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CUET · ECONOMICS · CLASS XI · CODE 309

Human Capital Formation in India

CUET unit: Indian Economic Development — Unit III: Current Challenges Facing the Indian Economy (Human Capital Formation)

By **UniDrill** · NCERT-grounded study material

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📌 Snapshot

- **Human capital** is the stock of skill, expertise and productive capacities embodied in people, formed much as physical resources are transformed into physical capital.
- The **five sources** of human capital formation are education, health, on-the-job training, migration and information; physical and human capital differ (Box 4.1).
- **Human capital** is a means to higher productivity, while **human development** treats education and health as ends in themselves; human capital is linked to economic growth.
- Human capital formation in India turns on the role of government, growth in education expenditure, performance against the **Education Commission (1964–66) target of 6% of GDP**, and the **RTE Act 2009**.
- Educational attainment trends (adult and youth literacy, primary completion, gender equity) point to future challenges — illiteracy, the steep education pyramid and unemployment among the educated.
- Memory-tagged data points — 6% of GDP target, 2% education cess, RTE Act age 6–14, ₹96,968 (Sikkim) vs ₹10,710 (Bihar) per-capita elementary spend, and 30% rural female graduate unemployment.

📖 Detailed Notes

2.1 Core concepts

- **Why human capital matters**: the labour skill of an educated person is more than that of an uneducated person; the educated person generates more income and contributes more to growth. Education confers higher earning capacity, social standing, the ability to make better choices, knowledge to understand societal change and a stimulus to innovation; an educated labour force facilitates adoption of new technologies (NCERT §4.1, pp. 59–60).
- **What is human capital**: just as physical resources like land are turned into physical capital like factories, human resources like nurses, farmers, teachers and students are turned into human capital like engineers and doctors. Good human capital is needed to produce more human capital — investment in human capital begets further human capital (NCERT §4.2, p. 60).

- **The five sources** of human capital formation are investments in **education, health, on-the-job training, migration and information** (NCERT §4.3, pp. 60–61). Education is the principal source.
- **Education as investment**: spending on education by individuals is analogous to a company's spending on capital goods — individuals invest in education to increase future earnings. Returns include both higher wages and non-pecuniary benefits like better choices and citizenship (NCERT §4.3, p. 60).
- **Health as a source**: a sick labourer without medical care abstains from work, causing loss of productivity. Expenditure on **preventive medicine (vaccination), curative medicine (medical intervention during illness), social medicine (spread of health literacy)**, along with provision of clean drinking water and good sanitation, increases the supply of a healthy labour force (NCERT §4.3, pp. 60–61).
- **On-the-job training**: firms train workers either in-firm under supervision of a skilled mentor or by sending them for off-campus programmes; they often require workers to serve a specific period after training so that the firm recovers the productivity gain. Returns from training exceed costs (NCERT §4.3, p. 61).
- **Migration**: people migrate for higher salaries. Unemployment drives rural-urban migration within India, while engineers, doctors and IT professionals migrate abroad for higher salaries. Migration involves transport costs, higher living costs and psychic costs, but enhanced earnings outweigh these (NCERT §4.3, p. 61).
- **Information**: expenditure to acquire information on the labour market and on education and health services (salaries, employability of institutions, costs) enables informed investment decisions and the efficient use of acquired human capital (NCERT §4.3, p. 61).
- **Physical vs human capital — six dimensions of contrast** (Box 4.1, p. 62): 1. **Decision basis** — physical capital is mainly an economic/technical decision; human capital is partly social and partly the conscious decision of the possessor. 2. **Tangibility** — physical capital is tangible; human capital is intangible. 3. **Separability** — physical capital is separable from its owner and saleable; human capital is inseparable — only its services are sold. 4. **Mobility** — physical capital is fully mobile between countries (barring trade restrictions); human capital mobility is restricted by nationality and culture. 5. **Depreciation** — both depreciate, but human-capital depreciation (with ageing) can be reduced through continuous investment in education and health. 6. **Benefits** — human capital generates **both private and social (external) benefits**; physical capital generates only **private benefit** (NCERT Box 4.1, p. 62).
- **Human capital and growth**: education, health, training, information and migration all increase income-generating capacity. Empirical evidence on the precise contribution is "nebulous" due to measurement problems — years of schooling and enrolment rates may not capture quality; monetary health expenditure and life expectancy may not capture true health status. There is convergence across

countries in human-capital indicators without convergence of per-capita real income; causality runs in both directions (NCERT §4.3, pp. 63–64).

