



DISPARITIES IN HOUSEHOLD AMENITIES IN HARYANA: AN EVIDENCE FROM THE MULTIPLE INDICATOR SURVEY

SHELLY DAHIYA^{1#} AND MANJISHA SINHA¹

¹Consultant, NITI Aayog, New Delhi-110001

E-mail of corresponding author: shellydahiya88@gmail.com

Received: 23 April 2026; Revised: 26 May 2026;

Accepted 10 June 2026; Publication: 15 September 2026

Abstract: This study examines disparities in household amenities across rural and urban Haryana using unit-level data from the National Statistical Office's Multiple Indicator Survey (78th Round), 2020-21. A multidimensional Household Amenities Index (HAI) is constructed using indicators covering housing, energy, drinking water, sanitation, waste disposal, health access and other facilities. Descriptive analysis and a Tobit regression model has been employed to identify socio-demographic and spatial determinants of household amenity levels. The findings revealed substantial rural-urban and social-group disparities, while education is positively associated with household amenities. District-level variations are also considerable, highlighting the need for targeted and inclusive policies to improve household living conditions in Haryana.

Keywords: Household Amenities, Household Amenities Index (HAI), SDG, Tobit regression, and Haryana.

INTRODUCTION

Access to adequate household amenities is an important dimension of living standards and human well-being. Facilities such as safe drinking water, sanitation, electricity, appropriate housing, waste disposal and proximity to health services directly influence the health, security and productivity of household members. These facilities are also closely connected with the Sustainable Development

To cite this paper:

Shelly Dahiya & Manjisha Sinha (2026). Disparities in Household Amenities in Haryana: An Evidence from the Multiple Indicator Survey. *Indian Journal of Finance and Economics*. 7(1-2), 23-39.

Goals (SDGs), particularly SDG 1 (No Poverty), SDG 3 (Good Health and Well-being), SDG 6 (Clean Water and Sanitation) and SDG 11 (Sustainable Cities and Communities). Consequently, assessing not merely the availability of individual facilities but also the combined level of household amenities is important for understanding the quality and inclusiveness of development at household level.

India has made considerable progress in expanding basic services, yet improvements have not been uniform across households or locations. Differences in economic resources, educational attainment, social identity and access to public infrastructure continue to influence household living conditions. Empirical evidences have suggested that household amenities are closely associated with socio-economic characteristics and that disadvantaged populations may experience multiple forms of deprivation simultaneously. In particular, rural households and socially disadvantaged communities often face constraints in accessing quality housing, sanitation, drinking water and health facilities. These disparities are important because deprivation in one amenity can reinforce deprivation in others, producing cumulative disadvantages in household well-being.

Recent evidence from the National Statistical Office's Multiple Indicator Survey (NSO-MIS) provides an important national benchmark. Singh et al. (2025) developed a Household Amenities Index (HAI) using the 78th Round MIS data for 2020-21 and demonstrated considerable differences in household amenities across states, rural-urban areas and socio-demographic groups. Their national analysis reported an overall HAI of 68.68, with substantially higher amenity levels in urban areas (76.27) than rural areas (65.10). The study also found a positive relationship between education and household amenities, while socially disadvantaged groups recorded comparatively lower levels. The Tobit estimates further showed significant effects of age, household size, education, gender and social-group characteristics on the HAI.

However, national-level comparisons can conceal important intra-state disparities. Haryana provides an especially relevant case for a more focused investigation. The state has relatively high levels of economic development, rapid urbanisation and strong physical infrastructure, but these aggregate achievements do not necessarily imply uniform access to household amenities. Differences between rural and urban settlements, as well as variations among

districts, can generate substantial differences in living conditions. Indeed, Singh et al. (2025) reported an overall HAI of 75.32 for Haryana, with rural and urban values of 72.53 and 79.26, respectively, placing Haryana considerably above the all-India average. These figures raise an important question: what explains the remaining disparities within a relatively developed state such as Haryana?

The present study therefore builds upon the analytical framework of Singh et al. (2025) but shifts the focus from inter-state comparison to a detailed examination of household amenity inequality within Haryana. The study investigates disparities by gender of household head, social group, religion, educational attainment and rural-urban residence, while also examining district-level variations. Particular attention is given to whether differences observed descriptively remain significant after controlling for household characteristics. A composite HAI is employed to capture the multidimensional nature of household amenities, followed by a Tobit regression model to identify the socio-demographic factors associated with variations in the index.

