

**(I) Perfect and Imperfect Labor
Markets: The Scope for Labor
Market Institutions**

Bocconi University, February 2009

Outline

- Key definitions and main topics
- Micro recap: labor supply
- Micro recap: labor demand
- Equilibrium in competitive labor markets
- Equilibrium in imperfect labor markets
- Why institutions?
 - Market failures
 - Redistribution
 - Political economy

Key definitions

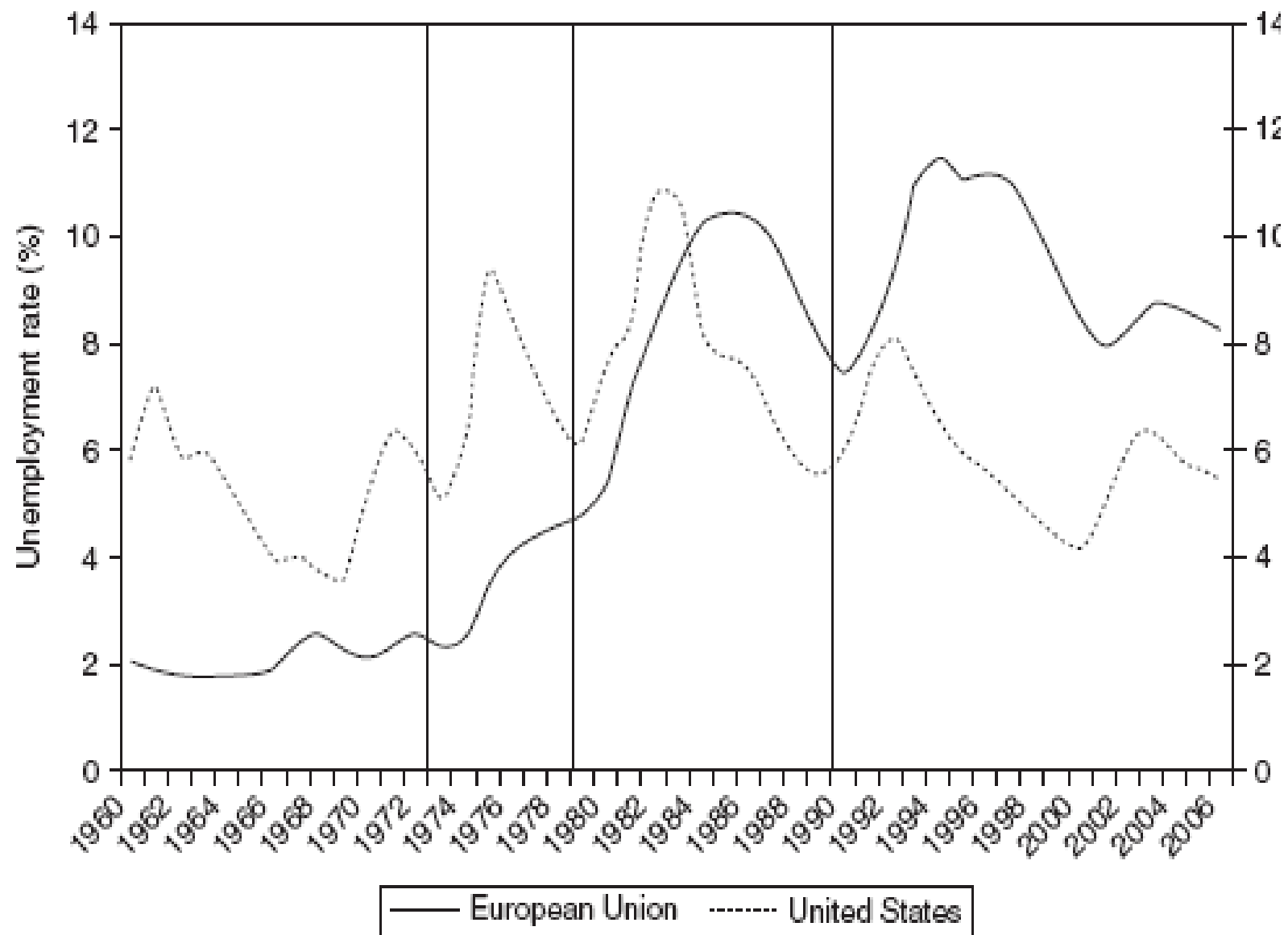
- An **institution** is a system of laws, norms or conventions resulting from a *collective choice*, and providing constraints or incentives which alter *individual* choices over labor and pay
- A **labor market** is a market where labor services (specified in a *vacant* job) are sold for a remuneration called *wage*
- Institutions create a **wedge** between the value of the marginal job for the firm and the wage received by the workers
- Examples: minimum wage, employment protection, unemployment benefits, working hours regulation, etc.

Two opposite views

- Pro-market: labor markets are **perfect** and every deviation from their equilibrium produces deadweight losses (politically motivated)
- Pro-government: labor markets are **imperfect** and institutions solve market failures (efficiency)
- Third way: difficult tradeoffs between market and government failures

Our analysis

- Tools of our analysis:
 - microeconomics
 - political economy
 - institutional case studies
 - econometric studies
- Aims of our analysis:
 - Explain effects of institutions in terms of efficiency, equity, and/or politics
 - Relate them to macro trends in employment and unemployment across time and countries



Source: Tito Boeri and Jan van Ours (2008), *The Economics of Imperfect Labor Markets*, Princeton University Press.



Fig 1 Unemployment Rate, E15

Labor market states

- **Employed, L** (OECD-ILO convention)
People in working age who, during the reference week (or day), have made for at least one hour:
 - paid work (also paid in nature) *or*
 - self-employed work
- Note that *paid work* also includes:
 - People who are not temporally working but who have formally a paid work (e.g. they have a salary, maternity leave, etc.)

Labor market states (cont.)

- **Unemployed, U**

People in working age who, during the reference week (or day), were :

- without either paid or self-employed work,
- willing to work *and*
- looking for a job

- **Inactive, O**

People in working age neither employed nor unemployed

Normalization rules

- Labor Force (LF): $L + U$
- Working Age Population (N): $L + U + O$
- **Unemployment rate:** (U/LF)
- **Employment rate:** (L/N)
- **Activity rate** (or labor force participation rate): (LF/N)

Problems

- Underestimate unemployment because of:
 - Underemployed
 - Discouraged workers
- Overestimate unemployment because of:
 - Legal advantages of pretending to be unemployed
 - Ambiguity in job search intensity

Country	Measures based on OECD - ILO definitions					
	Empl.	Unempl.	Out of the labor force			
			Potentials	Discouraged	Unattached	
Germany	64.5	5.7	29.8	1.3	0.2	28.3
Denmark	74.1	4.9	21.0	3.4	0.4	17.2
Netherlands	67.8	3.9	28.3	1.1	0.1	27.1
Belgium	59.0	4.1	37.0	1.7	0.7	34.6
Luxembourg	61.2	2.7	36.1	0.8	0.0	35.3
France	60.6	7.0	32.4	1.7	0.1	30.6
United Kingdom	68.8	7.4	23.8	1.2	0.3	22.3
Ireland	58.1	6.5	35.4	1.2	1.3	32.9
Italy	51.8	8.6	39.7	2.8	0.5	36.4
Greece	54.5	6.7	38.9	0.8	0.5	37.6
Spain	48.3	12.4	39.4	1.7	0.3	37.4
Portugal	67.7	3.6	28.6	1.5	0.2	26.9
Austria	67.5	2.9	29.6	1.0	0.3	28.3
Finland	63.4	8.4	28.2	3.5	0.4	24.3

Source: Tito Boeri and Jan van Ours (2008), *The Economics of Imperfect Labor Markets*, Princeton University Press.

