Economic Development

Revision

October 2010

Mid-term Test

November 2, 2010

In-class or take-home options available!
Deadline to sign up for take-home test: *Midnight October 26*.

Definition (**Growth**)

1. Process of growing toward full size or maturity, development.
2. Increase, as in size, importance, or power.

© Scribner Dictionary

Example

"Note that when economists talk about 'economic growth,' they have in mind growth [...] over long periods of time; in the literature on [development] economies, we use 'growth' in a more literal sense, that is, as referring to the short-run dynamics of GDP per capita or labor productivity."   Campos & Coricelli (JEL'02)

Growth and Development

Definition
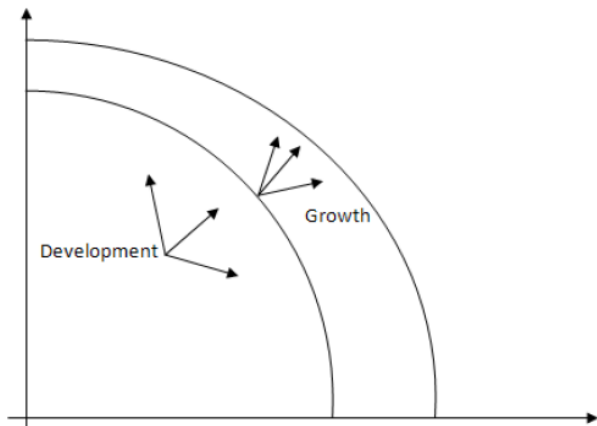
- GDP
  - populous countries
- GDP per capita
  - ageing countries
- GDP per worker
  - shirking
- GDP per worker-hour
- GDP *vs* GNP
  - GNI and Diaspora

- Gross National Happiness
  - Sustainable development
  - Cultural values
  - Natural environment
  - Good governance
- HDI
  - GDP pc, plus
  - Education
  - Life expectancy
  - $\frac{x-\min(x)}{\max(x)-\min(x)}$

GDP and Life Expectancy

GDP and Consumption

Growth rate

$$
\begin{aligned}
\frac{y_{t+1} - y_t}{y_t} &= g_t \\
y_{t+1} &= y_t \left(1 + g_t\right)
\end{aligned}
$$

y_t is pc output at time t, and g_t is the growth rate

$$
y_{t+n} = y_t \left(1 + g\right)^n
$$

Example

Double production

$$
\begin{aligned}
y_{t+n} &= 2y_t \\
2y_t &= y_t \left(1 + g\right)^n \\
\log 2 &= n \log \left(1 + g\right) \\
n &\simeq \frac{\log 2}{g} \simeq \frac{70}{g\%}
\end{aligned}
$$

Theories

- ▶ Adam Smith (Optimistic)
- ▶ Ricardo, Revd. Malthus (Pessimistic)
- ▶ Karl Heinrich Marx (Revolutionary)
- ▶ Harrod-Domar (Perpetual)
- ▶ Solow-Swan (Neoclassical)
- ▶ New Theories (Endogenised)

Marxism

'Class struggle'

- ▶ Primitive
- ▶ Slave society (masters *vs.* slaves)
- ▶ Feudal society (lords *vs.* serfs)
- ▶ Capitalist society (bourgeoisie *vs.* proletariat)
- ▶ Communism

Marxism
Rate of profit

- variable capital (v)
- constant capital (c)
- surplus value ($s = AP - \min W$)
- Rate of Profit

$$\frac{s}{v + c} = \frac{\frac{s}{v}}{1 + \frac{c}{v}}$$

- degree of exploitation s/v
- organic composition of capital c/v

Marxism

'Immiseration of Workers' and 'Realisation Crisis'

$$\frac{s}{v + c} = \frac{\frac{s}{v}}{1 + \frac{c}{v}}$$

More invesstments $\Rightarrow \uparrow c/v \Rightarrow$

1. if 'reserve army of labour' exists $\Rightarrow$ 'immiseration of workers'
2. if not, more capital intensive production $\Rightarrow \uparrow c/v \Rightarrow$ 'realisation problem'

In either case Capitalism collapses through 'inner contradictions', and power passes to the working class.

