

INDUSTRIAL REVOLUTION

Before ≈ 1700 , Malthusian model

recall $Y = AL^{1-\alpha}$ + $n_t = G(MPL - \sigma)$

equilibrium $z^* = \text{constant} + \frac{1}{2}\alpha$

but σ might vary across societies

Around 1800, "Great Divergence"

1) Pickup in growth rate of A

2) "Demographic Transition"

Popul. growth becomes unrelated (or (-) related) to MPL.

1) Pickup in A growth

Was it K, Human capital, or "technology"?

Recall "Growth accounting"

$$\frac{\dot{Y}}{Y} - \frac{\dot{L}}{L} = \alpha \left(\frac{\dot{K}}{K} - \frac{\dot{L}}{L} \right) + \text{residual}$$

need a value for this. ← (schooling years?)

If you have a measure of H, you can add

$$= \alpha (\quad) + \beta \left(\frac{\dot{H}}{H} - \frac{\dot{L}}{L} \right) + \text{residual}$$

But how do you know β ?

Recall if payments to capital = MPK, α = capital's share of income.

If MPH = payments to H, guess β from: ...

1 R

1) ... A growth (cont.)

- H 's share in income
total
maybe labor earnings - unskilled earnings
- marginal return to schooling, in wages
e.g. "human capital earnings fn"

but β might be bigger than that if

→ positive externalities to a person's human capital:
makes other people more productive

----- smaller than that if:

- private return to schooling includes "signalling" value
- apparent return includes correlation with native ability

IF huicap growth sped up, why?

IF "technology" growth sped up, why?

1) ... A growth (cont.)

Why did technology growth speed up?

- 1) Kreymer's story: bigger popn. growth.
But that doesn't give discontinuity around 1800
- 2) Multiple equilibria because nondiminishing returns to R&D
- 3) Institutional innovation: patents
"Intellectual property rights"
- 4) Variation across sectors (e.g. textiles, metallurgy, ...)
If tech growth happens to fall in sector with elastic demand, "aggregate" growth will be faster
↳ (textiles?)
- 5) Developments exogenous to economy (but endogenous to something)
e.g. Enlightenment
(Mokyr, 2002, Gifts of Athena)

2) Demographic Transition

Related to pickup in hucap growth?

In child prodn, quality vs. quantity
Resources (time & money) to raise kids
Choose between

- few kids, lotsa hucap/kid
- lotsa low-hucap kids

Was DT shift to quality?

Why shift?

- increase in return to hucap? Clark says no
- change in preferences?

How? Various types in population, some will choose high quality, others choose low.

Evolution: types choosing high quality end up with more kids.

Other possibilities (not mentioned by Clark):

- exogenous decline in child mortality
(so you can put all your eggs in one basket)
- fertility-control technology ← (timing doesn't match)