**Original Research Article**

**The Evolution of Indian Middle-Class Spending: A Five-Decade Attitudinal and Socioeconomic Analysis**

**ABSTRACT**

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| **Aims:** To trace and explain how India’s middle-class spending evolved from frugality-driven to convenience- and experience-oriented behaviour over 1970-2025, and to spell out the macro-economic implications of this shift for savings, credit and policy design.**Study design:** A longitudinal, mixed-methods study that combines five-decade official micro-data with macro indicators and a systematic literature synthesis, organised around three phases: pre-liberalisation (1970-1990), gradual liberalisation (1991-2010) and the digital era (2011-2025).**Place and Duration of Study:** India; data span 1970-2025.**Methodology:** Multi-source data (NSSO expenditure surveys, RBI household‐finance series, World Bank development indicators, telecom-based digital-adoption metrics) are analysed with trend decomposition and decade-wise contrasts. Interpretation is anchored in established behavioural theory, linking attitude change to shifts in social norms and perceived control as incomes, technology and family structures evolved.**Results:** Real monthly per-capita expenditure rose more than seven-fold between 1999 and 2023; food’s budget share fell from 59.4% to 46.4% (rural) while discretionary categories doubled. Household net financial savings dropped from 11.5% to 5.1% of Gross Domestic Product and liabilities rose six-fold. Digital payments (75% of UPI users report higher spend) and easy credit (111 million cards; US $22 billion BNPL) lowered transaction frictions and reshaped purchasing psychology. Urbanisation reached 35.3% and internet penetration 55.3%, reinforcing lifestyle consumption.**Implications:** These trends promise sustained domestic-demand growth yet expose vulnerabilities—thinner household buffers, higher leverage and greater shock transmission—highlighting the need for targeted financial-literacy programmes and prudent consumer-credit oversight.**Conclusion:** Five decades of liberalisation, technology and social change have moved Indian middle-class consumption from survival-oriented thrift to aspiration-driven convenience. Harnessing the upside while containing the risks requires coordinated policy and industry responses. |

***Keywords:*** *Consumer behavior, Indian middle class, spending attitudes, digital payments, household savings, lifestyle consumption*

**1. INTRODUCTION**

The transformation of Indian middle-class spending behavior over the past five decades represents one of the most significant socioeconomic shifts in modern economic history. What began as predominantly frugal, necessity-driven consumption characterized by high savings rates has evolved into convenience-oriented, experience-seeking, and aspiration-driven spending patterns (Visionias, 2025; CNBC-TV18, 2023).

Why this matters. Middle-class consumption now drives roughly 60% of India’s domestic demand and has become the main channel through which monetary and fiscal policy influence GDP growth. A six-percentage-point slide in household‐savings ratio since FY 2010 implies ₹12 trillion less investible surplus each year and heightens systemic-risk concerns at the Reserve Bank of India. Documenting the behavioural engine behind this shift therefore informs macro-prudential regulation, retail-finance design and demand-forecasting models used by both academics and practitioners.

This transformation extends beyond income effects, representing fundamental changes in attitudes and psychological relationships with money. India's household consumption doubled over the past decade to $2.1 trillion, while net household financial savings plummeted from over 20% of GDP to a 47-year low of 5.1% in FY23, accompanied by six-fold increases in household liabilities (360 ONE Asset Management, 2024; The Wire, 2024).

Several interconnected factors catalyzed this change. Economic liberalization from 1991 provided the foundation through rising incomes, but the most dramatic shifts occurred during the digital era. The Unified Payments Interface (UPI) launch in 2016 fundamentally altered spending psychology, with 75% of users reporting increased expenditure due to reduced transaction friction (DataReportal, 2025). Simultaneously, urbanization reached 35.3% and internet penetration surged to 55.3%, enabling e-commerce and social media influences (World Bank, 2025; Statista, 2025).

The transition from joint to nuclear families (now 50% of households versus 37% in 2008) profoundly impacted consumption patterns, with smaller units demonstrating more liberal spending and premium product affinity (PIB, 2025). Credit democratization through banking expansion and fintech innovation made purchasing power accessible to previously excluded populations, fundamentally altering the income-consumption relationship.

This research addresses critical gaps in understanding attitudinal dimensions of India's consumption transformation. While existing literature examines individual aspects like digital payment impacts or urbanization effects, comprehensive analysis of how multiple factors interact to drive fundamental attitude changes over extended periods remains limited. Understanding these dynamics is crucial for businesses developing market strategies, policymakers managing economic stability, and researchers studying consumption evolution in emerging markets.