The study is motivated by the recognition that a high state-level average can mask pockets of deprivation. For example, differences in household amenities may arise not simply because a household is located in Haryana, but because it belongs to a particular social group, is headed by a less-educated person, or is located in a rural district with weaker access to infrastructure and public services. Understanding these layers of inequality is essential for moving from broad state-level development to more targeted and inclusive policy intervention.

Thus, the objective of the present study is to measure the level and distribution of household amenities in Haryana and identify the socio-demographic and spatial factors associated with inequality in household amenity access. By extending the national framework developed by Singh et al. (2025) to a detailed state-level analysis, the study contributes evidence on where disparities are concentrated and which household characteristics are most strongly associated with amenity deprivation. The findings can assist policymakers in designing district-specific and socially targeted interventions aimed at improving household living conditions and ensuring that the benefits of Haryana's development are more evenly distributed.

II. DATA AND METHODOLOGY

The study uses unit-level data from the Multiple Indicator Survey (MIS), 78th Round of the National Statistical Office (NSO), Government of India, pertaining to 2020-21. The survey was originally planned for January-December 2020 but was extended up to August 2021 because of COVID-19-related disruptions. The Haryana sample is used to examine variations in household amenities across rural and urban areas, gender, social groups, religion, educational attainment and districts.

Construction of Household Amenities Index

A Household Amenities Index (HAI) was constructed to obtain a single measure of household living conditions. Composite indices are widely used to summarise multidimensional differences in development and living standards (Singh et al., 2013; Chand & Singh, 2016; Singh et al., 2018; Srivastava et al., 2019). The present index follows this approach but is specifically adapted to household amenities in Haryana.

The HAI incorporates seven broad dimensions: (i) dwelling characteristics, (ii) energy use, (iii) drinking-water access, (iv) sanitation and bathroom facilities, (v) garbage disposal, (vi) access to health facilities, and (vii) access to public space and information-related facilities. These dimensions are represented through 23 individual indicators. Variables with better conditions receiving higher scores were positively coded, while ordinal responses were re-scaled to ensure comparability. The indicators were subsequently converted into dimension-free values and aggregated using predetermined weights. The resulting HAI ranges from 0 to 100, where a higher score indicates better access to household amenities.

The weighting structure gives greater importance to major dimensions of household living conditions, particularly dwelling characteristics (30%), energy (20%), water access (10%), health-facility access (14%), sanitation and bathroom facilities, garbage disposal, public-space access and information-related facilities. This approach enables comparison of household amenity levels across different population groups and geographical locations in Haryana.

Normalisation and Index Construction

Since the indicators are measured in different units and scales, they were normalised before aggregation. For indicators where a higher value represents better amenities, the following transformation was applied:

$$S_i = \frac{X_{ij} - x_j^{\min}}{x_j^{\max} - x_j^{\min}}$$

Where X_{ij} represents the value of indicator j for household i , while $x_j^{\min}$ and $x_j^{\max}$ denote the minimum and maximum values. The normalised indicators were then combined using their respective weights:

$$HAI_i = 100 \sum_{j=1}^n W_j S_{ij}$$

where W_j is the weight assigned to indicator j , and S_{ij} is its normalised score. Thus, the final HAI lies between 0 and 100.

Tobit Regression Model

To identify the factors associated with household amenities, a Tobit regression model was estimated because the constructed HAI is bounded between 0 and 100. The latent-variable formulation is expressed as:

$$HAI_i^* = X_i \beta + \varepsilon_i$$

with the observed index defined as:

$$HAI_i = \begin{cases} 0, & HAI_i^* \leq 0 \\ HAI_i^*, & 0 < HAI_i^* < 100 \\ 100, & HAI_i^* \geq 100 \end{cases}$$

where HAI_i^* represents the latent level of household amenities, is a vector of household characteristics, is the vector of parameters to be estimated, and is the error term assumed to follow a normal distribution.

The explanatory variables include age and gender of the household head, household size, educational attainment, social group and religion, along with a rural residence dummy. The model therefore examines whether differences in household characteristics and residential location significantly influence the level of household amenities in Haryana.

This methodology provides both a descriptive measure of multidimensional household amenities and an econometric framework for identifying the characteristics associated with inequalities in household living conditions.