- **Seventh Plan quotation**: "Human resources development ⋯ has necessarily to be assigned a key role in any development strategy, particularly in a country with a large population" (NCERT §4.3, p. 64).
- **NEP 2020 outlook**: with big data, machine learning and AI, many unskilled jobs may be taken over by machines; demand will rise for skilled labour in mathematics, computer science, data science and multidisciplinary abilities, and in biology, chemistry, physics, agriculture, climate science and social science — to meet challenges of climate change, energy, water, food and sanitation; pandemics call for collaborative research and multidisciplinary learning. India aims to be among the three largest economies (NCERT §4.3, pp. 65–66).
- **Human capital vs human development**: human capital treats education and health as **means** to raise labour productivity — so an unproductive investment in either is "unproductive". Human development treats education and health as **integral to human well-being** — every individual has a right to basic education and basic health care regardless of productivity contribution (NCERT §4.4, p. 66).
- **State of human capital formation — government roles**: India's federal structure assigns expenditures on education and health to all three tiers (union, state, local). Government intervention is needed because (a) education and health create both private and social benefits, (b) their impacts are long-term and not easily reversible and (c) consumers lack complete information on quality and cost, allowing private providers monopoly power. Institutions: ministries and departments of education and health at union and state levels, plus NCERT, UGC, AICTE (education) and National Medical Commission, ICMR (health) (NCERT §4.5, p. 67).
- **Government education expenditure**: expressed as (i) percentage of total government expenditure, and (ii) percentage of GDP. During **1952–2020**, education expenditure rose from **7.92% to 16.54% of total government expenditure** and from **0.64% to 4.47% of GDP**, with irregular rise and fall. Elementary education takes the major share of spending; tertiary education's share is least, but **expenditure per student in tertiary education is higher** than in elementary (NCERT §4.6, p. 68).
- **Inter-state variation**: in 2020-21, per capita public expenditure on elementary education ranged from **₹96,968 in Sikkim** to **₹10,710 in Bihar**, producing wide differences in educational opportunity and attainment across states (NCERT §4.6, p. 68).
- **Commission/committee targets**: the **Education Commission (1964–66)** recommended at least **6% of GDP** be spent on education. The **Tapas Majumdar Committee (1999)** estimated about **₹1.37 lakh crore** over 10 years (1998-99 to 2006-07) to bring all 6-14 year-olds into school. Current expenditure of "a little over 4 per cent" is inadequate against the 6% goal (NCERT §4.6, p. 69).

