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Digital Consumption in India During 2022-23 and 2023-24

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ABSTRACT

This Article discusses recent trends and patterns of India's digital consumption using the newly released Household Consumption Expenditure Surveys (HCES) 2022–23 and 2023–24. We document how participation in digital consumption, defined as either online purchases or online payments, has expanded across rural–urban sectors, income deciles, education levels, and social groups. Results show rapid rural catch-up, though absolute participation remains lower than urban levels. Growth is driven primarily by non-food and service categories such as travel, utilities, and clothing, while food-related digital transactions remain stagnant. Strong gradients emerge: higher consumption households and more educated households are substantially more likely to consume digitally, consistent with Engel law dynamics and human capital effects. At the same time, social group based disparities persist, with ST and SC households lagging despite overall gains. These findings highlight that India's digital economy reflects a transformation of household level consumption but remains stratified. Policies must expand affordability, last-mile connectivity, and digital literacy to ensure inclusive welfare gains due to improved efficiency.

Key Words: Digital Consumption, Household Expenditure, Rural-Urban Catch Up, Education and Consumption Gradient, Spatial Heterogeneity

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Digital Consumption in India During 2022-23 and 2023-24

Introduction

India has witnessed a significant transformation in both its digital payments and e-commerce landscape in recent years, particularly pronounced in the aftermath of the COVID-19 pandemic. In fact, such technological advances have been blurring boundaries between traditional ways of consumption and production (Brynjolfsson et al., 2013). The evolution in India has been propelled by a blend of policy-driven initiatives, such as Digital India, the Jan Dhan Yojana, and the concurrent growth of digital public infrastructure including UPI and ONDC, along with the proliferation of private platforms like e-commerce apps and mobile wallets (Department of Economic Affairs, 2025). These developments are further reinforced by behavioral shifts among consumers (Brynjolfsson et al., 2013), greater smartphone penetration, and increased comfort with digital interfaces.

The pace of this transformation is striking. For example, average monthly volume of UPI transactions rose from 6.17 billion in 2022 to 14.35 billion in 2024 (an increase of 132% over two years), and further to 17.73 billion by mid-2025. The value of transactions mirrored this growth, climbing from total value of ₹10.5 trillion in 2022 to ₹23.89 trillion by June 2025 (NPCI, 2025). Uptake of other digital instruments such as IMPS, credit/debit cards, and mobile wallets has also shown consistent growth (Ministry of Finance, 2025), underscoring both consumer trust and infrastructure maturity.

The rapid expansion of digital transactions is not only a supply-side outcome of technological development but also indicative of deep shifts in household economic behavior. Consumers have adapted rapidly to these changes. From a consumer perspective, the channels of impact are clear: digital payments reduce search and transaction costs[1], broaden access to markets, and expand the information available for decision-making (Brynjolfsson, et al., 2013). Goldfarb and Tucker (2019) note that the digital adaption can lead to reduction of at least five types of costs, namely, search costs, replication costs, transportation costs, tracking costs and verification costs. In an economy with pronounced market frictions, the reduction of such costs holds the promise of efficiency gains and welfare improvements (Coase, 1937); highly relevant in case of India.

For poorer households, digital footprints can enable credit access, enhancing consumption smoothing. Broader choice sets due to improved e-commerce platforms and reduced marginal costs due to reduction in search and transaction related costs can reconfigure consumption baskets, nudging spending toward discretionary consumption (Agarwal et al., 2024). These changes, when interpreted through the lens of household economics, point to possible reallocations of time[2] and money, with possible implications

[1] The transaction cost is the cost incurred to use the price mechanism discussed in Coase (1937)

[2] As Becker (1965) notes, an increase in relative market efficiency (in this case induced by digital consumption) … permit … to spend more time at market activities. Becker emphasizes that time reallocation by a member in a household broadens the opportunities available for others in the household.

for Engel curves for various categories of consumption items. For example, relative stagnation of expenditure on food aligns with Engel's law: non-food expenditure rises faster with purchasing capacity. The behavioral shifts in online/digital consumption are likely to cascade upstream as well, affecting production structures, market linkages, and service delivery.