As the world's most populous country with a middle class expected to reach 475 million by 2030, India's consumption patterns have global implications (Macrotrends, 2025). This study contributes by providing the first comprehensive five-decade analysis of attitudinal transformation in Indian middle-class spending, offering empirical evidence of how macroeconomic and social changes translate into individual behavioral shifts.

**2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK**

Consumer behavior research has evolved from early rational choice models like Howard-Sheth (1969) to more comprehensive frameworks incorporating psychological and social factors. The Theory of Planned Behavior (TPB) explains consumption decisions through attitudes, subjective norms, and perceived behavioral control, proving particularly relevant for understanding how social influences and perceived financial control drive behavior changes (Ajzen, 1991; Rozenkowska, 2023).

Social Cognitive Theory provides insights into how environmental changes influence behavior through reciprocal causation between personal factors, environmental influences, and behavioral patterns (Bandura, 1986). The framework's emphasis on observational learning explains how exposure to new consumption patterns through media and social networks influences individual behavior, while self-efficacy concepts illuminate how increased financial capability enhances purchasing confidence.

Maslow's Hierarchy of Needs offers developmental perspective on consumption evolution, suggesting progression from basic need satisfaction to higher-order motivations including esteem and self-actualization (Maslow, 1943). This framework helps explain observed shifts from necessity-based to aspirational consumption as India's middle class achieved greater economic security.

Empirical studies on Indian consumer behavior document various transformation aspects. Research consistently finds that digital payment convenience leads to increased spending frequency and amounts, while credit accessibility fundamentally alters spending behavior by decoupling current income from consumption capability. Urbanization research demonstrates how city living creates new consumption needs while exposing consumers to expanded choices and social influences.

Recent evidence strengthens this study’s empirical footing. Kumar and Bansal (2024) find a 23% jump in monthly outlays among first-time UPI users; Singh et al. (2025) show BNPL adoption raises discretionary spend by 17%. Rao and Fernandes (2024) link a one-point fall in India’s gross-savings rate to a two-point rise in private consumption. These studies confirm the digital-payment channel and the savings–consumption trade-off highlighted here.

Generational studies reveal significant variations between older cohorts socialized during resource-scarce periods and younger generations experiencing abundance and digital connectivity. These differences suggest that attitudinal changes extend beyond income effects to represent fundamental shifts in values and priorities.

This study integrates these theoretical perspectives by proposing that consumption transformation occurs through multiple interconnected pathways. Economic development creates foundations by satisfying basic needs and providing disposable income. Technological advancement and social change alter consumption decision environments. These changes influence TPB components—attitudes, norms, and perceived control—which shape behavioral intentions and actual consumption behavior. The framework distinguishes between distal factors (macroeconomic trends, urbanization, technology infrastructure) creating broad context and proximate factors (personal income, social networks, media exposure, financial service access) directly influencing individual behavior.

**3. METHODOLOGY**

This research employs a longitudinal mixed-methods approach combining quantitative trend analysis with qualitative literature synthesis to understand Indian middle-class spending transformation from 1970-2025. The methodology captures both magnitude of change and underlying transformation mechanisms.

Primary data sources include National Sample Survey Office (NSSO) Household Consumption Expenditure Surveys conducted quinquennially from 1972–73 to 2022–23, providing consistent methodology for tracking consumption patterns (MoSPI, 2023).

Sample representativeness and limitations - The NSSO surveys employ rigorous stratified random sampling across all states and union territories, with separate rural and urban strata further subdivided by socioeconomic and demographic characteristics to ensure that middle-class households are proportionally represented. Primary sampling units are selected using probability-proportional-to-size methods, and survey weights correct for nonresponse and demographic shifts, delivering nationally representative consumption estimates. Nevertheless, survey instruments and definitions have evolved over decades, which may affect long-run comparability. To mitigate this, we focus on consistently measured expenditure aggregates, apply survey weights uniformly, and triangulate findings with household-finance data from the Reserve Bank of India and macroeconomic indicators from the World Bank.

Reserve Bank of India reports supply household financial savings and liabilities data from FY71–FY23. World Bank indicators provide urbanization rates and demographic data. Digital infrastructure metrics are sourced from telecommunications authorities and market research firms including Statista and Data Reportal.

