Labor Market Equilibrium

Labor Economics

VŠE

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Perfectly Competitive Labor Market

Assumptions:

- *Perfect Information:*
  - All workers know relevant details about all jobs;
  - All employers know relevant details about all workers;

- *Perfect mobility:* workers can switch jobs costlessly, and all jobs are equally open to all applicants;

- *Homogeneity:*
  - workers are identically skilled
  - firms offer identical working conditions;

Perfectly Competitive Labor Market

▸ *Profit Maximization:* firms choose wages so as to maximize profits;

▸ *Many employers and workers:*

  ○ No employer is large enough that its wage influences the market average;

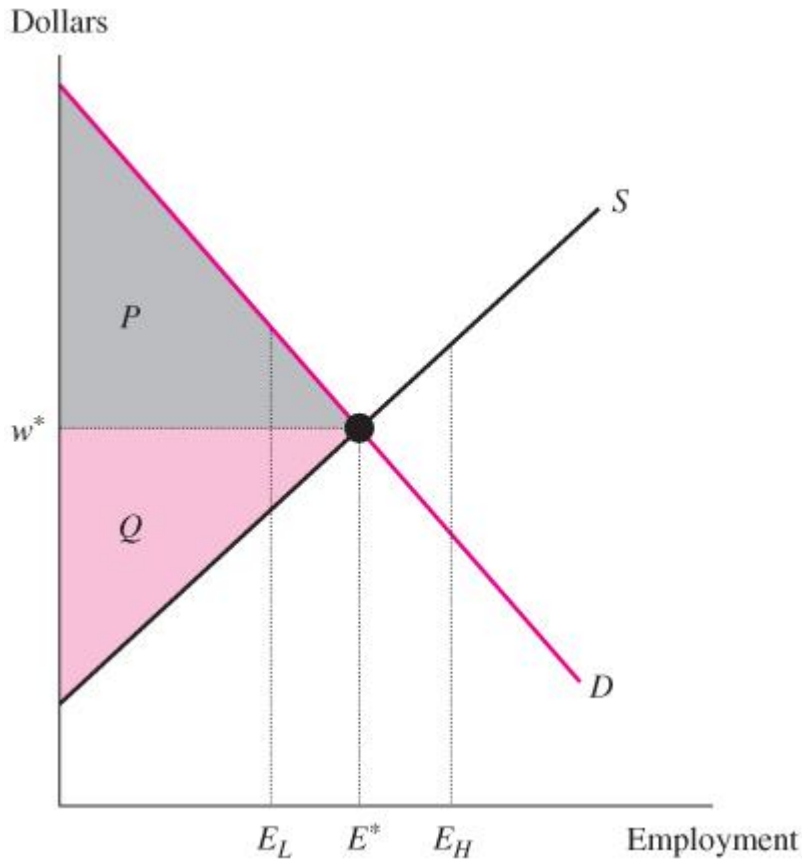 ○ No worker is important enough that its decision affects the overall employment level of a firm.

Equilibrium in a Single Competitive LM

▸ Equilibrium condition:

$$E^*_S(w^*)=E^*_D(w^*)$$

▸ $E^*_S(w^*)$ is the optimal labor supply (of all workers) at the wage w*;

▸ $E^*_D(w^*)$ is the optimal labor demand (of all firms) at the wage w*.

Out of Equilibrium ✕

Case 1: Labor Surplus

$w > w*$

w: more people are willing to work than there are jobs:

$$\Rightarrow E^*_S(w^*) > E^*_D(w^*)$$

▸ some people will be unemployed;

▸ some work less hours than they would want to.

Case 2: Labor Shortage

$w < w*$

w: too few people are willing to work:

$$\Rightarrow E^*_S(w^*) > E^*_D(w^*)$$

▸some jobs are not filled;

▸some workers are not willing to work more hours.

▸

Reaching a Labor Market Equilibrium

Case 1: Labor Surplus

$w>w^*$, $E^*_S(w^*) > E^*_D(w^*)$

Ways:

1) The workers compete with each other;

2) The firm offers lower wage.

$w=w^* \Rightarrow E^*_S(w^*)=E^*_D(w^*)$

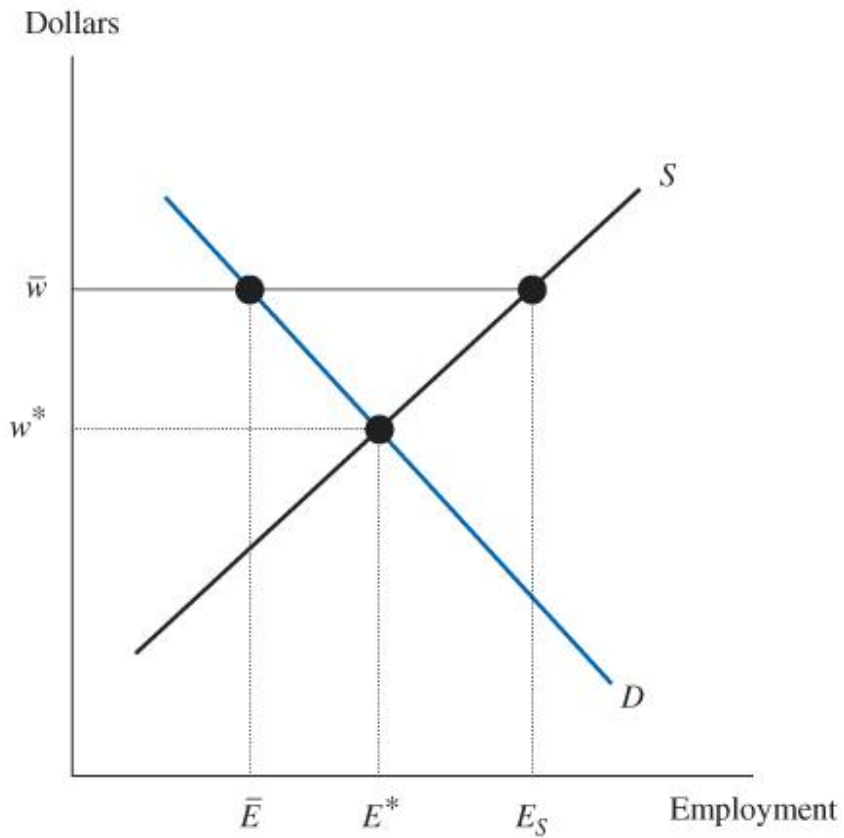**Case 2: Labor Shortage**

$w<w^*$, $E^*_S(w^*) > E^*_D(w^*)$

Ways:

1) Firms compete with each other;

2) The workers ask for higher wage rate.

$w=w^* \Rightarrow E^*_S(w^*)=E^*_D(w^*)$

Minimum wage and employment

Dollars

$\bar{w}$

w^*

S

D

$\bar{E}$ E^* E_S Employment

▸ Card & Krueger (1994)

Competitive Eq. across Labor Markets

Setup:

▸ Northern Labor Market yields equilibrium wage rate w_N and # of labor hours E_N;