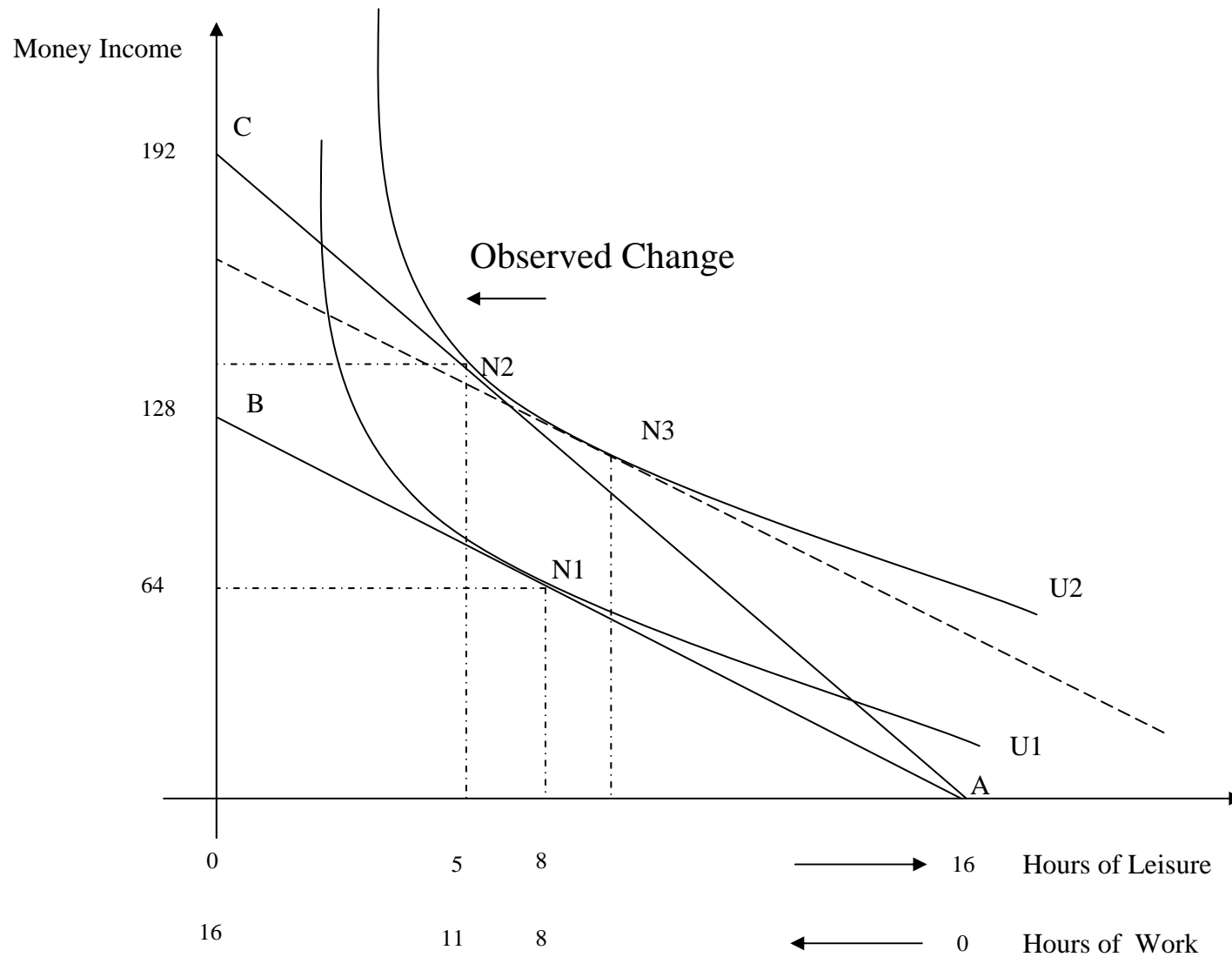
Theoretical framework

- **Labor supply** derived from individuals' labor-leisure choice
- **Labor demand** derived from firms' production choice
- Equilibrium in **competitive markets**: intersection between demand and supply
- Equilibrium in **imperfect markets**, where firms are not price takers
- **Institutions** introduce a wedge between supply and demand

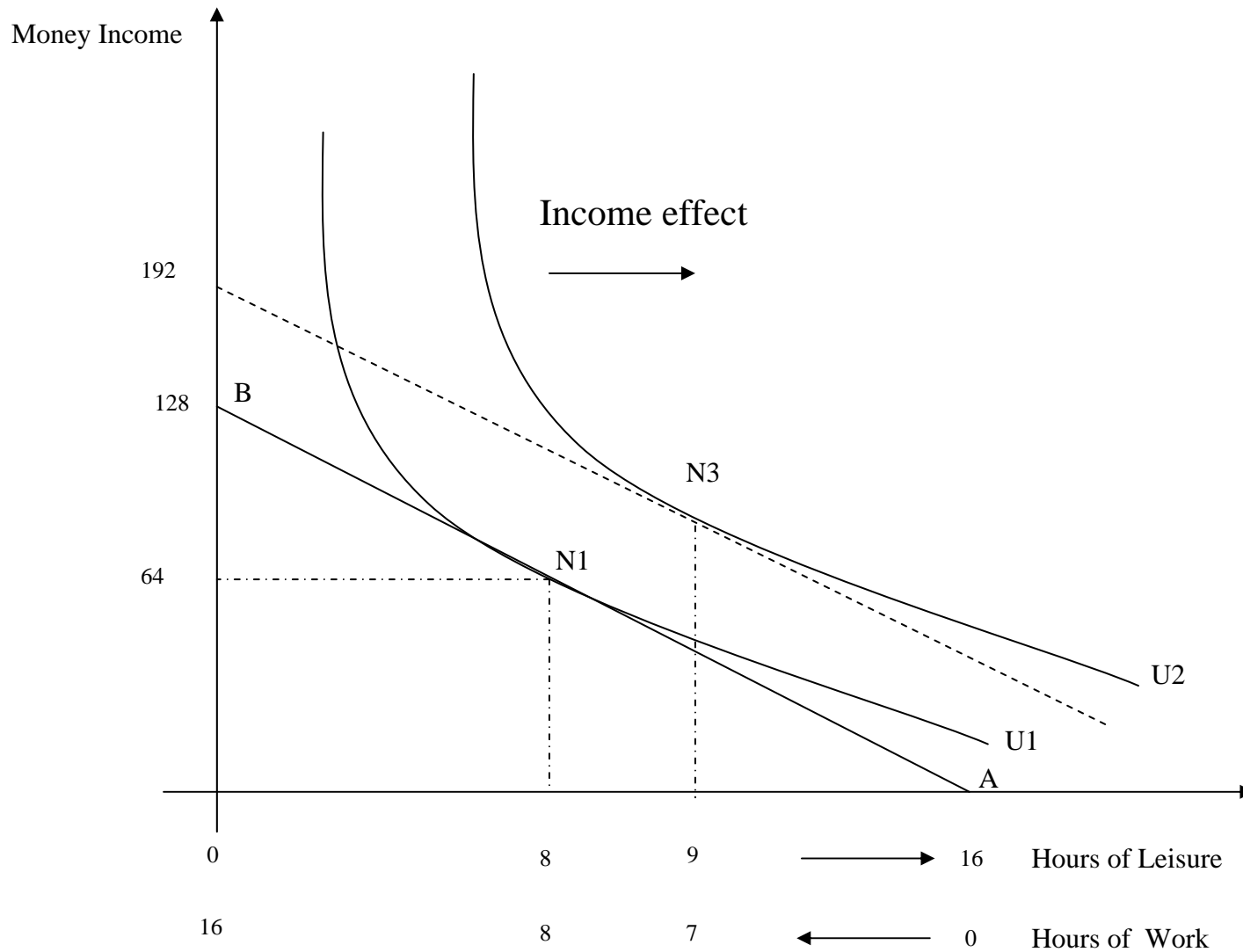
Labor (H) vs. leisure (L) choice

- Preferences: indifference curves are
 - negatively sloped in C and L (negative MRS),
 - do not intersect (no incoherence),
 - and convex (MRS declining with L)
- Budget constraint: $C = M + wH = (M + wL_0) - wL$
 - Hourly wage (w) as slope of the budget constraint
 - Maximum amount of hours (L_0) to be allocated to labor/leisure
- Equilibrium condition: $MRS = MU_L / MU_C = w$

