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The Quality of Living Space as an Indicator of Poverty: Insights from Census of India (2011)

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Abstract:

When an individual or group does not have the necessary means of subsistence, they are said to be in a state of poverty. Real-world living conditions, as indicated in the lack of Quality of Housing space and the availability of basic amenities reveals the true degree of scarcity. Hence, poverty is analysed by taking various indicators of Quality of Living Space into consideration. 10 indicators were selected as per the availability of data from Census of India. Data was analysed by taking district as the unit of analysis and the essential mapping was done using Arc GIS 10.3. Composite index was prepared by find out the z-score and finally concluding on the composite index. Results reveals that some economically poorer states have low level of quality of living space while the economically better off states have better quality of Living Space.

Keywords: Poverty, Households, Quality of Living Space

Introduction:

Poverty is a multidimensional and complex phenomenon that extends beyond the lack of income to include deprivation of basic needs, rights, and opportunities for human development. It encompasses inadequate access to food, shelter, health, education, sanitation, and social participation, and can be understood in terms of both absolute and relative poverty. Absolute poverty refers to the lack of basic necessities for survival, while relative poverty reflects inequalities within society, often linked to status insecurity and deprivation compared to others.

In India, poverty manifests in severe and persistent forms, particularly in rural areas where nearly 30% of the population remains chronically poor. Despite economic growth, structural inequalities, intergenerational poverty, high healthcare costs, and vulnerability to economic

shocks perpetuate deprivation. According to the 2019 Oxfam report and Global Hunger Index (2023), hunger and malnutrition remain pressing concerns, with over three-quarters of the rural poor unable to access adequate nutrition. The COVID-19 pandemic has further deepened poverty and inequality.

Data from the 2011 Census and NITI Aayog highlight regional disparities, with states like Bihar, Jharkhand, and Uttar Pradesh recording the highest poverty levels, while Kerala shows the lowest due to better education and social indicators. The Multidimensional Poverty Index (MPI) introduced in 2021, based on 12 indicators across health, education, and living standards, reveals that rural poverty (0.155 MPI value) is significantly higher than urban poverty (0.08). Bihar alone records over half of its population as multidimensionally poor, underscoring the uneven distribution of poverty across India.

Objective:

- To examine the Quality of Living Space an indicator of Poverty by using data from Census of India (2011).

Data Base and Methodology:

Secondary data from the 2011, Census of India's Tables on Houses, Household Amenities, and Assets has been used to achieve this goal for the state level as well as for the district level. Furthermore, through filtering into Microsoft Excel, the raw data of the states and districts was reduced. Only pertinent information was converted into percentages. Based on these percentages, data was mapped in ArcGIS 10.3 for a visual representation of the data and additional explanation of all the indicators. Z-Score was utilized to standardize several sets of observations in order to get an overall picture of the study. The following formula was used to calculate Z-Score:

$$\text{Z-Score} = \frac{X-\mu}{\sigma}$$

X =Per cent value of the indicator in a district

μ = Mean value of the same district

σ = Standard deviation

The composite Z-score was created by adding the Z-scores of all the indicators that were chosen, and the composite index was created by dividing that number by the total number of indicators. Three categories—High, Medium, and Low were added to the composite index. The Box and Whisker plot was utilised to display the distribution of numerical data as well as to analyse explanatory data. The first (lower) quartile, median, third (upper), minimum and maximum scores are all included in the box and whisker plot's five-point summary of a data set.

Indicators Representing Poverty Conditions

i. Households living in Temporary Houses
ii. Households having Housing Conditions as Dilapidated
iii. Households having No Exclusive Room
iv. Households without separate Kitchen within the House
v. Households without Latrine within the House
vi. Households without Bathroom within the House
vii. Households with Source of Water away the Premises
viii. Households with Kerosene for Lighting
ix. Households with source other than LPG/PNG/Electricity for Cooking
x. Households with Open and No Drainage Connectivity for Wastewater Outlet

Results and Discussions:

- **Households living in Temporary Houses**

According to the rating, the top five temporary housing districts are Tirap (76.70) and Upper Subansiri (71.60), two of the five districts in Arunachal Pradesh, and two in Odisha, Baudh (69.02) and Bhadrak (68.78). However, one is also from Nagaland and is named Mon (69.28). As a result of their residents' local and traditional housing conditions, these districts have the largest percentage of temporary housing. Rudraprayag (0.06) had the least amount of temporary housing, followed by Almora (0.09), Diu (0.14), Pithoragarh (0.17), and Bageshwar (0.17). Four of the five least prosperous districts are located in Uttarakhand state. The weather in Uttarakhand prevents the construction of temporary households for residents.