▸ Southern Labor Market yields equilibrium wage rate w_S and # of labor hours E_S;
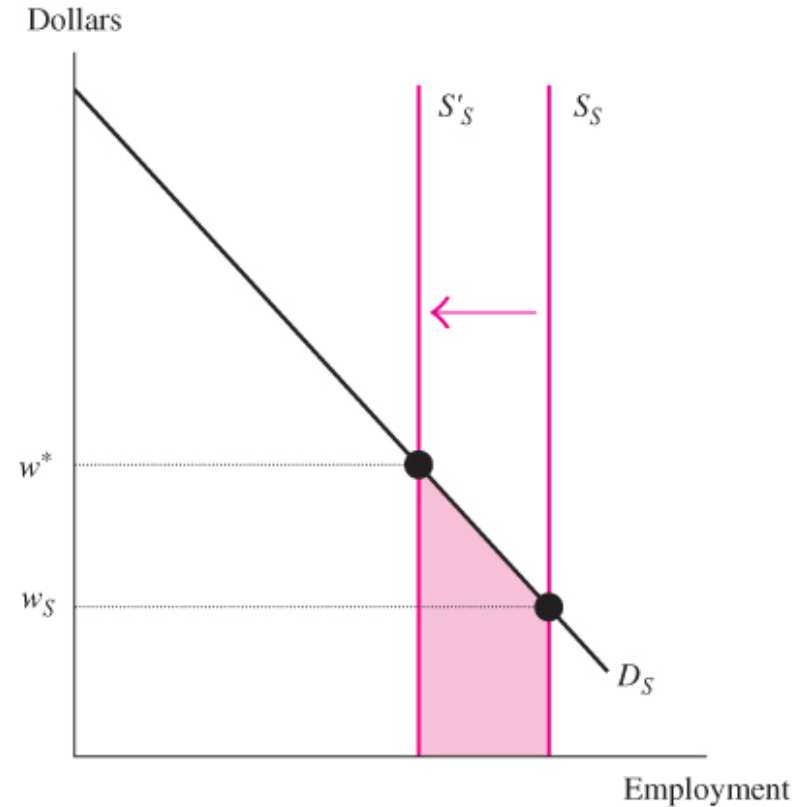
$$\boldsymbol{w_N > w_S}$$

▸

Competitive Eq. across Labor Markets
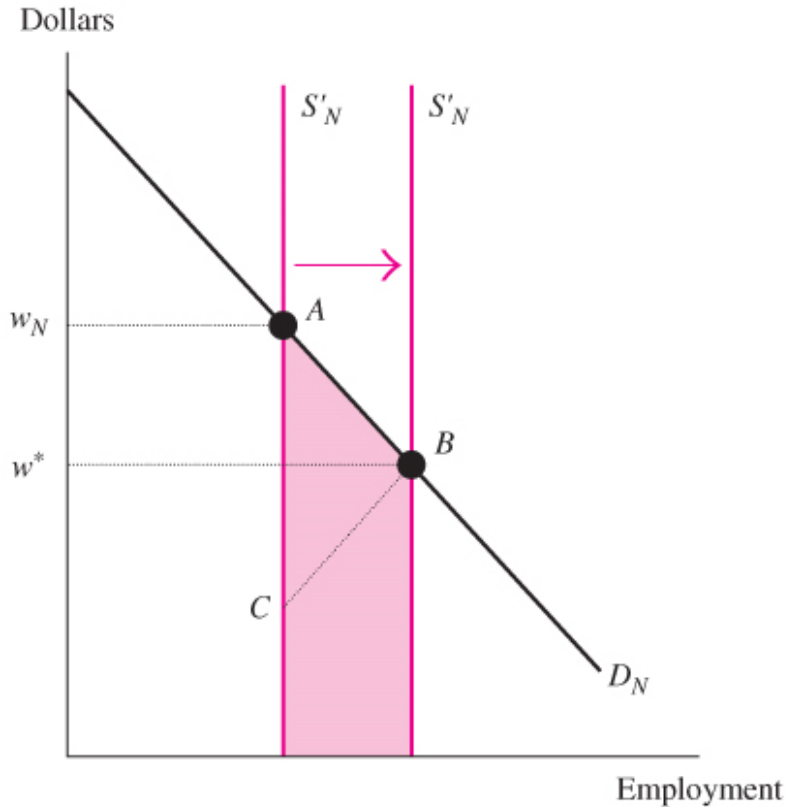
(a) The Northern Labor Market

(b) The Southern Labor Market

Competitive Eq. Across Skill Levels

Setup:

▸ Labor Market for College Educated Workers yields equilibrium wage rate w_C and # of labor hours E_C;

▸ Labor Market for Non-College Educated Workers yields equilibrium wage rate w_{NC} and # of labor hours E_{NC};

$$w_C > w_{NC}$$

What Do Workers and Firms in each Labor Market Do?

Competitive Eq. Across Skill Levels

What Do Workers and Firms in each Labor Market Do?

Firms:

Firms have incentive to substitute skilled labor for unskilled labor.

$E_D(w_C)$ ↓ and w_C ↓;
$E_D(w_{NC})$ ↑, w_{NC} ↑.

Workers:

Non-college educated will attend college.

$E_S(w_C)$ shifts out and w_C ↓;
$E_S(w_{NC})$ shifts in and w_{NC} ↑.

Arbitrage: $w^*_C = w^*_{NC}$ $[\cdot \pi]$

Labor Market Eq. with Education
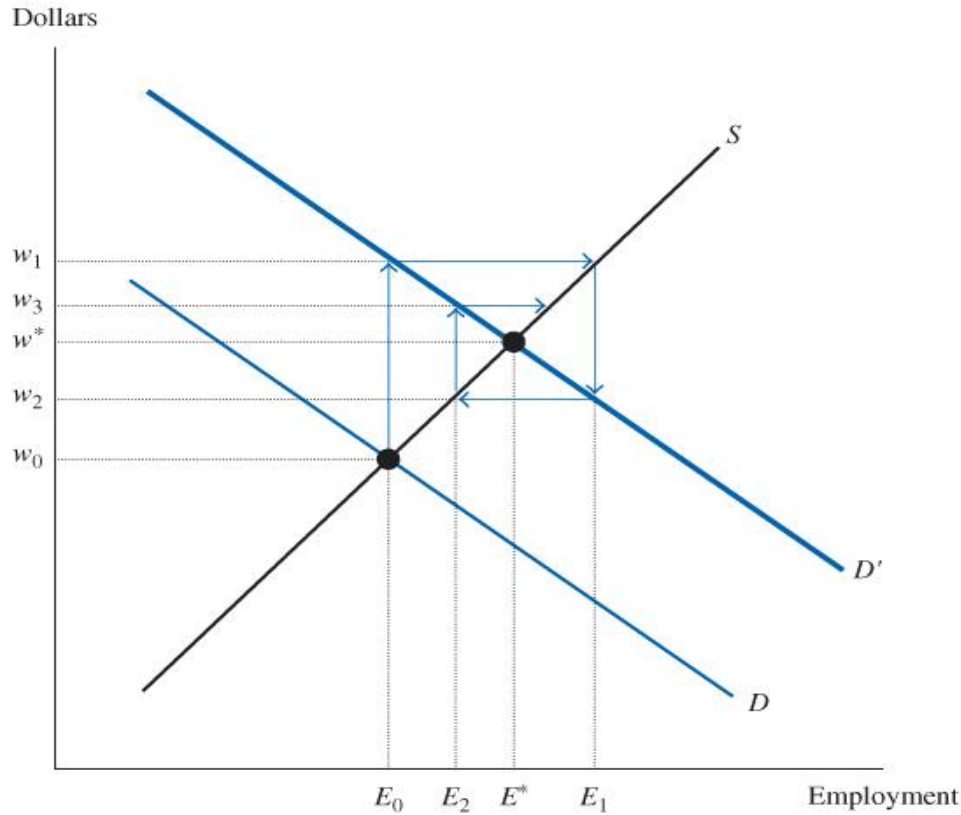
▸ Education takes time

