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BA Economics Honours | Semester V | Calicut University

Human Capital and Economic Development

Course Code: ECO5EJ306 • Module 3

Module III: Advanced Theories of Human Capital

Endogenous growth theory endogenizes human capital accumulation as the primary engine of long-run sustainable per capita growth, overcoming diminishing returns to physical capital.

Unit 11, 12 & 13: Robert Lucas Model and Endogenous Growth

- **Robert Lucas Model of Human Capital (1988):**
  - Workers allocate a fraction of non-sleeping time u to current production and $(1-u)$ to human capital accumulation (education/training):

    $$Y = AK^{\alpha}[uhL]^{1-\alpha}h_a^{\gamma}$$

    where h is average human capital and h_a^{γ} represents the **external human capital spillover** across workers in society.
  - Human capital grows according to:

    Lucas Endogenous Growth Equation

    $$\dot{h} = \delta(1-u)h$$

    Where: dh/dt = Rate of human capital accumulation, δ = Productivity of the education sector, u = Fraction of time allocated to production, and $(1-u)$ = Time dedicated to learning.
  - Lucas showed that even with constant returns in physical production, internal and external human capital returns prevent the marginal product of capital from falling to zero, sustaining positive per capita growth perpetually.
- **Multiple Equilibria and Poverty Traps:** When human capital accumulation exhibits threshold externalities, economies may split into two stable equilibria: a high-education, high-productivity modern equilibrium, or an illiterate, subsistence poverty trap.

Unit 14 & 15: Overlapping Generations (OLG) Models

The **Samuelson-Diamond Overlapping Generations Model** examines intertemporal human capital investments across generations:

- Parents allocate current earnings between current consumption, savings for retirement, and investments in their children's education.
- Credit market imperfections prevent poor parents from borrowing against their children's future earnings, generating intergenerational persistence of poverty unless state-funded public education intervenes.

Advanced Theoretical Formulations and Empirical Frameworks (Analytical Division 1)

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Comparative Institutional Analysis, Market Failures, and Policy Governance

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Behavioral Motivation	Hyper-rational agents maximizing expected utility with complete cognitive computational capacity.	Bounded rationality, behavioral heuristics, loss aversion, and institutional anchoring effects.	Choice architecture, behavioral nudges (NITI Aayog initiatives), and consumer financial protection mandates.
State Intervention	State role restricted to core public goods, contract enforcement, and national defense (minimalist state).	State acts as developmental catalyst, risk-absorber of last resort, and promoter of equitable distribution.	Strategic industrial policy (PLI schemes), counter-cyclical fiscal intervention, and universal public services.
Distributional Equity	Factor rewards reflect marginal productivity;	Power asymmetries, bargaining power, and	Progressive fiscal transfers, land reforms, and affirmative

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	distribution is secondary to allocative efficiency.	historical wealth accumulation shape distribution.	human capital investments.
Technological Progress	Exogenous technological shocks arriving randomly (Solow neoclassical growth model).	Endogenous technological innovation driven by R&D, human capital, and intellectual property institutions.	National Innovation Foundation, Startup India, and public digital infrastructure (India Stack / UPI).

Comprehensive Empirical Analysis: The Kerala Model and Sub-National Development

In the context of the Indian economy and sub-national development paradigms, the Kerala Model of Development provides a seminal empirical case study illustrating the complex trade-offs between social development and economic growth. Characterized by high physical quality of life indicators—including near-universal adult literacy, high life expectancy, and low infant mortality rates comparable to advanced Western economies—achieved despite historically modest per capita state domestic product, Kerala demonstrates the transformative power of public social expenditure, agrarian land reforms, and decentralized local governance (Panchayati Raj institutions).

However, contemporary economic analysis also highlights structural challenges confronting this development paradigm: high educated unemployment, fiscal constraints stemming from escalating public debt servicing and pension obligations, and heavy reliance on external remittance inflows from migrant workers in the Persian Gulf. Sustaining this high-welfare equilibrium necessitates transitioning toward a knowledge-driven economy, incentivizing high-tech manufacturing, and mobilizing sustainable sub-national fiscal resources.

Policy Synthesis and Analytical Evaluation

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