- **Right of Children to Free and Compulsory Education Act, 2009** made free education a fundamental right of all children aged 6–14. The government also levies a **2% 'education cess'** on all Union taxes, earmarked for elementary education, and provides large outlays for higher education and student loan schemes (NCERT §4.6, p. 69).
- **Educational achievements (Table 4.2)**: adult literacy rate (15+), primary completion rate, and youth literacy rate (15+ to 24). Adult female literacy rose from **37.9% (1990) to 66% (2017-18)**; adult male from **61.9% to 82%**. Primary completion for females rose from **61% to 96%**; youth female literacy from **54.2% to 90%** (NCERT §4.6, p. 70).
- **Education for all — still distant**: despite rising literacy, the absolute number of illiterates in India equals India's population at the time of independence. The Directive Principles required free and compulsory education for all children up to 14 within 10 years of the Constitution's commencement; this was not achieved (NCERT §4.7, pp. 70–71).
- **Gender equity**: male-female literacy gaps are narrowing but women's education remains urgent — for women's economic independence, social status, fertility decisions and the health of women and children (NCERT §4.7, p. 71).
- **Higher education and educated unemployment**: the Indian education pyramid is steep. Per **NSSO 2011-12**, unemployment among rural male youth graduates was **19%**, urban male graduates 16%, and rural female graduates **nearly 30%**; only 3–6% of primary-educated youth were unemployed. The situation improved moderately per the Periodic Labour Force Survey 2023-24 (NCERT §4.7, p. 71).
- **Conclusion**: India has a rich stock of scientific and technical manpower; the need is to improve it qualitatively and to create conditions for its utilisation within India (NCERT §4.8, p. 71).
- **Origin of the concept**: the formal idea of "human capital" is associated with **Theodore W. Schultz** (1961) and **Gary S. Becker** (1964), both Nobel laureates; they argued that spending on education and health should be treated as **investment** rather than **consumption** — the foundational insight that NCERT builds on (NCERT §4.2, p. 60, contextual).
- **Indian data — adult literacy trajectory**: literacy rate rose from **16.67% in 1951 to 78% by 2018–22** (Table 4.1, p. 65). That is more than a four-fold rise in seven decades, but still leaves roughly one in five adults unable to read — a reservoir of "unmade" human capital.
- **Indian data — life expectancy at birth**: male life expectancy rose from **37.2 years (1951) to 68.6 years (2018–22)**; female from **36.2 years to 71.4 years** — women now outlive men by roughly three years, a complete reversal of the 1951 pattern (Table 4.1, p. 65).
- **Indian data — infant mortality and crude death rate**: IMR fell from **146 per 1000 live births (1951) to 28 (2018–22)**; CDR from **25.1 per 1000 (1951) to**

6.0 (2018–22) — improvements that reflect public-health investments in vaccination, sanitation, antibiotics, and maternal-child healthcare (Table 4.1, p. 65).

- **Indian data — real per capita income**: rose from **₹7,651 (1951) to ₹94,054 (2018–22)** — a more than 12-fold increase that correlates closely with the rise in education and health indicators (Table 4.1, p. 65). Direction of causation runs both ways: richer countries afford more education/health, and educated/healthy populations grow faster.
- **Indian data — gender literacy gap**: in 1990 the adult-male-female literacy gap was 61.9 – 37.9 = 24 percentage points; by 2017–18 it had narrowed to 82 – 66 = 16 points (Table 4.2, p. 70). The gap is shrinking but still substantial.
- **Indian data — primary completion**: male primary completion rose from 78% (1990) to about 99% (2017–18); female from 61% to 96% — primary education has effectively universalised, with the residual gap concentrated in specific marginalised groups (Table 4.2, p. 70).
- **Historical note on RTE**: the **Constitution (86th Amendment) Act 2002** inserted **Article 21A** making education a fundamental right; the RTE Act 2009 is the enabling legislation. The 86th Amendment also amended Article 45 (early childhood care) and Article 51A (parental duty to provide schooling) (NCERT §4.6, p. 69, contextual).
- **Historical note on education commissions**: India had three landmark commissions — the **University Education Commission (Radhakrishnan, 1948–49)**, the **Secondary Education Commission (Mudaliar, 1952–53)** and the **Education Commission (Kothari, 1964–66)**. Kothari's 6% recommendation has been reaffirmed by the **National Education Policy 2020**, but never met in practice (NCERT §4.6, p. 69, contextual).
- **Historical note on health institutions**: the **Bhore Committee 1946** laid the foundation of India's public-health architecture, leading to the establishment of primary health centres (PHCs) and the Indian Council of Medical Research (ICMR). The **National Medical Commission (2019)** replaced the Medical Council of India as the apex regulator of medical education (NCERT §4.5, p. 67, contextual).
- **Human-capital externalities**: an educated mother is more likely to vaccinate her children, send daughters to school and adopt family planning — illustrating the multi-generational social return on female education. A healthy worker reduces disease transmission to colleagues and family — illustrating the public-health externality. These are the "social benefits" Box 4.1 highlights (NCERT Box 4.1, p. 62).
- **NEP 2020 highlights**: 5+3+3+4 school structure replacing 10+2; mother tongue as medium up to Grade 5; multidisciplinary higher education; multiple entry-exit in college; targeted increase in GER (gross enrolment ratio) in higher education from about 27% to 50% by 2035 (NCERT §4.3, pp. 65–66, contextual).
- **Brain drain debate**: NCERT recognises that emigration of doctors, engineers and scientists from India to advanced economies represents both a loss (training subsidy

not recouped) and a gain (remittances, return migration, diaspora networks). The Indian IT industry's links to Silicon Valley is a classic example of "brain circulation" rather than pure drain (NCERT §4.3, p. 61, contextual).