III. RESULTS AND DISCUSSION

The results presented in this section provide a comprehensive assessment of household amenity levels and their underlying disparities in Haryana using the Household Amenities Index (HAI) constructed from the NSO Multiple Indicator Survey, 2020–21. The analysis proceeds from descriptive comparisons to econometric estimation, examining the variations across gender, social groups, religion, educational attainment, rural–urban residence and districts. The descriptive results help identify the groups and locations experiencing relatively better or lower access to household amenities, while the Tobit regression further examines whether these differences remain significant after controlling for other household characteristics. The analysis is particularly useful for understanding whether Haryana’s relatively favourable overall development indicators translate into equitable access to basic household facilities across different sections of society.

Table 1: Gender-wise Comparative level of Household Amenities among household head in Haryana (HAI)

<i>Gender</i>	<i>Sector</i>		
	<i>Rural</i>	<i>Urban</i>	<i>Overall</i>
Male	72.61	79.34	75.38
Female	71.83	78.61	74.80
All	72.53	79.26	75.31

Source: Author’s Estimation

Table 1 presents the comparative level of household amenities among male- and female-headed households across the rural and urban sector in Haryana. The results reveal a clear rural-urban disparity, with the overall amenities level being substantially higher in urban areas (79.26) than in rural areas (72.53), indicating a gap of 6.73 percentage points. Within both sectors, male-headed households report slightly better amenities than female-headed households. In rural Haryana, the corresponding values are 72.61 and 71.83, while in urban areas they are 79.34 and 78.61, respectively. At the overall level, the amenities index is 75.38 for male-headed households compared with 74.80 for female-headed households, showing a relatively small gender gap of 0.58 percentage points.

These findings are broadly consistent with Singh et al. (2025), who, using the NSO Multiple Indicator Survey (2020-21), observed disparities in

household amenity access across socio-economic and demographic groups and reported comparatively lower amenity access among female-headed households. Their findings reinforce the presence of gender-related differences in household amenities, although the magnitude may vary across regions. The present results further demonstrate that, in Haryana, spatial inequality is considerably stronger than gender inequality, suggesting that rural households, irrespective of gender, face greater limitations in accessing household amenities. Thus, improving rural infrastructure and ensuring equitable access to basic services should remain important policy priorities (Singh et al., 2025; Author's Estimation).

Table 2: Comparative level of Household Amenities among Social Groups of households in Haryana (HAI)

<i>Social Class</i>	<i>Sector</i>		
	<i>Rural</i>	<i>Urban</i>	<i>Overall</i>
ST	60.56	70.99	69.48
SC	69.05	76.43	71.05
OBC	72.64	76.19	74.14
General	75.06	81.81	78.29
Overall	72.53	79.26	75.31

Source: Authors' Estimation

Table 2 presents the comparative level of household amenities across different social groups in rural and urban Haryana. The results reveal substantial disparities across social groups, with households belonging to the General category recording the highest level of amenities, while ST households report the lowest. In rural areas, the amenities level is highest among General households (75.06), followed by OBC (72.64), SC (69.05) and ST (60.56). A similar pattern is observed in urban areas, although the overall level of amenities is considerably higher. General households record the highest score (81.81), followed by SC (76.43), OBC (76.19) and ST (70.99).

The results indicate that social-group disparities are particularly pronounced in rural Haryana. The difference between General and ST households is 14.50 percentage points in rural areas, compared with 10.82 percentage points in urban areas. At the overall level, General households have the highest amenities score (78.29), whereas ST households have the lowest

(69.48). SC and OBC households occupy intermediate positions, with scores of 71.05 and 74.14, respectively.

Table 3: Pair-wise Comparative level of Household Amenities among Social groups of households in Haryana

<i>Particulars</i>	<i>Mean Difference</i>	<i>Simultaneous 95% Confidence Interval</i>		
		<i>Lower</i>	<i>Upper</i>	<i>Sig</i>
General - OBC	3.910	3.231	4.590	***
General - SC	7.070	6.368	7.773	***
General - ST	7.856	4.786	10.927	***
OBC - SC	3.160	2.365	3.955	***
OBC - ST	3.946	0.853	7.039	***
SC - ST	0.786	-2.312	3.884	
Number of observations	5160			
F Statistics	243.17***			

Source: Authors Estimation

Table 3 presents the pairwise comparison of household amenity levels across social groups in Haryana using mean differences, simultaneous 95% confidence intervals and significance levels. The results indicate that household amenities differ significantly across most social groups. The amenity level of General households is significantly higher than OBC households by 3.91 points, with the confidence interval ranging from 3.231 to 4.590. The difference is even larger when General households are compared with SC (7.07 points) and ST (7.856 points), and both differences are statistically significant at the reported level ($p < 0.01$). These results confirm the relatively advantageous position of General households observed in Table 2.