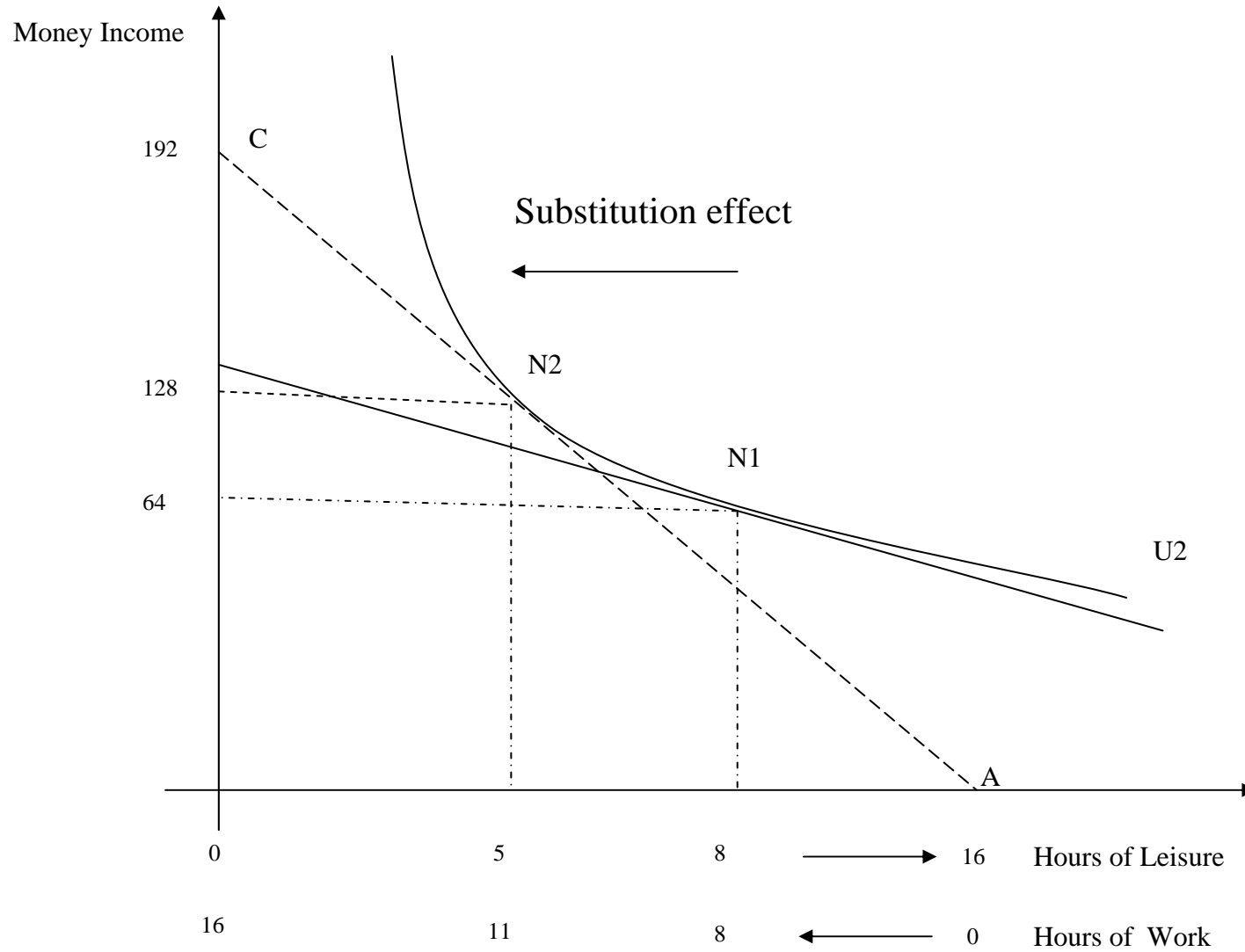
Total effect of a wage increase



Income effect



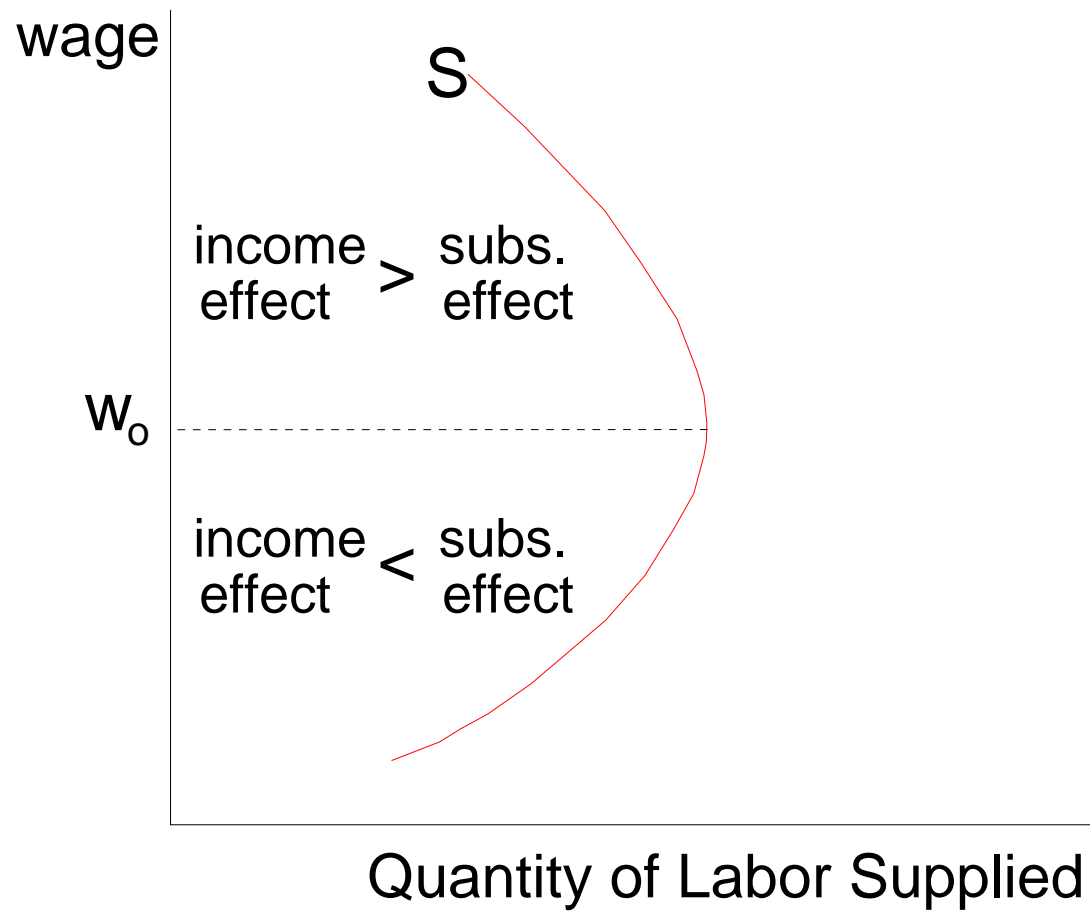
Substitution effect



Individual labor supply

- The slope depends on relative magnitude of income and substitution effects.
- With leisure as normal good, income effect negatively affects labor supply.
- Substitution effects always positive on hours worked.
- Generally, substitution effects dominates for low-wage earners while income effect for high-wage earners.