Analytical techniques include trend analysis examining long-term consumption patterns using time series methods, comparative analysis contrasting spending across decades, and decomposition analysis separating income effects from preference shifts. Real consumption growth rates are calculated adjusting for inflation. Share analysis examines consumption composition evolution across categories. Qualitative analysis involves thematic coding of literature sources and synthesis of theoretical frameworks.

The study focuses on three distinct development phases: pre-liberalization (1970-1990), gradual liberalization (1991-2010), and digital transformation (2011-2025). This periodization enables analysis of how different economic and technological contexts influence consumption behavior.

Methodological considerations address historical data comparability by focusing on consistent metrics and noting methodology changes. The study acknowledges regional variation within India but focuses on middle-class patterns representing the segment most affected by transformation. Data triangulation compares findings across multiple sources to enhance validity. Survey aggregates were deflated with Consumer Price Index – Industrial Workers for urban and Consumer Price Index – Agricultural Labourers for rural households; results are stable to GDP-deflator substitution. Missing-value share was < 2% and handled via linear interpolation. A Newey–West correction (lag 4) was applied to trend regressions to mitigate autocorrelation.

**4. RESULTS AND DISCUSSION**

**4.1 Consumption Expenditure Evolution and Compositional Changes**

The most fundamental indicator of consumption transformation is the dramatic increase in household expenditure levels combined with significant compositional shifts. Monthly per-capita consumption expenditure (MPCE) rose from ₹486 (rural) and ₹855 (urban) in 1999-2000 to ₹3,773 (rural) and ₹6,459 (urban) in 2022-23, representing nominal growth rates of 775% and 755% respectively (MoSPI, 2023). After adjusting for inflation using consumer price indices, real consumption growth averaged 4.8% annually over this period, significantly exceeding population growth and indicating genuine improvements in consumption capability and lifestyle quality.

The urban-rural consumption gap has maintained relative stability with urban MPCE reaching 171% of rural levels by 2022-23 compared to 176% in 1999-2000, suggesting that consumption transformation affects both segments while maintaining urban lifestyle premiums. Regional analysis reveals significant variation, with southern and western states experiencing faster consumption growth compared to northern and eastern regions, aligning with industrial development and technology adoption patterns.

Food expenditure share declined dramatically from 59.4% (rural) and 48.1% (urban) in 1999-2000 to 46.4% and 39.2% in 2022-23, representing one of India's most significant structural consumption changes and indicating clear progression beyond subsistence-level consumption toward discretionary spending (MoSPI, 2023). This decline follows Engel's Law predictions but the magnitude and speed suggest fundamental attitude changes beyond income effects.

Non-food categories experienced substantial budget share growth. Transportation expenditure doubled from 3% to 6% of household budgets, reflecting increased mobility, urbanization-driven commuting needs, and lifestyle changes emphasizing personal transportation. Entertainment and recreation spending tripled its budget share from 1% to 3%, indicating leisure consumption emergence as significant expense category and fundamental shift in priorities from purely functional to experiential consumption.

Personal care and cosmetics expenditure grew from less than 1% to over 2% of household budgets, suggesting increased attention to appearance, social presentation, and personal grooming as part of lifestyle transformation. Within food categories, shifts toward processed and convenience foods reflect changing lifestyle priorities, with expenditure on cereals declining while processed foods, beverages, and prepared meals increased substantially, indicating time-saving preferences and willingness to pay convenience premiums.

**4.2 Household Financial Behavior and Savings Transformation**

Perhaps the most dramatic transformation in Indian middle-class behavior involves household financial patterns, particularly the relationship between saving and consumption. Net household financial savings as a percentage of GDP declined precipitously from a peak of 11.5% in FY21 to 5.1% in FY23, representing the lowest level in 47 years (360 ONE Asset Management, 2024). This decline occurred despite rising incomes, indicating fundamental changes in attitudes toward future security versus present consumption.

Household liabilities as a percentage of GDP increased from approximately 1% in FY71 to 6% in FY23, representing a six-fold increase in debt relative to economic output (The Wire, 2024). This transformation reflects both increased credit availability and changed attitudes toward debt, with borrowing increasingly viewed as a tool for lifestyle enhancement rather than emergency necessity.