Yet participation in digital consumption is influenced not only by economic incentives but also by access to devices, internet connectivity, financial literacy, and intra-household agency, i.e. the structural factors that can be at play. Further, digital consumers are not randomly distributed; they tend to be aspirational, better connected, and more financially aware, complicating any straightforward reading of digital-led welfare improvements. However, in order to gain leads towards such interconnections between the digital payments and purchases, transaction costs, and welfare gains, information on changing behavioural patterns of the digital consumers is necessary.

If there is possibility of economic gains from shifting to the digital consumption, due to savings of the transaction (and other) costs and time, then increasing participation in digital consumption becomes a policy imperative. For that to happen, it is necessary to identify the determinants of the digital consumption. And in that respect, the first step is to measure and understand how participation is distributed across sectors, spatial units such as states, households and social groups.

Approach

In this context, the Household Consumption Expenditure Survey (HCES) rounds of 2022–23 and 2023–24, the latter released in April 2025 by the National Sample Survey Office (NSSO), provide initial empirical window into these evolving dynamics. With explicit indicators of digital consumption integrated into a nationally representative dataset, the HCES enables a disaggregated examination of digital consumption across the sectoral (rural–urban), spatial (states), gradients of consumption capacity and demographic markers such as levels of education, and social groups.

This article leverages these data to present an initial portrait of India's digital consumption transition, documenting participation patterns and offering early leads for further inquiry into the nexus between digital adoption and household expenditure behavior. This exploratory article seeks to document initial descriptive observations from the Household Consumption Expenditure Surveys (HCES) 2022–23 and 2023–24. In the survey documentation, the National Sample Survey Office (NSSO) defines digital transactions under two categories: An online purchase is defined as the goods booked or ordered online but payment could be either online or offline. The online payment on the other hand is defined as a payment made online instead of cash/cheque. The online/digital consumption of an item is defined if either the item is purchased online or the payment for it is made online. We follow this understanding of the online/digital consumption in this analysis.

To examine patterns of household participation in digital consumption, we focus on three analytical dimensions, following the categorizations provided in the HCES, namely, sectoral and spatial patterns, gradients of consumption capacity and demographic, we have used the categorisation provided by the NSS. In all of the estimations, the population weights, as provided by the NSS are used. Concerning the

sectoral and spatial aspect, the analysis is separate for rural and urban sectors. The sample is spread across the 28 states and 8 union territories of India[3]. For the gradients of consumption capacity we have used the deciles of the real monthly per capita expenditure with the base year of 2022-23. In order to deflate the series, CPI-IW for urban and CPI-AL for rural availed from Labour Bureau (2025) are used. For the third, demographic aspect, we have used two characteristics. The first is the levels of education defined as follows: Illiterate, No Formal Education, Below Primary, Primary, Middle, Secondary, Higher Secondary, Diploma - Secondary, Diploma - Higher Secondary, Diploma - Grad & above, Graduate, and Post Graduate & Above. And for the social group, following categories are used: ST, SC, OBC, and Others. Using these dimensions, the analysis provides an initial portrait of household-level participation in online/digital consumption across India's social and economic landscape

Rural Catch-Up and Non-food Led Shifts in Digital Consumption

Table 1 presents the participation of the households in digital consumption in the years 2022-23 and 2023-24. Over this period, there is a notable rise in overall participation in digital consumption in both rural and urban areas, although more pronounced in the former. The rural households digitally consuming at least one item increased from 23.35% (in 2022-23) to 35.04% (in 2023-24), an increase of 11.7 percentage points (pp); while the participation of urban households rose from 57.74% to 67.37%, increase of 9.6 pp during the same period. Evidently, the participation in digital consumption is increasing in both the sectors, while rural participation remains lower in absolute terms, the faster growth indicates catch-up.

