

# **ECON 4921: Lecture 4**

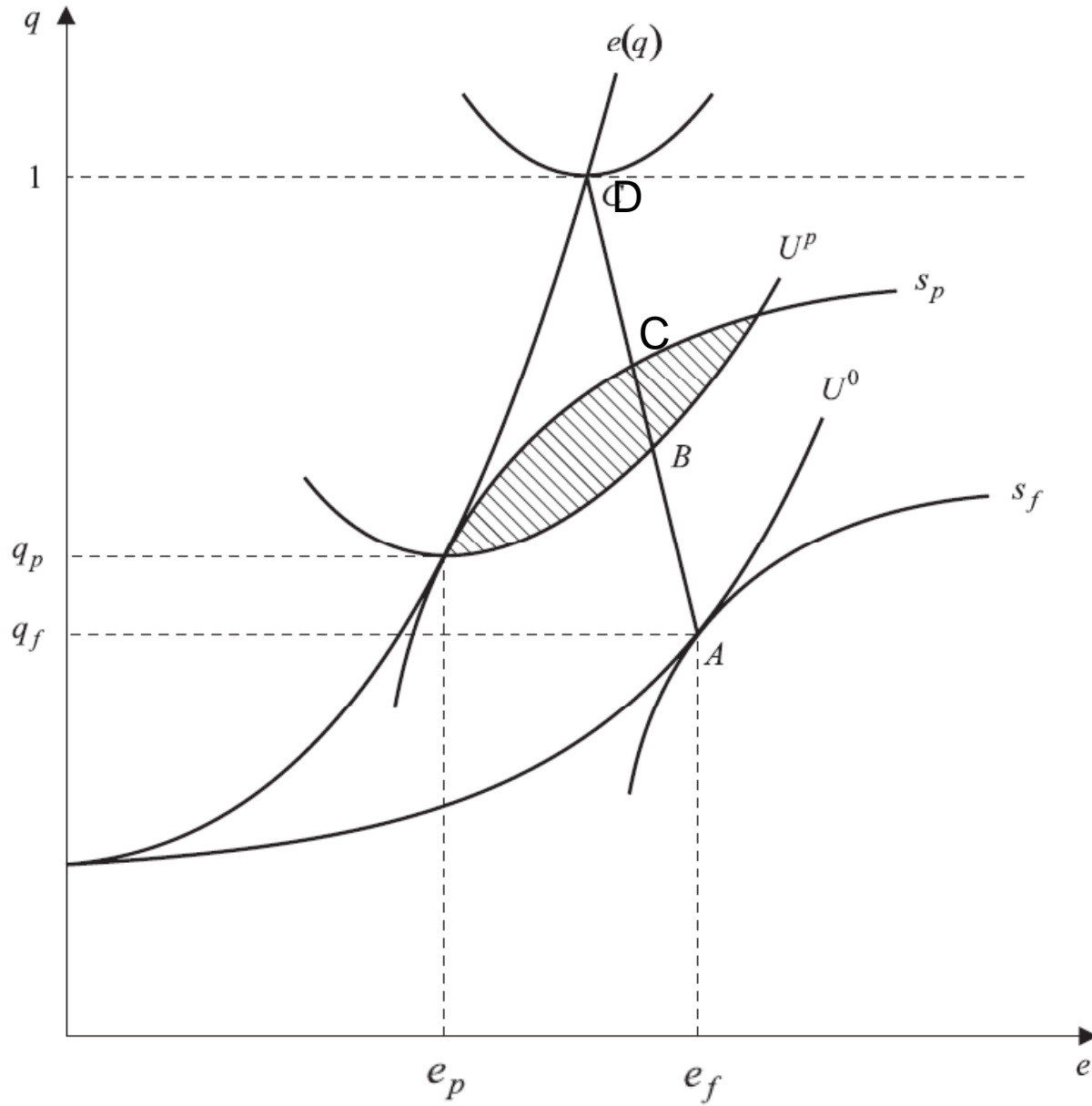
Jon Fiva, 2009

# Putting-out system vs. capitalist factory production

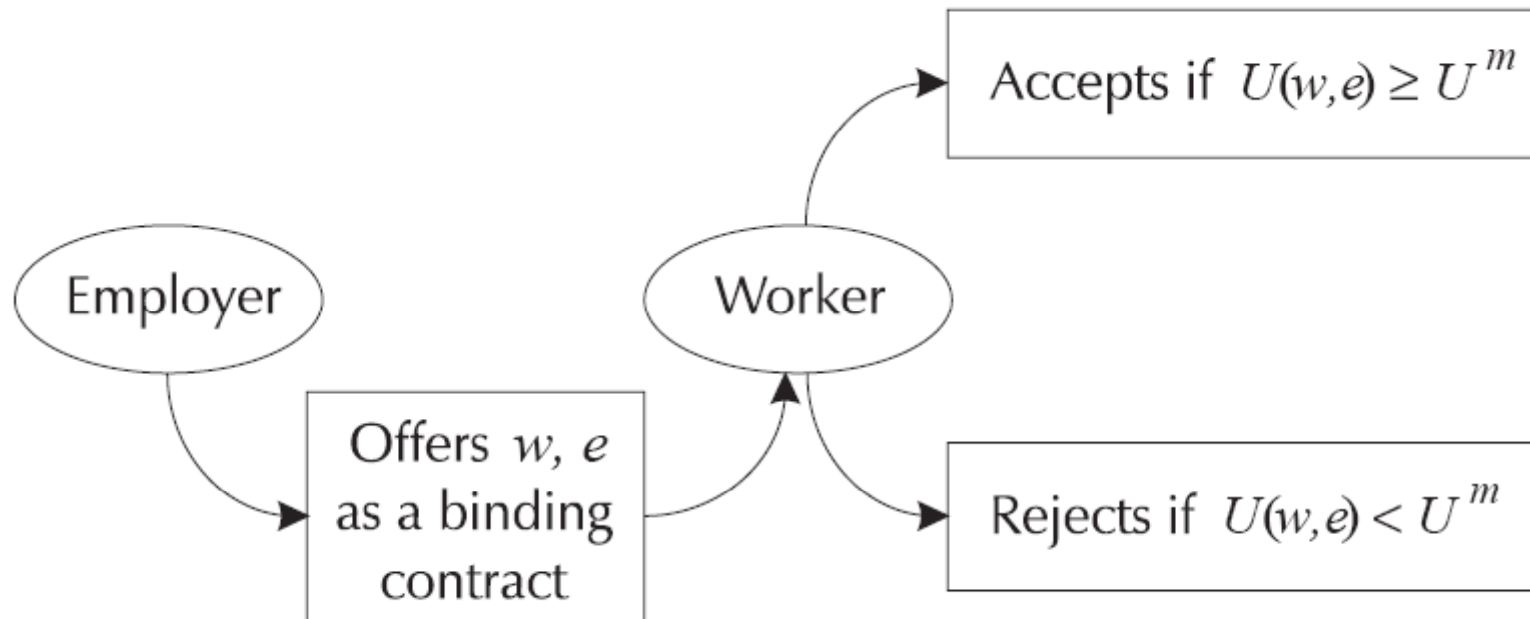
1. Putting out system (workshop)
- 2. Complete contracts**
3. Authority relation
4. Contingent renewal

# Complete contracts

- Consider capitalist factories with complete employment contracts
- Employer set pay ( $w (=q \cdot f)$ ) and effort ( $e$ ).
- A pareto-improvement, compared to putting-out system is possible.



Can reach  
segment BC  
on contract  
curve.