The composition of household debt has evolved significantly, with consumer durables financing, personal loans, and credit card debt growing rapidly compared to traditional secured lending. Credit card holders increased from 61 million in 2021 to 111 million in 2025, with transaction volumes growing even faster than cardholder numbers (Indian Express, 2025). This suggests not only broader adoption but more intensive usage by existing cardholders.

Buy Now Pay Later (BNPL) services represent perhaps the most dramatic innovation in consumer credit, with market size projected to reach $22 billion in 2025 from virtually nothing a decade earlier (Globe Newswire, 2025). BNPL adoption has been particularly strong among younger consumers and urban populations, indicating generational differences in credit attitudes and technological comfort.

The decline in traditional savings vehicles such as bank deposits and government securities has been accompanied by some increase in market-linked investments including mutual funds and insurance products. However, the overall decline in financial savings suggests that consumption increases have more than offset any shifts toward higher-return investments. A 6-point drop in household savings translates into ~₹12 trn less annual domestic financial surplus; unless offset by corporate savings or foreign capital, this gap pressures the current account and constrains long-term investment.

**4.3 Digital Payment Revolution and Technological Consumption Enablers**

The introduction of digital payment systems, particularly the Unified Payments Interface (UPI) in 2016, represents a watershed moment in Indian consumer behavior transformation. UPI transaction volumes grew exponentially from 2.07 billion transactions in 2017-18 to 187.37 billion in 2023-24, indicating rapid adoption and intensive usage (PIB, 2025). More significantly for consumption behavior, research indicates that 75% of UPI users report increased spending frequency and amounts after adoption, demonstrating the psychological impact of reduced transaction friction.

Digital payment adoption correlates strongly with consumption increases beyond what would be expected from income effects alone. The convenience and reduced mental accounting associated with digital transactions appear to lower psychological barriers to spending, enabling more frequent and spontaneous purchase decisions. This behavioral change aligns with international research on payment method impacts but appears particularly pronounced in the Indian context due to the rapid transition from predominantly cash-based to digital payment systems.

Internet penetration growth from less than 1% in 2000 to 55.3% in 2025 has enabled not only digital payments but also e-commerce adoption, social media influence on consumption, and exposure to global consumption patterns (Statista, 2025). The correlation between internet adoption and consumption changes suggests that digital connectivity serves as a catalyst for attitude transformation beyond its direct transactional effects.

Mobile phone ownership, particularly smartphones, has become ubiquitous among middle-class households, enabling access to digital financial services and e-commerce platforms. The integration of payment capabilities into mobile devices has made transaction capability constantly available, fundamentally altering the relationship between purchase impulse and transaction completion.

**4.4 Urbanization, Family Structure Changes, and Social Influences**

India's urbanization trajectory increased from approximately 17% in 1971 to 35.3% by 2023, representing one of the world's largest urban transitions with profound implications for consumption behavior (World Bank, 2025). Urban living creates different consumption needs, opportunities, and social pressures compared to rural environments, with urban consumers demonstrating systematically different spending patterns including higher expenditure on services, convenience products, and lifestyle categories that reflect both necessity and choice.

The transition from joint to nuclear family structures has been equally significant for consumption behavior transformation. Nuclear families now constitute 50% of Indian households compared to 37% in 2008, with this transition particularly pronounced in urban areas (PIB, 2025). Nuclear families demonstrate more liberal spending patterns, shop across more product categories (21 versus 20 for joint families), and show greater affinity for premium products. This shift represents not merely demographic change but fundamental alteration in consumption decision-making processes, shifting from collective family financial planning involving multiple generations to individual or couple-based consumption choices.

Urban exposure to modern retail formats, including shopping malls, supermarkets, and organized retail chains, has transformed shopping behavior and consumption attitudes by changing the retail experience from functional necessity to leisure activity. These retail environments are designed to encourage browsing and impulse purchasing, representing dramatic change from traditional neighborhood shops where purchases were typically planned and specific. The experiential aspects of modern retail, including entertainment and social dimensions, have redefined shopping as lifestyle activity rather than mere procurement.

Generational differences provide crucial insights into transformation mechanisms. Consumers born after 1980 demonstrate systematically different spending patterns compared to older cohorts socialized during resource-scarce periods. The average age of first-time borrowers has decreased by 21 years across generations, from 47 years for those born in the 1960s to 25-28 years for millennials born in the 1990s (ET Edge Insights, 2025), indicating fundamental attitude shifts toward credit usage and consumption timing that suggest lasting behavioral changes.

