

Choice of schooling level

Human capital investment approach

# Concepts

- Earnings Function
- Human capital
- Education signaling
- Equality of opportunity
- Earnings Mobility
- Social Mobility

# Earnings Function

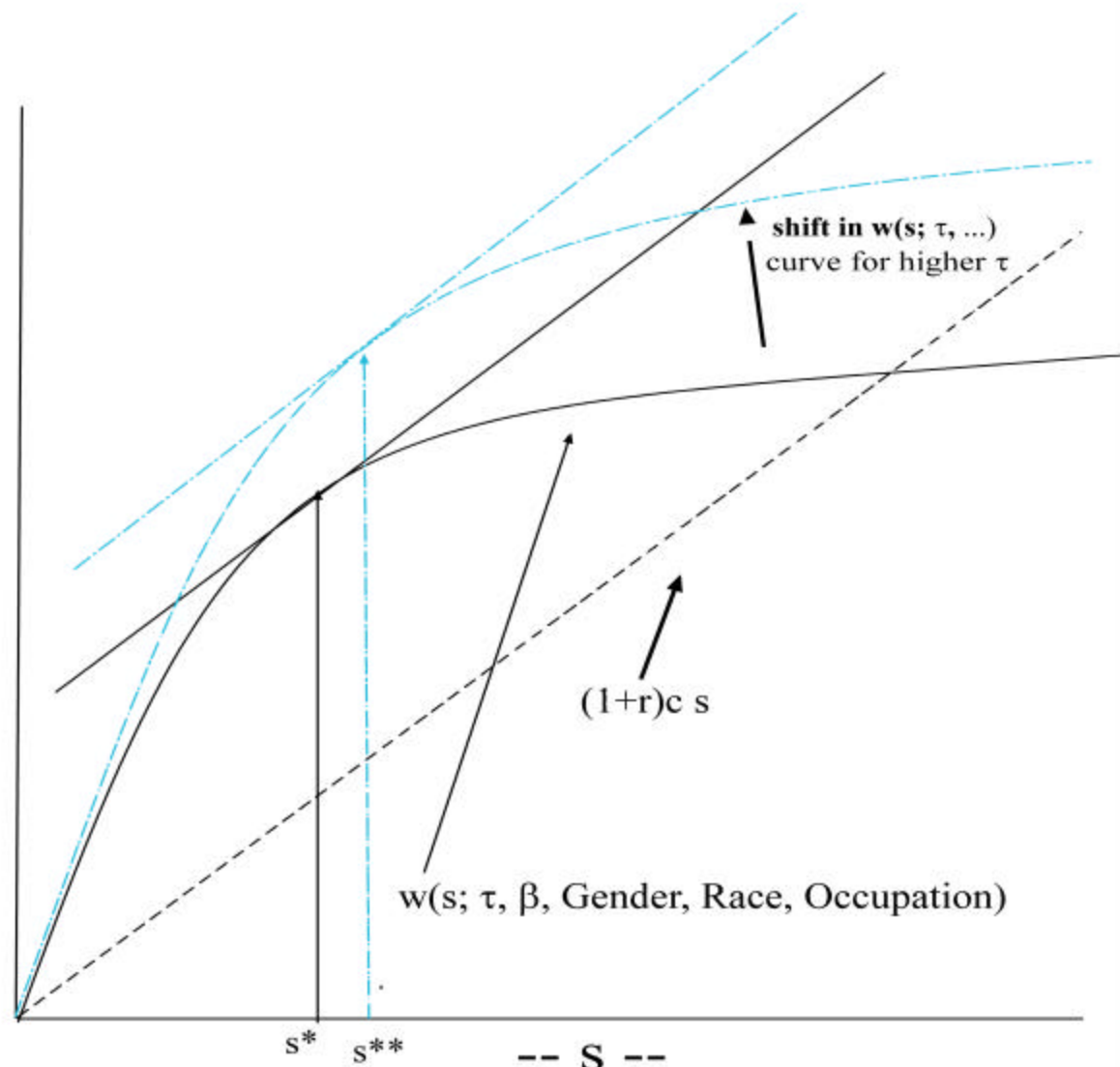
- Life Cycle: [0-5], [5-16], [16-25], [25--]
- Earnings function:
  - $w(s; \tau, \beta, \text{Gender, Race, Occupation})$
- Given investments from [0-16] by parents, and subsume it in the family background variable,  $b$ , and given innate ability,  $t$ , let's formulate a simple model of optimal schooling investment
- Cost per year of schooling:  $c$ , individual borrow that amount, during [16-25], and goes to the labor market during [25--], earnings is given by  $w(s; \tau, \beta, \dots)$ , he maximizes the present value of investment in  $s$  years of schooling.

# Optimal schooling level

- Optimal schooling level for a representative reference individual, say a white male with rich family background.
- Later we use him as a reference point to see the optimal schooling choices of individuals with other characteristics.
- The important point to understand here is:
  - why an individual with characteristics different from the reference individual chooses different schooling levels?
  - In our approach, the answer is because:
- The labor market rewards different characteristics differently.
- Are these good labor market practices? Which of these practices could be viewed as discrimination and which are ok? Characteristics:  $\tau$ ,  $\beta$ , Gender, Race, Occupation?

# Digrammatic Exposition of optimal schooling

Optimal Schooling level  $s^*$



# Effects on optimal schooling level when an individual has: (w.r.t. reference individual)

- Higher  $\tau$ , innate ability?
- Poorer family background  $\beta$ ? Through which channels?
  - Channels of  $\beta$  are:
  - Sociability
  - Motivation
  - Cost of borrowing schooling investment fund,  $r$ .
- Definition of equality of opportunities
  - Individuals born with same ability  $t$  be equally successful in labor market, I.e., earn same wages no matter what his race, family background or gender.
- Two ways it could be violated are
  - Sociability, motivation and other skills useful in the labor market
  - Interest rate  $r$ , the cost of investment

# Empirical implications: earnings Function

- Estimation of Mincer earnings function
- $\ln w = \beta_0 + \beta_1 s + \beta_2 \text{age} + \beta_3 \text{gender} + \beta_4 \text{Race} + \varepsilon$
- The biased estimates generally arise when  $\varepsilon$  is correlated with the regressors. The ways it can happen are:
  1. Presence of endogenous regressor, in our case it will be called ability bias
    - Remember that the ability parameter  $t$  is in the error term. Also we have seen that individuals with higher  $t$  will choose higher schooling level. That means the error term and the regressor  $s$  will be correlated. In that case, the OLS estimate of  $b_1$  will be biased and inconsistent. This bias in the labor economics is known as ability bias. How to correct for ability bias?

# Correcting ability Bias in estimating Earnings Function

**Ability bias is the same as endogeneity bias. The ways to correct for this bias:**

1. Suppose we find a measure, say AFQT score, which can measure innate ability to some extent and include that as a regressor.
  - The OLS estimates are not biased but there could be multicollinearity.
2. Suppose we append to our regression equation of wages another equation for schooling choice and then use the simultaneous equations method (two-stage least square etc.

We do these corrections during our empirical exercise.



# Parental Preschool Investment

- What kind of skills are important in the labor market and to create entrepreneurs? How much of these are created in school and what else is important to generate these skills? What is the role of pre-school investment and early childhood development in generating these skills including educational achievements.