- **Households having housing condition as dilapidated**

Among the districts, the figure on the two extremes ranges from Barpeta (17.71 per cent) in Assam to Upper Siang (0.55 per cent) in Arunachal Pradesh. In Arunachal Pradesh, as in all north-eastern states, the use of local building materials is common and easily available, which does not allow people to live in dilapidated houses. It is worth to be noted that 8 states are above the national average figure in this case. Other than West Bengal, other states comprise of Assam, Odisha, Bihar, Punjab, Uttar Pradesh, Meghalaya, and Sikkim. In all states and Union Territories, Daman & Diu and Dadra & Nagar Haveli have the lowest per cent of households living in dilapidated houses.

- **Households having no Exclusive Room**

Among the districts, the proportion of households having no exclusive room is highest in the case of Thiruvarur (40.45 per cent) in Tamil Nadu and the lowest side is accorded by two districts simultaneously i.e., Mahe in Pundhucherry and Tirap in Arunachal Pradesh (0.30 per cent for both). Tamil Nadu is among the worst states when it comes to housing, a study by the Union housing ministry has found.

- **Households without Separate Kitchen within the House**

The phrase "*kitchen not available*" is used when there is no space available for cooking. If a separate kitchen is not available, cooking must be done in the same room as sleeping and eating. This exposes the entire household to cooking smoke, which could be harmful to their health because everyone in the house must breathe in the cooking fumes. The practice of "*cooking in the open*" in rural areas of states like Punjab and Haryana may be culturally motivated. Lack of space is the primary cause of "*Kitchen not available*," which is indicative of poverty.

For Indian households, having a separate kitchen within the property is a sign of affluence and cleanliness. Almora (94.26 per cent) in Uttarakhand, Arwal (81.33 per cent) in Bihar, Panch Mahals (80.28 per cent) in Gujarat, Garhwa (79.45 per cent) in Jharkhand, and Jhabua (78.86 per cent) in Madhya Pradesh are the top five performing districts in India.

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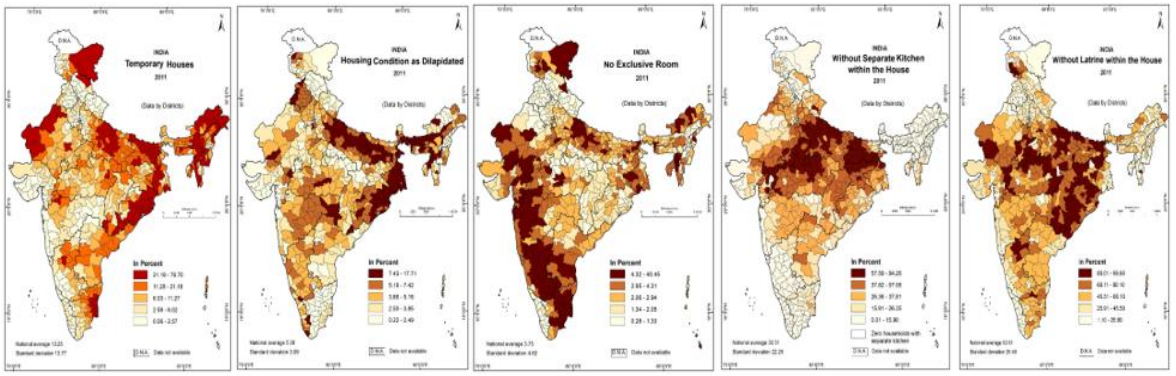
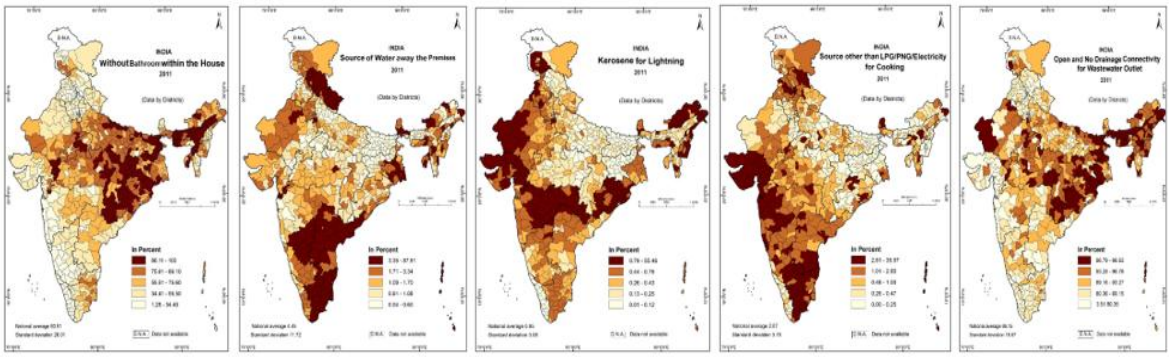