Static vs. Dynamic Economics

- ► Alfred Marshal
- ► Economic (dynamic) Equilibrium

- Fixed rate for savings

$$S = s \cdot Y_d$$

  and thus

$$\Delta S = s \cdot \Delta Y_d$$

- All savings are used as investment

$$S = I$$
$$(\Delta I = s \cdot \Delta Y_d)$$

- Productivity of capital

$$\sigma \cdot I = \Delta Y_s$$

- In equilibrium

$$\Delta Y_s = \Delta Y_d$$
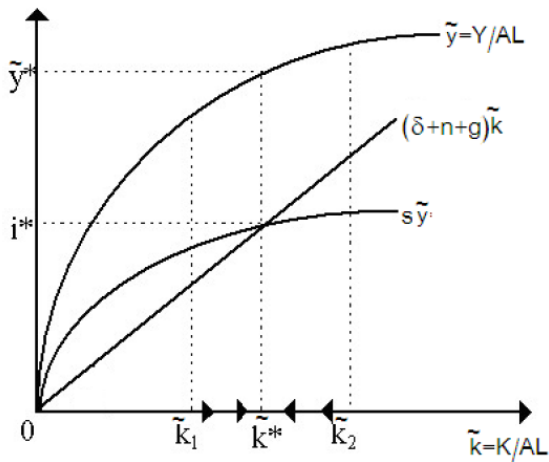
  and thus

$$\Delta I = s \cdot \sigma \cdot I$$

  and thus

$$\frac{\Delta I}{I} = s \cdot \sigma$$
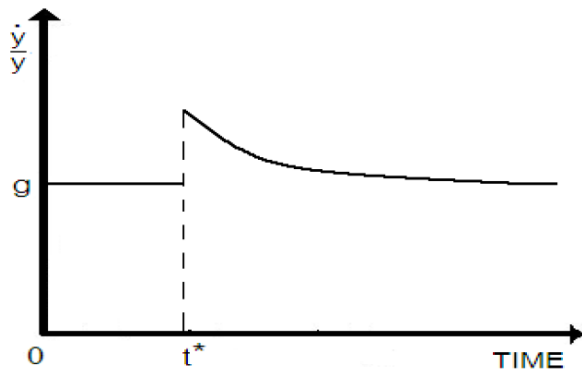
- Growth rate is

$$g = \frac{\Delta Y}{Y} = s \cdot \sigma$$

$$\tilde{k}_{t+1} - \tilde{k}_t = s\tilde{k}_t^{\alpha} - (\delta + n + g)\,\tilde{k}_t$$

Constant Long Run Solow Growth Rate

Some deviations from the long run Solow growth rate possible, chiefly for achiving the SS rate.

Solow Model

- ▶ Prediction
  - ▶ Countries will eventually end up in their steady states.
  - ▶ Countries will grow at different rates if they are at different distance from the steady state level
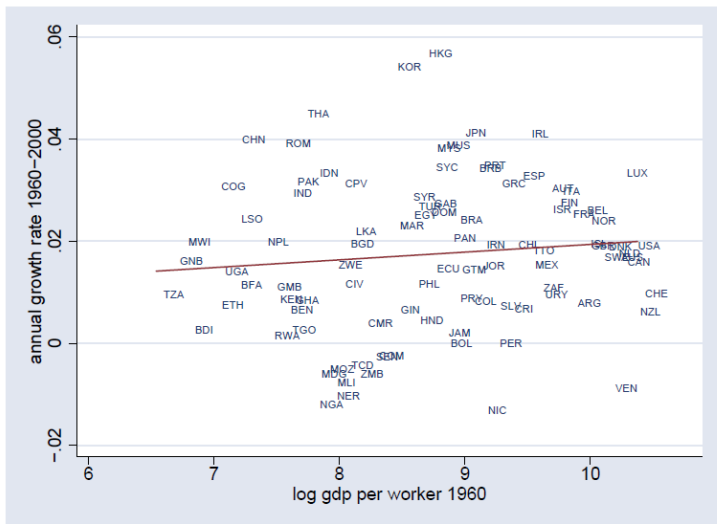   - ▶ (in case they have the same steady state!)