$U^m$  : outside job opportunities

- Employer maximize profits:

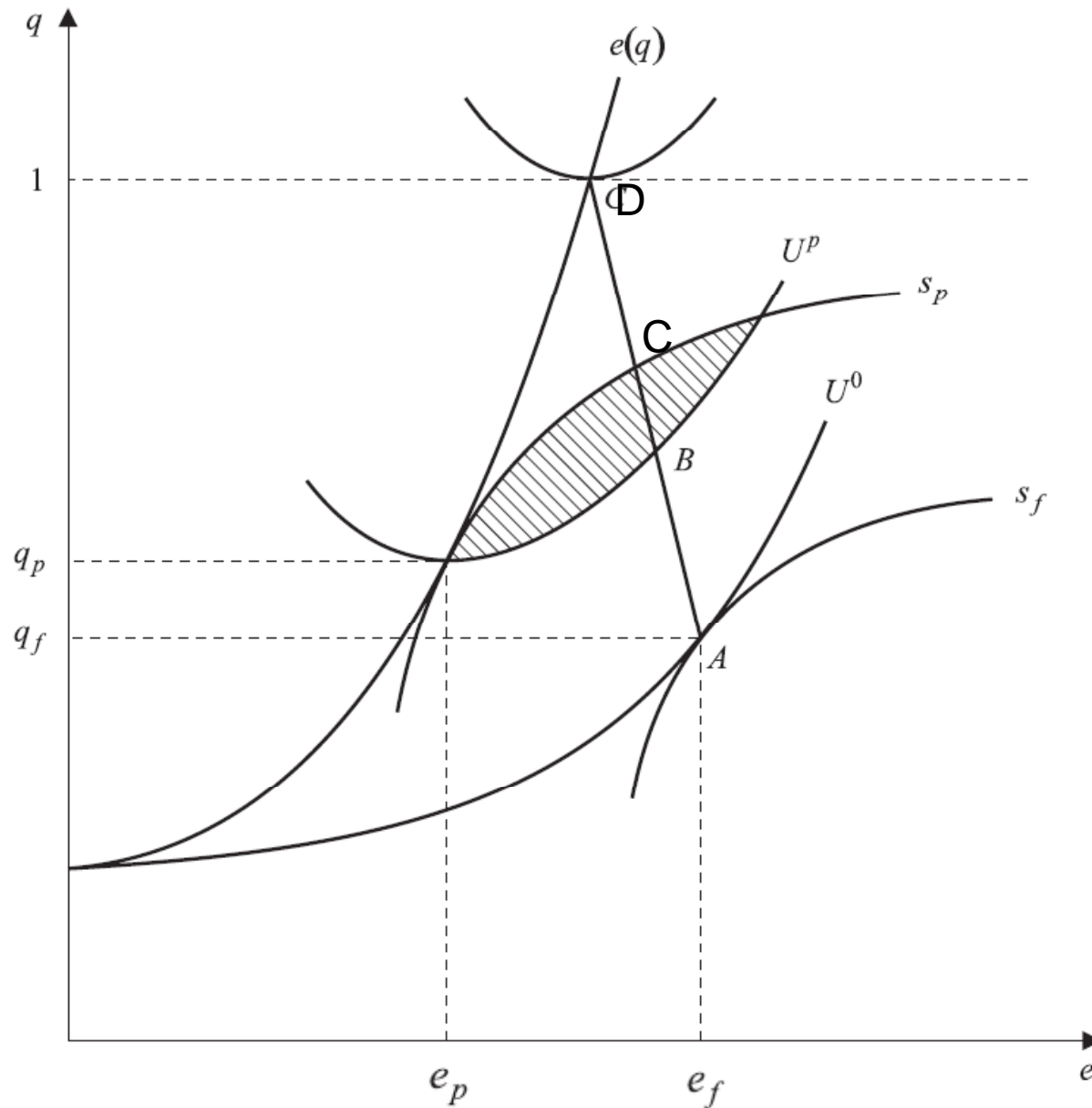
$$\max_{w,e,L} F(L, e) - wL \quad \text{subject to} \quad U(w, e) \geq U^m$$

→ FOCs:  $F_L(L, e) = w$

$$F_e(L, e)/L = -U_e/U_w$$

$$U(w, e) = U^m$$

- Labor market clears:  $LM = N$
- These conditions determine  $L, w, e$  and  $U^m$



Enough firms  
relative to workers:

$$U^m > U^0.$$

The more firms  
relative to workers:  
closer to D.