Backward-bending labor supply



To work or not to work?

- The **reservation wage** is the lowest wage at which a jobseeker is willing to work (slope of IC at L_0 and non-labor income level).
- At that level, elasticity of individual labor supply is always positive (substitution effect dominates).
- Reservation wage is increasing in non-wage income and discriminates employment from non-employment.

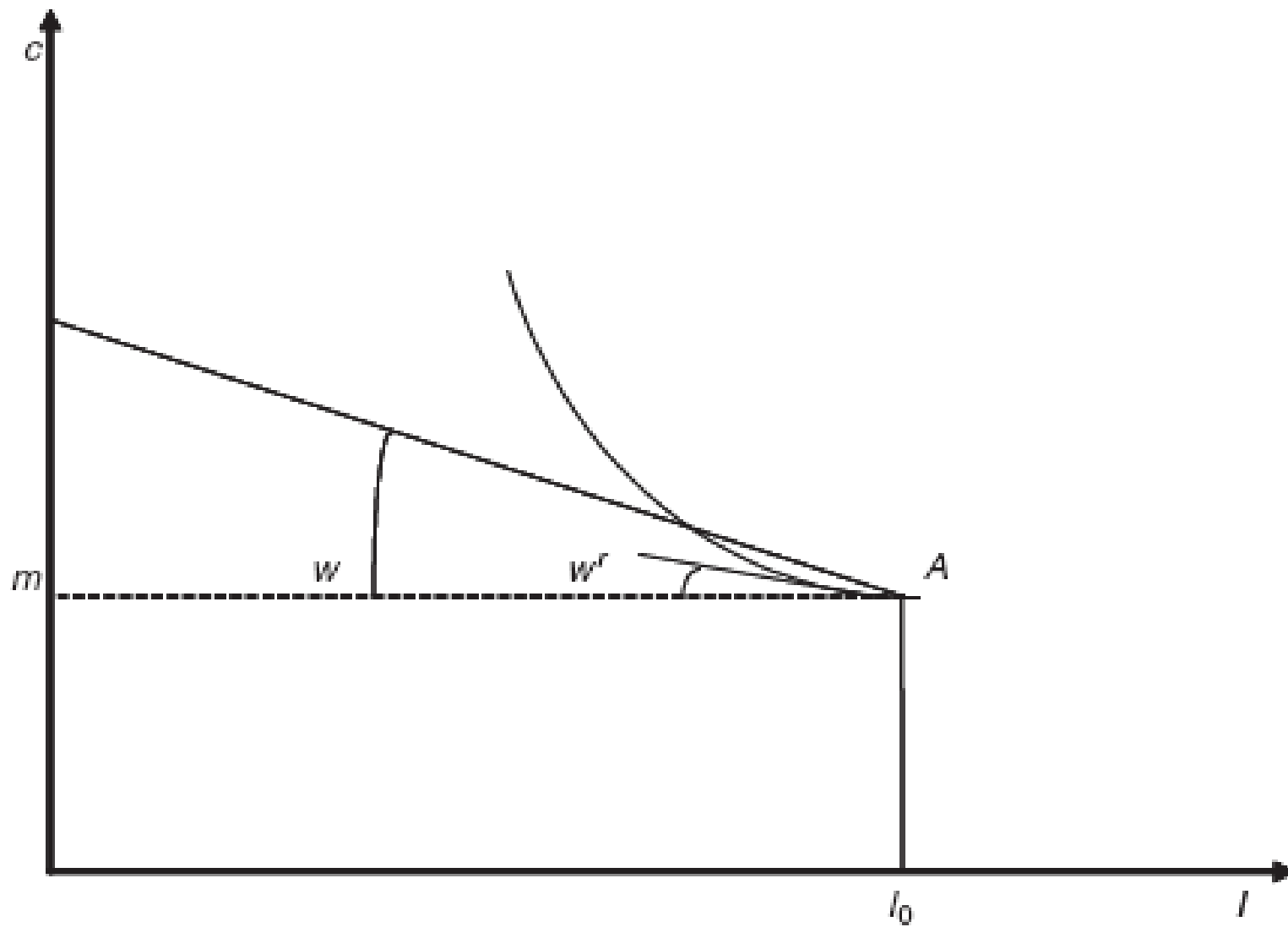


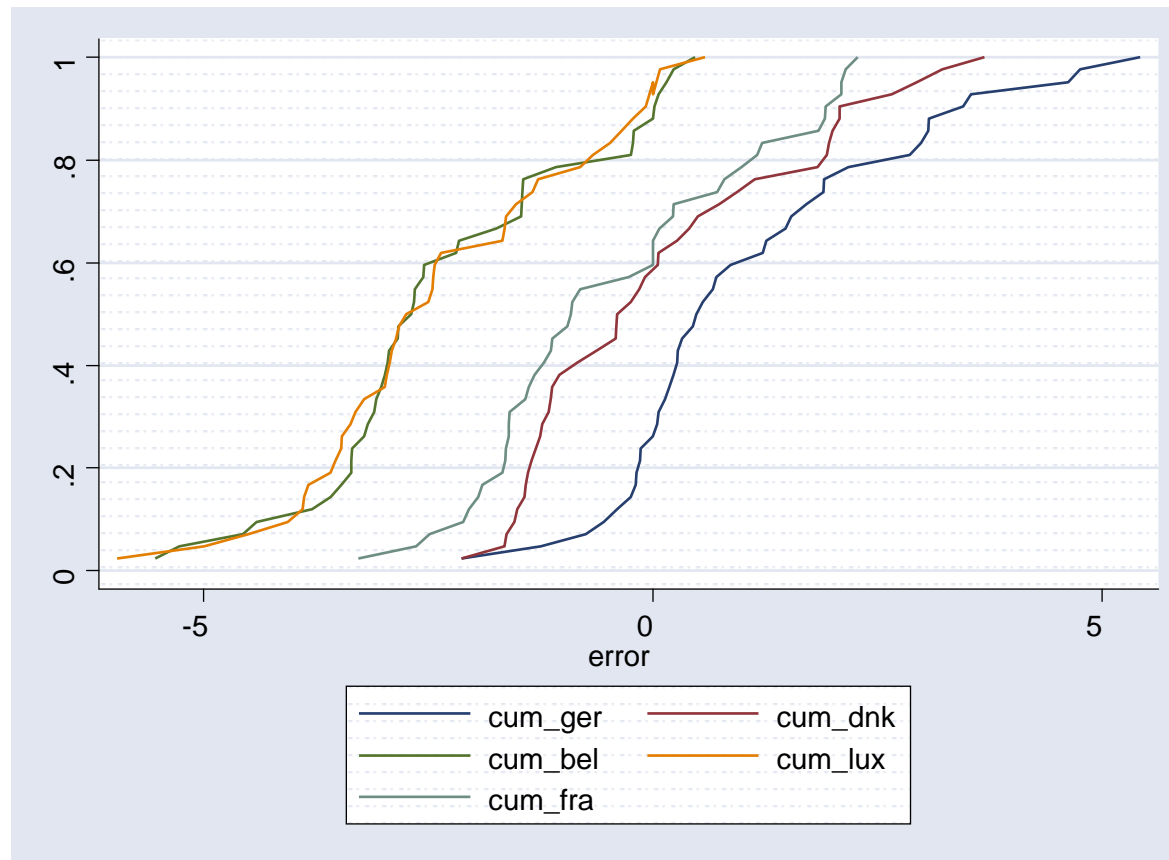
Figure 1.2 The Reservation Wage

Source: Tito Boeri and Jan van Ours (2008), *The Economics of Imperfect Labor Markets*, Princeton University Press.