Similarly, OBC households have significantly higher amenities than SC households by 3.16 points and ST households by 3.946 points. However, the difference between SC and ST households is only 0.786 points and is statistically insignificant, as its 95% confidence interval ranges from -2.312 to 3.884, which includes zero. This suggests that although ST households have the lowest observed amenities level, their difference from SC households is not statistically distinguishable.

The overall F-statistic of 243.17 ($p < 0.01$) strongly rejects the hypothesis that all social groups have equal mean amenity levels. With 5,160 observations, the results provide strong evidence of systematic social-group inequality in

household amenities. The findings are consistent with Singh et al. (2025), who reported significant socio-economic and social-group variations in household amenity access using the NSO Multiple Indicator Survey. Overall, the evidence highlights the need for targeted interventions for socially disadvantaged groups, particularly OBC, SC and ST households (Singh et al., 2025; Authors’ Estimation).

Table 4: Religion-wise Comparative level of Household Amenities among households in Haryana (HAI)

<i>Religion Class</i>	<i>Sector</i>		
	<i>Rural</i>	<i>Urban</i>	<i>Overall</i>
Hindu	72.63	79.18	75.44
Islam	71.64	76.74	72.87
Sikh	72.03	82.14	74.49
Others	71.01	80.90	72.81
All	72.53	79.26	75.31

Source: Authors Estimation

Table 4 presents the comparative level of household amenities across religious groups in rural and urban Haryana. The results indicate that urban households consistently report higher levels of amenities than rural households across all religious groups, reaffirming the importance of the rural-urban divide observed in the earlier tables. Among Hindu households, the amenities level increases from 72.63 in rural areas to 79.18 in urban areas, while for Muslim households it rises from 71.64 to 76.74. Sikh households show the largest rural-urban difference, increasing from 72.03 to 82.14, whereas households belonging to other religions increase from 71.01 to 80.90.

At the overall level, Hindu households record the highest amenities level (75.44), followed by Sikh (74.49), Muslim (72.87) and other religious groups (72.81). The differences across religious groups are relatively modest compared with the rural-urban differences. Notably, Sikh households have the highest amenities level among urban households (82.14), exceeding Hindu households by almost three percentage points.

The relatively higher amenities among Hindu households overall may partly reflect their larger representation across socio-economic and residential categories, while the higher urban score of Sikh households indicates that

location and socio-economic conditions may interact with religious identity in determining household amenities. This interpretation is broadly consistent with Singh et al. (2025), who found that household amenity access varies across socio-economic and demographic characteristics using the NSO Multiple Indicator Survey. Overall, the results suggest that religion-based differences exist, but spatial disparities remain a more prominent feature of household amenity inequality in Haryana (Singh et al., 2025)

Table 5: Comparative level of Household Amenities by educational attainment among households in Haryana (HAI)

<i>Education level</i>	<i>Sector</i>		
	<i>Rural</i>	<i>Urban</i>	<i>Overall</i>
Illiterate	71.27	74.28	71.98
Up Primary	71.89	76.92	73.83
Secondary	74.08	81.27	77.34
Graduation	76.50	82.31	80.99
PG and above	77.35	83.78	81.77
All	72.53	79.26	75.31

Source: Authors Estimation

Table 5 examines the relationship between the educational attainment of the household head and the level of household amenities in Haryana. A clear positive association is observed: household amenities increase progressively with the education level of the household head. In rural areas, the amenities index rises from 71.27 among illiterate household heads to 77.35 among those with postgraduate and higher education. Similarly, in urban areas, it increases from 74.28 to 83.78 across the same educational categories. Thus, education appears to be associated with better access to household amenities in both sectors.

At the overall level, households headed by illiterate persons record the lowest amenities level (71.98), whereas households headed by persons with PG and above education record the highest level (81.77). The difference between these two groups is 9.79 percentage points. The progression from illiterate (71.98) to up-primary (73.83), secondary (77.34), graduation (80.99), and PG and above (81.77) demonstrates a consistent improvement in amenities with educational attainment.