Definition

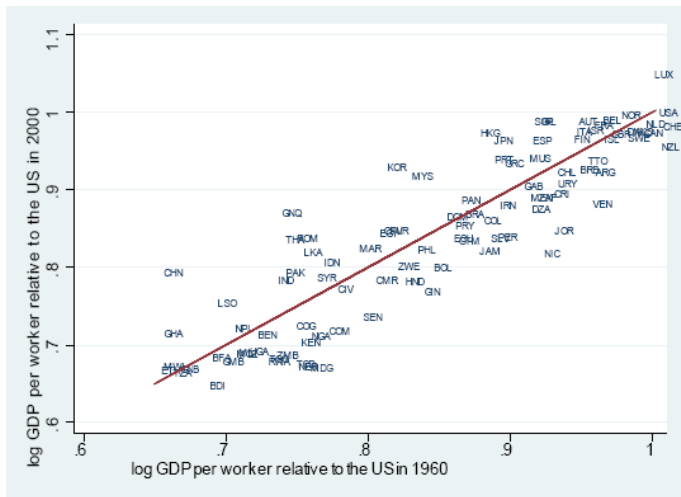$\sigma - convergence$ is the catch up effect between countries.

Definition

$\beta - convergence$ (or the conditional convergence) refers to countries converging to their own steady state long run growth rate.
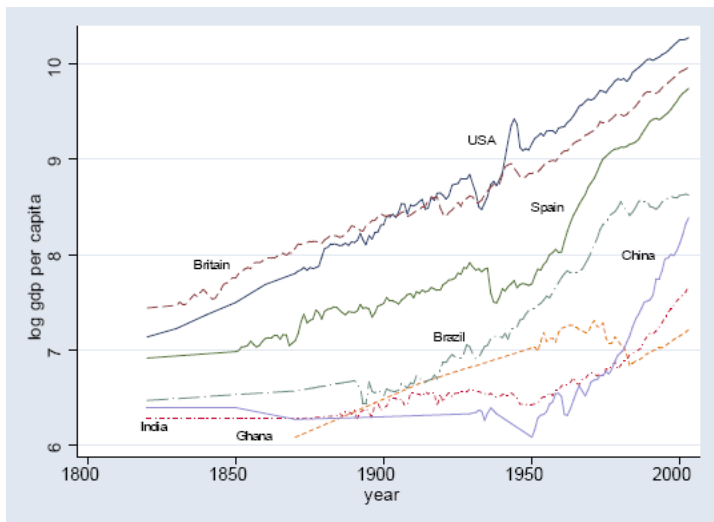
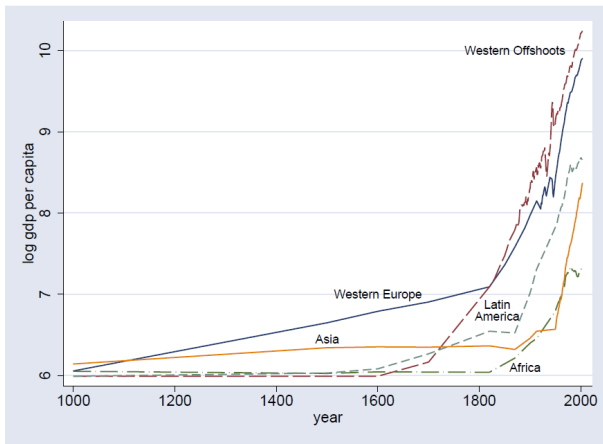# No evidence for abslolute (sigma) convergence in real data