From individual to aggregate labor supply

- Adding up hours worked by each individual
- *Heterogeneity* in non-wage income (or preferences), hence in reservation wages
- If individuals can only offer fixed number of hours of work, then aggregate labor supply follows distribution of w^r : $NG(w^r)$, where N is the working-age population. And it is *monotonically* increasing in wages
- Elasticity: $(\Delta H/H)/(\Delta w/w)$

Participation rate Aggregate labor supply



Source: Tito Boeri and Jan van Ours (2008), *The Economics of Imperfect Labor Markets*, Princeton University Press.

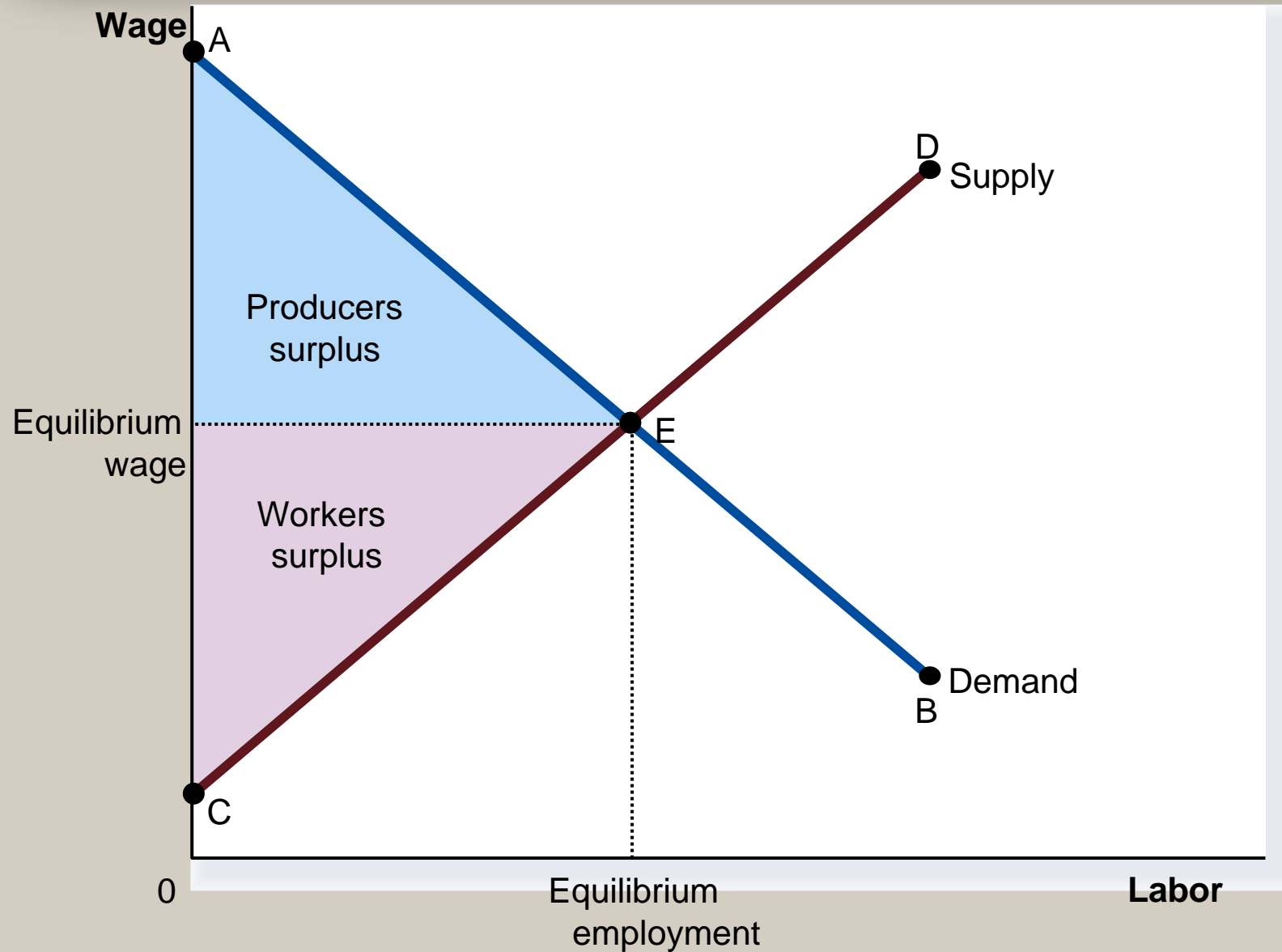
(Derived) labor demand

- Firms maximize their profits: $\pi = py - wH - rK$
- In the short-run: $y = f(K, H)$ with K fixed
- The optimal employment level equals the value of the marginal product of labor ($VMP = pf_H$) to the wage (w): $VMP = w$
- As $f_H < 0$, labor demand is decreasing in wages (i.e., downward-sloping)
- In a monopoly: $VMP = pf_H + p_H y = w$ (labor demand to the left w.r.t. competitive firm, as $p_H < 0$)

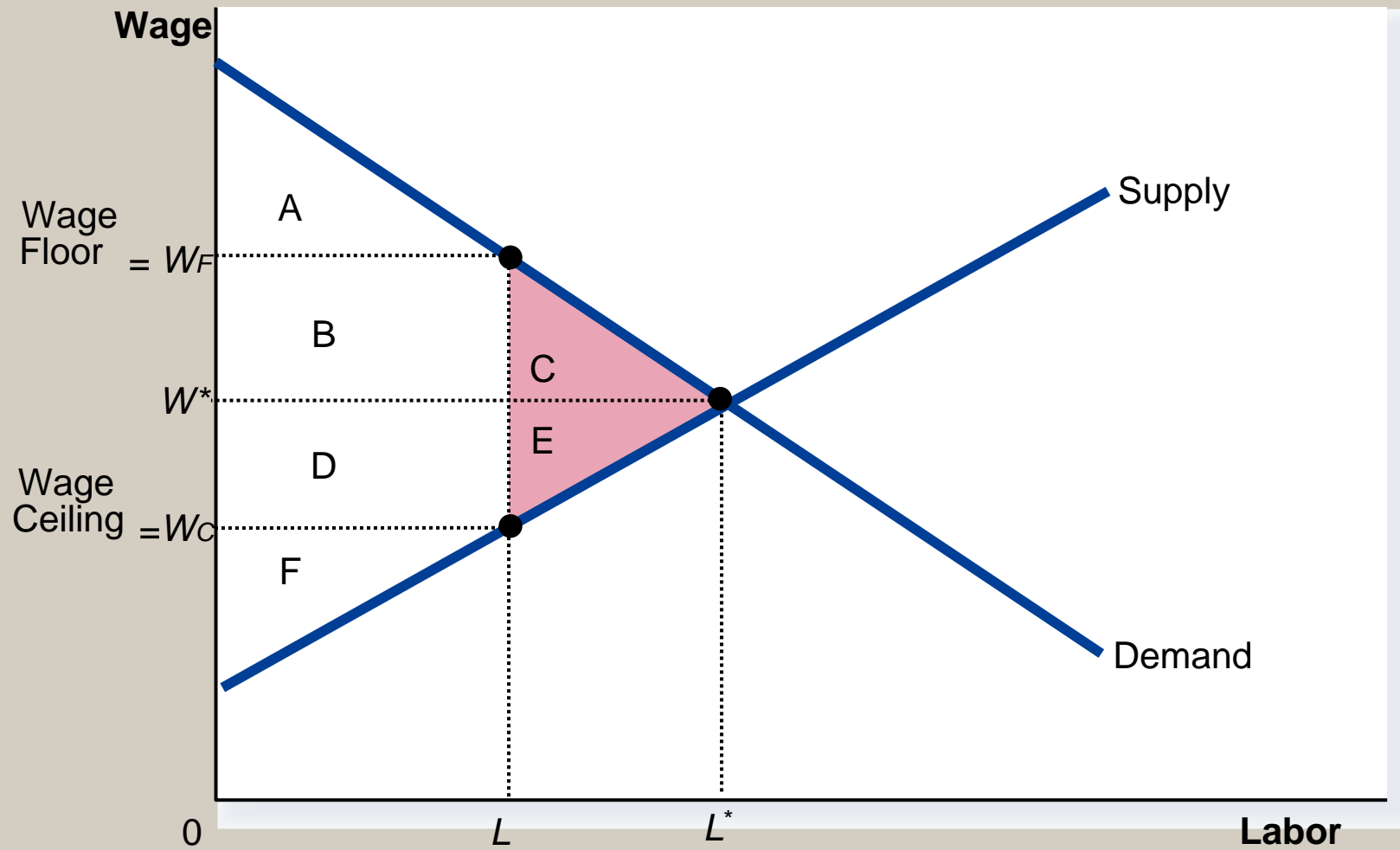
Labor demand (cont.)