Policy Applications

- Payroll tax
  - Employers pay
  - Empolyees pay

- Analysing immigration

- Analysing imperfect markets
  - Monopsony
  - Monopoly

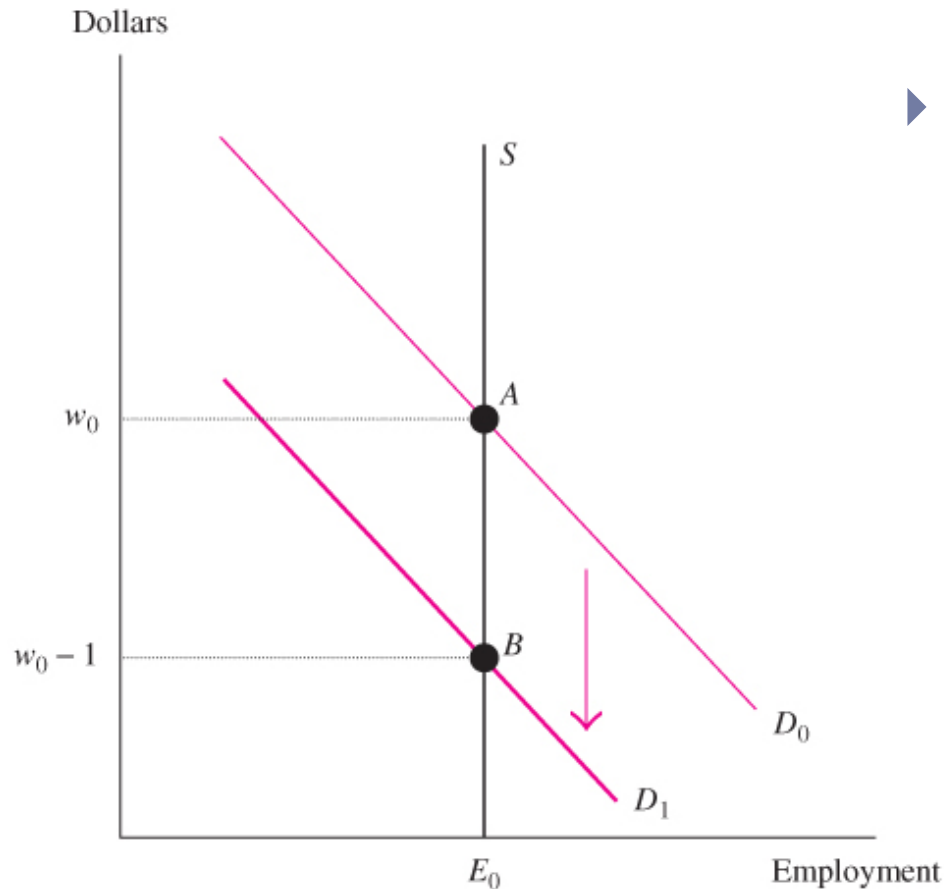# Policy Application: Payroll Taxes
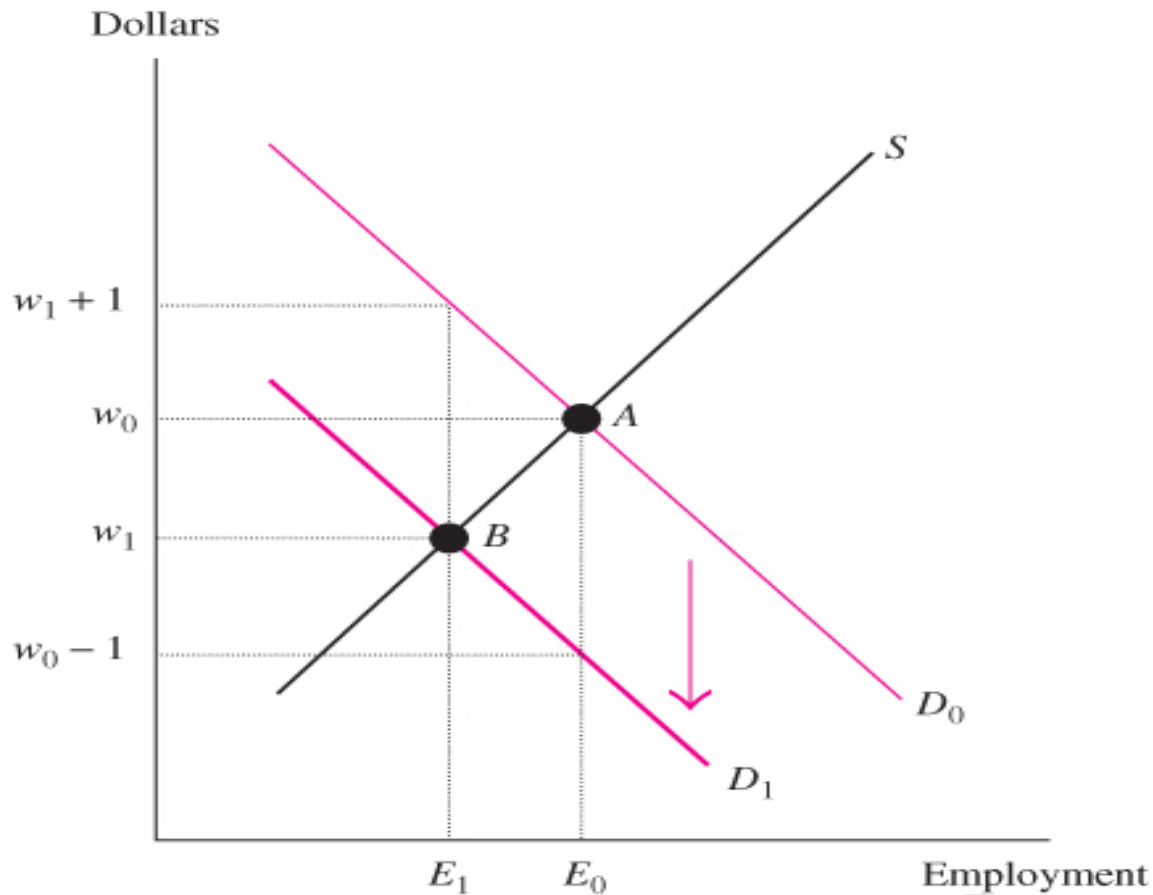
▸ Firms pay a kaček per hire