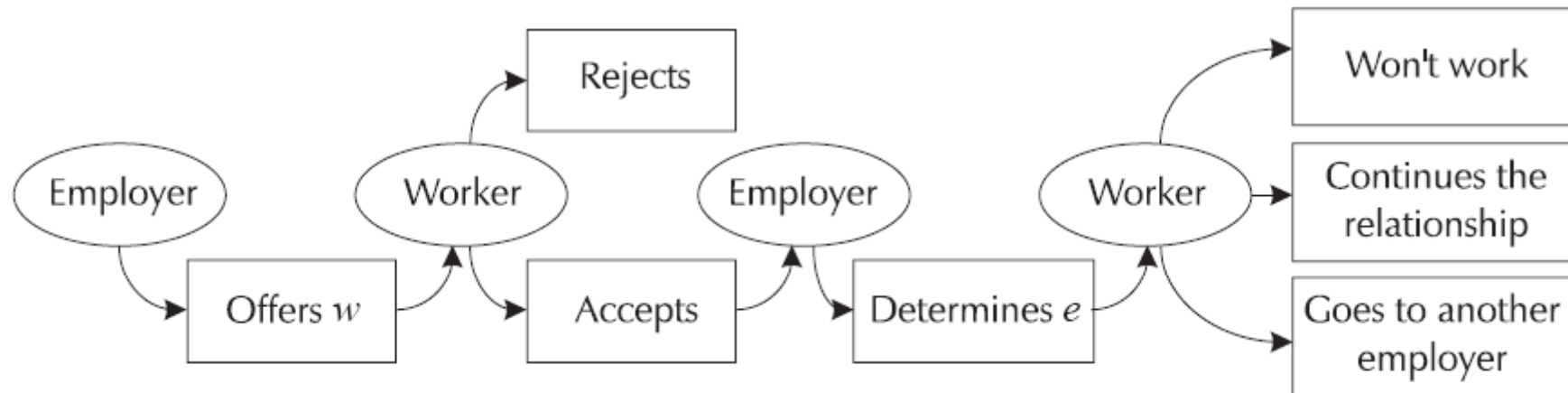
The more workers  
relative to firms:  
closer to A.

# Putting-out system vs. capitalist factory production

1. Putting out system (workshop)
2. Complete contracts
- 3. Authority relation**
4. Contingent renewal



# Capitalist factories as authority relations



Decision making sequence:

1) Employer offers  $w$  (wage)

2) If worker accept, employer determines  $e$  (effort)

3) Worker

a) Continue working  $U(w,e)$

b) Quit and search new job  $U^f - h$   $h$ -moving costs

c) Unemployed worker  $U^0$

- Employer set  $e$  such that worker choose a)

$$U(w, e) = \max(U^f - h, U^0)$$

- Worker indifferent between staying and leaving.
- Since all capitalists are identical:  $U^f = U(w, e) = U^0$
- Cannot be better off by other capitalist.

- Employer maximize profits:

$$\max_{w,e,L} F(L, e) - wL \quad \text{subject to} \quad U(w, e) = U^0$$

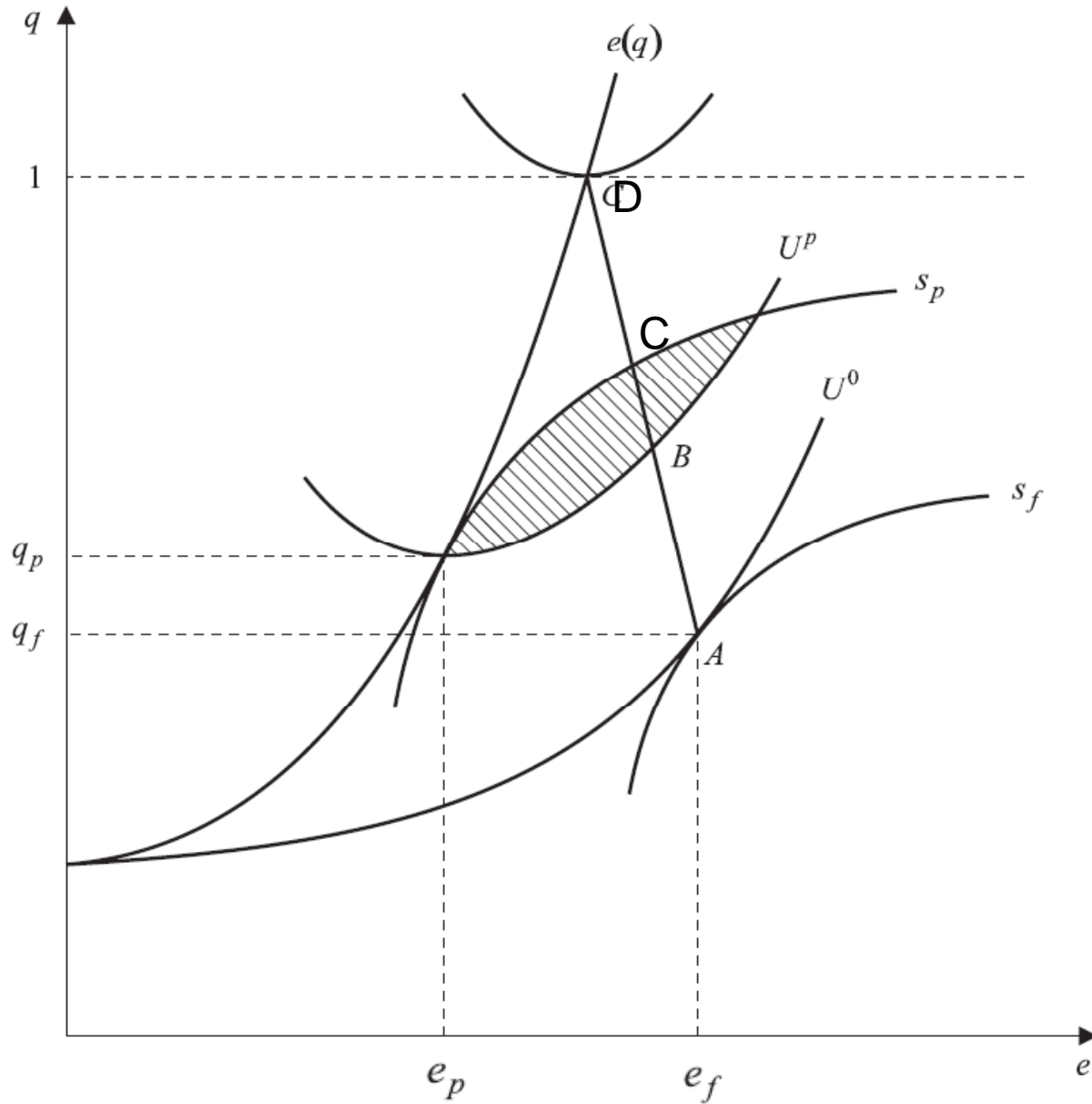
→ FOCs:  $F'_e(L, e)/L = -U_e/U_w$

$$U(w, e) = U^0$$

- These conditions decide:  $w, e$  (given  $L$ )
- Firms would like to increase  $L$  up till:  $F_L(L, e) = w$
- But this does not happen, why not?

- It is because  $F_L = w \rightarrow U(w, e) = U^m > U^0$
- With incomplete contracts the firms cannot credibly commit to give  $U > U^0$ 
  1. Wages are set
  2. Effort is set, given acceptance
- 1. At the second stage, employer will always squeeze to  $U^0$ .
- 2.  $\rightarrow$  Excess demand for workers :  $F'_L(L, e) > w$
- 3. To determine L, assume equal rationing:

$$L = N/M$$



- Without any productivity gains from factory production: point A
- Pareto-efficient.
- Not a pareto-improvement in comparison to putting-out system.

# Marxian feature

- Once a capitalist has bought workers labor-power, he maximizes work actually done.
- Even with very small moving costs the best the worker can get is his reservation utility.
- Marx claim: wages would tend to be at the subsistence level only.

