

Lecture 1

Economic Growth: Theory and Empirical Patterns

(Based on Chapter 2 of Perkins et al.)

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Sumon Bhaumik

Basic Concepts

- GDP / GNP
- Real vs. nominal.
- Purchasing power parity.
 - Exchange rate based GDP of India = US\$ 450 billion (approx)
 - Purchasing power parity based GDP of India = US\$ 2.2 trillion (approx)

Rostow's Stages of Growth

- Traditional society
- Transitional stage (preconditions for take off)
- Take off
- Drive to maturity
- High mass consumption

Basic Growth Model 1

- Production function

- $Y = F(K, L)$ [1]

- Savings function

- $S = s \times Y$ [2]

- Investment

- $I = S$ [3]

- Assumption: Closed economy.

Basic Growth Model 2

- Capital stock
 - $\Delta K = I - (\delta \times K)$ [4]

- Labour supply
 - $\Delta L = n \times L$ [5]

- [2] + [3] + [4]
 - $\Delta K = sY - \delta K$ [6]

- [1] + [5] + [6] \Rightarrow growth path of Y

Harrod-Domar Model 1

- Concepts:

- Fixed coefficient production function

- Ratios:

- Capital-output ratio

- Labour-output ratio

- Model:

- $Y = (1/v) \times K$

- $v = K/Y$

[i]

Harrod-Domar Model 2

- $\Delta Y = \Delta K/v$ [ii]

- $g = \Delta Y/Y = \Delta K/vY$ [iii]

- [iii] + [6]

- $g = (sY - \delta K)/vY$

- $g = (sY/vY) - \delta(K/vY)$

- $g = (s/v) - \delta$ [iv]

Harrod-Domar Model 3

- Predictions:
 - Increase in savings rates increase growth.
 - Improvement in efficiency of capital use increase growth.

- Policy implications:
 - Given a target growth rate and the level of technology, a government has to ensure that enough savings is generated to achieve the target.
 - Soviet Union
 - East Asia

Harrod-Domar Model 4

- Strength:
 - Simplicity.

- Weakness:
 - Fixed ICOR and labour-output ratio.
 - Knife edge problem.
 - Model in equilibrium only under very special circumstances.
 - No role of technological change.

Harrod-Domar Model 5

- Knife edge.
 - Fixed coefficient production function \Rightarrow capital and labour should grow at the same rate.
 - $\Delta K/K = \Delta L/L = n$
 - Constant capital output ratio (v) \Rightarrow capital and output must grow at the same rate.
 - $\Delta K/K = g$
 - Equilibrium exists if $g = n$.

Harrod-Domar Model 6

- Knife edge continued.
 - $n > g$
 - Labour force is growing faster than capital.
 - Not enough capital to employ all labourers.
 - Some labourers will remain unemployed.

 - $n < g$
 - Capital stock is growth faster than labour force.
 - Not enough labourers to use the capital stock.
 - Some of the capital stock remains unused.