

Today's Prelims Topics

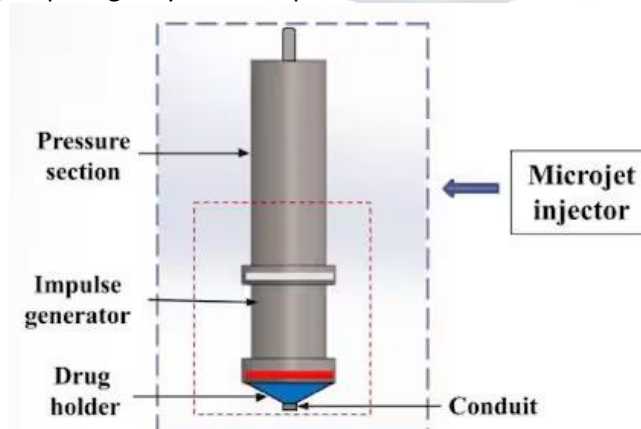
Shock Syringe

Context

Researchers at the **Indian Institute of Technology (IIT), Bombay**, have developed a **needle-free "shock syringe"**.

What is a Shock Syringe?

- It is a device that uses **high-energy shock waves** (pressure waves faster than the speed of sound) to deliver drugs without piercing the skin with a sharp needle. It creates a **microjet** of liquid drugs.
- The microjet travels at **almost twice the speed of a commercial aeroplane during takeoff**, penetrating the skin rapidly and gently.
- **Advantages:**
 - Provides **pain-free drug delivery**.
 - Eliminates the risk of **blood-borne diseases** caused by needle-stick injuries.
 - Increases efficiency in **immunization drives** for both children and adults.
 - Offers **reliability and cost-effectiveness**, with the ability to perform **over 1,000 shots** per syringe, requiring only nozzle replacement.



Source:

- [The Hindu - IIT-Bombay team makes needle-free 'shock syringe' for painless injections](#)

Siang Upper Hydropower Project

Context

The state government of Arunachal Pradesh has requisitioned 9 companies of CAPF to tackle resistance against Siang Upper Multipurpose Project.

About Siang Upper Multipurpose Project (SUMP)

- It is a proposed **11,000 MW hydropower project on the Siang River in Arunachal Pradesh.**
- The project is being jointly constructed by the **National Hydroelectric Power Corporation (NHPC) and the North Eastern Electric Power Corporation (NEEPCO).**
- SUMP is positioned as a response to **China's 60,000-MW dam on the Yarlung Tsangpo in Tibet's Medog County.**
- **Concerns:**
 - The area which will get submerged due to construction of the reservoir is inhabited by the **Adi Tribe**. It is an **indigenous community** with a strong connection to the **Siang River**.
 - Residents rely on **pani kheti (settled agriculture along riverbanks)** for sustenance, as the hilly terrain offers limited farming opportunities.
- **Siang River:**
 - **Origin:** Near Mount Kailash, Tibet. It is called the **Yarlung Tsangpo in Tibet**.
 - It flows over 1,000 km eastward before entering Arunachal Pradesh as the Siang, and eventually merges with the **Brahmaputra in Assam**.



Fact

- **Forest (Conservation) Amendment Act of 2023** exempts **strategic projects within 100 Km** of India's borders from **needing forest clearance**.

Source:

- [Indian Express - Not without resistance](#)

Delhi HC dismisses PIL challenging Patent Chief's appointment

Context

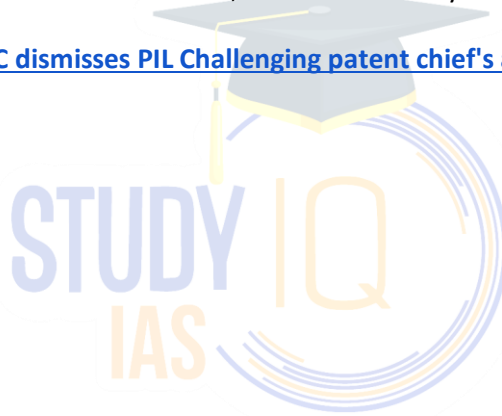
The Delhi High Court has dismissed a public interest litigation (PIL) challenging the appointment of Unnat Pandit as the Controller General of Patents, Designs and TradeMarks

About Controller General of Patents, Designs and TradeMarks (CGPDTM)

