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Do Indian States Spend Similarly? A Comparative Study of Jewelry, Housing, and Consumer Goods

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PRESENTATION FLOW

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Introduction



- The Gems and Jewelry industry has emerged as one of the largest sectors in India, playing a crucial role in nation's economy.
- Jewelry, particularly fine gold jewelry, relies heavily on sales during festive seasons (such as Diwali, Dhanteras, and Akshay Tritiya), wedding seasons (Sep-Dec), and harvest season (Jan-Apr) in India.
- The leading players are committed to expanding their product ranges and are proactive in launching new sub-brands to cater to a wide variety of consumer demographics.
- To resist economic fluctuations, companies can diversify their product offerings beyond traditional gold jewellery, invest in year-round marketing, and embrace e commerce to reduce their dependence on local festivities.
- Jewelry witnessed double-digit current value growth, 13% in current terms to INR 5268 billion, in India in 2023. In this dynamic landscape, costume jewelry witnessed an unprecedented surge, boasting a high double-digit growth rate that surpassed the performance of fine jewelry.
- Retail sales are set to rise at a current value CAGR of 11% (2023 constant value CAGR of 6%) over the forecast period, of 2028, to INR 8,747 billion.
- Jewelry retailing is not just profitable and high-margin, but it's also an underpenetrated industry in India, which means there is a lot of room for growth. Consumers are more predisposed to branded jewelry particularly in metro & tier I cities, as a result of rising media and western influences, and willingness to pay a premium.

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- Integration of food markets have been studied over the years with distinct methodological approach as reflected in Gluschenko and Khimich (2007), Heng and House (2018), Dorward (2012), Lee, Lee, Lim and Park (2016)
- Melchior (2016) used consumer prices from household surveys to study the pattern of food prices in India and its determinants. It revealed the presence of inter-state price dispersion in India for subgroups of food with income, trade cost, and changes in competition as some of its drivers.
- The distribution pattern of per capita NSDP among states vary over time depicting the rising trend of inequality (sigma divergence), conditional (beta) convergence, and the existence of club convergence in the short-run. This implies that despite strong growth performance at national level, inter-state disparity in income has been on the rise, more so in the post-reform period (Hembram and Haldar, 2019).
- Despite significant human development in the last decades, state-level inequality is still evident in India. The emergence of two clubs in the analysis further reveals the presence of different forces of development and inequality (Nag & Pradhan, 2023).

Empirical Method

- **Convergence Analysis and Club Clustering (Philips and Sul, 2007)**
- Covers relative convergence, different from conventional beta & sigma convergence
- To analyse whether different groups converge to a common path or not
- It accounts for heterogeneity via club formation, instead of assuming all entities will follow the same convergence path.
- Further, it accounts for nonlinear transitional dynamics in the club formation, revealing that some states may temporarily diverge before stabilizing.
- Existence of multiple clubs implies that economies converge within smaller, distinct groups rather than at a global level, i.e., clustering is done at state level which follows the same expenditure pattern (precisely for our study).
- Time period of study: Jan'2015 till Dec'2019
- Database: *Consumer Pyramids Household Survey*, *CMIE* (household expenditure on gems & jewelry, artificial jewelry, clothing, EMI for housing & vehicles), and *Indiastat* (per capita NSDP)

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- Methodology: *Phillips and Sul (2007)* (log t regression) convergence analysis

$$\log \left(\frac{H_1}{H_t} \right) - 2 \log(\log(t)) = \hat{\alpha} + \hat{b} \log t + \hat{v}_t$$

Null hypothesis (H_0):

$$\lim_{t \rightarrow \infty} \delta_{it} = \delta \text{ and } \alpha > 0$$

Alternate hypothesis (H_1):

$$\delta_i \neq \delta, \text{ for all } i, \text{ or } \alpha < 0$$

- Result of the analysis leads us to **reject the null hypothesis** i.e., no overall convergence of states to a single equilibrium level.
- Check for the club clustering