Map 1.1 Map 1.2 Map 1.3 Map 1.4 Map 1.5



Map 1.6 Map 1.7 Map 1.8 Map 1.9 Map 1.10

Households without Latrine within the House

At the district level, the per cent of households having latrine within the house is highest in Bijapur (98.60), which is almost touching the century. Bijapur is a new district carved out from the erstwhile Dantewada district in Chhattisgarh. Bijapur is the tribal district which is currently a part of the politically troubled 'Red Corridor' and has the dubious distinction of being at the second position from the bottom in the case of literacy rate which is 41.58 per cent. In contrast, the district with a low per cent of households without latrine within the house is Aizawl (1.14 per cent). Aizawl is also a tribal majority area. Besides this, the high literacy rate and influence of Christian Missionary work have added to awareness of having a toilet within the house.

In India's top five districts, Bijapur (98.60 per cent) in Chhattisgarh came in first, followed by the north east (94.90 per cent) in Delhi, Visakhapatnam (94.70 per cent) in Andhra Pradesh, Dhaulpur (94.40 per cent) in Rajasthan, and Jammu (94.20 per cent) in Jammu and Kashmir. Three of the five districts have the largest proportion of urban residents and the least amount of water availability. These neighbourhoods have a lot of open space. Dhaulpur district is eastern part of Rajasthan. There are a lot of immigrant tourists in the area. The historical district of Dhaulpur depends on tourism for its economic well-being. Therefore,

having a latrine facility is now required for households. The rural and hilly area have rural economy background. Aizawl (1.10 per cent) is among the five worst-performing in no latrine facility followed by Hyderabad (1.50 per cent) in Andhra Pradesh, Ernakulam (2.10 per cent) in Kerala, and Srinagar (2.10 per cent) in Jammu & Kashmir. Mahe (2.17 per cent) district features a sizable number of distinct latrine facilities. These districts have a relatively small percentage of households without latrines, which indicates that a sizable fraction of their households is equipped with latrines.

- **Households without Bathroom within the House**

The district with a high per cent of households with bathroom within the house is Katihar (100 per cent) in Bihar followed by Madhepura (100 per cent) in Bihar and the lowest is in the case of Mahe (1.27 per cent) in Pundhucherry. The Mahe district is considered to be highly urbanized and economically prosperous. In 2006, Katihar was named one of the country's 250 most backward districts (out of a total of 640) by Indian Government. It is one of the eleven districts in Assam who is currently receiving funds from the Backward Regions Grant Fund Programme. According to 2011 data, 70.92 per cent of its population is tribal population, the highest per cent in the state. These factors hinder the development of the build-up of separate bathroom within the house.