- In the long-run, both inputs can be adjusted
- The optimal employment level is such that:
$$MRT = f_H / f_K = w / r$$
- If the wage decreases, the demand for H increases because of both a *substitution* and a *scale* effect (while K decreases if substitution dominates scale)
- Again: downward-sloping labor demand

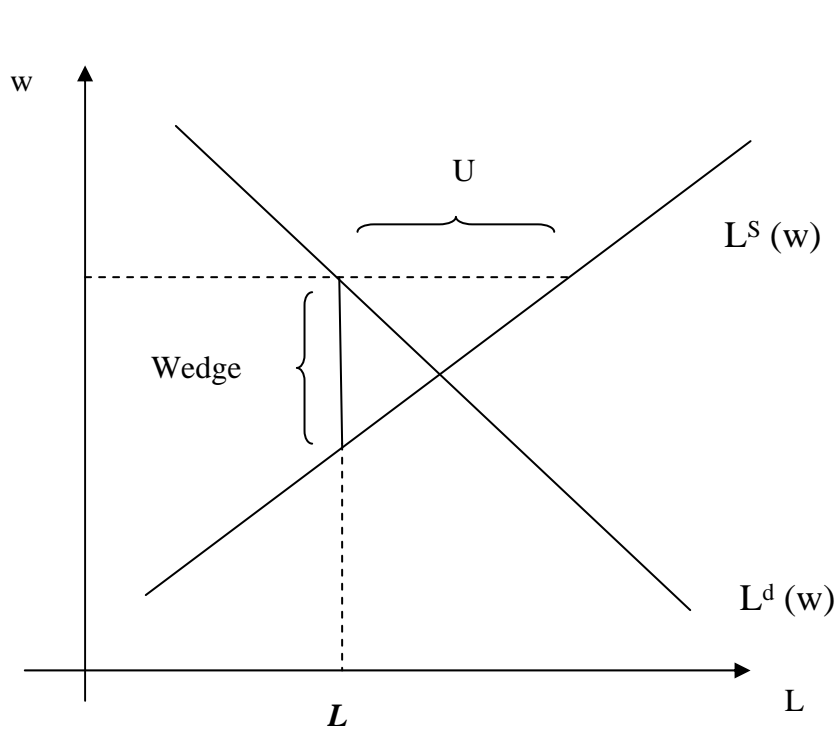
Efficiency of competitive labor markets



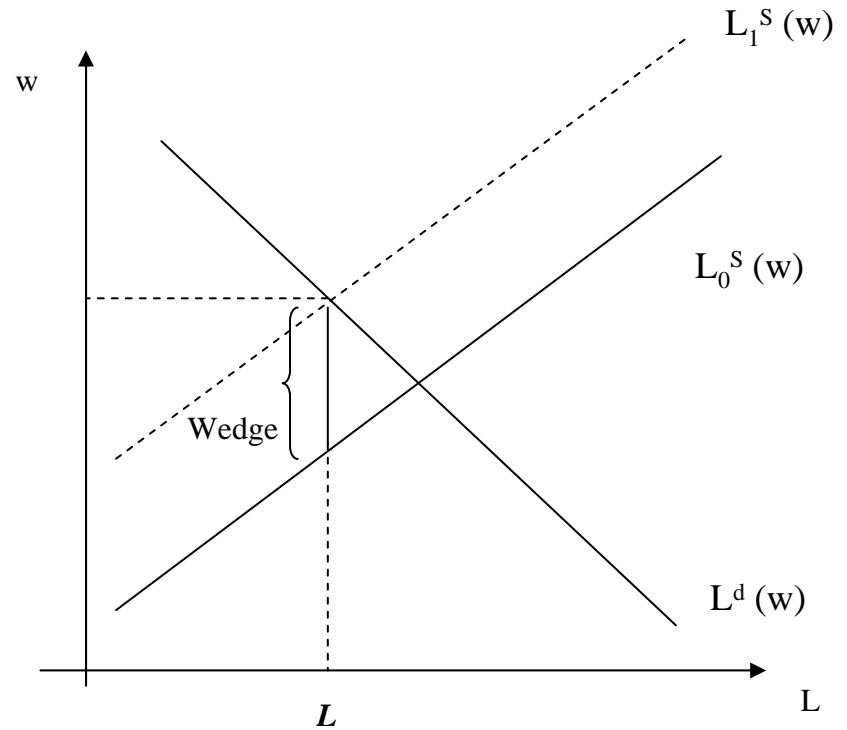
The deadweight loss of wage controls



Institutions and wedges



Price-Based Institutions and the Wedge



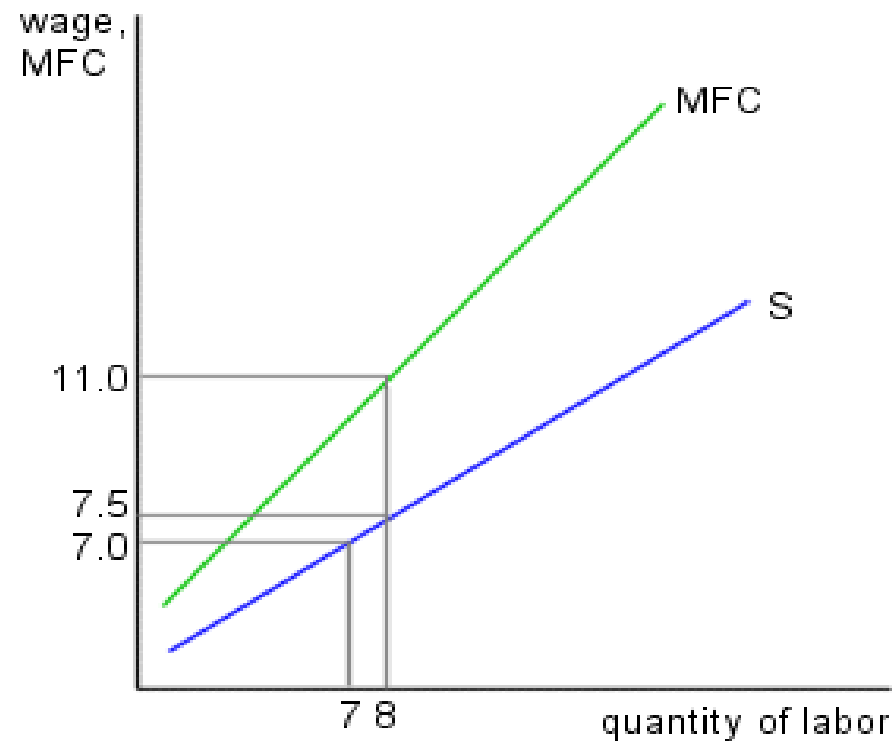
Quantity-Based Institutions and the Wedge