Table-1: Club Convergence Analysis for Gems & Jewelry

Initial Clubs (Jew) $\hat{b} (t - stat)$	Club Merging Test $\hat{b} (t - stat)$	Final Club $\hat{b} (t - stat)$	ϕ
Total Sample [25] -0.8126 (-109.847)			
Club 1 [06] 0.881 (11.95)	Club 1+2 [09] 0.409 (11.0397) Merger	Club 1 [09] 0.409 (11.0397)	0.2045
Club 2 [03] 0.095 (1.876)	Club 2+3 [15] -0.0632 (-1.754) No Merger	Club 2 [13] 0.038 (0.719)	0.019
Club 3 [13] 0.038 (0.719)	Club 3+4 [15] -0.816 (-55.372) No Merger	Club 3 [02] -0.875 (-1.165)	-0.438
Club 4 [02] -0.875 (-1.165)	Club 4+Group 5 [03] -1.743 (-5.914) No Merger	Group 4 [01]	
Group 5 [01]			



Table-2: Club Convergence Analysis for Artificial Jewelry

Initial Clubs (Art) $\hat{b} (t - stat)$	Club Merging Test $\hat{b} (t - stat)$	Final Club $\hat{b} (t - stat)$	ϕ
Total Sample [25] -0.4986 (-7.978)			
Club 1 [22] 0.573 (7.311)	No Merger	Club 1 [22] 0.573 (7.311)	0.287
Group 2 [02] -2.014 (-2.379)	No Merger	Club 2 [02] -2.014 (-2.379)	-1.007

Table-3: Club Convergence Analysis for Per Capita NSDP

Initial Clubs (PNSDP) $\hat{b} (t - stat)$	Club Merging Test $\hat{b} (t - stat)$	Final Club $\hat{b} (t - stat)$	ϕ
Total Sample [33] -1.502 (-31.005)			
Club 1 [03] 0.163 (1.347)	Club 1+2 [08] -0.943 (-12.022) No Merger	Club 1 [05] 0.163 (1.347)	0.0815
Club 2 [05] -0.168 (-1.48)	Club 2+3 [07] -0.768 (-13.43) No Merger	Club 2 [05] -0.168 (-1.48)	-0.084
Club 3 [02] 2.125 (0.992)	Club 3+4 [06] -0.093 (-0.778) Merger	Club 3 [06] -0.093 (-0.778)	-0.0465
Club 4 [04] 0.747 (2.92)	Club 4+5 [06] -1.202 (-36.06) No Merger	Club 4 [02] 0.335 (1.588)	0.1675
Club 5 [02] 0.335 (1.588)	Club 5+6 [5] -1.434 (-31.67) No Merger	Club 5 [03] 1.099 (0.393)	0.5495
Club 6 [03] 1.099 (0.393)	Club 6+7 [05] -1.907 (-18.43) No Merger	Club 6 [02] 1.383 (0.455)	0.692
Club 7 [02] 1.383 (0.455)	Club 7+8 [05] -0.533 (-5.593) No Merger	Club 7 [03] 0.224 (1.155)	0.112
Club 8 [03] 0.224 (1.155)	Club8 + Gr.9 [12] -1.44 (-27.877) No Merger	Group [09] -1.44 (-27.992)	-0.72
Group 9 [09] -1.44 (-27.992)			

4

Initial Clubs (Hous) $\hat{b} (t - stat)$	Club Merging Test $\hat{b} (t - stat)$	Final Club $\hat{b} (t - stat)$	ϕ
Total Sample [23] -0.859 (-10.476)			
Club 1 [21] 0.052 (0.762)	No merger possible	Club 1 [21] 0.052 (0.762)	0.026
Group 2 [02] -5.438 (-31.85)	No merger possible	Group 2 [02] -5.438 (-31.85)	-2.719

5

Initial Clubs (Veh) $\hat{b} (t - stat)$	Club Merging Test $\hat{b} (t - stat)$	Final Club $\hat{b} (t - stat)$	ϕ
Total Sample [24] -0.644 (-50.487)			
Club 1 [22] 0.135 (1.870)	No merger possible	Club 1 [22] 0.135 (1.870)	0.067
Group 2 [02] -3.242 (-12.539)	No merger possible	Group 2 [02] -3.242 (-12.539)	-1.621

Table: Club Convergence Analysis for Expenditure on Housing (4), Vehicle (5), and Clothing (6)