- **Households with Source of Water away the Premises**

The lowest percentage of households without access to drinking water is found in Supaul (0.04 per cent), followed by Arwal (0.04 per cent), Araria (0.05 per cent), Sheohar (0.06 per cent), and Barpeta (0.06 per cent) in Assam. On the other side, four districts in Bihar have the lowest drinking water access. (Table 3.14). Freshwater rivers are always present in these five areas. Bihar receives more than 200 cm of rainfall annually, which aids in groundwater replenishment.

- **Households with Kerosene for Lightning**

The inter-district disparity is clearly visible as the highest per cent of households using kerosene as a source of lighting is lowest in Lakshadweep (0.21 per cent) and highest in Arwal (94.02) and Madhepura (93.49 per cent) in the northern Bihar plain. A contrast is evident as in the former case every house is electrified and in the latter case, every house needs to be electrified.From the state of Arunachal Pradesh, Kurung Kumey (55.46 per cent) is the largest, followed by East Kameng (37.21 per cent), upper Subansiri (26.84 per cent), Dibang Valley (16.41 per cent), and West Siang (11.76 per cent). It demonstrates how inadequate the situation of Arunachal Pradesh's energy infrastructure is. The geography of Arunachal Pradesh makes it difficult to distribute energy to households despite the state's

enormous potential for electricity production. Due to political strategy, the use of kerosene for lighting is lowest in Madhepura (0.01 per cent). Politics in Bihar are heavily influenced by Madhepura, then Mahe (0.01 per cent) in Puducherry. As a result, these two regions use extremely little kerosene for illumination. Geographically speaking, Jharkhand's Lohardanga (0.02 per cent) district has an advantage because it is close to the state's capital district, Ranchi.

- **Households with Source other than LPG/PNG/Electricity for Cooking**

A wide inter-districts disparity can be clearly seen pertaining to this indicator as the percentage is low in Srinagar (4.99 per cent) in Jammu & Kashmir and highest is in the case of Kiphire (0.19 per cent) in Nagaland. Local fire wood and other material is easily available in Nagaland which do no urge the people to make LPG/PNG connections. Another factor which adds to this is the presence of huge tribal population as almost 90 per cent population of Nagaland is tribal population which are poor and depend on conventional method of cooking (Map 3.18). Nowadays, several households electrify their cooking instead of utilising LPG/PNG. The district of Daman (35.57 per cent) consumes the mostly other fuels for cooking, followed by Hyderabad (27.71 per cent) in Andhra Pradesh, Kolkata (24.15 per cent), South Andaman (23.74 per cent), and Chandigarh (21.91 per cent).

- **Households with Open and No Drainage Connectivity for Wastewater Outlet**

Bijapur (99.63 per cent) leads the five districts in having open drainage, followed by Debagarh (99.44 per cent) in Jhakhand, Malkangiri (99.37 per cent) in Odisha, Narayanpur (99.31 per cent), and Khunti (99.23 per cent) in Jhakhand. These five districts are all highly underdeveloped. There is a sizable number of tribal and scheduled caste people living in Jharkhand, Odisha, and Chhattisgarh households. On the other side, five districts, namely Hyderabad (3. 51 per cent) in Andhra Pradesh, Chennai (4.01 per cent) in Tamil Nadu, Central (6.99 per cent) in Delhi, Mumbai (10.51 per cent) in Maharashtra, and Chandigarh (12.76 per cent) in Chandigarh, have very low shares in the open drainage network. Since the lowest five districts are in an urban region, a closed drainage system must be established. The oldest cities in India include Mumbai, Chennai, and Hyderabad, whereas Chandigarh is a planned city. Therefore, the drainage system must be created alongside the built-up area.

Composite Index of Poverty:

The Composite Index reveals the general state of deprivation in living conditions through a set of key indicators. These indicators, which pertain to housing space and the availability

of amenities, aim to illustrate poverty levels by focusing on the quality of living spaces rather than income levels.