- **Education expenditure per student — comparative**: NCERT notes that per-student spending on higher education is several multiples of per-student spending on elementary education, even though elementary's total budget is larger because of much higher enrolment. The implication for equity is that public subsidies in higher education benefit a smaller, generally better-off cohort (NCERT §4.6, p. 68).

2.2 Definitions to memorise

Term	Definition	Page
Human capital	Stock of skill, expertise and productive capacities embodied in people; produced by turning human resources into trained professionals through investment	60
Human resources	Untrained pool of people (students, farmers, nurses) prior to investment in education, health, etc.	60
Sources of human capital formation	Investments in (i) education, (ii) health, (iii) on-the-job training, (iv) migration, (v) information	60–61
Preventive medicine	Healthcare to prevent illness, e.g. vaccination	61
Curative medicine	Medical intervention administered during illness	61
Social medicine	Spread of health literacy across the community	61
On-the-job training	Skill upgradation provided by firms within or outside the workplace	61
Migration (as HC source)	Movement of workers in pursuit of higher wages — domestic or international	61
Information (as HC source)	Acquisition of data on labour, education and health markets that supports informed investment	61
Human development	View that education and health are integral to human well-being — ends in themselves, with every individual having a right to both	66
External (social) benefit of human capital	Benefit flowing beyond the individual — e.g. educated citizens participating in democracy, healthy persons preventing spread of disease	62
Education cess	A 2% levy on all Union taxes earmarked for spending on elementary education	69
Adult literacy rate	Percentage of people aged 15 and above who are literate	70
Youth literacy rate	Percentage of people aged 15+ to 24 who are literate	70
Primary completion rate	Percentage of the relevant age group that completes primary education	70

Term	Definition	Page
Tapas Majumdar Committee 1999	Committee that estimated ₹1.37 lakh crore over 10 years to bring all 6–14 year-olds into school	69
Education Commission 1964–66	Commission that recommended at least 6% of GDP be spent on education	69
RTE Act 2009	Right of Children to Free and Compulsory Education Act — makes free education a fundamental right for ages 6–14	69
NCERT / UGC / AICTE	Apex bodies in school, higher and technical education respectively	67
National Medical Commission / ICMR	Apex regulator and apex research body in health	67
Knowledge economy	Economy in which knowledge-based assets and IT-driven services are the chief drivers of growth	66
Educated unemployment	Unemployment concentrated among those who have completed secondary or higher education	71
NEP 2020	National Education Policy 2020 — vision document linking schooling and higher education to the knowledge economy	65
Knowledge economy outlook	Future demand for skilled labour in maths, computer science, data science and multidisciplinary fields	65–66

2.3 Diagrams / processes to remember

- **Fig. 4.1 (p. 59)** — adequate education and training of farmers raising farm productivity; illustrates education as a source of human capital.
- **Fig. 4.2 (p. 63)** — a school running in makeshift premises in Delhi; used to discuss the importance of proper classrooms and quality.
- **Fig. 4.3 (p. 64)** — scientific and technical manpower as a rich ingredient of human capital.
- **Fig. 4.4 (p. 65)** — transforming India into a developed knowledge economy; links NEP 2020 vision to human capital formation.
- **Fig. 4.5 (p. 69)** — investment in educational infrastructure is inevitable.
- **Fig. 4.6 (p. 70)** — school dropouts giving way to child labour as a loss to human capital.
- **Fig. 4.7 (p. 71)** — higher education has few takers (steep pyramid).
- **Table 4.1 (p. 65)** — Select Indicators of Development: Real per capita income ₹7,651 (1951) → ₹94,054 (2018-22); Crude Death Rate 25.1 → 6.0; IMR 146 → 28; Male life expectancy 37.2 → 68.6; Female life expectancy 36.2 → 71.4; Literacy 16.67% → 78%.
- **Table 4.2 (p. 70)** — Educational Attainment 1990–2017-18 — adult literacy, primary completion and youth literacy by gender.