6

Initial Clubs (Clot) $\hat{b} (t - stat)$	Club Merging Test $\hat{b} (t - stat)$	Final Club $\hat{b} (t - stat)$	ϕ
Total Sample [25] -0.671 (-149.358)			
Club 1 [04] 0.653 (12.698)	Club 1+2 [11] 0.138 (4.808) Merger	Club 1 [11] 0.138 (4.808)	0.69
Club 2 [07] 0.14 (4.005)	Club 2+3 [18] -0.081 (-6.875) No Merger	Club 2 [11] 0.045 (1.182)	0.022
Club 3 [11] 0.045 (1.182)	Club 3+4 [13] -0.263 (-5.350) No Merger	Club 3 [02] -0.314 (-0.484)	-0.157
Club 4 [02] -0.314 (-0.484)	Club 4+5 [03] -1.868 (-69.749) No Merger	Group 4 [01]	
Group 5 [01]			

Figure: Club Convergence Analysis for Expenditure on Gems & Jewelry and Artificial Jewelry

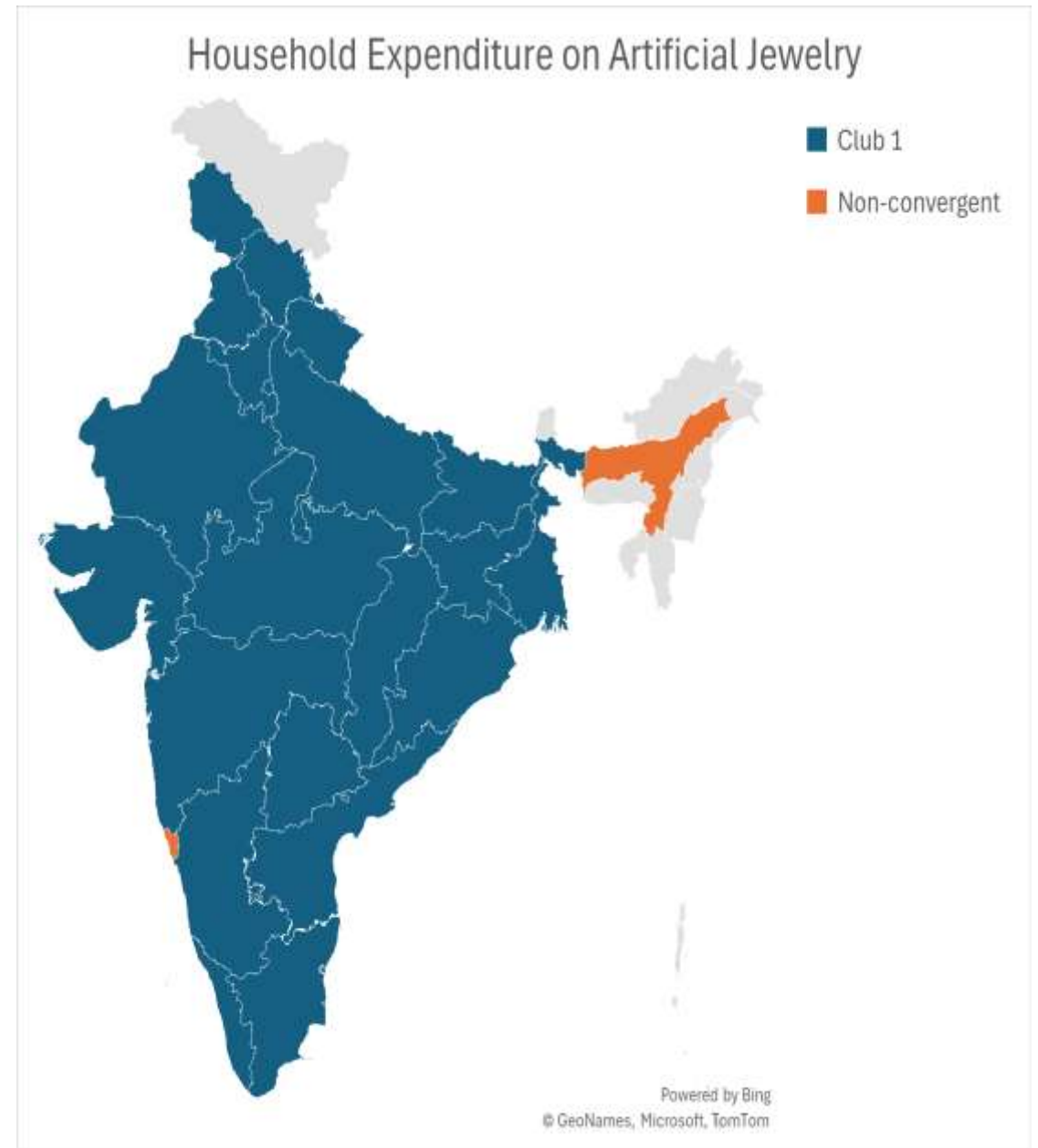
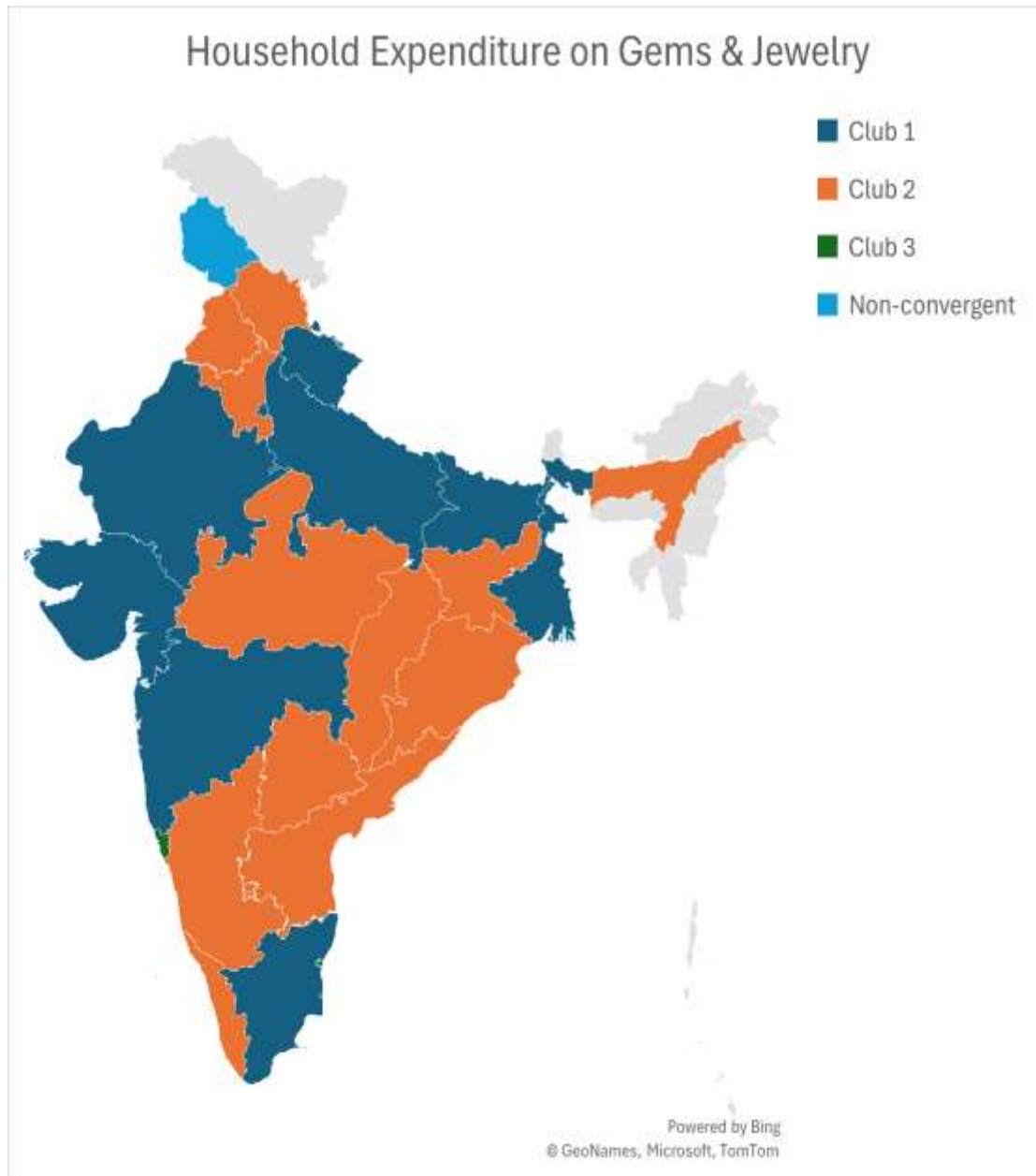


Figure: Club Convergence Analysis for Expenditure on EMI for Housing and Per capita NSDP