- CGPDTM is the head of the Indian Patent Office, which administers the laws related to patents, designs, trademarks, and geographical indications of goods in India. It is also known as the **Indian Patent Office**.
- It administers various various acts: **The Patents Act, 1970, The Trade Marks Act, 1999 , The Designs Act, 2000, The Copyright Act, 1957 etc.**
- **Nodal Ministry:** Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry.
- **Patent:**
 - It is an exclusive right provided by the government to the applicant for his/her disclosed invention of an industrial product or process that must be **Novel, Non-obvious, Useful and Patentable as defined by national law.**
 - A patent in India is valid for **20 years**. The 20-year term was introduced by the Patents (Amendment) Act 2002. Before that, the term was 14 years.

Source:

- [Indian Express - Delhi HC dismisses PIL Challenging patent chief's appointment](#)



PM CARES Fund

Context

PM CARES Fund received Rs 912 crore in contributions during the financial year 2022-23 as donations.

About PM CARES Fund

- PM CARES stands for Prime Ministers Citizen Assistance and Relief in Emergency Situations Fund. It was created during the Covid-19 pandemic.
- It has been registered as a **Public Charitable Trust**.
- **Objective:** To deal with any kind of emergency or distress situation, like posed by the pandemic, and to provide relief to the affected individuals.
- **Contributions:** The fund consists entirely of voluntary contributions from individuals or organizations and does not get any budgetary support.
 - Donations to PM CARES Fund qualify for **80G** benefits for **100% exemption under the Income Tax Act**.
 - Contribution made to the Fund by any Company or a PSU qualifies for **Corporate Social Responsibility (CSR) expenditure** as provided under the Companies Act, 2013.
- **Audit:** PM CARES Fund is audited by **an independent auditor. (Not CAG)**
- **Trustees & Advisors:**
 - **Ex-officio Chairperson:** Prime Minister of India.
 - **Ex-officio Trustees (3):** Union Minister of Defence, Home Affairs and Finance.
 - **Nominated trustees:** Justice K.T. Thomas (Retd.) & Kariya Munda.
 - **Advisory Board:** Rajiv Mehrishi, Sudha Murthy & Anand Shah.

Source:

- [Indian Express - PM CARES Fund](#)

Success of Smart cities Mission

Context

According to a recent study of Indian Institute of Management, Bangalore Introduction of smart classrooms under the Smart Cities Mission (SCM) has led to a 22% increase in overall enrolment as per data reported by 19 cities between 2015-16 and 2023-24.

Key Highlights of the Report

- 71 cities have developed 9,433 smart classrooms in 2,398 government schools.
- **Highest number of smart classroom projects** are in Karnataka (80), Rajasthan (53). Tamil Nadu has 23 and Delhi 12.
 - **West Bengal (2)** stands at the bottom of the table.
- 41 cities have developed digital libraries with a total of 7,809 seats.

About Smart Cities Mission (SCM)

- It was launched in **2015** by the Ministry of Housing and Urban Affairs.
- It aims to enhance the quality of life in 100 selected cities by providing efficient services, robust infrastructure and a sustainable environment.
- **Key areas:** e-governance, waste management, water management, energy management, urban mobility and skill development.
- **Progress:** As of **November 2024**, **91% of SCM projects have been completed.**
- **SAAR Initiative:**
 - A platform was launched in 2022, named 'SAAR' (Smart Cities & Academia towards Action & Research) under SCM to bridge the gap between academia and government to document and research new urban initiatives.
 - SAAR initiative includes the **Sameeksha Series**, which is a set of 50 impact assessment studies on Indian smart cities.

Source:

- [The Hindu - '22% rise in enrolment after smart classroom initiative'](#)

Places in News

Baltic Sea

- **North Atlantic Treaty Organisation (NATO)** has announced that it will boost its presence in the Baltic Sea after the suspected sabotage of an undersea power cable and four internet lines recently.



- **Location:** It is an extended arm of the Atlantic Ocean in Northern Europe.
- **Bordering Countries:** Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden.
- It connects to the Atlantic Ocean through the **Danish Straits**.

Facts

- **Baltic Countries:** Lithuania, Estonia and Latvia.
- **Nordic Countries:** Denmark, Norway, Sweden, Finland and Iceland.
- **Scandinavian Countries:** Denmark, Norway and Sweden.