The results are consistent with Singh et al. (2025), who found that socio-economic characteristics, including educational attainment, significantly influence household access to amenities. Their evidence from the NSO Multiple Indicator Survey suggests that better-educated households generally enjoy improved access to basic household facilities. The present findings strengthen this evidence for Haryana, while also showing that the education-related gradient is particularly pronounced in urban areas. Overall, improving educational attainment may contribute indirectly to better household living conditions through enhanced awareness, income opportunities and capacity to access improved housing and basic services (Singh et al., 2025)

Table 6: District-wise Comparative level of Household Amenities among households in Haryana (HAI)

<i>Social Class</i>	<i>Sector</i>		
	<i>Rural</i>	<i>Urban</i>	<i>Overall</i>
Ambala	80.79	79.02	80.03
Bhiwani	68.05	74.44	69.41
Faridabad	74.24	80.24	79.28
Fatehabad	68.72	79.23	70.75
Gurgaon	80.46	81.56	81.32
Hisar	69.74	81.62	74.12
Jhajjar	71.09	74.41	72.18
Jind	70.94	79.69	74.42
Kaithal	77.26	77.78	77.36
Karnal	74.64	81.17	77.22
Kurukshetra	75.21	81.77	76.90
Mahendragarh	69.99	77.18	70.98
Mewat	77.15	75.04	76.99
Palwal	68.60	76.32	69.99
Panipat	74.67	74.89	74.81
Rewari	70.03	70.87	70.29
Rohtak	67.89	77.09	72.05
Sirsa	70.63	81.89	74.01
Sonipat	71.73	78.66	75.39
Yamuna Nagar	77.19	80.99	78.28
All	72.47	78.98	75.11

Source: Authors Estimation

Table 6 presents substantial district-level differences in household amenities across rural and urban Haryana. The overall amenities level is 72.47 in rural areas and 78.98 in urban areas, indicating a rural-urban gap of 6.51 percentage points. However, the size and direction of this disparity differ considerably across districts, suggesting that household amenities are influenced not only by residence but also by economic development, urbanisation, infrastructure availability, connectivity and the socio-economic composition of households. Haryana has historically achieved relatively high levels of basic infrastructure, including electricity, roads and potable drinking water, but development has not been spatially uniform across districts.

At the district level, Gurgaon records the highest overall amenities score (81.32), followed by Ambala (80.03), Faridabad (79.28), Yamuna Nagar (78.28) and Kaithal (77.36). The relatively high scores of Gurgaon and Faridabad can plausibly be associated with their strong urbanisation, industrialisation, proximity to Delhi and comparatively developed physical infrastructure and service sectors. Haryana's inclusion of a large part of the National Capital Region has generated strong economic and infrastructural linkages in districts surrounding Delhi.

In contrast, Bhiwani (69.41), Palwal (69.99), Rewari (70.29), Fatehabad (70.75) and Mahendragarh (70.98) have comparatively lower overall scores. These differences may reflect greater dependence on rural settlements, lower urban concentration and differences in access to high-quality public services. The rural scores particularly demonstrate this disadvantage: Bhiwani records 68.05, Fatehabad 68.72, Palwal 68.60, Rohtak 67.89, and Rewari 70.03. Such differences are important because household amenities depend not merely on household resources but also on the availability of public infrastructure and services in the surrounding settlement.

The rural-urban gap is particularly large in Hisar (11.88 points), Sirsa (11.26 points) and Fatehabad (10.51 points). These districts show considerably higher amenities scores in urban areas—81.62, 81.89 and 79.23, respectively—than in rural areas. This pattern suggests that urban concentration of water supply, sanitation, roads, drainage, electricity networks and other services may generate significant advantages for urban households. Haryana's current policy initiatives, including efforts under the Mahagram Yojana to provide urban-level facilities in rural areas, recognise precisely this type of rural infrastructure gap.

Interestingly, the rural-urban pattern is not universal. Ambala records a slightly higher rural score (80.79) than urban score (79.02), while Mewat also shows a higher rural value (77.15) than urban (75.04). These exceptions indicate that district-level averages may be influenced by the quality of particular rural settlements, sample composition and differences in the characteristics of urban households.