A Tax Assessed on Workers
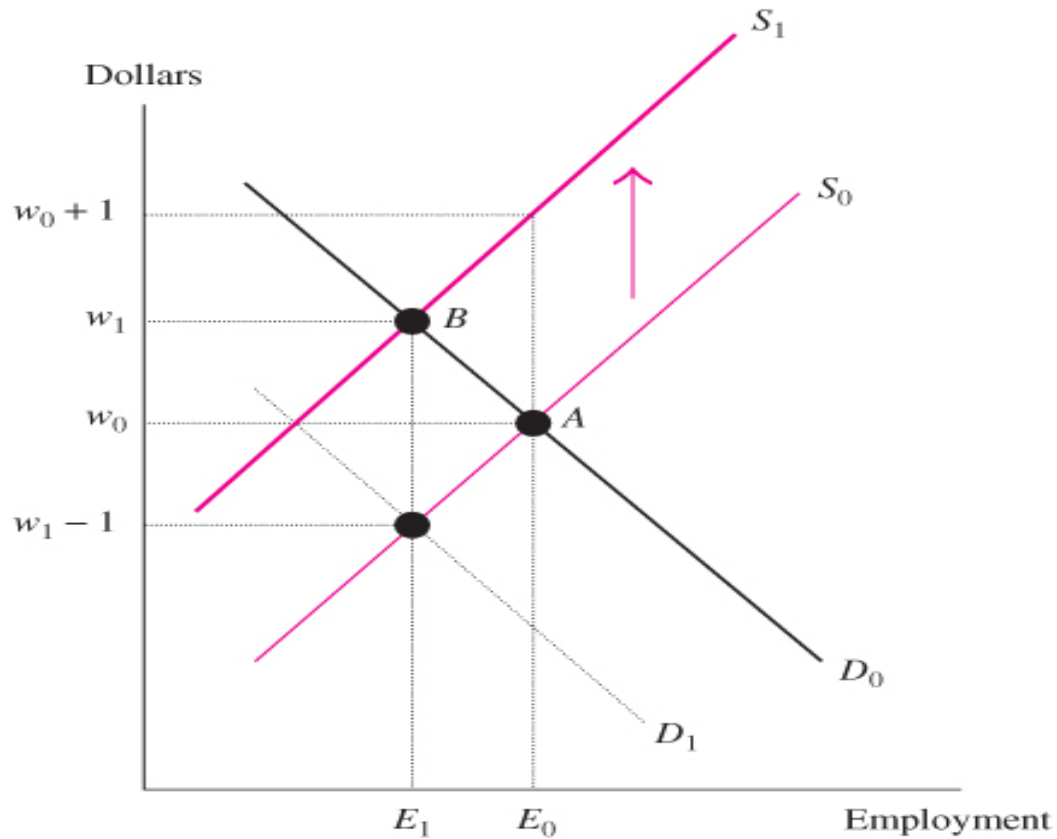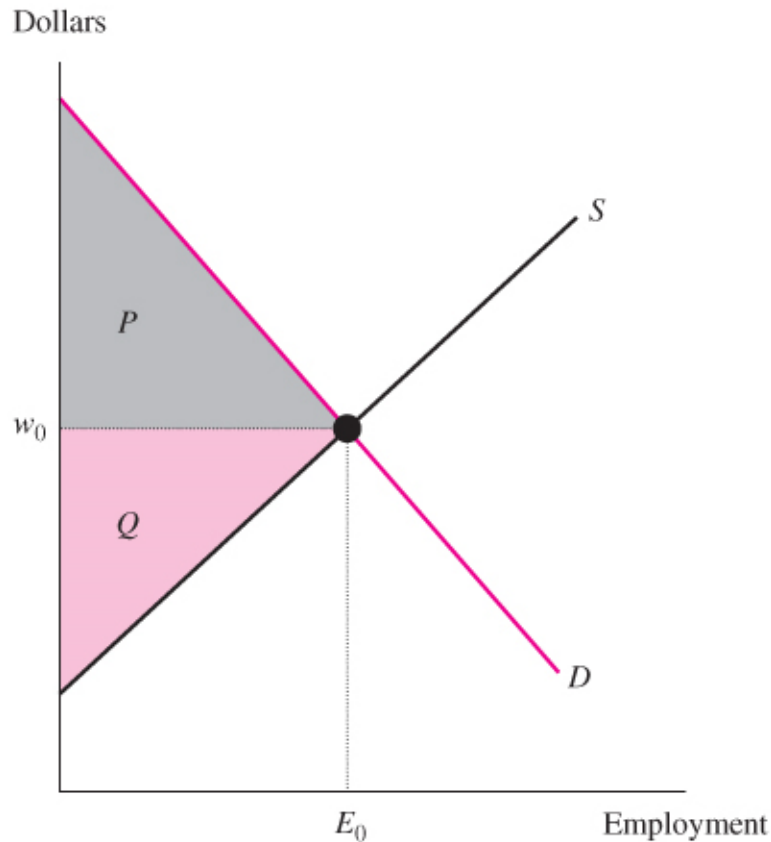
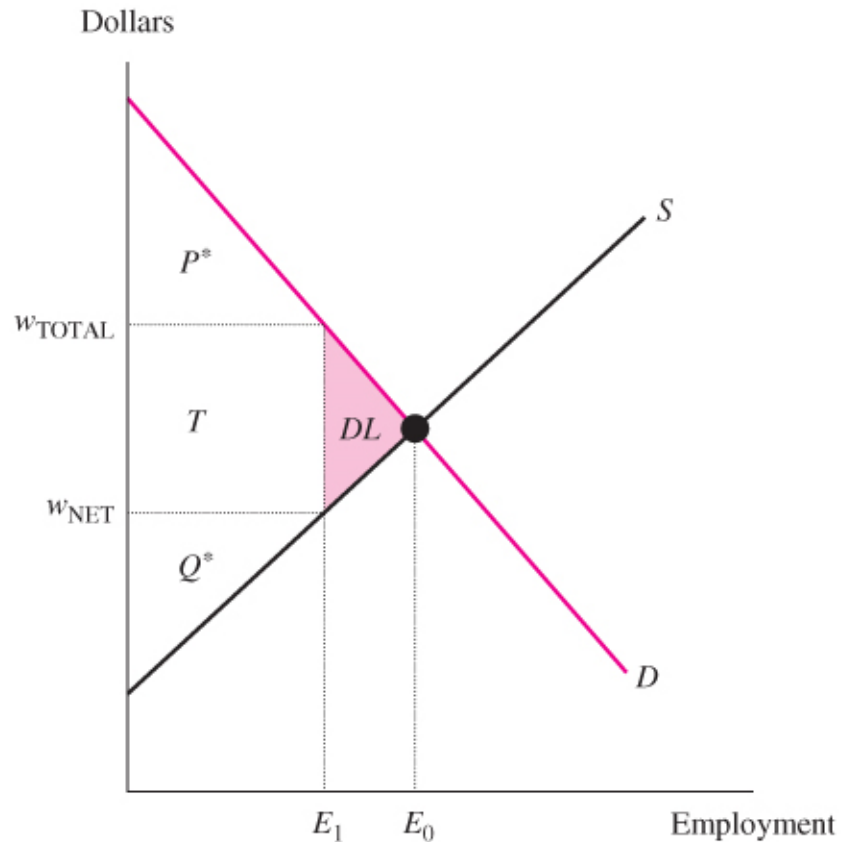

▸ Worker pays a kaček
  ▸ Identical result

Payroll Tax

- The real payer is the one with less elasticity!
- … but society is *always* the loser.

Deadweight Loss of Payroll Tax

Dollars

S

P

w_0

Q

D

E_0　Employment

(a) No-Tax Equilibrium

Dollars

P^*

w_{TOTAL}

S

T　DL

w_{NET}

Q^*

D

E_1　E_0　Employment

(b) Payroll Tax Equilibrium

Analysing Immigration

- **Influx of new workers to the market**
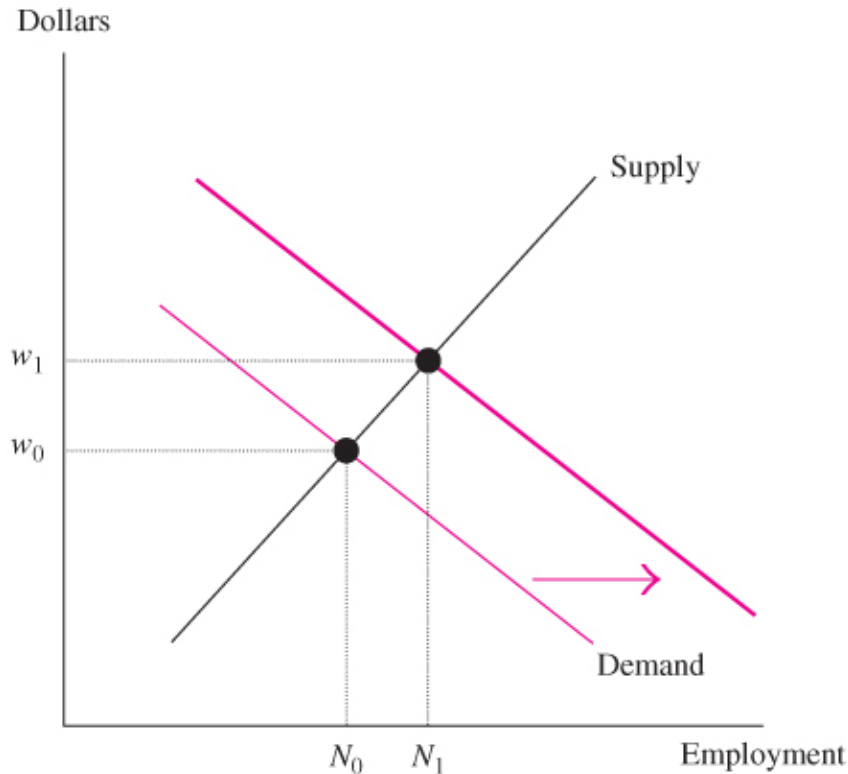 - Affect the wage negatively
  - Affect the wage positively

