

# Gary Becker and the Origins of Human Capital

Lectures on the History of Chicago Economics

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## What Drives the “Demographic Transition”?

Move from low population growth, through high, and then back to low  
Britain

- Stage 1: pre 1760
- Stage 2: 1760 – 1870
- Stage 3: 1870 – 1950
- Stage 4: post-1950

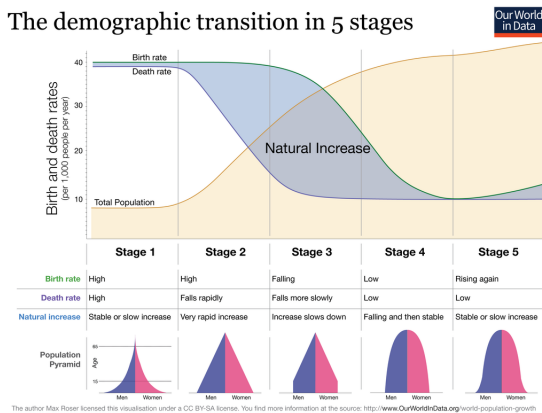
India

- Stage 3 now (more-or-less)

Many Asian countries:

- Stage 3 in 1950s, 1960s, 1970s

## The demographic transition in 5 stages



Often “Demographic Transition Model” nothing more than description

- We want to understand *why*— what are the *choices* families are making

Human Capital: families investing in children: *Quantity* versus *Quality*

Source for picture: Max Roser, <http://ourworldindata.org/data/population-growth-vital-statistics/world-population-growth>

- from Wikipedia (<https://commons.wikimedia.org/wiki/File:Demographic-TransitionOWID.png>)

Some other interesting pages for “Demographic Transition”: <http://www.coolgeography.co.uk/A-level/AQA/Year%2012/Population/DTM/DTM%20new.htm>

**Cost of College and Returns to Education**

Education is expensive, and “costs” have risen considerably over the years

- In 1960, an elite private college in the US was \$16,400 (in today’s dollars). Now \$64,500

But education is investment in human capital – look at *rates of return*

- Those rates of return seem to have remained much more constant

**Outline**

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*Find these notes (and Vignettes) at [www.hilerun.org/econ](http://www.hilerun.org/econ)*

**1 What *is* Human Capital?**

**What is Human Capital? Based on Simple Ideas**

Skills and knowledge take time to develop and accumulate

- Learning to play the piano takes time and practice

This is obvious, sounds trivial

- But implications anything but trivial
- And development of HC was, in many ways, a revolution

**What is Human Capital? Investment & Durable Good**

Central Human Capital Ideas Simple

- Our current skills and capacities are a capital stock, the result of prior investments by ourselves and others
- Current earnings and other benefits are the returns or payments we earn based on those prior investments

Two important implications of viewing skills as a capital stock

- I. Decisions over time are critical and we must consider any current decision in the context of past investment and future potential returns
- II. Human beings and everything around them are dynamic and malleable – static views of the world are not appropriate

### **Implications – Time & Mutability**

Inextricably Links Yesterday, Today, Tomorrow

- Decisions today constrained by past actions, depend on future returns
- Linked in fundamental but measurable ways

“Labor” not a fixed input

- Our HC is mutable, can be shaped and altered
- Varies across people at a point in time
- Varies across time for individuals and nations
  - “Average Worker” today very different from 1850 – more skilled, better trained, even taller & stronger

Some differences between human and physical capital

- HC can be rented, not sold – tied to you and you alone
- HC is an input to production (for both companies and individuals) but also a consumption good in its own right
- HC is so fundamental to us as humans, shows up *everywhere*

## **2 A Brief History of Human Capital**

### **Contents**

#### **Becker’s 1964 *Human Capital* – Landmark but not Origin**

Gary Becker did not invent human capital in 1964

- William Petty (1676) compared “loss of armaments” versus “loss of human life”
- Adam Smith *Wealth of Nations*: workers skills source of economic growth
- Alfred Marshall & Frank Knight contributed
- T.W. Schultz & Edward Denison (1950s & 60s – NIA and source of “residual” and technical change – both physical capital stock and labor inputs)

But Becker solidified the conceptual framework that we now all use in thinking about human capital

- Structured around rate of return on investment
- Individuals compare discounted PV of alternative earnings streams
- In this respect, HC same as physical capital