Source:

- [Indian express - NATO to boost Baltic sea presence](#)

News in Shorts

Exercise Surya Kiran

- It is a **bilateral joint military exercise between India and Nepal** to enhance interoperability in jungle warfare & counterterrorism operations in mountainous terrain and HADR under UN mandate.
- This is the 18th edition of Surya Kiran Exercise.
- The Indian Army contingent is being led by a Battalion from the 11th Gorkha Rifles.
- **SLINEX**: Bilateral Naval exercise between India & Sri Lanka.

Source:

- [PIB - INDIA- NEPAL JOINT MILITARY EXERCISE SURYA KIRAN](#)

Ministry of Coal issued the vesting order for Meenakshi coal mine

- The Union government has allocated the **Meenakshi coal mine in Odisha** to Hindalco Industries Ltd.
- The mine has a peak capacity of 12 million tonnes per annum. It is expected to generate an annual revenue of Rs 1,152.84 Cr.
- **Major Coal Mines of India**: Jharia (Jharkhand), Raniganj (West Bengal), Korba (Chhattisgarh), Singrauli (Madhya Pradesh)

Source:

- [PIB - Meenakshi Col Mine](#)

National Accreditation Board for Testing and Calibration Laboratories (NABL)

- Recently Dr. Sandip Shah was appointed as the Chairperson of NABL-QCI.
- NABL is a Constituent Board of **Quality Council of India**. It provides accreditation to Conformity Assessment Bodies (Laboratories) in India.

About Quality Council of India (QCI)

- QCI was set up jointly by the Government of India and the Indian Industry in **1997 as an autonomous body**.
- **Nodal Ministry**: Ministry of Commerce & Industry
- **QCI's role** is to establish and operate a national accreditation structure and to promote quality through the National Quality Campaign
- **The Chairman of QCI is appointed by the Prime Minister** on recommendation of the industry to the government.

Source:

- [PIB - Dr. Sandip Shah Appointed as the Chairperson of NABL-QCI](#)

Editorial Summary

New Detention Policy

Context

The Ministry of Education recently amended the **Right of Children to Free and Compulsory Education Rules, 2010** to include detention provisions.

About New Detention Policy

- **Provision:** Students in **Classes 5 and 8** in around 3,000 central schools, including Kendriya Vidyalayas and Jawahar Navodaya Vidyalayas, **fail regular exams**, the student will be **re-examined after 2 months** after additional instruction.
 - If they fail the re-exam, they may be **detained**.
- **Exam Format:** Exams and re-exams must be **competency-based**.
- **Key Safeguard:** No child can be expelled from school **until the completion of elementary education**.

Legislative and Policy Background

- **Right to Education (RTE) Act, 2009:** Section 16 prohibited detaining students up to Class 8.
- **Amendment in 2019:**
 - Allowed states and UTs to decide on holding back students in Classes 5 and 8 if they failed re-examinations.
 - Since then, **18 States/UTs** have scrapped the no-detention policy.

Arguments in Favour of New Detention Policy

- **Declining Learning Levels:** Automatic promotion leads to reduced efforts by students and teachers, resulting in poor educational outcomes.
 - **E.g.,** Only 43.3% of 14-18-year-olds are able to solve division problems correctly (ASER Report 2022).
- **Higher Failures in Later Classes:** Foundational gaps due to automatic promotion contribute to high failure rates in Classes 10 and 12, with 65 lakh students failing in 2023.
- **Increased Accountability:** Encourages both students and teachers to focus on academic performance, fostering responsibility and commitment.
- **Global Best Practices:** Many countries use structured assessments and remedial measures, emphasizing accountability over automatic promotion.
 - **E.g.,**
 - **U.S. "Grade Retention" System:** It is a practice often used when students fall significantly behind in core subjects like reading and math, particularly when their performance on standardized tests falls below state-mandated standards.
- **Demographic Dividend:** An educated, capable, and skilled population is essential for leveraging India's demographic advantage, making improvements in education critical.