A closer look at the disaggregation into food and non-food categories reveals that the rise in overall digital participation is primarily driven by consumption of the non-food items, as digital consumption of food items remained roughly stagnant or declined marginally over time. The food category is a mixed picture where the digital consumption of items like milk and milk products, vegetables, fruits, dryfruits, and packaged processed food is stagnant or falls marginally in both the sectors while that for groceries increases marginally. This indicates that most of the items in the food category except groceries held the digital consumption of the food items stagnant. In contrast to the food category, the participation in digital consumption of the non-food items increased by 11.8 pp in rural areas while that in urban areas by 10.8. The rural sector, which has a lower base than the urban, shows shift towards increasing uptake of digital consumption.

What explains this non-food driven momentum? The further sub categories of the non-food category show that the items like other (miscellaneous) services, fuel and light, clothing, footwear, personal goods, medical and educational services (in that order of importance) determine the digital consumption enhancing role of the non-food items. The most significant growth occurred in services such as travel, cinema, and bill payments, rising 12 percentage points (pp) in rural and 13.45 pp in urban India. The uptake in digital consumption of clothing, footwear, personal goods, and education

[3] These are as follows: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chattisgarh , Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamilnadu, Telangana, Tripura, Uttar Prdesh, Uttrakhand, West Bengal, A and N Islands, Dadra & Nagar Haveli, Daman & Diu, Chandigarh, Jammu & Kashmir, Ladakh, Lakshadweep, Puducherry

suggests a shift toward discretionary and utility-based digital consumption. Interestingly, digital consumption of mobile handsets fell in urban areas (–1.6 pp), possibly suggesting saturation in device purchases even as digital payments for services expanded.

Taken together, these trends highlight a broadening of digital consumption beyond essentials. Households are increasingly comfortable transacting digitally for recurrent services and discretionary items, consistent with the implications of transaction-cost reduction (Goldfarb & Tucker, 2019). As frictions decline, routine service payments (utilities, travel, entertainment) are the first to migrate online, creating habits that facilitate adoption in adjacent categories. This reflects not just infrastructure maturity but also deepening consumer trust and behavioral integration of digital platforms into daily life.

[Table 1]

Figure 1 captures state-wise variation in digital consumers, disaggregated by rural and urban sectors for 2022–23 and 2023–24. The figure shows heterogeneity in digital participation possibly a reflection of state-level policy/program differences (Digital India outreach, telecom coverage, literacy levels). In the rural sector, the states like Goa, Kerala, Telangana, Himachal Pradesh, Haryana, Karnataka, Tamil Nadu, Uttarakhand, Andhra Pradesh, Punjab and the north eastern states report higher participation, above 30% in 2022-23. Most of these states not only maintained their lead in 2023–24 but also recorded some of the highest increases. The northeastern states, in particular, stand out for their rapid growth in rural digital adoption.

[Figure 1]

In the urban sector, the states like Delhi, Telangana, Goa, Karnataka, Kerala and the north eastern states registered higher participation rates, above 50% in 2022-23 and they maintained higher rates in 2023-24 as well. However, strong growth was also observed in states that started from lower bases: Punjab (23 pp), Odisha (17 pp), Bihar (15 pp), and Himachal Pradesh (15 pp). These patterns suggest that urban catch-up is underway in previously lagging states, even as leaders consolidate their position.

Despite these gains, spatial heterogeneity persists. Structural asymmetries in infrastructure, connectivity, and digital literacy continue to shape participation, especially in rural areas where adoption remains uneven. Such heterogeneity underscores the importance of targeted, state-specific interventions to bridge digital divides.