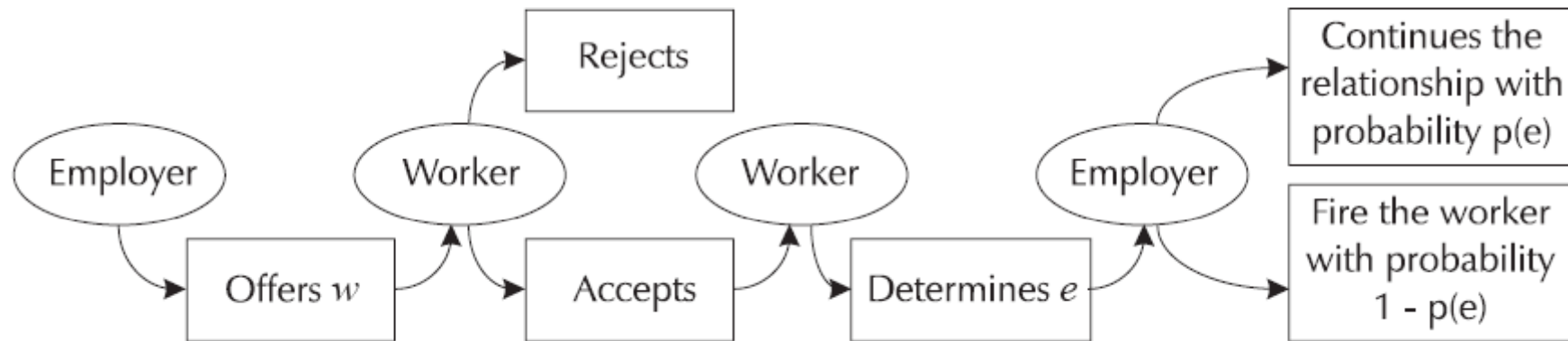
- Note: we assume that workers always choose the option that maximizes their utility (no punishment or other-regarding preferences...)
- Also assume: no hiring cost
  - But would not matter.
  - Workers cannot credibly threaten to not work when they get their reservation utility

# Putting-out system vs. capitalist factory production

1. Putting out system (workshop)
2. Complete contracts
3. Authority relation
4. **Contingent renewal**



# Contingent renewal



Decision making sequence:

- 1) Employer offers  $w$  (wage)
- 2) If worker accept, **worker determines  $e$**  (effort) (if not, game ends)
- 3) Worker
  - a) Renew contract with prob.  $p(e)$
  - b) Do not renew contract with prob.  $1 - p(e)$  (Threat of dismissal)

- Effort is to some extent observable:

$$p'(e) > 0 \text{ and } p''(e) < 0.$$

- Workers present value of starting out as unemployed:  $V^u$
- Workers present value of starting out as employed:

$$V = \beta U(w, e) + \beta pV + \beta(1 - p)V^u$$

$$\beta = 1/(1 + r)$$

$$\rightarrow V = \frac{U(w, e) + (1 - p)V^u}{1 + r - p}$$

- The worker maximizes  $V$  wrt  $e$ , taking  $w$  as given.

- FOC: 
$$-U_e(w, e) = p'(e) \left[ \frac{U - rV^u}{1 + r - p} \right]$$

- FOC defines effort as a fn of  $w$ :  $e(w)$

- Differentiate FOC wrt  $w$ :

$$- [p''(U - rV^u) + (1 + r - p)U_{ee}] e'_w = p'U_w + (1 + r - p)U_{ew}$$

$$\rightarrow e'_w > 0$$

- Employer maximize profits wrt  $w, L$ :