Policy Application: Immigration

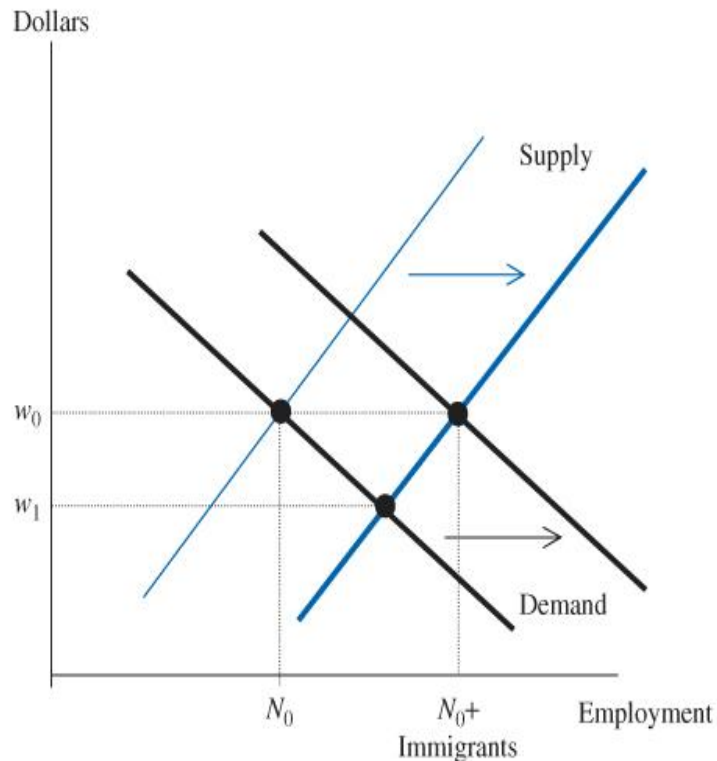- Short Run:

Immigrants and Natives are perfect substitutes
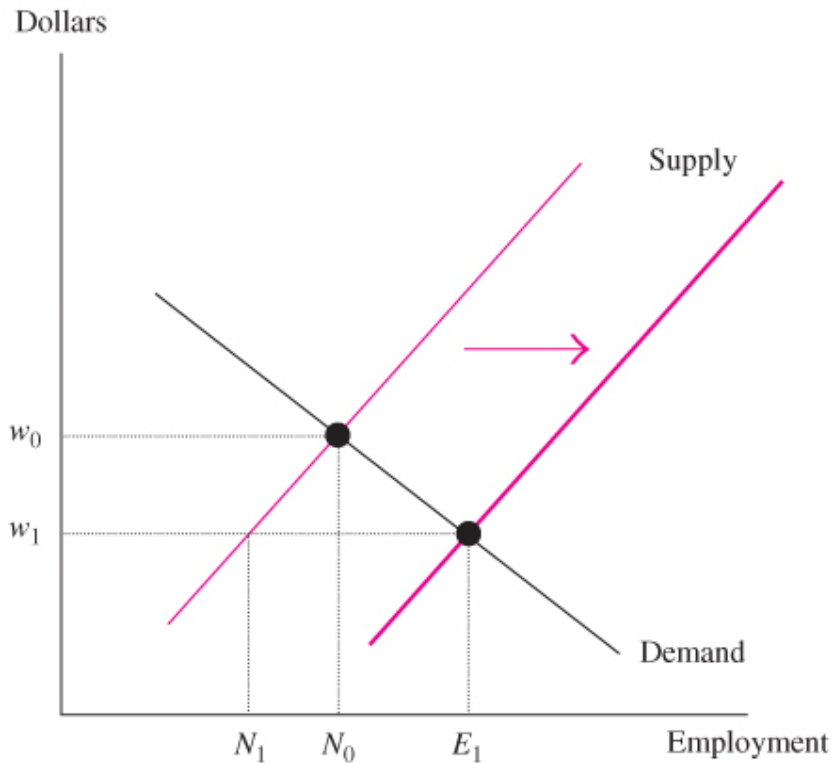
Policy Application: Immigration

▸ Short Run:

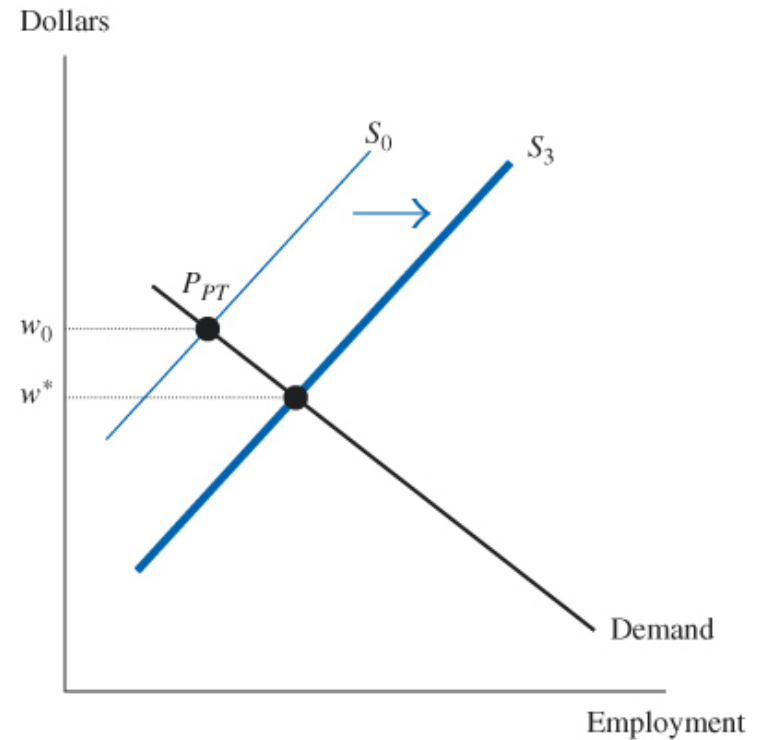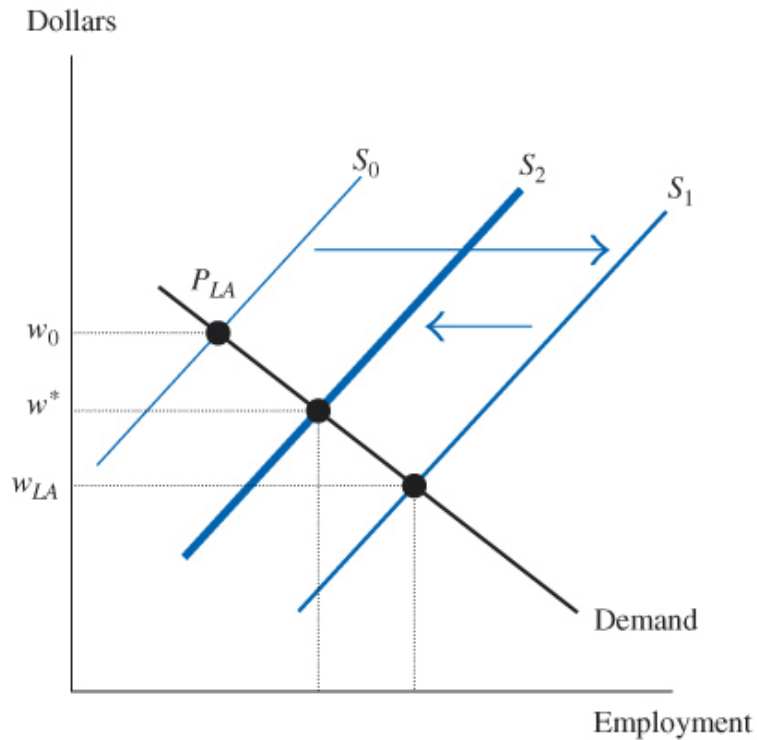Immigrants and Natives are perfect complements

GE Reaction to Immigration

Dollars

Supply

w_0

w_1

Demand

N_0 N_0+ Immigrants Employment

▸ **Increase demand**

   ▸ Increased savings

   ▸ Increased consumption

Country-wide reaction to immigration

Noncompetitive Labor Market: Monopsony

▸ Monopsony is a market with one buyer

▸ As the employer raises wages, some workers will join the labor market and work for the firm;