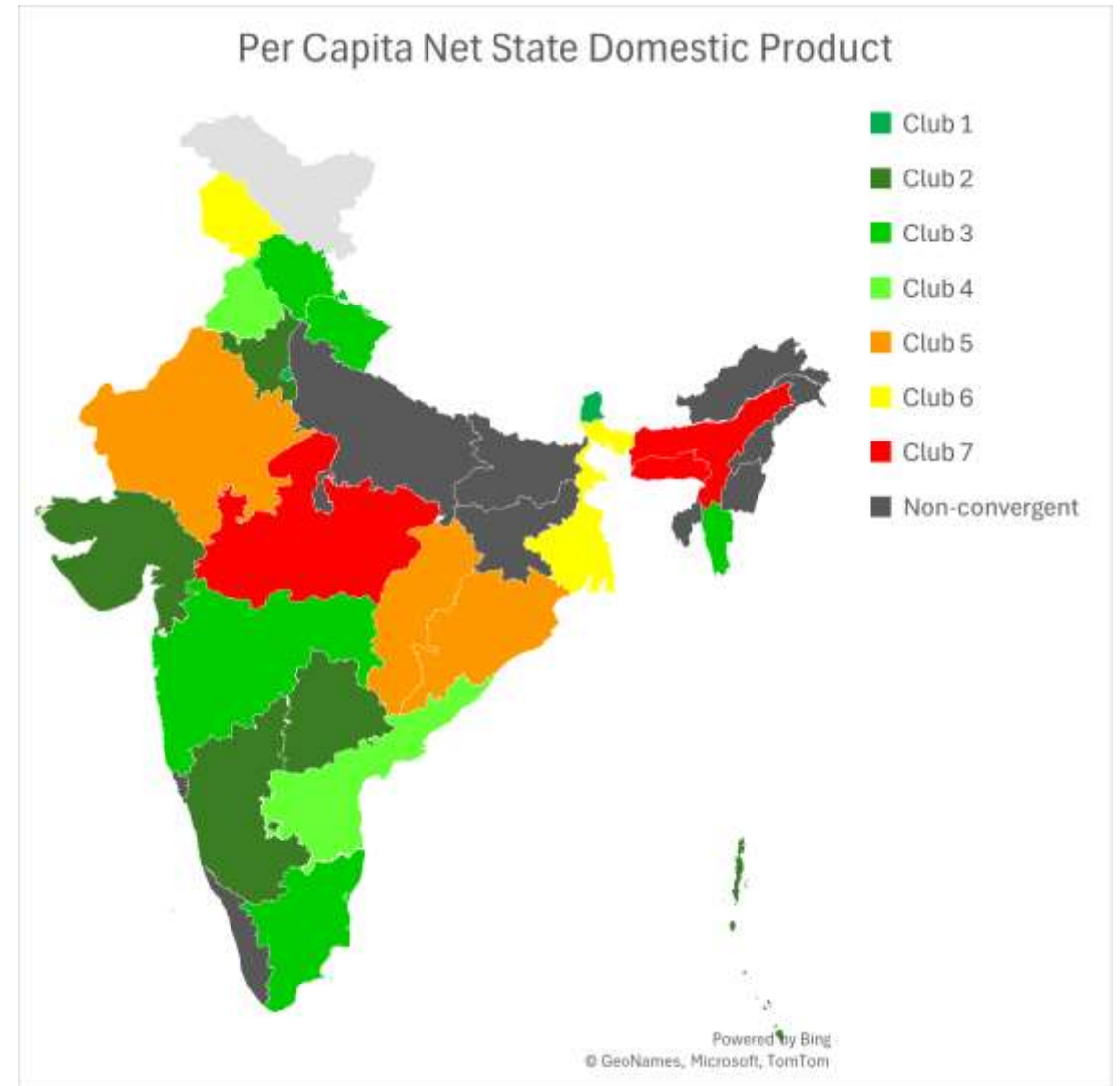