Market imperfection: Monopsony

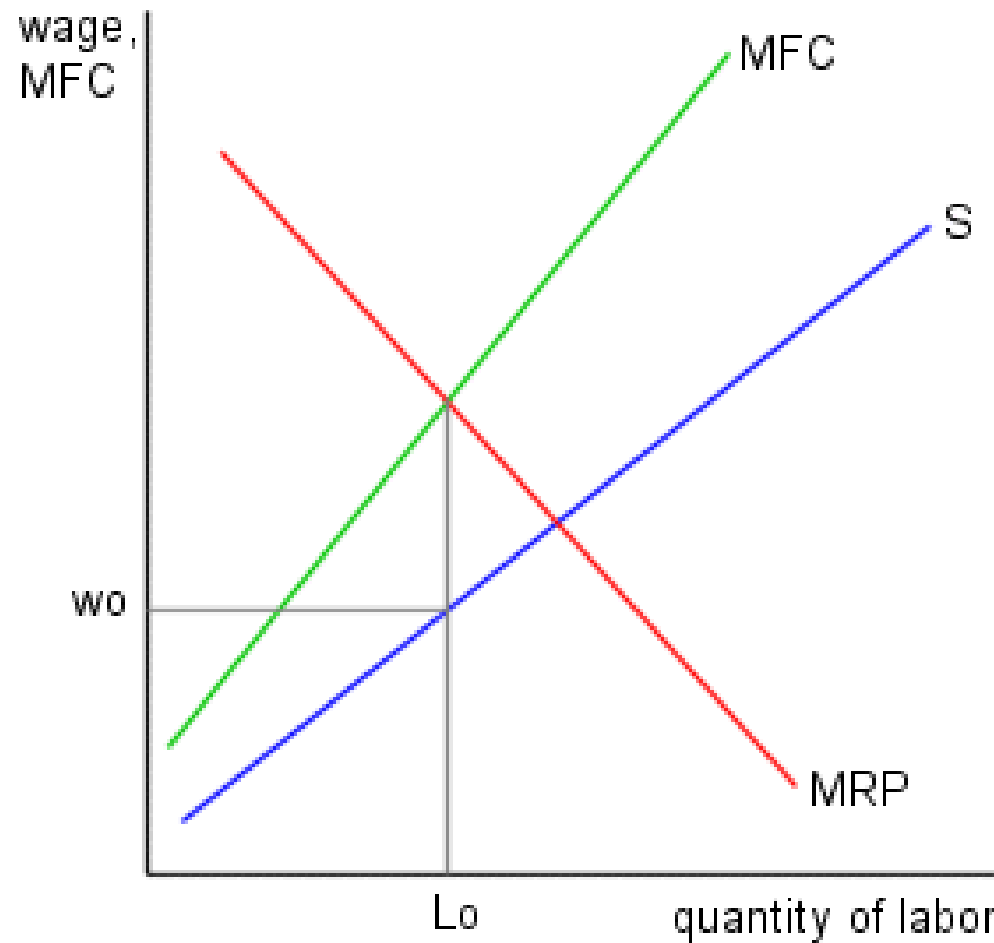
- A *monopsony* occurs when there is a single buyer of a good
- In the case of labor, a monopsony occurs when only one firm hires workers in a given market
- A monopsonistic firm faces the entire market labor supply curve, which is upward-sloping instead of horizontal (competitive firm)
- A *perfectly discriminating* monopsonist hires the same amount of workers as in the competitive equilibrium (but it captures the total surplus)

A non-discriminating monopsonist

- For a *non-discriminating* monopsonist, marginal cost greater than the wage: $w + w_L L = w(1 + 1/\epsilon_{LS}) > w$



Wage and employment determination under a monopsonistic labor market



Market imperfection: Monopoly

- A *monopolist* faces a downward-sloping demand in the *product market* ($MR < p$)
- The value of the marginal product of labor equals: $VMP = MR \cdot MP = pQ_L + p_L Q < pQ_L$
- Given the wage, the (derived) labor demand of a monopolist is lower than the demand of a competitive firm

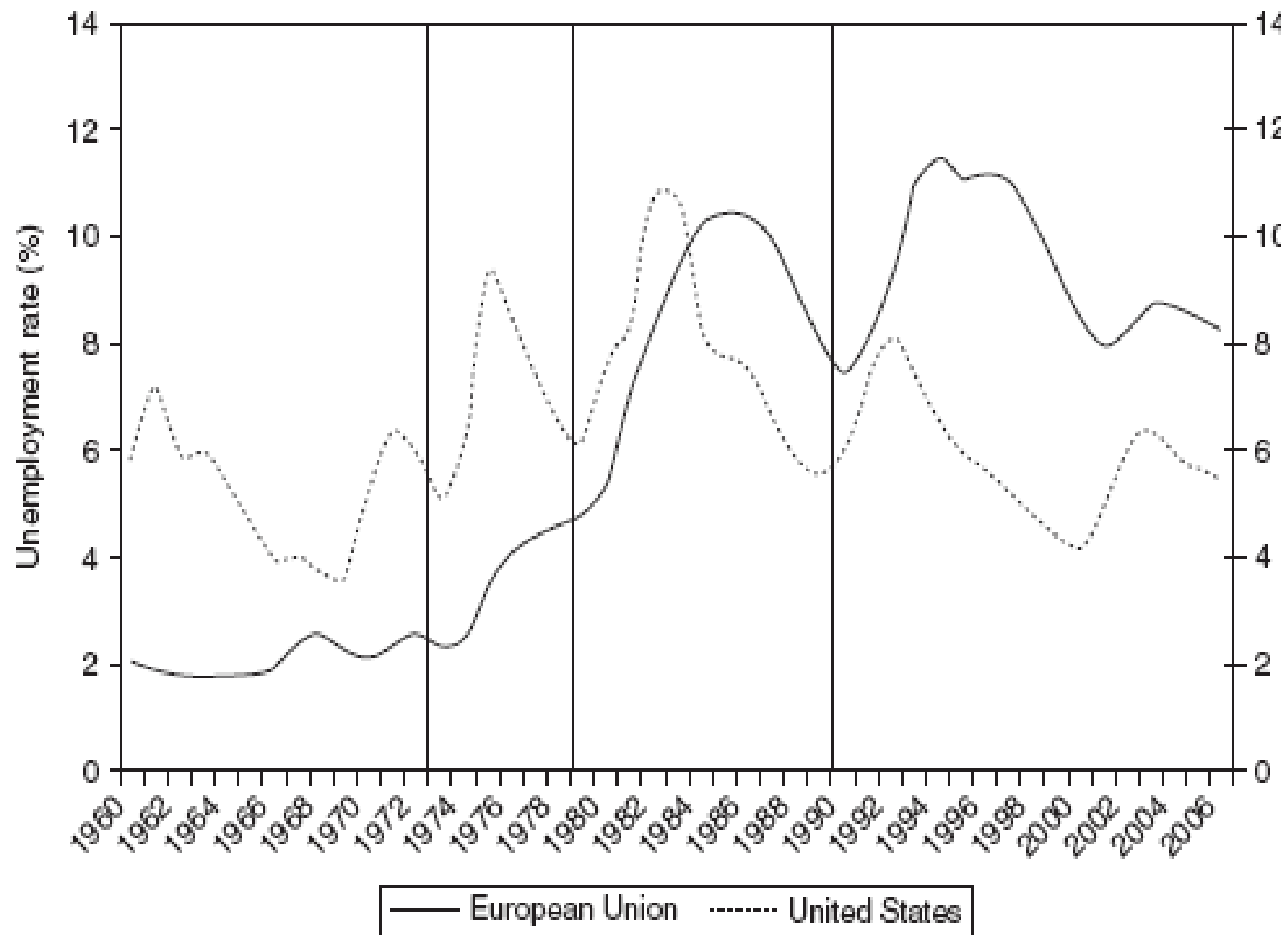
Why Institutions?

