit	1/30	1/35	Good
	Access to bathroom	1/30	1/35	Presence of bathroom
	Type of bathroom used	1/30	1/35	Attached to the dwelling unit
	Access to electricity for domestic use	1/30	1/35	Yes
	Type of electric wiring	1/30	1/35	Conduit wiring or fixed to the walls
	Type of fuel used for cooking	-	1/35**	LPG

The index is constructed by first aggregating the indicators for each dimension, and thereafter the dimensions are aggregated using their scores for the particular State/group and arithmetic mean. The value of the index ranges between 0 and 1. Higher the value of index better is the access to the bare necessities. The score for an indicator for a particular State/group is calculated using the formula given below:

$$\text{Indicator Score} = [\text{Actual value} - \text{Minimum value (fixed at 0)}] / [\text{Maximum value (fixed at 100)} - \text{Minimum value (fixed at 0)}]$$

*Note:* \*Nested weights have been used i.e. dimensions are equally weighted and indicators within them are also equally weighted

*Source:* The Bare Necessities (Chapter 10), Economic Survey 2020-21, Volume 1





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