Table 3.23: Composite Index of Quality of Living Space representing Poverty, 2011

S. No.	STATES/UTs	2011
1.	Arunachal Pradesh	1.07
2.	Odisha	0.92
3.	Bihar	0.84
4.	West Bengal	0.81
5.	Jharkhand	0.66
6.	Uttar Pradesh	0.55
7.	Chhattisgarh	0.5
8.	Assam	0.47
9.	Madhya Pradesh	0.4
10.	Meghalaya	0.36
11.	Rajasthan	0.36
12.	Tripura	0.34
13.	Karnataka	0.29
14.	Dadra & Nagar Haveli	0.24
15.	Andhra Pradesh	0.23
16.	Manipur	0.23
17.	Jammu & Kashmir	0.08
18.	Tamil Nadu	0.08
19.	Uttarakhand	-0.09
20.	Maharashtra	-0.15
21.	Andaman & Nicobar Islands	-0.19
22.	Nagaland	-0.22
23.	Mizoram	-0.25
24.	Haryana	-0.26
25.	Sikkim	-0.27
26.	India	-0.31
27.	Himachal Pradesh	-0.34
28.	Gujarat	-0.36
29.	Punjab	-0.44
30.	Puducherry	-0.45
31.	Kerala	-0.57

32.	Daman & Diu	-0.62
33.	Lakshadweep	-0.78
34.	Goa	-0.85
35.	NCT of Delhi	-1.01
36.	Chandigarh	-1.05

Source: Calculated by researcher based on Census of India, 2011

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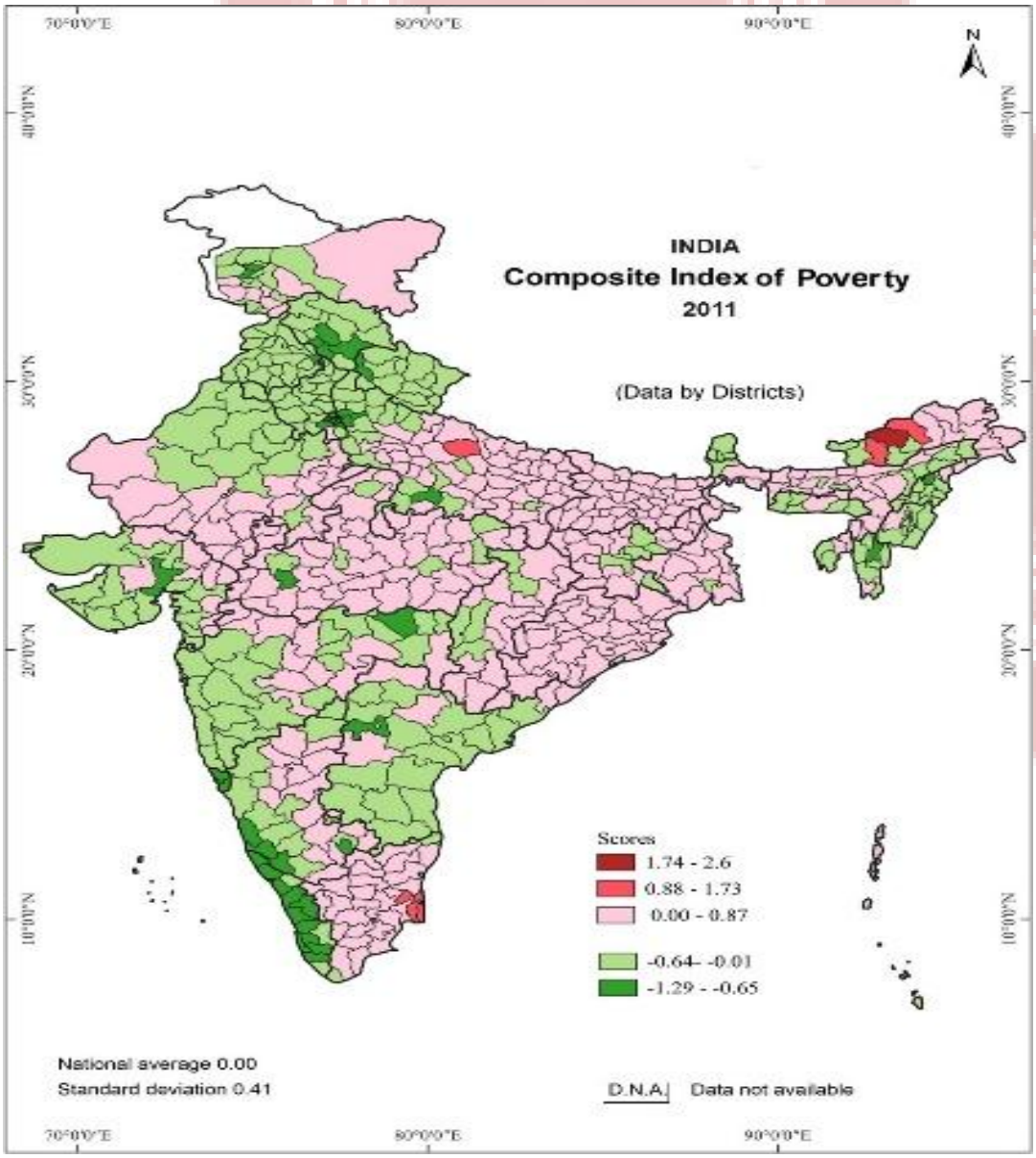
As far as the composite index for the year 2011 is concerned, national value is -0.31, the