Three main arguments for their existence:

- 1. Efficiency:** such a thing as a competitive labor market does not exist
- 2. Equity:** as no lump-sum transfer is available, redistribution is distortionary
- 3. Policy failures:** heterogeneity and powerful minority interest groups; inertia of institutions (path dependency)

Increasing employment bias?

- In the 1950s and 1960s US enviously looking at European institutions. In the 1980s and 1990s the other way around. How is that possible?
- Interactions between shocks and institutions (e.g., shocks create unemployment, while labor market rigidities make it long-lasting)
- Under stronger competitive pressures, labor market institutions may have higher costs in terms of foregone employment



Source: Tito Boeri and Jan van Ours (2008), *The Economics of Imperfect Labor Markets*, Princeton University Press.

Stronger pressures for institutional reforms

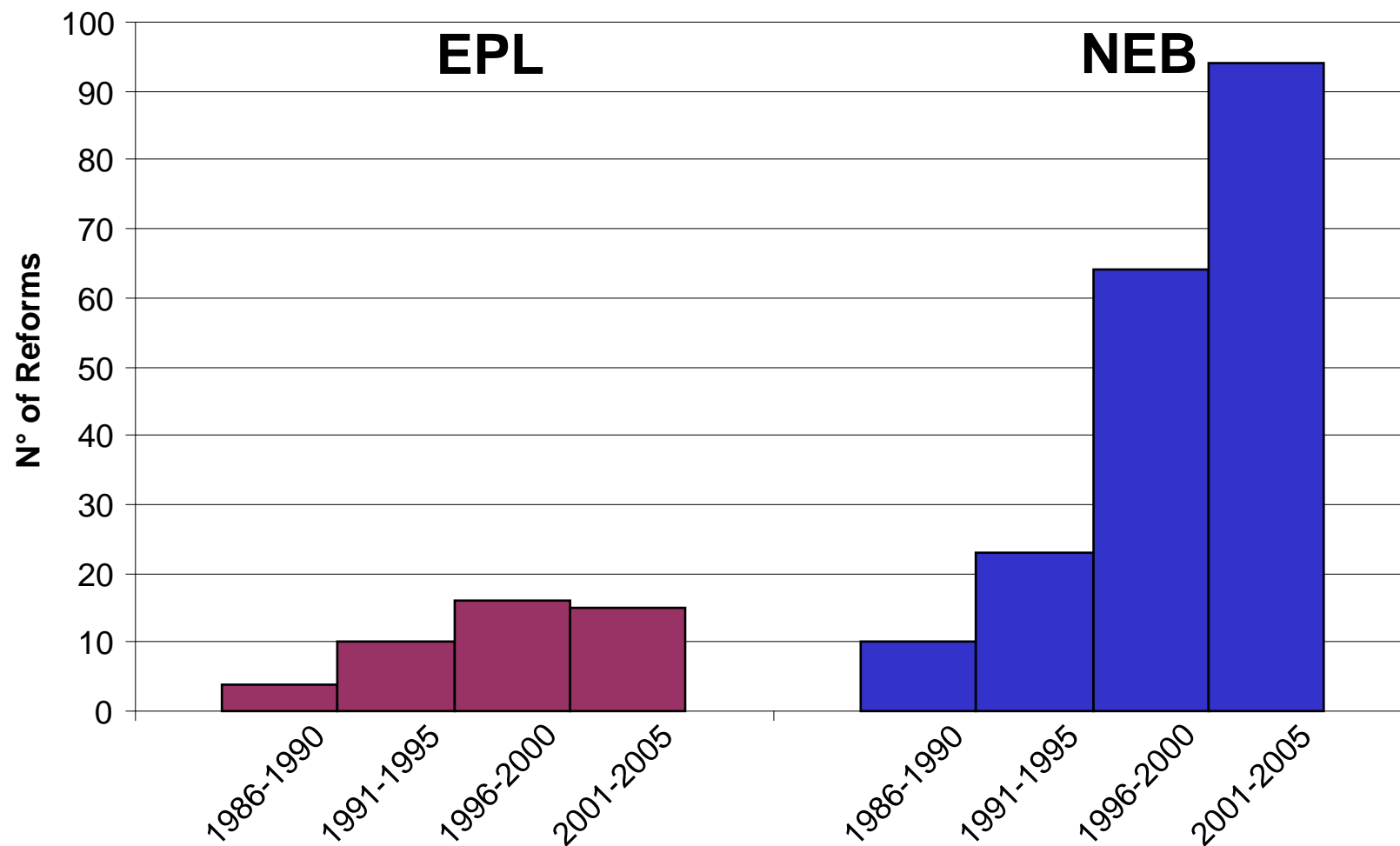
- Fondazione Rodolfo DeBenedetti inventory of labor market and social policy reforms
- Classified by *area* (e.g. EPL, NEBs, RET, MIG, WT), *direction* (increasing/reducing the wedge), and *scope* (structural/marginal)

Table 1.1 Number of Reforms of Labor Market Institutions in Europe (1986–2005)

		Decreasing the wedge				Increasing the wedge				Total per row	Of which decreasing (%)
		1986–90	1991–95	1996–2000	2001–5	1986–90	1991–95	1996–2000	2001–5		
EPL	<i>marginal</i>	5	7	14	12	8	7	20	18	91	42
	<i>radical</i>	–	4	4	2	–	2	1	1	14	71
NEBs	<i>marginal</i>	9	24	75	94	10	8	21	19	260	78
	<i>radical</i>	1	2	3	12	–	–	–	–	18	100
RET	<i>marginal</i>	12	22	24	25	11	9	16	16	135	61
	<i>radical</i>	1	4	5	3	1	–	–	–	14	93
WT	<i>marginal</i>	–	1	17	20	–	–	4	3	45	84
	<i>radical</i>	–	–	–	–	–	–	1	1	2	0
MIG	<i>marginal</i>	–	2	8	7	–	4	5	11	37	46
	<i>radical</i>	1	–	4	–	–	2	1	2	10	50
<i>Total per column</i>		29	66	154	175	30	32	69	71	626	68

Source: Tito Boeri and Jan van Ours (2008), *The Economics of Imperfect Labor Markets*, Princeton University Press.

Acceleration of reforms



Source: Tito Boeri and Jan van Ours (2008), *The Economics of Imperfect Labor Markets*, Princeton University Press.