## 3 Three Applications of Human Capital

### 3.1 Schooling and Lifetime Earnings

#### Contents

##### Cost of College and Returns to Education

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But viewing education as an investment in human capital pushes us to look at *rates of return*

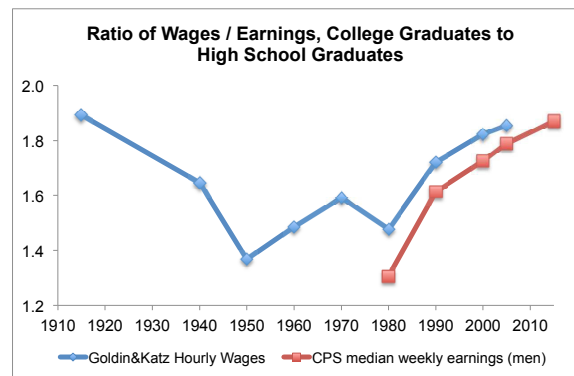
- Costs include both outright costs (which have gone up)
- But also opportunity costs (foregone earnings – which have gone down)
- Rate of return: trades off current costs versus future benefits

Those rates of return seem to have remained much more constant

- Benefit of college way up (HS/Coll wage premium up from about 20% in 1980 to 90% in 2012)
- Becker estimated rate-of-return roughly 15% in 1964
  - Sounds roughly right for a risky, non-tradable investment
- Today not very different

##### College / High School Wage Premium

Early 1900s high, mid 1900s low, late 1900s&2000s back up (current story)



Big part of inequality story in US – and it all seems to be Human Capital

- Fascinating story of competing supply (education) vs demand (technology)
- But that story is for another day

Cost of college:

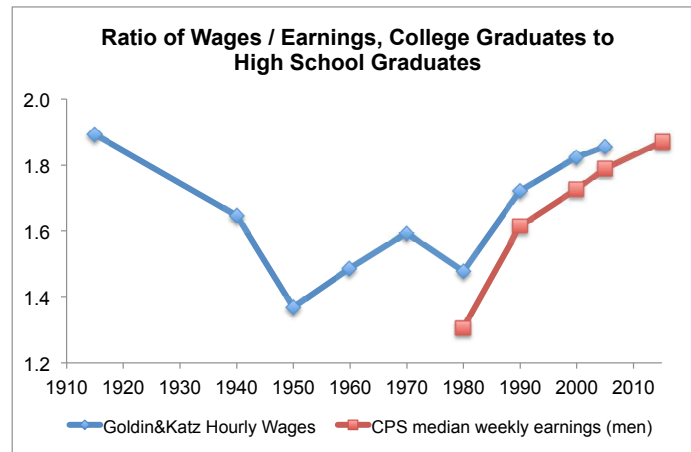
- <http://time.com/4472261/college-cost-history/>
  - 1944 GI Bill \$6800 (inflation-adjusted)
  - 1960 \$11,800-16,400 (including room & board – Lewis & Clark, Bates)
  - 2016 \$32,410 private tuition only, Bates \$64,500 (tuition, room, board)

- <https://www.cnbc.com/2017/11/29/how-much-college-tuition-has-increased-from-1988-to-2018.html>

	2017-18 \$	Public	Private
– Tuition:	1987-88	\$3,190	\$15,160
	2017-18	\$9,970	\$34,740

- <https://trends.collegeboard.org/college-pricing/figures-tables/tuition-fees-room-and-board-over-time>

	2018 \$	Public	Private
– Tuition, room, board:	1988-89	\$9,480	\$24,800
	2018-190	\$21,370	\$48,510



Ratio of wages / earnings for men with college degree or more relative to men with high school degree. Hourly Wages for white men, adjusted for experience, from [?]Figure ?? and Table ??; [?] Figure 1 and Table A8.1. Sources are Iowa Census (1915); US Census (1940-1980), and combination of US Census and Current Population Survey (1990-2005), as detailed in [?, ?]. Median Weekly Earnings for men 25+ from the BLS.