Overall, the results strengthen the argument of Singh et al. (2025) that household amenities vary systematically across spatial and socio-economic groups. The Haryana evidence adds an important district-level dimension: the difference between the highest and lowest overall district scores is 11.91 points (81.32 versus 69.41). Therefore, a uniform state-level policy may not adequately address existing disparities. Instead, district-specific strategies, particularly for low-performing districts and rural areas with large urban-rural gaps, are required to achieve more balanced access to household amenities (Singh et al., 2025).

Table 7 presents the results of the Tobit regression model examining the determinants of the Combined Composite Index of Household Amenities (HAI) for 5,160 households in Haryana. The Tobit specification is appropriate where the dependent amenity index is bounded or censored at a particular range. The results indicate that several household and socio-economic characteristics have statistically significant associations with household amenities.

The age of the household head has a positive and highly significant coefficient (0.096; $p < 0.001$). This suggests that, holding other characteristics constant, an increase in the age of the household head is associated with a higher level of household amenities. One possible explanation is that older household heads may have accumulated greater economic resources, acquired housing assets over time and had greater opportunities to invest in household facilities. Similarly, the number of household members has a positive and significant coefficient (0.458; $p < 0.001$), indicating that larger households tend to have somewhat higher amenity levels. This may reflect greater pooling of income and resources within households.

The strongest negative effect is associated with rural residence. The coefficient of -5.766 ($p < 0.001$) indicates that, after controlling for other household characteristics, rural households have an estimated amenity index about 5.77 points lower than comparable urban households. This is

Table 7: Results of Tobit regression Model

<i>Variable</i>	<i>Estimate</i>	<i>Standard Error</i>	<i>t Value</i>	<i>Approx Pr > t </i>
Dependent variable: Combined Composite Index of Household amenities (HAI)				
Intercept	70.675	1.943	36.37	<.0001
Age of the household head	0.096	0.007	12.80	<.0001
Numbers of members in the household	0.458	0.053	8.63	<.0001
Dummy of Household belonging to Rural area	-5.766	0.209	-27.54	<.0001
Reference: Illiterate household head				
Dummy for Primary Education of HH head	1.599	0.271	5.89	<.0001
Dummy for Secondary Education of HH head	3.953	0.285	13.88	<.0001
Dummy for Graduation of HH head	5.950	0.372	15.98	<.0001
Dummy for Post- Graduation & of HH head	6.645	0.637	10.44	<.0001
Reference: HH related to Hindu				
Dummy for HH related to Islam	-1.313	1.919	-0.68	0.4937
Dummy for HH related to Hindu	0.140	1.874	0.07	0.9403
Dummy for HH related to Sikh	0.934	1.914	0.49	0.6257
Dummy for HH related to Other Religion	-1.494	4.447	-0.34	0.7368
Reference: HH related to General	-8.302	1.046	-7.94	<.0001
Dummy for HH related to ST	-4.274	0.256	-16.70	<.0001
Dummy for HH related to SC	-1.829	0.238	-7.68	<.0001
Dummy for HH related to OBC	6.836	0.069	99.29	<.0001
_Sigma	6.836***			
Log Likelihood	-17205			
Maximum Absolute Gradient	0.19396			
Optimization Method	Quasi-Newton			
AIC	34441			
Number of Observations	5160			

Source: Authors estimation

particularly important because the descriptive results in Tables 1 and 6 also showed a substantial rural-urban gap. The regression therefore confirms that the spatial disparity is not simply attributable to differences in household composition.

Education demonstrates a particularly strong and systematic relationship with household amenities. With illiterate household heads as the reference category, the coefficient increases progressively from 1.599 for primary education, to 3.953 for secondary education, 5.950 for graduation, and 6.645 for

postgraduate and above education, with all coefficients statistically significant at $p < 0.001$. Thus, higher educational attainment is strongly associated with better household amenities. The gradient is consistent with Table 5, where amenities increased from 71.98 among illiterate household heads to 81.77 among those with postgraduate and higher education. Education may influence amenities through better employment opportunities, higher earnings, greater awareness of public programmes and stronger capacity to adopt improved housing and sanitation facilities.

The social-group coefficients also indicate substantial disparities. Taking General households as the reference category, the coefficients for ST (-4.274) and SC (-1.829) are negative and highly significant ($p < 0.001$), indicating significantly lower amenity levels than General households. This econometric evidence supports the descriptive results reported in Table 2, where ST households recorded the lowest overall amenities level (69.48) compared with General households (78.29). These results are consistent with Singh et al. (2025), who identified significant socio-economic disparities in household amenity access using the NSO Multiple Indicator Survey.