Social network effects in urban environments appear to accelerate consumption transformation through peer influence and social comparison mechanisms. Higher population density and social media connectivity increase exposure to others' consumption patterns, creating social pressure to maintain lifestyle standards and participate in consumption trends. This mechanism helps explain why consumption changes often exceed what would be predicted from income changes alone, suggesting powerful social psychological factors in consumption evolution.

**Table 1. Comprehensive Indicators of Indian Middle-Class Consumption Transformation (1999-2023)**

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| **Indicator** | **1999-2000** | **2022-23** | **Change (%)** |
| Rural MPCE (₹/month) | 486 | 3,773 | 775% |
| Urban MPCE (₹/month) | 855 | 6,459 | 755% |
| Food share - Rural (%) | 59.4 | 46.4 | -22% |
| Food share - Urban (%) | 48.1 | 39.2 | -18% |
| Transportation expenditure share (%) | 3.0 | 6.0 | 100% |
| Entertainment expenditure share (%) | 1.0 | 3.0 | 200% |
| Personal care expenditure share (%) | 0.8 | 2.1 | 163% |
| Urbanization rate (%) | 28.0 | 35.3 | 26% |
| Nuclear families (% of households) | 37.0 | 50.0 | 35% |
| Internet penetration (%) | <1 | 55.3 | >5500% |
| Credit cardholders (millions) | 5 | 111 | 2120% |
| Net financial savings (% GDP) | 11.0 | 5.1 | -54% |

**4.5 Theoretical Integration and Broader Implications**

The surge in credit-enabled spending reflects TPB’s “perceived behavioural control”; peer visibility on social media exemplifies Social-Cognitive observational learning; and the pivot from staples to experiences marks movement up Maslow’s hierarchy. No single model alone explains the data; together they capture attitudes, norms and control pathways.

The empirical findings reveal consumption transformation extending far beyond income effects, suggesting fundamental changes in attitudes, values, and psychological relationships with money and consumption that validate the integrated theoretical framework's predictions. From TPB perspective, transformation reflects systematic changes in all three core components: attitudes shifted from viewing spending as necessary evil to embracing it as self-expression and lifestyle enhancement, subjective norms evolved with social acceptance of debt and lifestyle spending replacing traditional frugality values, and perceived behavioral control increased through rising incomes, digital payments, and credit access.

Social Cognitive Theory explains environmental change mechanisms driving behavioral transformation through digital payment infrastructure reducing transaction friction, urbanization creating new consumption contexts, and observational learning through social media transmitting new behaviors across groups. The self-efficacy component illuminates how increased financial capability enhanced consumption decision-making confidence, enabling more complex financial product usage and credit adoption.

Maslow's framework provides developmental insight with food expenditure share decline suggesting physiological need satisfaction enabling higher-order need attention, while lifestyle, experiential, and status consumption growth indicates progression toward esteem and self-actualization motivated behavior. However, the framework's linear progression assumption proves overly simplistic as consumers appear to pursue multiple need levels simultaneously.

Several transformation patterns emerge with important policy implications. First, transformation accelerates once threshold conditions—basic need satisfaction, technological infrastructure, social norm changes—reach critical mass simultaneously, explaining rapid 2010s changes when multiple factors converged. Second, generational differences indicate partially irreversible attitude changes as younger cohorts maintain different values even during economic downturns. Third, patterns suggest predictable transformation trajectories with continued urbanization, digitalization, and nuclear family formation likely driving further consumption increases.

However, sustainability concerns arise from dramatic savings decline and debt increases potentially creating financial vulnerability during economic downturns. The transformation from high-savings to high-consumption behavior may reduce resilience at both household and macroeconomic levels, requiring policy attention to balance consumption-driven growth with financial stability concerns through updated economic management approaches and enhanced financial literacy programs addressing digital payment decisions and credit usage in modern contexts.

**5. Limitations & Future Research**

While the NSSO Household Consumption Expenditure Surveys provide nationally representative data through stratified random sampling across rural and urban strata, several constraints merit acknowledgement. First, survey instruments and questionnaire modules have evolved over the five decades, introducing potential discontinuities in expenditure category definitions and income thresholds. Although we mitigated this by focusing on consistently measured aggregates and triangulating with Reserve Bank of India (RBI) household‑finance data and World Bank macrodata, longitudinal comparability may still be affected by unobserved methodological shifts.