▸ Because there are no other firms, workers will not disappear to another firm when she lowers the wage;
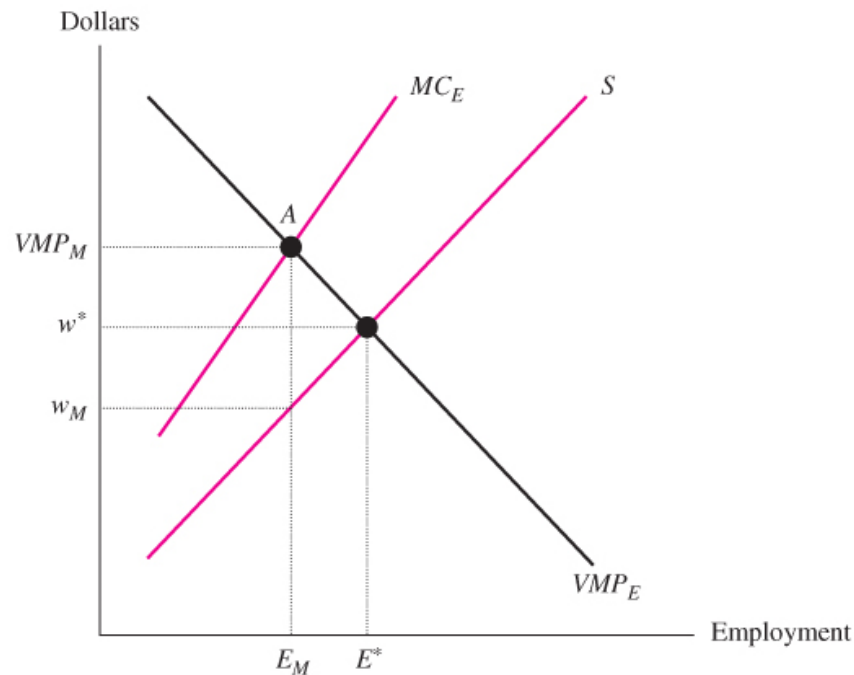
▸ Some may return to non-labor market activities.

Perfectly Discriminating Monopsonist

▸ Everyone gets a different wage!

Dollars

S

A

w^*

w_{30}

VMP_E

w_{10}

10   30 E^* Employment
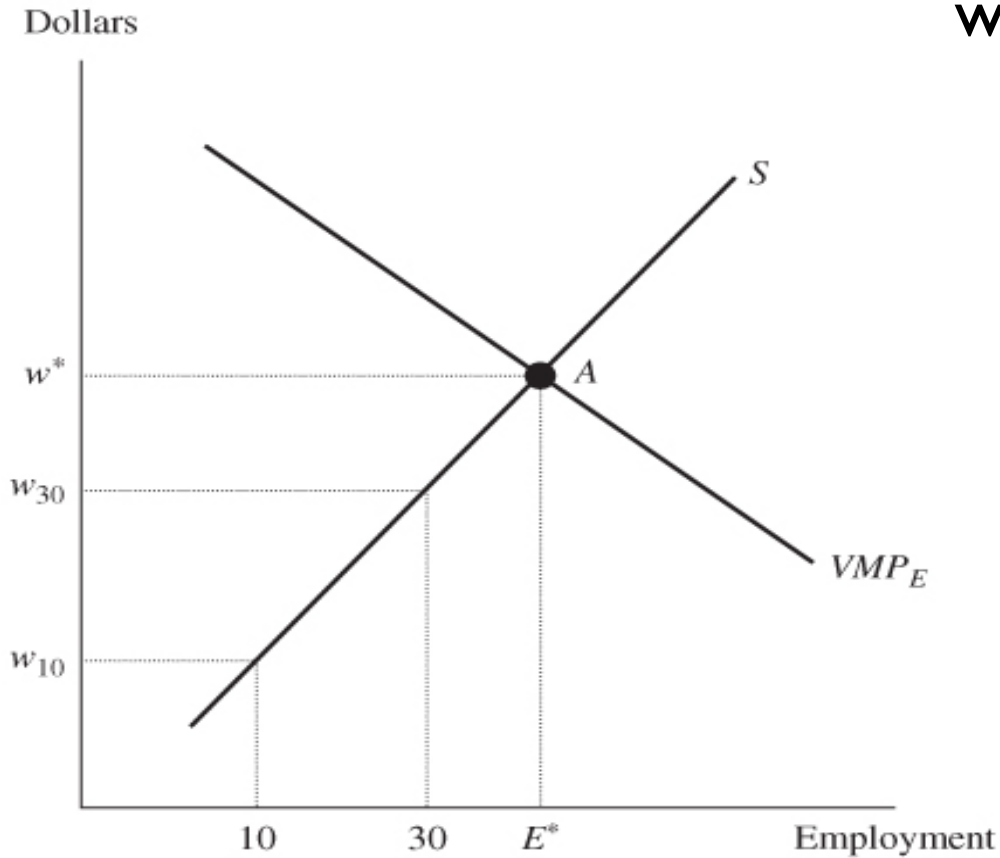
Nondiscriminating Monopsonist

- $MC_L > w$
- Firms set output where

$$MR_L = MC_L$$
$$w < MR_L$$

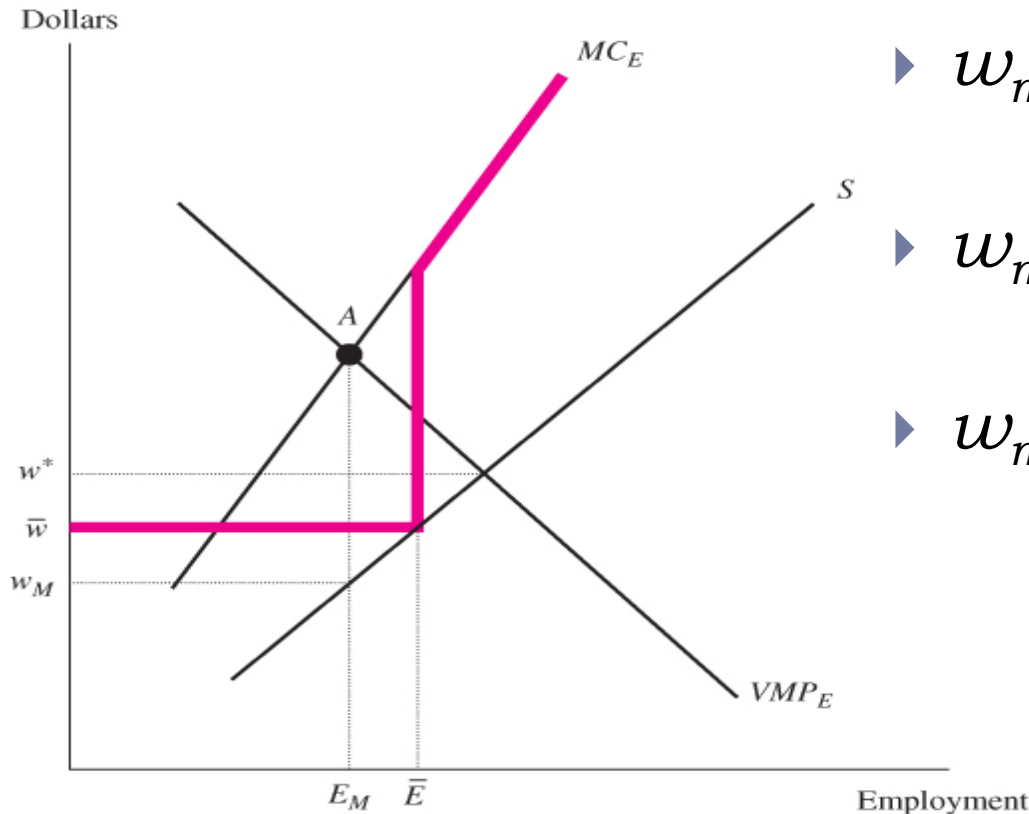- This leads to smaller output and lower wage than efficient level

Monopsony and the Minimum Wage

Cases:

▸ $w_{min} \leq w_{monopsonic}$

▸ $w_{monopsonic} < w_{min} \leq w^*$

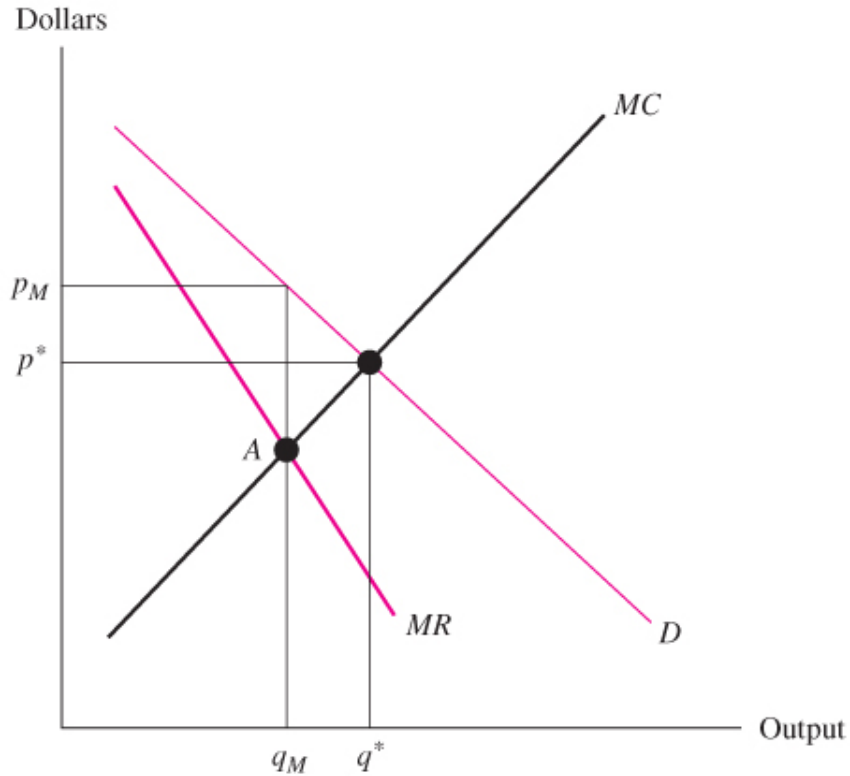▸ $w_{monopsonic} < w^* < w_{min}$

▸ Card & Krueger (1994)

Monopolist's Hiring Decision
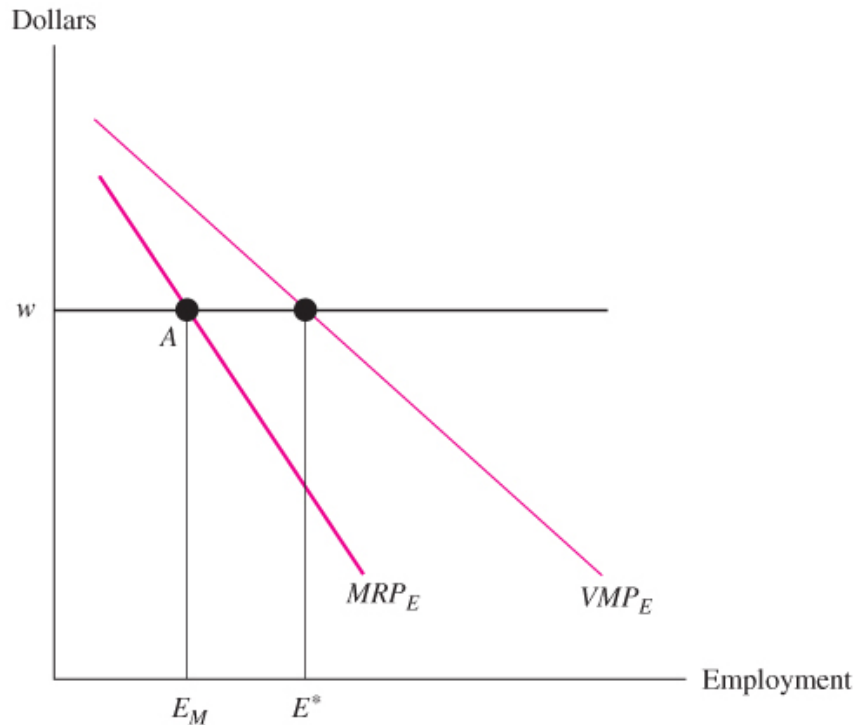
▸ The more produces the less gets.