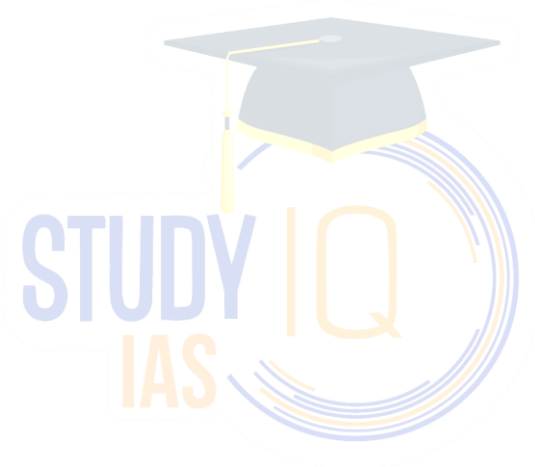
Arguments Against the New Detention Policy

- **Risk of Dropouts:** Detaining students may demotivate them, especially those from marginalized backgrounds, potentially increasing dropout rates.
- **Blames Students, Not the System:** Fails to address systemic issues like inadequate teacher training, poor infrastructure, and socio-economic challenges.
- **Stress on Students:** The fear of failure and detention could lead to anxiety and stress, negatively impacting mental health.

- **Disproportionate Impact on Marginalized Groups:** Students from underprivileged backgrounds, already struggling with systemic inequities, may bear the brunt of this policy.
- **Potential Misuse by Schools:** Without proper monitoring, schools may misuse the policy to justify administrative shortcomings or underperformance.
- **Contradiction with NEP 2020:** The NEP advocates formative assessments, self and peer evaluations, and a holistic, 360-degree progress report. The new detention policy fails to align with these forward-looking principles.

Source:

- [The Hindu: Letter and spirit](#)
- [Indian Express: Explained: New Detention Policy](#)



Marginalised by caste, marginalised in education

Context

- Atul Kumar, a Scheduled Caste student, lost his IIT Dhanbad seat due to an inability to pay a ₹17,500 seat booking fee, highlighting systemic barriers.
- Many similar cases go unnoticed, leaving deserving students without opportunities due to financial challenges.

What are the Challenges that Students From Marginalised Community Faces?

Financial Constraints

- **High Tuition Fees:** The steep rise in fees at premier institutions like IITs and IIMs makes education unaffordable for many marginalized students.
 - E.g., IIT undergraduate fees have surged from ₹90,000 to ₹3 lakh per year, while IIMs have increased fees by 5%-30%.
- **Insufficient Financial Aid:** While initiatives like the Vidyalakshmi scheme provide interest-free loans, they often fall short in covering the total costs, including living expenses, which compounds the financial burden.
- **Inaccessibility to Loans:** Many students from marginalized backgrounds lack financial guarantees or collaterals, making it difficult for them to secure educational loans.

Systemic Barriers

- **Dropout Rates:** Financial difficulties lead to significant dropout rates among marginalized students:
 - E.g., Over 13,500 SC, ST, and OBC students dropped out of central universities, IITs, and IIMs in the last five years.
 - Central universities saw 2,424 SC and 2,622 ST students dropping out, underscoring how systemic costs and pressures disproportionately affect these groups.
- **Lack of Faculty Representation:** Caste-based disparities extend to faculty roles, with only 5% representation from SC, ST, and OBC categories in IITs.
 - This lack of relatable role models and mentors negatively impacts the academic experiences of these students.

Social Discrimination

- **Caste-Based Prejudice:** Marginalized students often face overt and covert caste discrimination in classrooms, hostels, and peer interactions.
 - They are judged based on their language, clothing, and other markers, leading to alienation.
- **Stigmatization:** Historical biases label Dalits as “untouchables,” relegating them to menial roles and creating a psychological barrier that persists even in academic settings.
- **Limited Social Integration:** Marginalized students often struggle to assimilate with peers from more privileged backgrounds, resulting in social isolation and lack of support networks.

Emotional and Psychological Toll

- **Mental Health Issues:** The dual burden of financial pressure and caste-based discrimination leads to immense stress, anxiety, and depression.
 - E.g., 122 student suicides in IITs and IIMs over seven years highlight the emotional toll on marginalized students.
- **Performance Pressure:** Many students are overwhelmed by the expectations placed on them to alleviate their family’s economic challenges, creating a cycle of stress and self-doubt.

- **Harassment and Bullying:** Incidents of caste-based remarks, exclusion, and bullying further exacerbate feelings of inferiority and hopelessness.

Employment Challenges

- **Unemployment Rates:** Even after graduation, marginalized students face hurdles in job placements.
 - **E.g.,** An RTI in 2024 revealed that 38% of IIT graduates remained unplaced, with caste identity amplifying the challenges in securing jobs.
- **Caste-Based Disparities in Hiring:** Marginalized communities often face implicit biases during recruitment, limiting their opportunities in competitive job markets.