No evidence for abslolute (sigma) convergence in real data

Dubious evidence for conditional (beta) convergence

Different paths

Centre-Periphery Models

Prebisch model

- ▶ Geographical dualism (primary and manufactured commodities)
- ▶ difference in product's *income elasticity of demand*
  - ▶ $\varepsilon_m > 1, \varepsilon_p < 1$
- ▶ growth in export and import
  - ▶ $x_c = m_c, x_p = m_p$
- ▶ growth in production $g_c = g_p(= 3)$

Centre-Periphery Models

Prebisch model

- Centre

$$
\begin{aligned}
x_c &= g_p \cdot \varepsilon_m (= 3 \cdot 1.3 = 3.9) \\
m_c &= g_c \cdot \varepsilon_p (= 3 \cdot 0.8 = 2.4)
\end{aligned}
$$

- Periphery

$$
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Centre-Periphery Models

Prebisch model

► Periphery

$$
\begin{aligned}
m_p &= g_p \cdot \varepsilon_m \\
m_p &= x_p
\end{aligned}
$$

so

$$
g_p = \frac{x_p}{\varepsilon_m} = \frac{g_c \cdot \varepsilon_p}{\varepsilon_m} \left(= \frac{0.8}{1.3} g_c = 0.62 g_c \right)
$$

Other Correlates to Economic Growth

CULTURE
INSTITUTIONS
RELIGION
GEOGRAPHY
AND THE LIKE

Max Weber

THE PROTESTANT ETHICS AND THE SPIRIT OF CAPITALISM

Fact (Luther's Prescription)

Fulfillment of duties in worldly affairs [is] the highest form which the moral activity of the individual could assume.

Karl Marx

'Man made God, God did not make man'

Fact (Religion is the people's opium!)

Religious misery is, by one side, an expression of the real misery. Religion is exhausted creature's sigh, the state of animus of a heartless world, the spirit of sporotless situations. Religion is the people's opium.

Criticism of Hegel's Law (1844)

Causality

Fact (Economic Perspective)

Religion affects economic outcomes mainly by fostering religious believes that influence individual traits such as honesty, work ethic, thrift, and openness to 'others'.

Definition

Transformative potential is the capacity to legitimise, in religious or ideological terms, the development of new motivations, activities, and institutions which are not encompassed by the original impulses and views.

Economic Inequality and Poverty

CORRELATES TO GROWTH

or

Issues for Study

Poverty - the state of one who lacks a usual or socially acceptable amount of money or material possetions.

.   © *Webster's Dictionary*

Absolute or Relative?

- Denote i^{th} person's income by y_i
- WOLG assume

$$y_1 > y_2 > ... > y_i > ... > y_n$$

- denote the poverty line by p (people below this threshold will be said to be poor)
- the mean income in the economy is m

- Head count

$$HC = \{i : y_i \leq p\}$$

- Head count ratio

$$HCR = \frac{HC}{n}$$

- Poverty Gap Ratio

$$PGR = \frac{\Sigma_{y_i < p} \left(p - y_i \right)}{nm}$$

- Income Gap Ratio

$$IGR = \frac{\Sigma_{y_i < p} \left(p - y_i \right)}{pHC}$$

- ▶ Financial markets

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- ▶ Nutrition and labour markets

  (energy input) $+$ Δ(Energy storage)$=$(resting metabolism) $+$ (work

  Sustained deficit of energy leads to illness, debility, or death

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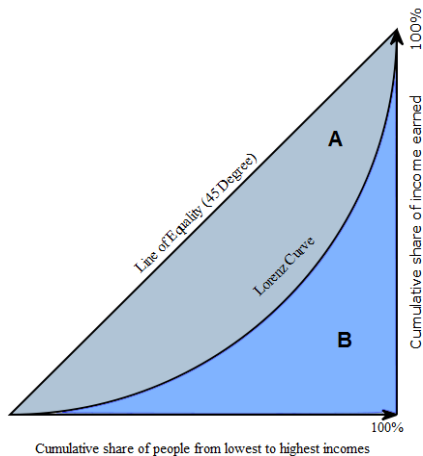- ▶ Poverty and generations