$$\max_{w, L} F(L, e) - wL \quad \text{subject to} \quad e = e(w)$$

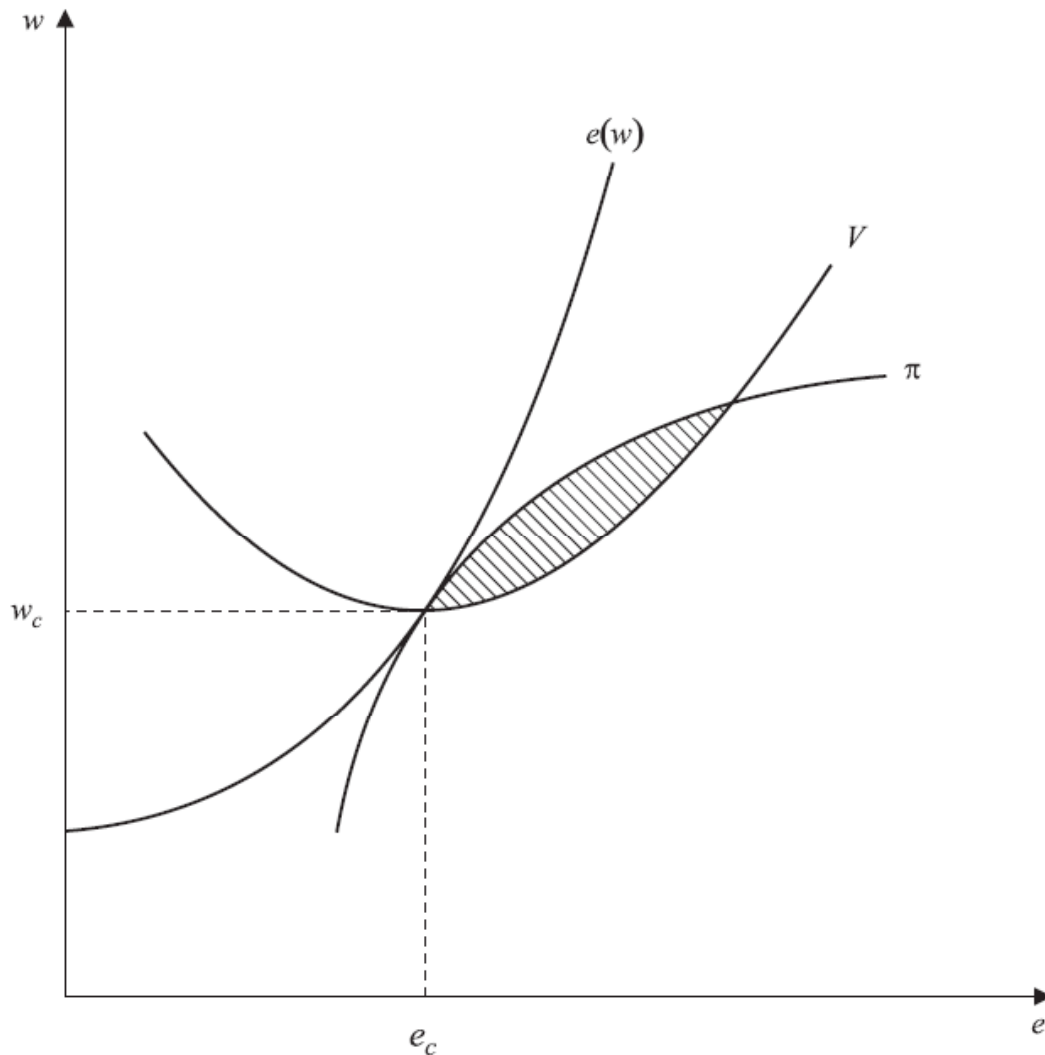
→ FOCs:

$$F_L(L, e) = w$$

$$F_e/L = 1/e'(w)$$

- These conditions decide:  $L, w$
- And  $e$  is determined by:

$$-U_e(w, e) = p'(e) \left[ \frac{U - rV^u}{1 + r - p} \right]$$



Must be on  $e(w)$ -curve.

Employer trades off:

A) incr wage  $\rightarrow$  incr effort  $\rightarrow$  incr profits

B) incr wage  $\rightarrow$  incr costs  $\rightarrow$  decr profits

# Comparisons

	<i>Who decides effort</i>	<i>Pareto efficient</i>	<i>What kind of unbalance</i>	<i>Employment rent</i>	<i>Capitalist power</i>
Putting-out	Worker	No	Irrelevant	Yes	?
Complete contracts	Agreed before employed	Yes	None	Yes	No
Authority relation	Employer	Yes	Excess demand	No	Yes, direct
Contingent renewal	Worker	No	Excess supply	Yes	Yes, indirect

# Alchian and Demsetz 1972

*Production, information costs, and  
economic organization*

# Alchian and Demsetz 1972

- Starting point:
  - Team nature of production and incomplete contracts.
  - Potential shirking problem / labor-effort monitoring problem
- How can team members be rewarded and induced to work efficiently?
  - Solution:
    - One agent specialize in monitoring.
- But who will monitor the monitor?
  - Solution:
    - Pay team members a fixed wage and let the monitor be residual claimant of the income of the team.
    - Give the monitor right to revise contracts and fire/hire workers.