### Lifetime Earnings – Thinking about Comparisons & Inequality

When comparing individuals compare *Lifetime Earnings* or *Profiles*

- Doctor aged 45 earns more than construction worker
- But doctor's earnings (partly) embed compensation for costs (direct + foregone earnings) at age 25, 28
- Profiles for skilled occupations requiring investments *should* be steeply upward sloping

Individuals invest until marginal IRR equals rate of interest

- Classic investment problem
- Differences across individuals (partly) result of equalizing differences in costs of schooling
- Important implications for studying inequality
  - Some portion of inequality (at a point in time) reflects differences in costs across schooling

## 3.2 Household Production & Time Allocation

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#### Capital and Production Functions

Firm: produces output with inputs of (variable) labor and (fixed) capital

Two important strands of thought from HC

- I. In firm production, “Labor” is neither homogenous nor static
  - HC enters into firm production function – people differ based on skills
- II. If HC enters into firm production, what about our production?
  - As consumers, do not simply consume “goods”
  - Produce goods with purchased inputs and our own capital
  - “Dinner” = chicken + our cooking skills
  - “Leisure reading” = Dickens’s *Great Expectations* + literacy

Bring tools from “theory of the firm” to “theory of the family”

#### Household Production: Matching & Female LF Participation

Two applications of “household production”

- I. Matching
  - Husband & wife jointly produce goods (cooking, shopping, partying, theatre-going, travel)
  - Substitutability: when skills substitute (e.g. one shops, other cooks) partners benefit from *different* skills & attributes
  - Complementarity: when skills complement (e.g. enjoy theatre together) partners benefit having *similar* skills & attributes
  - Seems that complementarity more important: people choose partners similar to themselves. High-skilled match with high-skilled. Tends to reinforce inequality and dampen inter-generational mobility
- II. Female Labor Force Participation
  - As household production improves (labor-saving devices like washing machines) opportunity cost of time changes relative to market wage – induces more market work
  - (Partial) explanation for large changes in LFP: 20.4% in 1900, 59.9% in 2000 (men about 75% in 2000)

Female LFP: <https://ourworldindata.org/female-labor-force-participation-key-facts> (see <http://steveboese.squarespace.com/of-the-day-trends-in-labor-force-participation.html> for men)

### 3.3 Investment in Children (“Demographic Transition”)

#### Contents

##### Demographic Transition: Population Growth Low, High, Low

Britain

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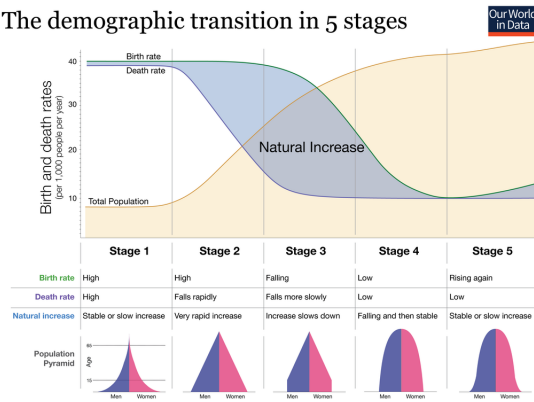
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## Parents “Invest” in Children – Family Size

### Stage 1

- Subsistence agriculture, poverty, low skilled work, skills low earning
- Children valuable for unskilled work, more children good

### Stage 3

- Improved technology, improved opportunities, skills high earning
- Skilled children more valuable
- To produce skilled children, parents need to invest more in fewer children

As returns to skills  $\uparrow$  parents switch from investing in quantity to investing in quality

- Parents have fewer children, invest more in each
- Theory: Becker & H. Gregg Lewis, 1973 (same Lewis that Allen mentions)
- Both price effect (returns to skills  $\uparrow$ ) *and* wealth effect: quality normal good

Becker, Gary S. and Lewis, H. Gregg (1973) On the interaction between the quantity and quality of children. *Journal of Political Economy* 81, S279–288.

<https://www.cambridge.org/core/journals/journal-of-demographic-economics/article/gary-becker-on-the-quantity-and-quality-of-children/9BB1ADB20FB3282B4A4800DC45CFBF24>

## 4 The Human Capital Revolution

### Contents

#### Hard to Remember Economics Before Human Capital

Applying ideas from capital theory to humans was resisted

- Becker able to show value of thinking this way
- Now, so embedded in economic thinking hard to imagine world without Human Capital

Before Gary Becker, fertility choice was widely considered to be outside the realm of economic analysis.

Gary Becker more-or-less led a revolution, an invasion by economics of “non-economic” realms

- Economics of the family
- Economics of crime, addiction
- Discrimination
- Politics and democracy

## References