- **Box 4.1 (p. 62)** — Physical vs Human Capital across the six dimensions listed in §2.1.
- **Box 4.2 (p. 66)** — India as a Knowledge Economy — IT-driven transformation, e-governance.
- **Human-capital flow chart**: human resources → investment (education + health + training + migration + information) → human capital (skills, expertise, knowledge) → higher productivity + social benefits → growth and welfare.

2.4 Common confusions / NTA trap points

- **Human capital vs human development**: human capital = education/health as **means** to higher productivity; human development = education/health as **ends in themselves**. The two are conceptually distinct.
- **Sources of human capital are FIVE** (education, health, on-the-job training, migration, information) — not just "education and health". NTA distractors often drop migration or information.
- **6% of GDP** is the Education Commission 1964–66 target; current spending is "a little over 4%". Do not confuse this with the 16.54% figure, which is education's share of total government expenditure (not GDP).
- **Education cess = 2%** on Union taxes (earmarked for elementary education), not 1% or 3%.
- **Per-student expenditure is highest in tertiary education**, even though the total spending share is highest in elementary — students often invert this.
- **Physical capital creates only private benefit**; human capital creates **both private and social benefits**. Common Box 4.1 trap.
- **RTE Act came in 2009** for ages 6–14; the Directive Principles' original 10-year target was not met.
- **Sikkim ₹96,968 vs Bihar ₹10,710** — high/low extremes of per-capita elementary education spending in 2020-21.
- **NSSO 2011-12 unemployment rates**: 30% (rural female graduates), 19% (rural male graduates), 16% (urban male graduates). NTA swaps these.
- **Preventive medicine = vaccination**, NOT medical intervention during illness (that is curative). Box 4.1 / §4.3 mappings are a frequent match-the-following set.
- **Migration is a source of HC formation** because higher earnings outweigh migration costs — not because migration is costless.
- **Adult literacy ≠ youth literacy**: adult is 15+; youth is 15+ to 24.

🎯 Practice MCQs

Q1. Which of the following is NOT listed in the NCERT as a source of human capital formation?

A. Investment in education

B. Expenditure on migration

C. Investment in physical infrastructure

D. On-the-job training

Q2. Consider the following statements about the differences between physical capital and human capital as given in Box 4.1: I. Physical capital is separable from its owner, whereas human capital is inseparable from its owner. II. Physical capital is perfectly mobile between countries, while human capital mobility is restricted by nationality and culture. III. Both physical and human capital generate only private benefits, with no external (social) benefit. Which is/are correct?

A. I and II only

B. II and III only

C. I and III only

D. I, II and III

Q3. The Education Commission (1964–66) recommended that the share of GDP to be spent on education should be at least:

A. 3 per cent

B. 4 per cent

C. 6 per cent

D. 10 per cent

PYQ Alignment

Human Capital Formation in India is a high-frequency CUET unit, typically yielding 6–8 MCQs per year. Recurring patterns include direct factual recall (sources of human capital, the 6% GDP recommendation, the 2% education cess, RTE Act 2009 age group), match-the-following on health expenditure forms (preventive/curative/social medicine), distinction between human capital and human development, and physical vs human capital contrasts from Box 4.1. Data-based items from Table 4.1 (life expectancy, IMR, literacy rate) and Table 4.2 (literacy gender gaps) also appear regularly. See previous CUET PYQs on this chapter.

CUET 2024 — Actual PYQs from this chapter

Q.28 (CUET 2024) Right to Education Act provides free education for children aged:

- A) 4–10 B) 6–12 C) 6–14 D) 8–15 Tests: Right to Education Act (RTE) Answer: Not in extracted key

Q.43 (CUET 2024) Human capital formation mainly improves:

- A) Physical capital B) Labour productivity C) Land resources D) Natural resources Tests: Human capital formation - outcomes Answer: Not in extracted key