Digital Consumption Across Gradients of Consumption Capacity

Figure 2 depicts household participation in digital consumption across deciles of Monthly Per Capita Consumption Expenditure (MPCE) for 2022–23 and 2023–24, separately for rural and urban India. The gradients are steep and monotonic: digital participation consistently rises with consumption capacity in both years and both sectors. Regarding the deciles within a sector, the figure reveals a strong and persistent gradient in digital consumption by consumption capacity (proxied by levels of MPCE). This indicates a clear link between consumption capacity and participation in digital consumption, where high consumption capacity is linked with higher digital

consumption. By 2023–24, participation among rural households ranges from just 13% in the bottom decile to 59.7% in the top decile. In urban India, the gap is even wider, from 35% in the bottom decile to 88.6% in the top. The lines in Figure 2 thus confirm that digital adoption is income-linked, with higher MPCE households substantially more likely to consume digitally. This pattern reflects both resource-based advantages (affordable devices, reliable internet) and capability-based advantages (literacy, digital familiarity, trust in systems).

[Figure 2]

The growth trajectories between 2022–23 and 2023–24 add further nuances. Urban India shows notable relative gains among lower deciles, pointing to diffusion deepening at the bottom. By contrast, rural India records stronger growth in the middle and upper deciles, while adoption among the poorest households remains stubbornly low. These trajectories highlight persistent barriers for rural bottom-decile households possibly hinting toward poor last-mile infrastructure, affordability constraints, and lower digital literacy. In short, the figure illustrates that while aggregate digital engagement is rising, the diffusion process is unequal, it is both income-linked and spatially segmented. Targeted policies to improve affordability (low-cost smartphones, data packs), digital literacy programs, and reliable last-mile connectivity remain crucial to ensuring that India's digital transition is not only rapid but also inclusive.

Demographic Aspects - Education and Social Groups

Figure 3 illustrates a clear, monotonic relationship between education levels and household participation in digital consumption across both rural and urban India in 2022–23 and 2023–24. Digital participation rises steadily with higher levels of education, and the acceleration becomes particularly pronounced beyond the secondary level of education. For instance, in rural areas, only 14.2% of illiterate households reported digital consumption in 2022–23, compared with 21.5% among those with primary education and 54.3% among those with postgraduate education. Similar patterns exist for the year 2023-24. In urban India, the pattern is sharper: from 32.4% among illiterate households to 88.8% among postgraduate households over during 2022-23, again maintaining the similar patterns in 2023-24.

These trajectories underscore the role of formal education as a key enabler of digital adoption, similar to the evidence presented by Goyal and Morgan (2023) for the G20 countries. Education appears to be improving transaction literacy (possibly by building cognitive ability), trust in digital systems, and the confidence to navigate digital platforms. The narrowing of the rural–urban gap at higher education levels is particularly notable: by postgraduate levels, rural and urban households report nearly comparable participation rates. This suggests that capabilities acquired through education can compensate for infrastructural disadvantages, enabling households to overcome connectivity gaps and institutional asymmetries. In short, educational attainment emerges not merely as a socioeconomic marker but as a foundational determinant of digital inclusion in India's evolving consumption landscape.

Table 2 presents participation in digital consumption across social groups, showing both progress and persistent disparities. Between 2022–23 and 2023–24, digital engagement increased across all categories, but absolute levels remain stratified. Among

rural households, Scheduled Tribes (STs) rose from 14.4% to 23.1% and Scheduled Castes (SCs) from 18.6% to 29.4%, while Other Backward Classes (OBCs) increased from 24.7% to 37.4% and Others from 30.7% to 42.8%. In urban areas, a similar gradient is visible: by 2023–24, 57.3% of STs, 56.2% of SCs, 66.3% of OBCs, and 73.7% of Others reported digital participation.

The consistent hierarchy in participation rates, Others > OBCs > SCs > STs, points to entrenched structural inequalities. While infrastructural access is a necessary condition, these disparities reflect deeper institutional and socioeconomic barriers, including differences in education, income, occupational profiles, and social capital. The fact that gaps have narrowed only modestly over time highlights that digital participation does not automatically erase longstanding social inequities.

[Table 2]

Taken together, Figures 3 and Table 2 reveal that education acts as an equalizer, while caste-based stratification continues to condition access[4]. For policy, this implies a dual strategy: One, investing in education and digital literacy, especially beyond the secondary level, to create capability-driven inclusivity. Second, targeted interventions for socially marginalized households, so that digital adoption becomes a channel for reducing, rather than reinforcing, social inequalities.