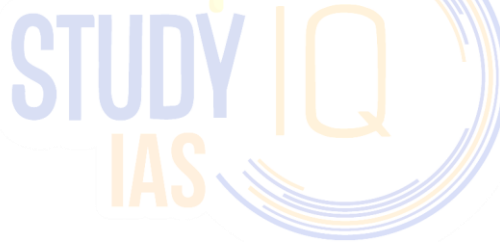
Historical and Structural Disadvantages

- **Intergenerational Poverty:** Many Dalit families lack access to stable income sources, further restricting educational aspirations.
- **Cultural Capital Deficit:** Students from marginalized communities may not possess the same level of exposure or resources (like coaching or study materials) as their upper-caste peers, limiting their competitiveness in exams like JEE and CAT.

Conclusion

Marginalized communities in India face multifaceted challenges in accessing and sustaining higher education due to financial constraints, caste-based discrimination, and systemic inequalities. These issues highlight the urgent need for reforms in education and employment to provide an equitable environment for all students.

Source: [The Hindu: Marginalised by caste, marginalised in education](#)



Captive Elephants in India: Paradox of Reverence and Exploitation

Context

Captive elephants face immense cruelty and exploitation, particularly in religious, entertainment, and tourism activities.

More in News

- The Kerala High Court poignantly compared their plight to an “eternal Treblinka,” invoking the horrors of Nazi extermination camps.
- Despite being highly social animals and are sacred symbols of wisdom and strength, captive elephants often endure isolation and abusive training that breaks their spirit.

Concerns

- **Illegal Practices:** As of January 2019, there were 2,675 documented captive elephants in India.
 - Reports suggest replacements for deceased elephants are often captured from the wild.
- **Microchip Misuse:** Microchips, introduced under **Project Elephant in 2002** to track captive elephants, are reportedly retrieved from deceased animals and reinserted into illegally captured wild elephants to legalize them.
 - The rules lack mandates for microchip removal upon an elephant's death, enabling such misuse.
- **Monitoring Gaps:** No requirement for post-mortem reports in cases of death during transfer or transport, leaving significant gaps in accountability.
- **Interstate Trade of Captive Elephants:** Elephants have been transported from northeastern states to southern and western states.
 - E.g., An elephant "gifted" to a Delhi temple by a private owner in Assam.

Government Action

Captive Elephant (Transfer or Transport) Rules, 2024

- Introduced by the Ministry of Environment, Forests, and Climate Change (MoEFCC) in March 2024, the rules aim to regulate the transfer and transport of captive elephants to curb illegal wild captures.
- **Key Provisions and Loopholes**
 - **Transfer of Ownership:** Ownership can be transferred if the current owner cannot maintain the elephant.
 - **No mandate for non-commercial transactions**, allowing elephants to be traded as property.
 - **Transport Provisions:** Rules permit temporary transport without explicitly justifying the purpose, potentially enabling leasing for religious ceremonies, weddings, political rallies, and tourism.
 - This **commodifies elephants and undermines welfare**, creating economic incentives for their capture.
 - **Impact on Conservation:** **Regularization of transfers for commercial purposes** risks incentivizing wild captures, directly **threatening** conservation efforts.
 - **Births in Captivity:** Rules allow calves born in captivity to be classified as owned captive elephants, perpetuating the cycle of captivity and exploitation.
- In August 2024, following reports by civil society, the Elephant Project under MoEFCC flagged illegal transfers and issued an office memorandum emphasizing strict adherence to rules.

Recommendations for Improvement

- **Strengthen the Captive Elephant (Transfer or Transport) Rules** with explicit language ensuring welfare and prohibiting commercial exploitation.

- Mandate removal and destruction of microchips posthumously in the presence of forest officials.
- Require post-mortem reports for elephants dying during transportation.
- **Encourage civil society, temple committees, and governments** to shift from live elephant use to alternatives like **electronic elephants**.
- **Prioritize measures that reduce demand for captive elephants** and bolster their protection in the wild.
- **Mandatory digitization** of captive elephants' genetic profiles.
- **Implement humane, non-invasive birth control measures** for elephants in private custody.

