

# Job market signals and signs

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## Outline

1. Motivation
2. Education as a noisy signal
3. Employment relationships as signs
4. Conclusions

## Motivation

## Education as a signal

Spence (1973) signaling model:

- education as a signal of productivity
- more productive individuals have lower costs of education.
- signals appear in Akerlof (1970): guarantee as a signal for higher quality goods (less costly for higher quality goods)

## Two-dimensional asymmetric information

What happens when costs of education depend on other traits of character? (e.g., differences in taste for study)

- differences in tastes are private information
- preferences have to be inferred from actions
- signals may not be as informative

## Results with two-dimensional asymmetric information

Single-crossing (low heterogeneity):

- separating equilibrium, similar to Spence

Single-crossing violated:

- no separating equilibrium exists
- there are partially pooling equilibria
- probability worker competent increasing in signal, but only extreme types can be told apart

## Use of Additional information?

Adding second period: use information from job market in first period

Private and public information

- on-the-job productivity is private information
- employment relationships as a sign
- difference of “signs” with “signals”: not voluntarily chosen by worker

## Education as a noisy signal

## Preferences

Firms maximize profits  $\pi$ :

$$\pi = \theta - w$$

Workers' utility  $U$ :

$$U = w - c(e, \theta, v)$$

- $w$  is wage
- $e$  is education
- $\theta$  is productivity type
- $v$  is taste for education

## Preferences (continued)

Costs of education:

$$c(e, \theta, v) = c(e) / \theta v$$

- Productivity low or high:  $\theta = \theta_1, \theta_2$
- Taste for education:  $v = v_1, v_2$
- Heterogeneity in character:  $h = v_2 - v_1$

Figure 1: Single crossing:  
Separating equilibrium

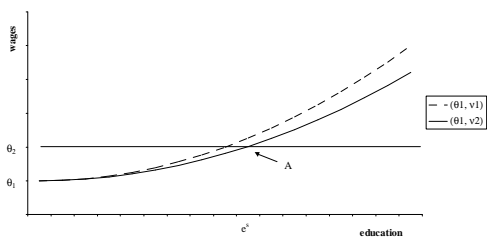


Figure 3. No single crossing: No separating equilibrium

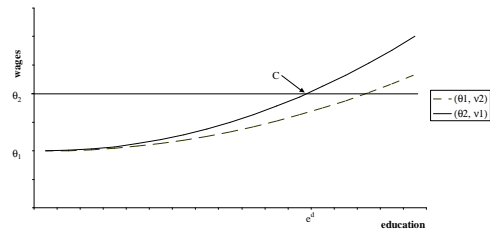
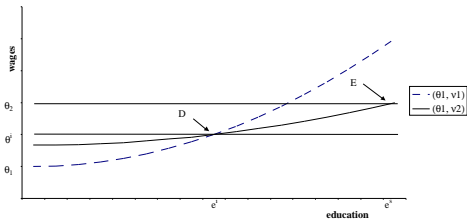


Figure 4. No single crossing:  
Partially pooling equilibrium



## Employment relationships as signs

### Two-period model

In second period, firms have inside information:

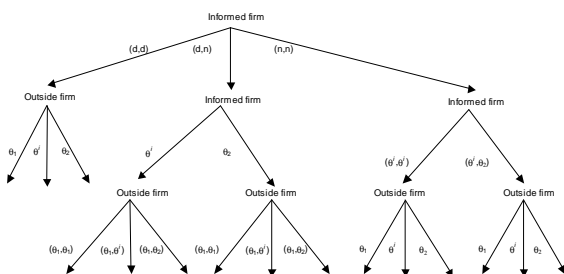
- - observed on-the-job productivity can be used to distinguish intermediate types
- - this information may be revealed or not to other firms

### Sticky wages

Revelation of information (sticky wages):

- - if wages cannot be reduced, workers with intermediate education and low productivity will be fired

### Fixed wages: wage strategies of informed and uninformed firms

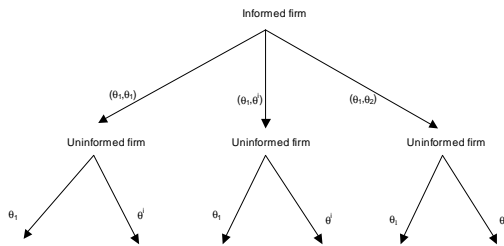


### Flexible wages

Revelation of information (flexible wages):

- - if wages can be reduced, no workers need to be fired, so market observes nothing

## Flexible wages: wage strategies of informed and uninformed firms



Thank you very much