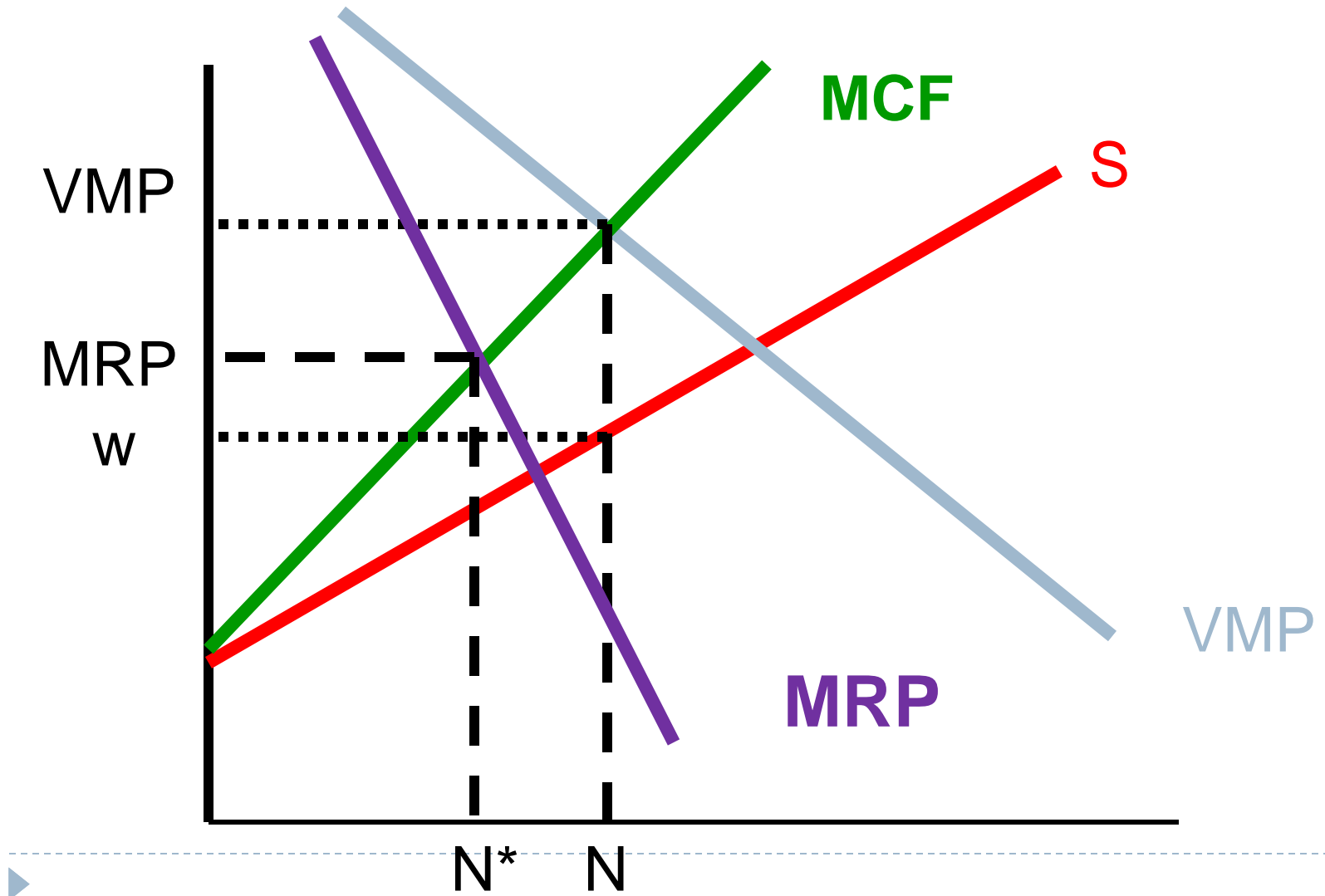# Noncompetitive Labor Markets: Monopoly

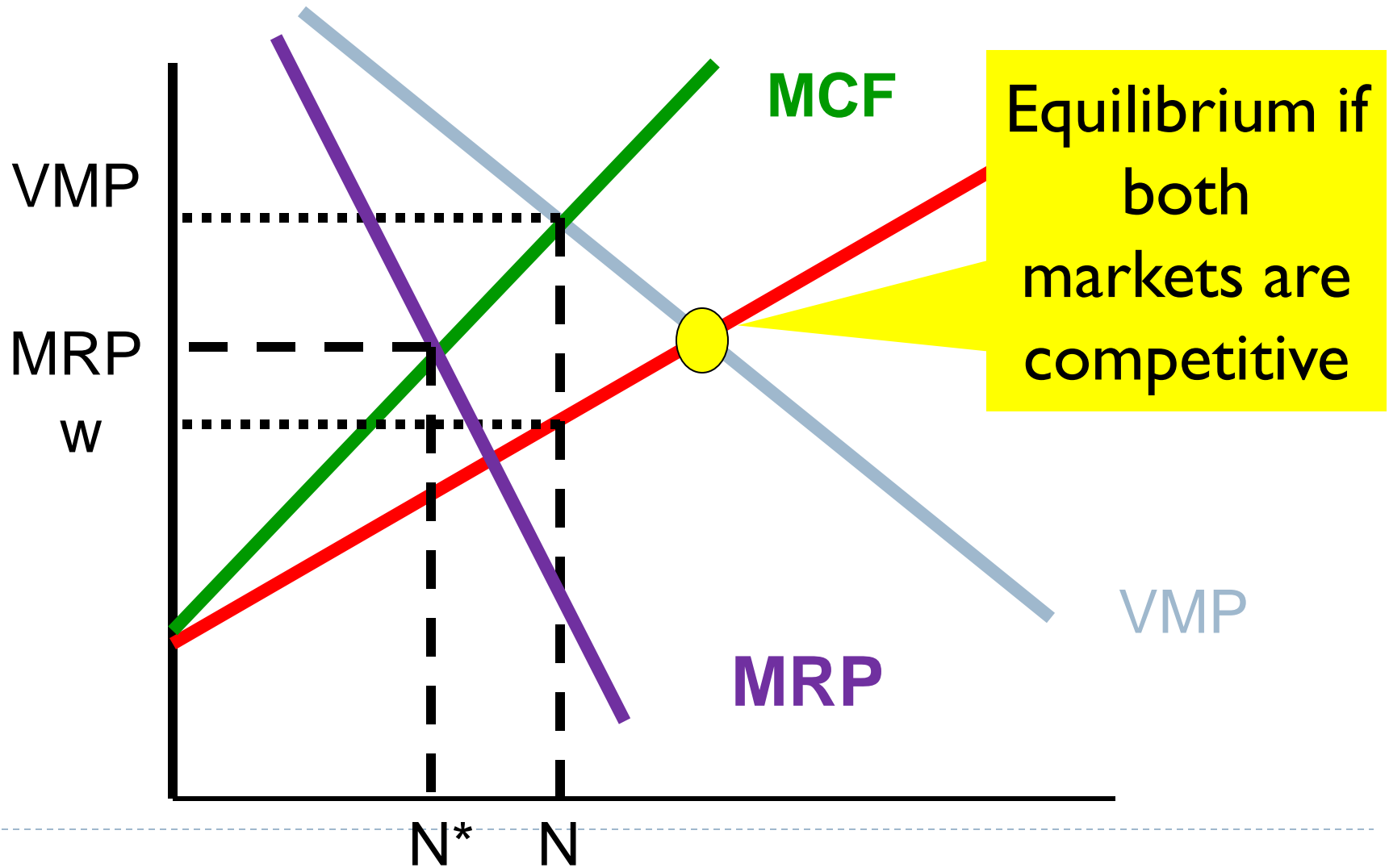‣ MR < p

The Labor Demand Curve of Monopolist

- Marginal Revenue Product

… is always less than
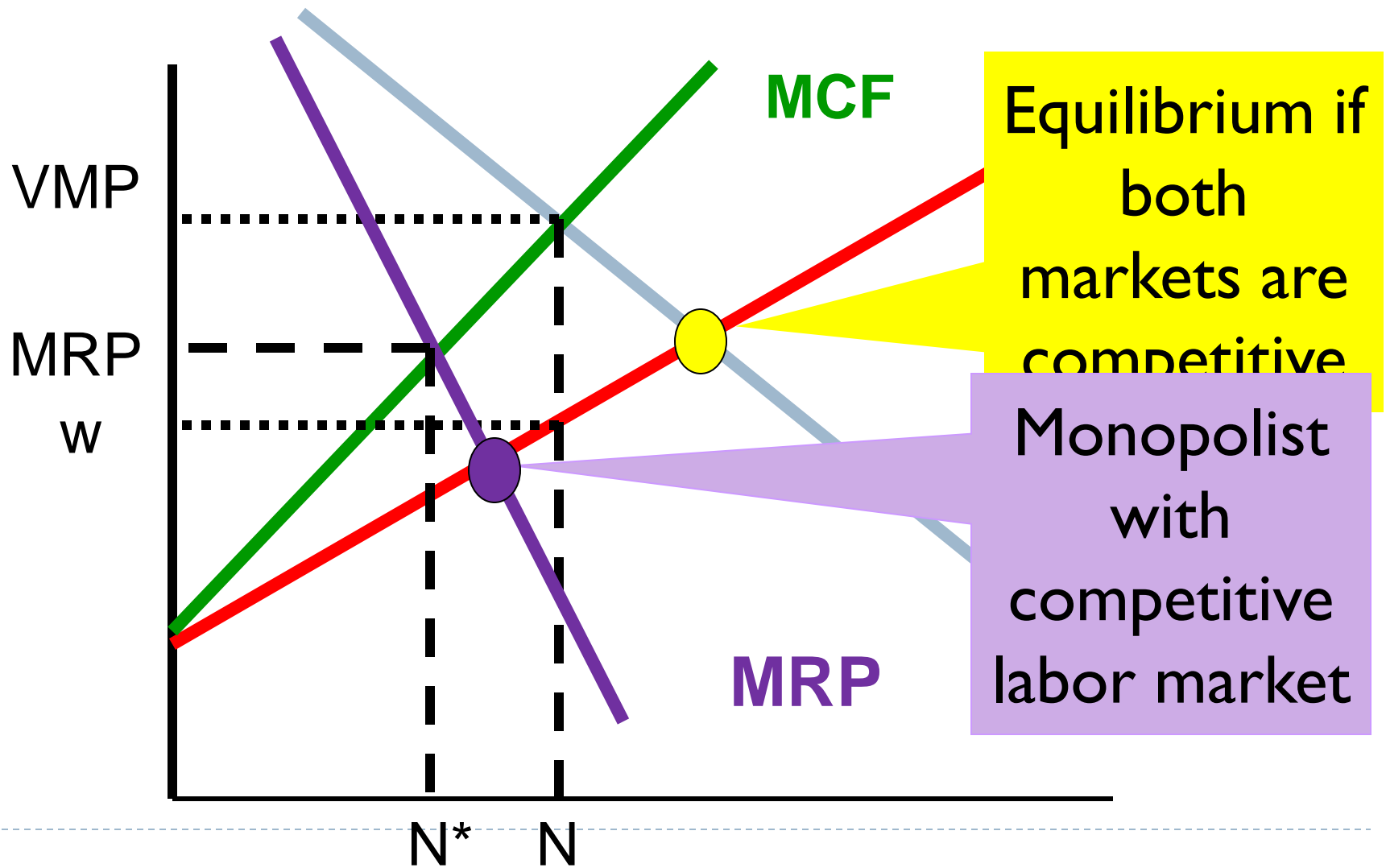
Value of Marginal Product

The Monopsonist/Monopolist

The Monopsonist/Monopolist

The Monopsonist/Monopolist

The Monopsonist/Monopolist

MCF

VMP

MRP

w

Equilibrium if

Competitive market with monopsony labor market

with competitive labor market

MRP

N* N