

## SCHOOLING AS A SIGNAL

**Michael Spence** Education does not increase productivity but serves as a signal on worker's ability = productivity

- Imagine Low productivity people (L)  $q$  200 (population)  
High productivity people (H)  $1-q$  300 (population)  
Productivity is innate from birth
- Employer does not know whether the worker has high or low productivity
- Low productivity worker would lie about himself claiming that he is a high productivity worker
- In absence of information employer pays average salary

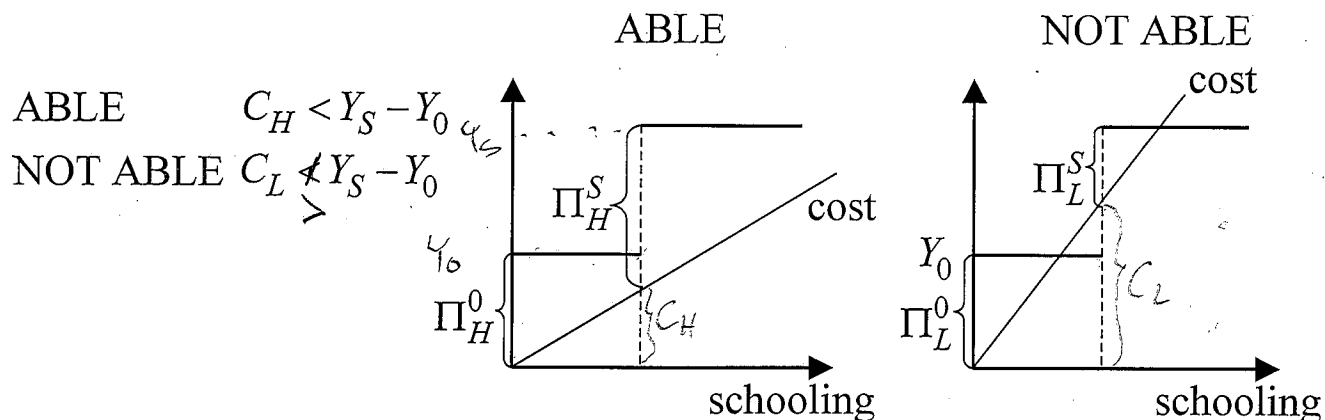
$$\bar{y} = q \times 200 + (1 - q) \times 300 = 300 - 100 \times q$$

→ Pooling equilibrium

- Low productivity people like it
- High productivity people do not like it
- Employers do not like it because they cannot properly allocate workers to jobs  
→ ↓ output → ↓ profit → lowering  $y_H$

Employers prefer separation equilibrium  
→ incentive to produce credible information, signal the high productivity

- Education can serve as a signal under some conditions - if it is more costly for the low productivity people



ABLE  
(H) no schooling  $\Pi_H^0 = Y_0$   
 schooling  $\Pi_H^S = Y_0 + \underbrace{(Y_S - Y_0) - C_H}_{>0} > \Pi_H^0 \rightarrow$  choose to study

NOT ABLE  
(L) no schooling  $\Pi_L^0 = Y_0$   
 schooling  $\Pi_L^S = Y_0 + \underbrace{(Y_S - Y_0) - C_L}_{<0} < \Pi_L^0 \rightarrow$  choose not to study

Perfectly SEPARATING SIGNALING EQUILIBRIUM occurs

- Conclusions**
- Schooling is not increasing productivity, but separates people by innate ability
  - Schooling system is a costly system of signaling
  - Sheepskin effect: completed level of education signals to employers
  - If true: education has positive private returns and zero social returns  $\rightarrow$  welfare loss
  - Positive matching role of signaling: highly productive workers are allocated into skilled jobs  $\rightarrow$  impact on national income; magnitude is still a question

**How to disentangle?**

- We need variation in education - random
- Drop-outs have systematically lower ability
- Change in institutions

- more educated have other desirable characteristics
  - lower propensity to quit/absent
  - less likely to smoke/drink
  - healthier

- many characteristics not observed when hiring
- non-discriminatory laws prevent using to diff.

- firms take these into account minimizing cost - SCREENING

- students will choose education to signal ability - SIGNAL

→ SORTING according to unobserved abilities