The religion variables, as presented in the table, are statistically insignificant. The coefficients reported for Islam, Sikh and other religious categories have p -values greater than 0.05, suggesting that, after controlling for other household characteristics, religious affiliation does not independently explain variation in the household amenities index. This is an important finding because the descriptive differences observed in Table 4 appear to be largely associated with other socio-economic and spatial characteristics rather than religion itself.

Overall, the Tobit results demonstrate that education, household size and age are positively associated with household amenities, whereas rural residence and disadvantaged social-group status are associated with significantly lower amenity levels. The results therefore reinforce the central conclusion of the study that household amenity inequality in Haryana is primarily driven by spatial and socio-economic differences rather than religion alone. The large and highly significant coefficients for rural residence, education and social groups suggest that policies aimed at improving household amenities should particularly focus on rural households, socially disadvantaged communities and households headed by less-educated persons.

IV. CONCLUSION

The study provides clear evidence of substantial inequality in household amenities across Haryana, with spatial location, educational attainment and social background emerging as the most important dimensions of disparity. The overall Household Amenities Index (HAI) stands at 75.31, but the rural-urban difference is considerable: the index is 72.53 in rural areas compared with 79.26 in urban areas, representing a gap of 6.73 percentage points. This spatial disadvantage remains significant even after controlling for household characteristics in the Tobit model, where rural residence is associated with a 5.77-point lower HAI ($p < 0.001$).

The findings also reveal a strong education gradient. Overall HAI increases from 71.98 among households headed by illiterate persons to 81.77 among those with postgraduate and higher education, a difference of 9.79 points. The Tobit estimates reinforce this pattern, with positive and highly significant coefficients for primary (1.599), secondary (3.953), graduation (5.950) and postgraduate education (6.645), relative to illiterate household heads. This indicates that education is closely linked with improved household living conditions.

Social-group disparities are equally important. General-category households record the highest overall HAI (78.29), compared with 74.14 for OBC, 71.05 for SC and 69.48 for ST households. Pairwise comparisons confirm that most differences are statistically significant, while the SC-ST difference is not significant. The overall F-statistic of 243.17 ($p < 0.001$) confirms significant differences across social groups.

In contrast, religion appears to have limited independent influence after controlling for other characteristics, as the religion coefficients are statistically insignificant. District-level results further demonstrate considerable geographical variation: Gurgaon records the highest overall HAI (81.32), while Bhiwani records the lowest (69.41). The rural-urban gap exceeds 10 points in districts such as Hisar, Sirsa and Fatehabad.

Overall, the evidence demonstrates that improving household amenities in Haryana requires geographically and socially targeted interventions, particularly for rural, educationally disadvantaged and socially vulnerable households.

Disclaimer: The views expressed in this paper are those of the authors and do not necessarily reflect the views or official position of their affiliated institution.

References

- Chand, R. & Singh, J. (2016). *Agricultural marketing and farmer-friendly reforms across Indian states and UTs*. National Institute for Transforming India, NITI Aayog, New Delhi.
- GoI (2023). *Multiple Indicator Survey in India*. Ministry of Statistics and Programme Implementation, Government of India, New Delhi.
- Gujarati, D. (2004). *Basic Econometrics*. Fifth Edition *Basic econometrics* (5th ed.). McGraw-Hill. Pg 616.
- Singh, J., Sikka, P., Jakhar, D., & Kaur, M. (2025). Inequalities in household amenity access and its determinants: Empirical evidence from NSO-MI Survey. *Indian Journal of Economics and Development*, 21(3), 436-446.
- Singh, J., Singh, A., Singh, N., Tomer, T. S., & Sachdeva, H. (2018). Growth trajectory and Inter-Regional agricultural disparity a study of Madhya Pradesh. *Indian journal of economics and development*, 14(3), 464-472.
- Singh, J., Yadav, H. S., Singh, K., & Singh, N. (2013). Agricultural regional disparity in Indian states: An Inter temporal Analysis. *Journal of Environmental Science, Computer Science and Engineering & Technology*, 2(2), 241-248.
- Srivastava, S. K., Singh, N. P., Singh, J., Rao, K. V., & Balaji, S. J. (2019). Agriculture development-based mapping of agro-ecological sub-regions and its implications for doubling farmers' income in India. *Current Science*, 117(2), 282–287. <https://www.jstor.org/stable/27138245>.