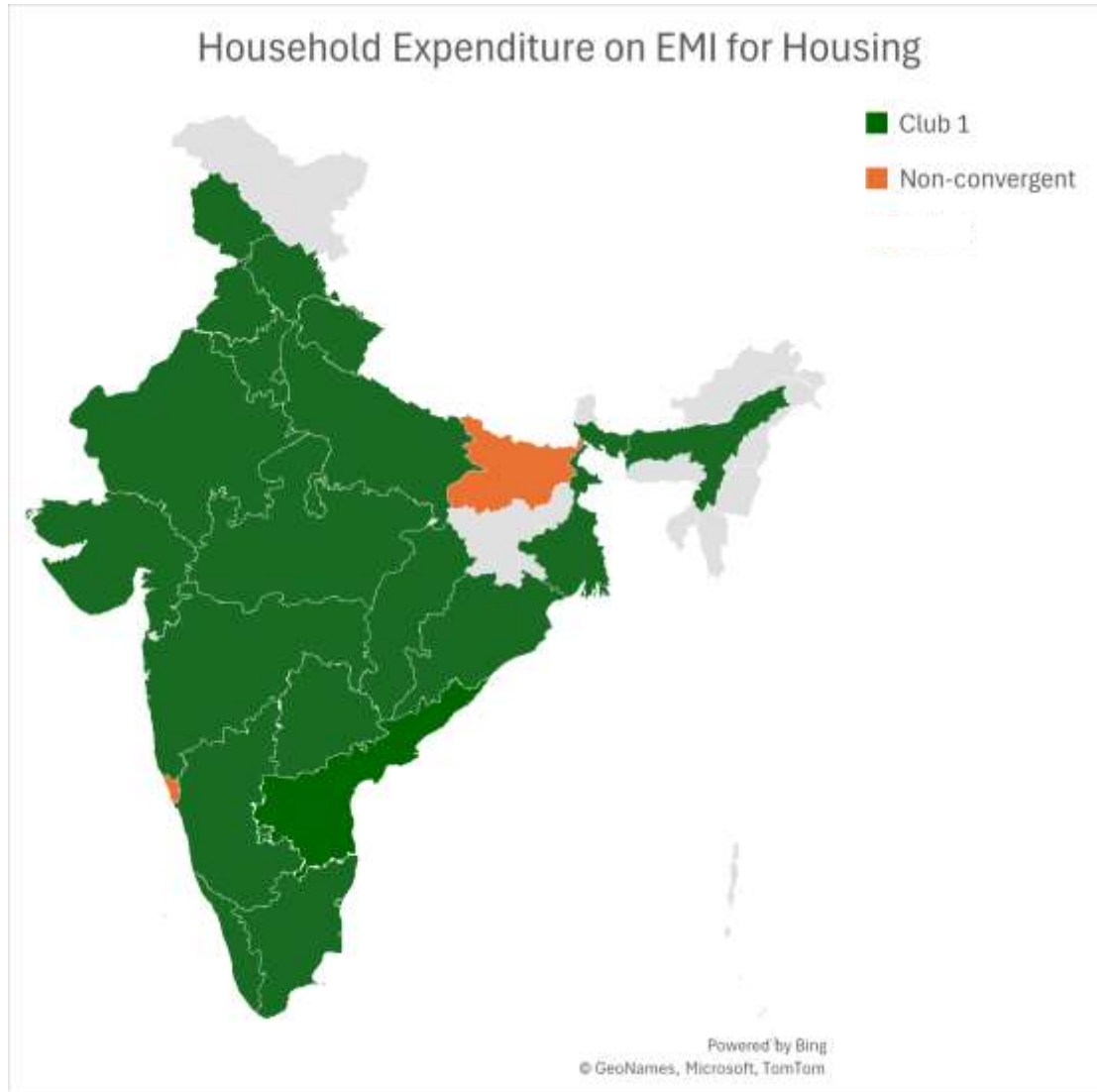
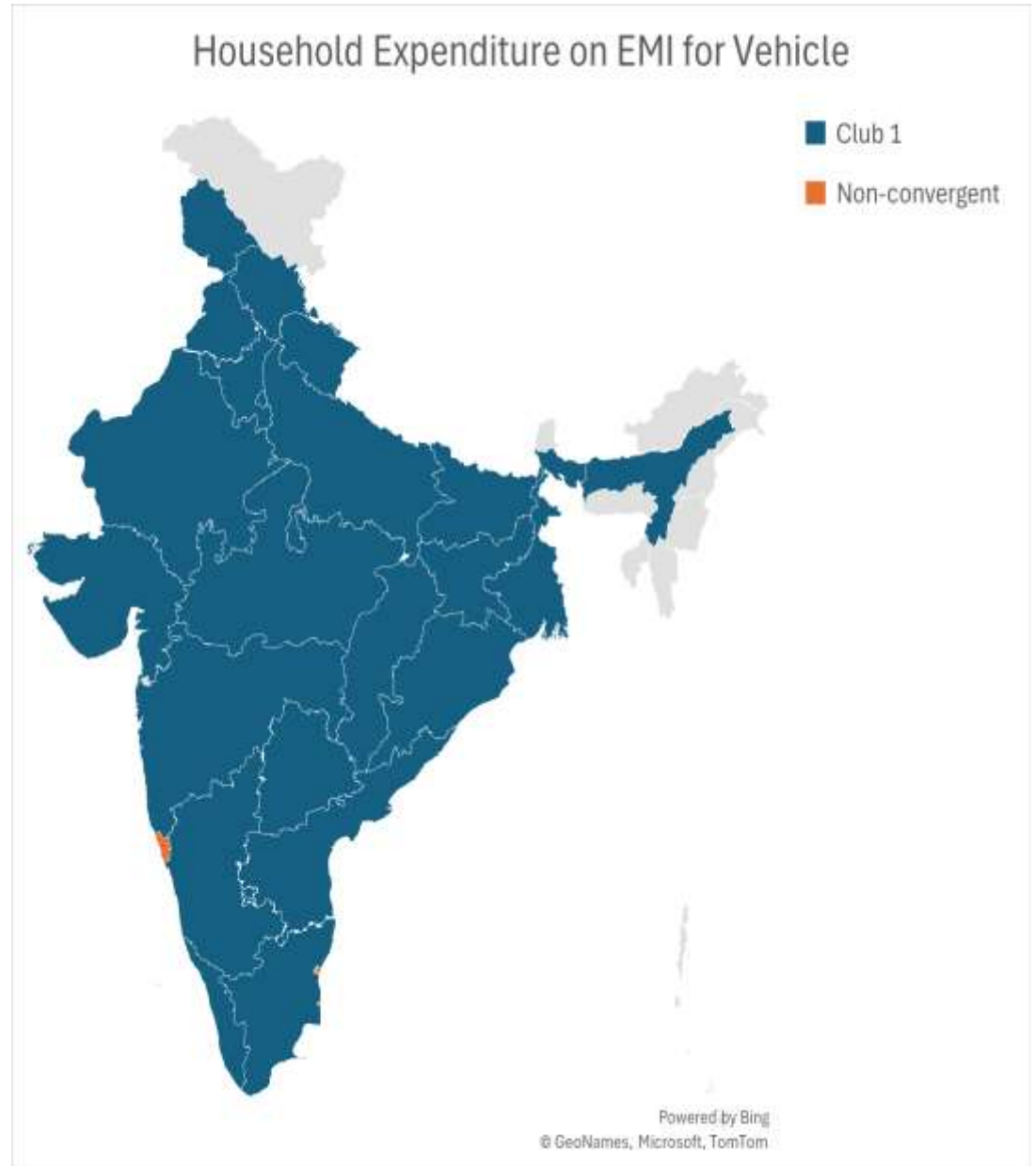