Second, the quinquennial frequency of NSSO surveys masks intra‑year consumption shocks—such as those arising from short‑term policy changes, natural disasters, or economic downturns—and limits our ability to capture rapid behavioural responses. High‑frequency transaction data from digital payment platforms or household panels could help address this gap.

Third, our analysis focuses on national aggregates and broad rural–urban divisions; state‑ and district‑level heterogeneity in consumption transformation likely exists but is beyond the scope of this study. Future work should use panel survey designs or administrative records to examine regional variations, household‑level dynamics, and intra‑year spending patterns in greater detail.

Finally, while our theoretical integration links attitudinal constructs from the Theory of Planned Behavior (TPB), Social Cognitive Theory, and Maslow’s hierarchy to observed trends, experimental or survey‑based studies are needed to validate the psychological mechanisms underlying the shift to convenience‑ and experience‑driven consumption. Further research could also explore how digital‑credit products influence risk preferences and savings behaviour and conduct cross‑country comparisons to position India’s middle‑class consumption transformation within the broader emerging‑market context.

**6. Conclusion**

This comprehensive five-decade analysis documents one of the most significant consumption transformations in modern economic history, revealing how Indian middle-class spending evolved from frugality-oriented, necessity-driven behavior to convenience-focused, aspiration-motivated consumption through fundamental changes in attitudes, values, and psychological relationships with money that extend far beyond simple income effects.

The empirical evidence demonstrates dramatic shifts across multiple dimensions that collectively paint a picture of transformed consumer behavior. Per-capita consumption increased over 750% with food expenditure share declining 18-22 percentage points while discretionary categories including transportation, entertainment, and personal care doubled or tripled their budget shares, indicating clear progression from subsistence to lifestyle-oriented consumption. Financial behavior transformed equally dramatically, with savings declining from 11% to 5.1% of GDP while debt increased six-fold, representing fundamental shifts in time preference and risk tolerance.

Digital transformation proved catalytic, with UPI adoption demonstrating how technological infrastructure can directly influence consumption psychology through reduced transaction friction, while internet penetration and social media exposure reshaped aspirations and created new consumption pressures. The demographic transition to nuclear families and urbanization created new consumption contexts and decision-making structures that reinforced individualistic consumption patterns over collective family financial planning.

The theoretical framework's integration of multiple perspectives proved essential for understanding transformation complexity, with TPB explaining attitude, norm, and control changes, Social Cognitive Theory illuminating environmental influence mechanisms, and Maslow's hierarchy providing developmental context for consumption evolution. This integrated approach demonstrates that consumption transformation requires multiple theoretical lenses to capture the full complexity of behavioral change processes.

Several key insights emerge with significant stakeholder implications. For businesses, understanding transformation provides insights for product development focusing on convenience and experiential consumption, market strategy emphasizing digital engagement, and recognition of generational differences in consumption preferences. For policymakers, findings highlight needs to balance consumption-driven growth with financial stability through updated economic management approaches, enhanced financial literacy programs, and consumer protection frameworks addressing digital payment and credit decisions.

The transformation represents both economic success through improved living standards and potential vulnerability source through reduced savings and increased debt. Future research should investigate rural consumption patterns, regional transformation variations, and early warning systems for household financial stress, while cross-country comparisons could provide insights into consumption transformation patterns in other emerging economies.

This research demonstrates that understanding consumption behavior transformation requires theoretical perspective integration, comprehensive empirical analysis, and recognition of complex economic, technological, and social factor interactions that create fundamental behavioral changes with lasting implications for individuals, businesses, and economic policy in rapidly developing economies.

**Consent**

Not applicable.

**Ethical Approval**

Not applicable.

**Disclaimer (Artificial intelligence)**

I hereby declare that generative AI technologies such as Large Language Models, etc. have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

Details of the AI usage are given below:

1. Perplexity AI’s LLM (GPT-4o, version as of August 2025), accessed via perplexity.ai.

2. The assistant was used for (a) language editing, (b) drafting and restructuring sections (c) procuring links for literature review (2023–2025), (d) condensing and polishing text for style and clarity.

3. Input prompts: Example prompts included:

"Appropriate title for a research paper explaining the changing trends in spending of people over the past 50 years

"Check the tone of abstract"

"Give me the list of portals for digital payments and BNPL in India."

"Summarize the entire paper and check for any missed links and grammar"

"Polish language for academic clarity and plain English."

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