[Figure 3]

Concluding Remarks

Evidently, the digital participation rose in both rural and urban India, with faster rural catch-up but persistent gaps. Growth is driven mainly by non-food items, notably by services, while food uptake stagnates. Adoption of digital consumption rises steeply with household consumption capacity, with higher MPCE groups far more likely to participate, though urban lower deciles show recent gains. Digital participation rises sharply with higher education, with post-secondary attainment substantially narrowing rural–urban gaps, showing education's role as a capability equalizer. Yet, social group based disparities persist, as STs and SCs continue to lag behind the social groups like OBCs and Others despite overall gains, reflecting structural barriers. Digital consumption in India reflects a transformation of household demand, with rural catch-up, non-food and service-led expansion, and strong gradients by consumption capacity (income) and education, yet persistent divides by social groups and geography. Ensuring inclusive diffusion requires policies that lower affordability barriers, strengthen last-mile connectivity, expand digital literacy, and target marginalized groups so that digitalization functions as an equalizer rather than an amplifier of inequality.

India's transition in digital consumption represents far more than a technological shift; it signals a structural reconfiguration of household consumption behavior. The uptake of digital consumption has expanded steadily across the economic and social spectrum, with visible gains among rural households, lower-MPCE deciles, and historically marginalized caste groups. Yet, this expansion remains deeply stratified.

[4] The divide in differential access to digital usage (digital consumption in the present context) based on varying demographic characteristics is referred to as second-level digital divide (Hilber, 2016).

Structural inequalities, rooted in disparities in access, digital capabilities, and institutional support, continue to determine who participates in digital consumption, and in what ways. Importantly, digitally active households display distinct consumption patterns, shifting away from food staples toward services, education, and discretionary goods. This trajectory is consistent with theoretical predictions of transaction-cost reduction, broader consumer choice sets, and potential welfare gains.

At the same time, the potential benefits of digital consumption may neither be automatic nor evenly distributed. Expanding infrastructure alone may not suffice. Effective inclusion may require complementary interventions that build digital literacy for marginalized groups, and low-consumption households. Policy must therefore recognize that digital participation is shaped not merely by availability of infrastructure but also by behavioral agency and socio-economic positioning. It may prove a good idea to embed disaggregated monitoring, for example, through repeated HCES modules capturing digital consumption in the upcoming rounds, to enable evidence-driven, decentralized policymaking responsive to heterogeneity across states, sectors, and social groups. HCES can serve as a permanent digital consumption module, enabling time-series monitoring. As India's digital economy holds transformative potential and digital participation in consumption holds potential for efficiency gains, further evidence on the actual scale of the efficiency gains with proper identification of the effects is warranted.