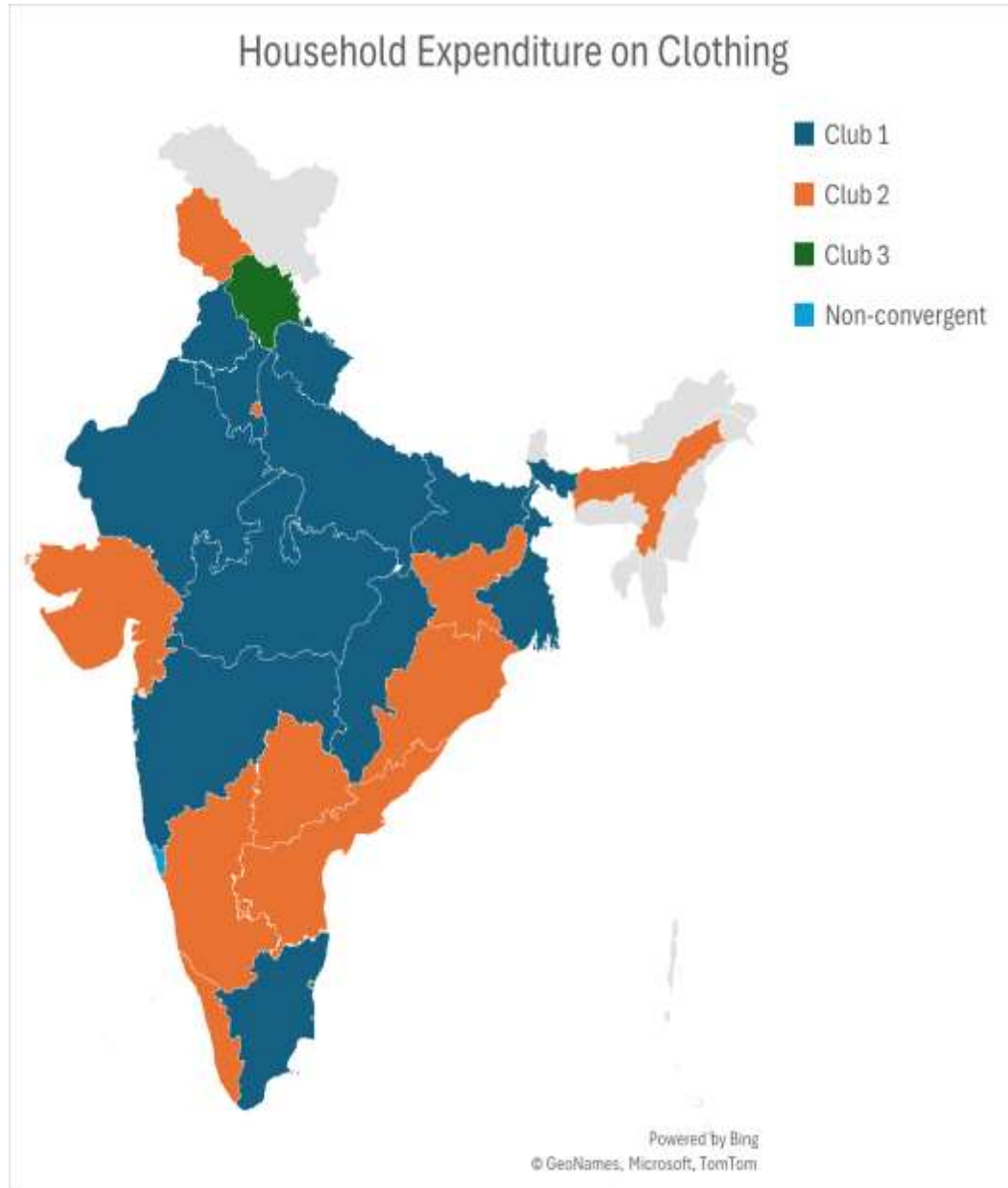