Source: [The Hindu: Rules that still manacle the captive elephant](#)



Data And Facts

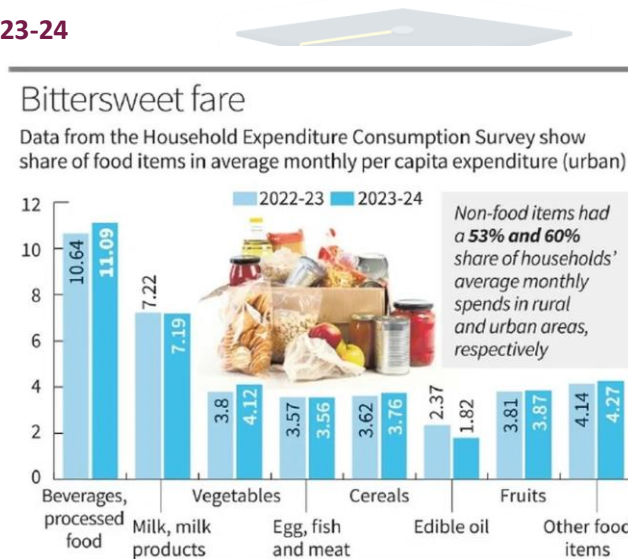
Context

As per the Household Consumption Expenditure Survey (HCES), India's average household consumption spending on a per capita basis rose about 3.5% in real terms through August 2023 to July 2024 from previous year.

What is Household Consumer Expenditure Survey (HCES)?

- **Conducted By:** National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI).
- **Frequency:** Quinquennial (recurring every five years).
- **Objectives:** The primary purpose of HCES is to collect information on the consumption of goods and services by households.
 - This data is crucial for estimating various economic indicators such as:
 - Monthly Per Capita Consumption Expenditure (MPCE).
 - Poverty levels across different demographics.
 - Updates to the Consumer Price Index (CPI) and Gross Domestic Product (GDP) calculations

Highlights of HCES 2023-24



Aspect	Details
Rising Food Expenditure	<ul style="list-style-type: none"> ● Rural households: Share increased to 47.04% (2023-24) from 46.38% (2022-23). ● Urban households: Share increased to 39.68% (2023-24) from 39.17%.
Urban-Rural Expenditure Gap	Gap narrowed to 69.7% (2023-24) from 71.2% (2022-23), showing stronger growth in rural consumption spending over the decade.

Average Monthly Consumption Expenditure (MPCE)	<ul style="list-style-type: none"> ● Rural: Increased by 9.3% to ₹4,122 (2023-24) from ₹3,773 (2022-23). ● Urban: Rose to ₹6,996 from ₹6,459. ● Historical Context: MPCE in 2011-12: ₹1,430 (rural) and ₹2,630 (urban). ● Imputed consumption (with social welfare benefits): ₹4,247 (rural) and ₹7,078 (urban) (2023-24).
Income Distribution & Spending Trends	<ul style="list-style-type: none"> ● Top 5%: Decline in MPCE (₹10,137 rural; ₹20,310 urban) compared to 2022-23. ● Bottom 5%: Increase in MPCE (₹1,677 rural; ₹2,376 urban). ● Bottom 20%: Highest growth in spending (19.2% rural; 18% urban). ● Top 20%: Marginal growth (1.5% rural; 1.1% urban).
Consumption Inequality (Gini Coefficient)	<ul style="list-style-type: none"> ● Rural: Declined from 0.266 (2022-23) to 0.237 (2023-24). ● Urban: Declined from 0.314 to 0.284, indicating reduced inequality.
Sectoral Breakdown of Expenditure	<ul style="list-style-type: none"> ● Food Items: <ul style="list-style-type: none"> ○ Cereals: Share increased slightly (4.99% rural; 3.76% urban). ○ Beverages & processed foods: Highest share (9.84% rural; 11.09% urban). ● Non-Food Items: <ul style="list-style-type: none"> ○ Rural: 52.96% (major expenses on conveyance, medical, and clothing). ○ Urban: 60.32% (major expenses on rent, entertainment, and durable goods).
State-Wise Consumption Patterns	<ul style="list-style-type: none"> ● Higher Spending States: Maharashtra, Punjab, Tamil Nadu, Telangana, Kerala, Karnataka, Haryana, Gujarat, Andhra Pradesh. ● Lower Spending States: West Bengal, Bihar, Assam, Odisha, Uttar Pradesh, Madhya Pradesh, Jharkhand, Chhattisgarh. ● Rajasthan: Higher rural spending but lower urban spending than the national average.

Source: [The Hindu: Average household spending rose 3.5%](#)