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Table 1

Share of Households Consuming Digitally Across Consumption Items

	2022		*2024*		*Change (pp)*	
	Rural	*Urban*	*Rural*	*Urban*	*Rural*	*Urban*
Any Online Purchase	23.35	57.74	35.04	67.37	11.69	9.62
Food	3.87	18.35	3.68	17.51	-0.19	-0.84
Groceries	1.16	8.35	1.38	10.06	0.22	1.71
Milk and Milk Products	0.36	3.89	0.31	3.68	-0.06	-0.21
Vegetables	0.45	3.6	0.44	3.06	-0.01	-0.54
Fruits	0.36	3.18	0.31	2.36	-0.04	-0.81
Dryfruits	0.13	1.71	0.11	1.64	-0.02	-0.07
Eggs, Fish and Meat	0.26	1.55	0.28	1.21	0.02	-0.35
Served Processed Food	0.68	6.17	0.87	6.02	0.19	-0.14
Packed Processed Food	0.29	5.01	0.26	4.39	-0.03	-0.63
Other food	0.26	3.89	0.39	3.19	0.12	-0.7
Non Food	23.26	55.85	35.03	66.66	11.77	10.81
Fuel & Light	3.8	17.37	9.56	28.64	5.76	11.27
Toilet Articles and Consumables	0.72	4.63	1.13	6.2	0.41	1.58
Education	0.54	2.92	0.69	4.09	0.15	1.17
Medicine & Medical Services	0.54	3.19	0.65	3.76	0.11	0.57
Other Services (Travel, Cinema, Bills)	16.21	43.73	28.2	57.18	12	13.45
Clothing	9.12	32.52	11.96	35.81	2.84	3.3
Footwear	5.69	21.55	6.65	22.75	0.96	1.21
Furniture	0.11	0.65	0.06	0.42	-0.05	-0.23
Mobile handsets	1	3.79	0.84	2.16	-0.16	-1.64
Personal Goods (E.g. Laptop)	1.54	5.7	1.84	6.7	0.31	1
Recreational Goods	0.3	1.45	0.24	1.08	-0.06	-0.38
Cooking Appliances	0.47	2.28	0.42	1.88	-0.06	-0.41
Crockery & Utensils	0.49	2.75	0.35	2.19	-0.14	-0.56
Sports	0.3	1.9	0.35	1.72	0.04	-0.18
Medical Equipment	0.12	1.03	0.06	0.85	-0.07	-0.18
Bedding	0.74	3.98	0.7	3.94	-0.04	-0.04

Table 2
Social Group wise percentage of HHs Purchasing Online

	2022-23		*2023-24*		*Change (pp)*	
Social Group	*Rural*	*Urban*	*Rural*	*Urban*	*Rural*	*Urban*
Scheduled Tribes	14.41	48.46	23.06	57.31	8.66	8.86
Scheduled Castes	18.61	46.32	29.41	56.2	10.8	9.87
Other Backward Castes	24.74	56.48	37.36	66.26	12.62	9.78
Others	30.68	64.35	42.81	73.69	12.13	9.34