Economic inequality

Definition
A situation in which there is no equality or fair treatment in the sharing of wealth or opportunities between different groups in society. © *Cambridge Dictionary*
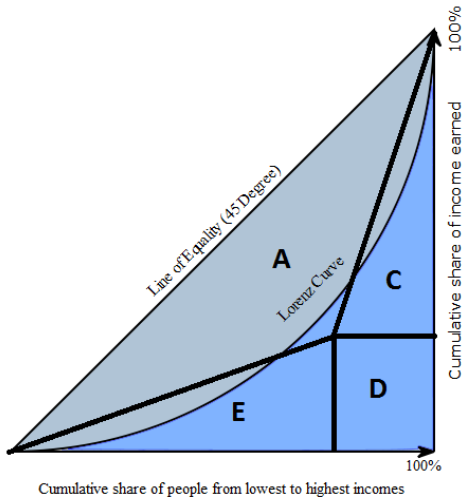
Lorenz Curve and Gini coefficient

A/(A+B)

Cumulative share of people from lowest to highest incomes

Lorenz Curve and Gini coefficient

1 - (C+D+E)/(A+C+D+E)

Line of Equality (45 Degree)

Lorenz Curve

A

C

D

E

100%

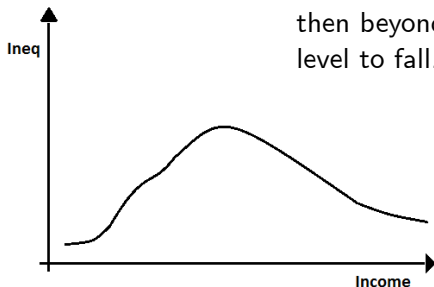Cumulative share of income earned

Cumulative share of people from lowest to highest incomes

Kuznets Curve

Definition
Kuznets Curve is an inverted
U-shaped curve depicting the
trend of inequality to first
increase with the income, and
then beyond a certain income
level to fall.

Kuznets Curve and Explanations

- Marx theory and 'inner contradictions' of capitalism
- Fields' 'dual economy' and threefold economic growth
  - traditional-sector-enrichment growth
  - modern-sector-enrichment growth
  - modern-sector-enlargement growth
- Outdated and does not fit recent data
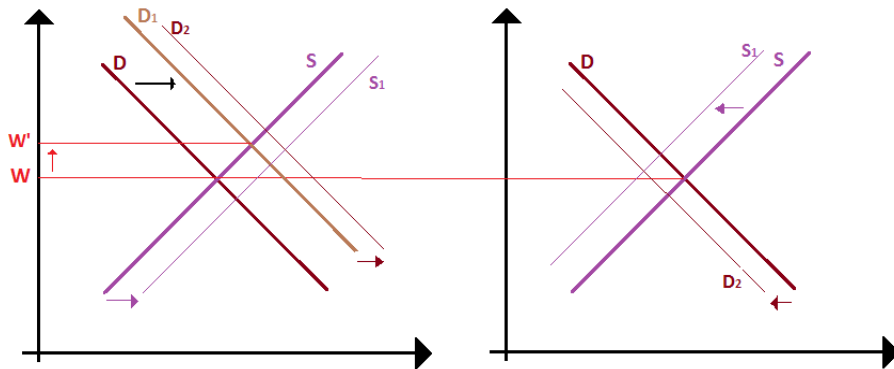
Sources of Inequality: Neoclassical Models
Myrdal Model

- ▶ The shock does not necessarily lead to new equilibrium
- ▶ Disequilibrium prevails
    - ▶ instead of wage equality, further demand shocks

Definition
Myrdal 'backwash' effect - a chain of cummulative expansion in the favoured region.

Sources of Inequality: Myrdal Model

End of Polarisation

- 'Trickle down'
    - Itself by the economic forces (e.g. diffusion of technology)
    - Government intervenes

- Inverted-U shape
    - Centripetal forces (external economies)
    - Centrifugal forces (external diseconomies, e.g. congestion)