

ECONOMIC GROWTH

In the long run, business cycle is swamped by long-run growth:

Fall in US GDP in worst postwar year (1982): 2.1

Rise in real GDP per capita since WWII: approximately 300 percent

Basic facts:

1. Very large increase in per capita or per worker GDP since circa 1800 (little long-run trend before then)
2. Large inequalities among nations: Real GDP per capita in richest countries 20+ times level in poor nations
3. Convergence in incomes among relatively well-off countries: European, Japanese per capita GDP was far below US level in 1950, relatively close now
4. Rapid growth (until last year!) in “emerging economies”, mainly in Asia
5. Stagnation in per capita income in Africa, other poor regions

Where does economic growth come from? More resources, better technology

Crucial concept: the *production function*

e.g. output depends on capital, labor input

$$Y = F(K, N)$$

To a first approximation, *constant returns to scale*: increase both K, N in the same proportion => Y also rises in the same proportion:

$$F(\lambda K, \lambda N) = \lambda F(K, N)$$

So Y/N (output per worker) = $F(K/N, 1) = f(K/N)$

PROPERTIES OF PRODUCTION FUNCTIONS:

A typical specific production function:

$$Y = AK^\alpha N^{1-\alpha} \quad (\text{Cobb-Douglas}) \Rightarrow Y/N = A(K/N)^\alpha$$

(A more complicated fn: $Y = [aK^\alpha + bN^\alpha]^{1/\alpha}$)

If constant returns to scale, then diminishing returns to one factor alone:

WHAT REALLY EXPLAINS GROWTH?

Is it just “accumulation of capital”? If it were, then because of diminishing returns capital-output ratio should be steadily rising - and if constant share of GDP is invested, rate of growth should gradually slow down

Reality: rate of growth is more or less constant over long run, so is capital-output ratio. How is this possible?

Answer: technological progress, which *shifts the production function up*