Figure 1
Digital Consumption Across States

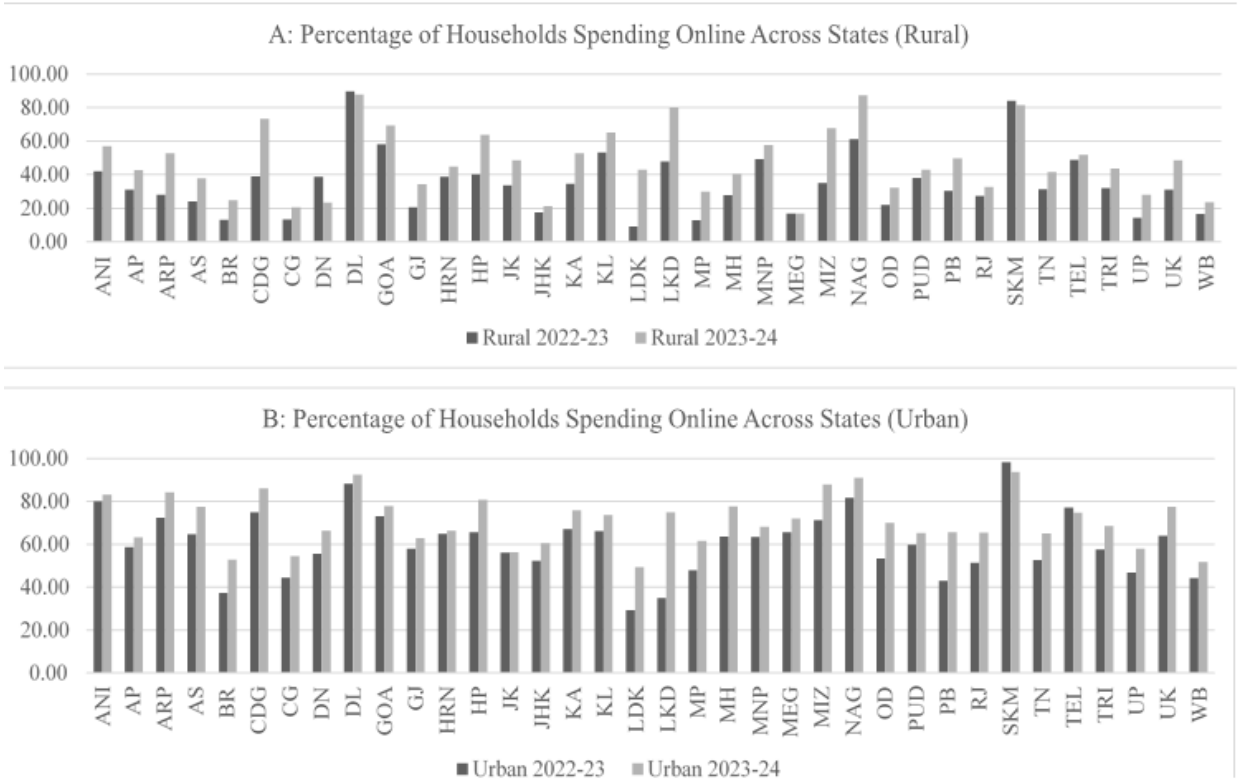
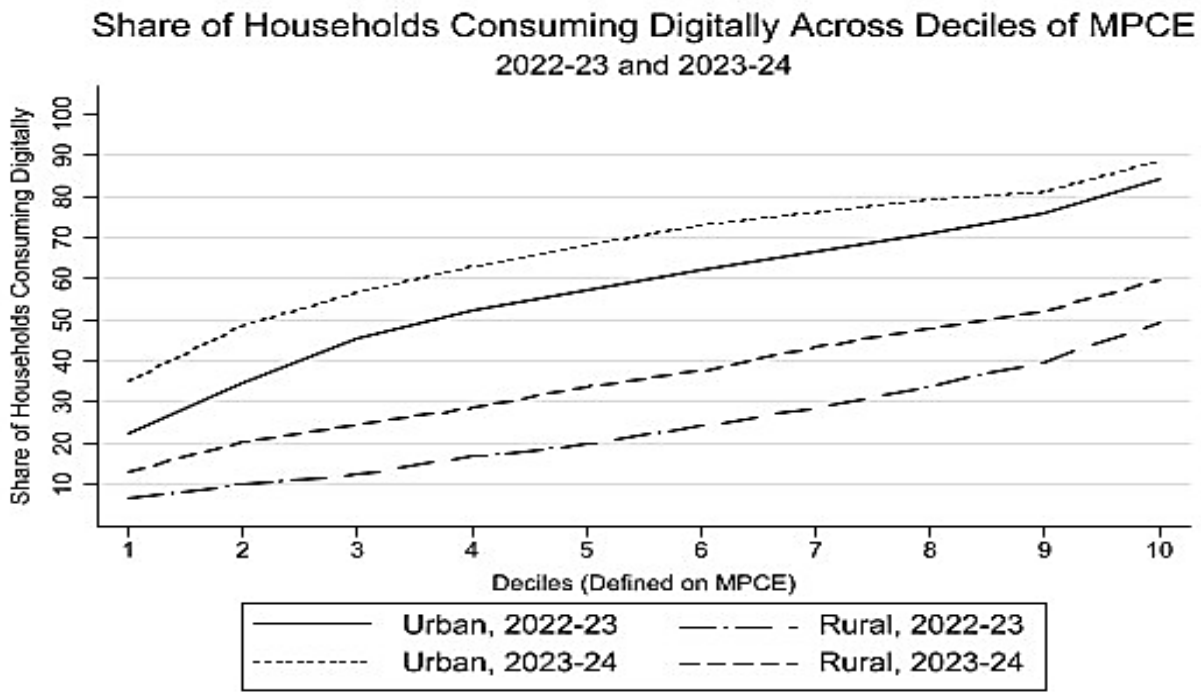


Figure 2

Share of Households Consuming Digitally Across Deciles of MPCE, 2022–23 and 2023–24



Source: Author's calculations based on NSSO HCES unit level data

Figure 3

Percentage of Households Spending Online Across Education Levels and Sectors