Figure: Club Convergence Analysis for Expenditure on Clothing and EMI for Vehicles



Conclusion

- States with concentrated jewelry manufacturing hub experience higher household expenditure on its consumption too (such as Gujarat, Maharashtra, and Tamil Nadu).
- Gold jewelry being integral to weddings have a higher demand in northern and southern parts of the country.
- Rajasthan and Gujarat have larger trader and business communities, traditionally investing in gold and diamonds.
- Certain state-economies (like Maharashtra, Gujarat, Madhya Pradesh, Tamil Nadu, Punjab, Uttar Pradesh) are powerhouses where more disposable income is available for non-essential goods like jewelry.
- Presence of urban markets, widespread retail segment, and lower banking penetration in such areas support high jewelry demand.
- Despite heterogeneity in per capita NSDP across all the states, few states follow geographical continuity of clubs implying the neighbouring effect.
- Outliers are Goa and Puducherry (tourism based economy), Jammu and Kashmir (unrest and baby state), Kerala (investors likely in UAE), Bihar (least expenditure on EMI for house), and other north-eastern states (bordered regions, economic unrest, logistic).

Policy Implications

- Infrastructural bottlenecks like logistics need developmental focus to cut the prices and widen the feasibility to lower-income groups.
- Efforts in improving the policy effectiveness to ensure an increased income level of the households.
- Supporting artisans and promoting MSMEs can help foster the industry at a better pace.
- Integration of gems and jewelry market
- Increased banking penetration in rural segments of state shall be focused.
- Overall focus of the government should be to reduce the income and consumption gap within the states.

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