highest value is of Arunachal Pradesh (1.07) followed by Odisha, Bihar, West Bengal, and Jharkhand. This indicates that the level of poverty in the context of living space is more in

these states. The lowest poverty is attained with the states having the lowest value in the composite index of poverty regarding Quality of Living Space i.e. Chandigarh (-1.05) followed by NCT of Delhi and Goa in order.

Based on composite index values determined for poverty across 640 districts in India, (map 3.22), three categories are framed out:

i. ***High Composite Index***: ***(1.74-2.60):*** This category comprises of 1 district. In this district the composite index ranges from 1.74 to 2.60 points. This district is Kurung Kumey in Arunachal Pradesh. The district's remote location, rugged terrain, lack of infrastructure has resulted in Kurung Kumey district having the highest poverty level.

ii. ***Medium Composite Index: (0.88-1.73):*** This category comprises of 6 districts where there is prevalence of poverty but comparatively lower. In these 6 districts, composite index ranges from 0.88 to 1.73. It includes East Kameng and Upper Subansiri from Arunachal Pradesh, Nagapattinam, Thiruvarur and Ariyalpur from Tamil Nadu and Sitapur from Uttar Pradesh. These regions experience challenges related to poverty, access to housing space and amenities, economic opportunities, etc.

iii. ***Low Composite Index: (0.00-0.87):*** This category comprises of 339 districts. The composite index ranges from 0.00 to 0.87. These districts are scattered in most of the states and union territories especially in south eastern and central India.

Other than these, there are 294 districts with comparatively lower levels of poverty whose composite index falls in the range of -0.01 to -1.29. It shows that almost 46 per cent of the districts have the poverty value below the national average. Most of these districts fall in the states where poverty level falls below the national average.

This composite data was also viewed with the 112 aspirational districts given by Niti Aayog in the year 2018 under the aspirational districts programme and it was found that almost 95 per cent of the districts of poverty in relation to quality of living space are corroborating with it.

Conclusion:

Despite India's economic growth, large sections of the population still lack adequate housing and basic amenities such as water, sanitation, and electricity, reflecting persistent poverty. The 2011 Census shows widespread deprivation, with over half of households lacking latrines, many without kitchens or bathrooms, and heavy reliance on kerosene. Poverty is unevenly distributed, with Bihar, Jharkhand, Odisha, Uttar Pradesh, and tribal regions under the Fifth Schedule experiencing the highest levels, often overlapping with left-wing

extremism-affected areas. Severe poverty is concentrated in the Ganga Plain, eastern coastal regions, tribal belts, and drought-prone interiors, while better living conditions are found in areas benefiting from the Green and White Revolutions, urban economies, or higher literacy. Poverty has declined marginally between 2011 and 2018, but remains regionally entrenched, with eastern and central India far more affected than the western and coastal regions. India is on track to achieve SDG target 1.2 that aims to reduce poverty in all its forms by at least half by 2030.

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