# Alchian and Demsetz 1972

- Why should control rights be assigned to those that supply capital to firms rather than those who work in the firms?
- When the employer holds both:
  - The right to fire/hire workers.
  - Residual claimancy on the firm's income.
- Incentives to:
  - assemble team of high ability
  - monitor

# Alchian and Demsetz 1972

- Critique
  - Modern firms: monitoring is rarely performed by owners but by large numbers of individuals whose pay vary little with the performance of those they supervise
  - Peer monitoring may be effective if the team is the residual claimant on the income it generates.
    - It is not necessarily the case that large groups of residual claimants will experience extensive shirking.

# Two alternative explanations

1. Risk averse workers
2. Credit constrains

# Differing levels of risk aversion among the input suppliers

- Income from joint production within the firm varies stochastically.
- If workers are more risk averse than capital owners, then capital should hire labor.
  - The fixed-wage contract is more valuable to workers than it is costly for employers to provide.
- Why should this be the case?
  - Risk aversion declining in income
  - Capital owners may be better able to spread their risks through diversified ownership.

# Credit constrained labor suppliers

- The cost of loans vary inversely with the wealth of the borrower.
- Cost of capital is higher for worker-controlled firm rather than for conventional firms.
- More heterogeneity among labor suppliers than capital suppliers.

Why should the employee  
obey the employer?

- Puzzle of obedience -

# Puzzle of obedience

- Alchian & Demsetz
  - "The firm ... has no power of fiat, no authority, no disciplinary action any different in the slightest degree from ordinary market contractin between any two people.. Wherein then is the relationship between a grocer and his employee different from that betweeen a grocer and his custom?" (1972, 777).

# Puzzle of obedience

- Hart (1989) offers a response:
  - "the reason that an employee is likely to be more responsive to what his employer wants than a grocer ... is to what his customer wants is that the employer ... can deprive the employee of the assets he works with and hire another employee to work with these assets, while the customer can only deprive the grocer of his custom and as long as the customer is small, it is presumably not very difficult for the grocer to find another customer". (1989, 1771)
- Employee needs not only access to a job, but to *this particular employer's assets*.
  - Possibly due to complementarity between work and worker
- Bowles and Gintis (1993) provides an alternative answer: short side power
  - With excess supply of labor, finding another job is difficult.
  - While costs imposed on grocer by the departing customer is negligible.



# Threat of dismissal

- Principal agent relationship between employer and employee where:
  - P. benefits from action (effort) which costly for A to perform.
  - Information is costly for P to acquire or cannot be used to enforce contract.
- Solution: give A payment in excess of reservation utility, promising to renew the contract unless A's performance is inadequate.
- A earns enforcement rent (employment rent).

# Threat of dismissal

- Employers have short side power over workers.
  - Can at little cost to themselves impose significant sanctions by terminating the contract.
  - Employers advance their interest by using credible threat of sanction to alter the behavior of employees.
- The short side of the market is the side for which the desired quantity is the least.
- Short side power explain why employers may reasonably be expected to be obeyed.
- Employer in position to deprive the employee of employment rent.

# Threat of dismissal

- Can explain job rationing.
- Excess supply of workers do not bid down wages.
- The employees (long siders) wish to transact more at the going wage, but are unable to do so.
- Short side power will be stronger
  - When employers' search costs are low (and reputation effects are strong)
  - When fallback position of workers are less attractive.

# Further reading

- Bowles ch. 10:
  - *Microeconomics*
- Bowles and Gintis JEP 1993:
  - *The Revenge of Homo Economicus: Contested Exchange and the Revival of Political Economy*
- Bowles and Gintis QJE 2000:
  - *Walrasian economics in retrospect*