

# *Module 2: Theory of Labour Markets*

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*2<sup>nd</sup> SARNET Training on Labour Economics for Young Scholars*

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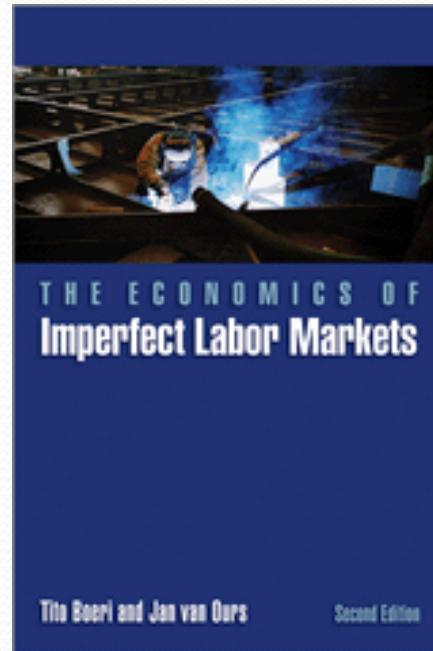
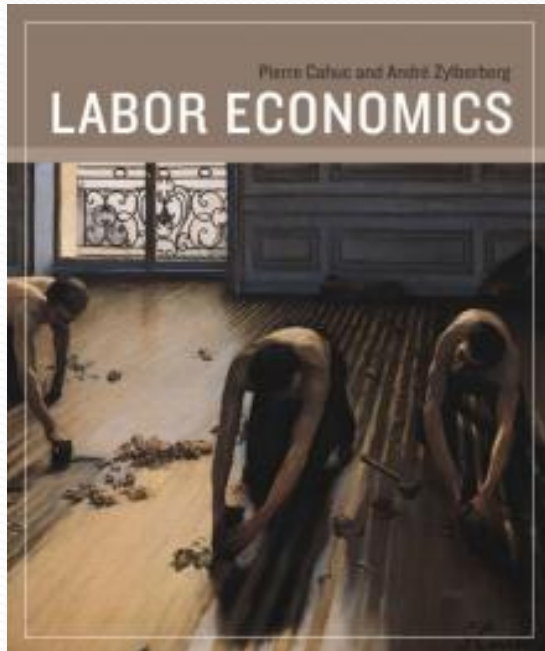
2-13 December 2014

# Overview

1. Review basic concepts
2. Labour supply
3. Labour demand
4. Competitive labour markets
5. Education and human capital theory
6. Imperfect labour markets

# Reading list

- Cahuc and Zylberberg (2004)
- Boeri and van Ours (2008)
- Cazes and Verick (2013)



# Basic concepts

- What is labour economics?
  - “..is the study of the markets in which labor services are exchanged for wages.”  
Cahuc and Zylberberg (2004)
  - In practice, it covers many topics such as unemployment, wages, discrimination, job search, impact of labour market institutions, etc.
  - In South Asia, it is firmly linked to the broader issue of development

# Basic concepts

- Theory has played a strong role in driving “priors” on the nature of labour markets (all markets for that matter)
  - Adam Smith posited a theory of trade based on a perfectly competitive labour market
  - Post-1929, economists focused more on imperfect competition
  - Since 1970s, labour economic has become a mainstream topic, with strong theoretical and empirical contributions

# Theory's influence on the policy agenda

- Which theories have had the most influence on the policy agenda?
- What are the functions and limitations of an economic model?
- Who has won the Nobel Prize for Economics for a contribution most relevant to labour economics?

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# Neoclassical theory of labour supply

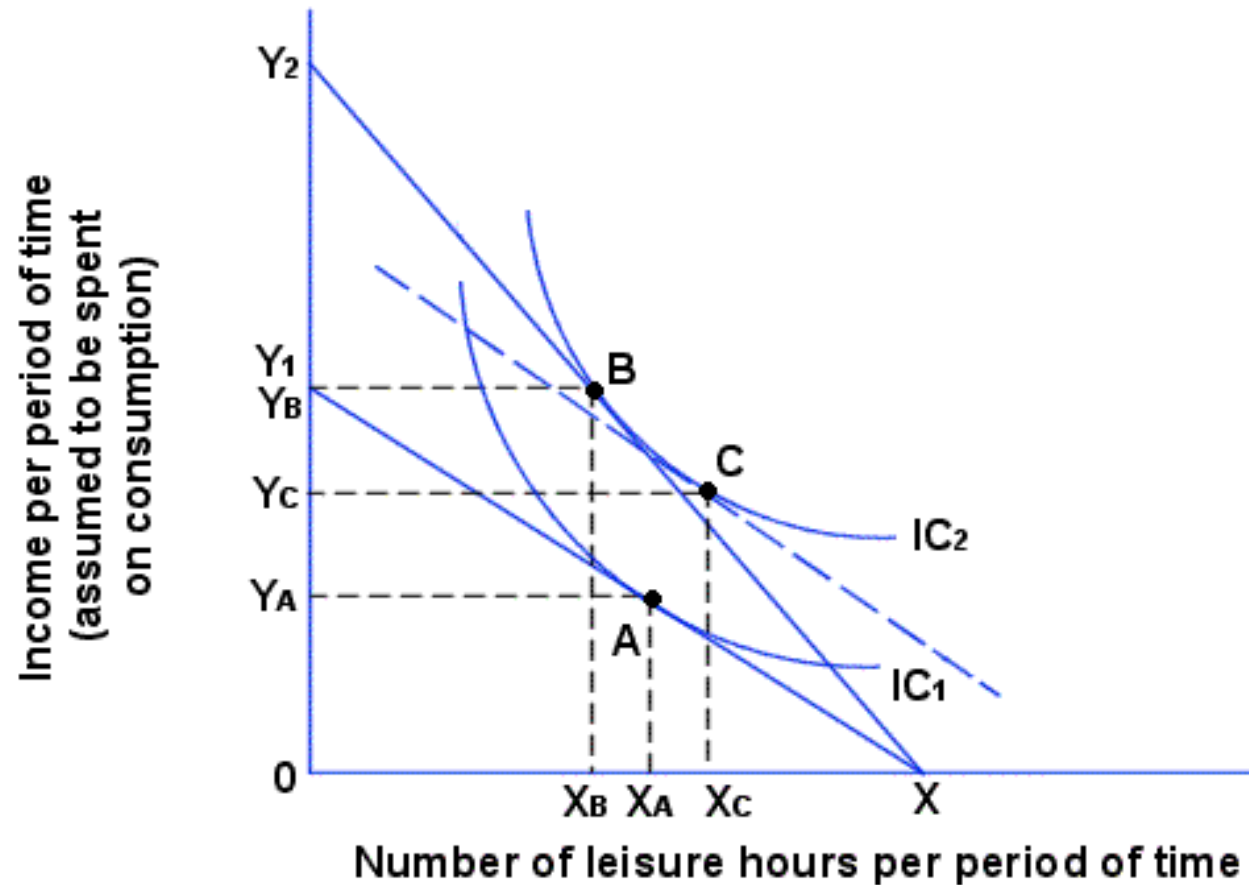
- **Basic model:** trade-off between consumption and leisure
- Supply of an individual is positive if wage > **reservation wage** (depends on preferences and non-wage income)
  - Reservation wage = marginal rate of substitution between leisure and consumption at the kink of the budget constraint
- Relationship between  $L_s$  and  $W$  is determined by the substitution and income effects



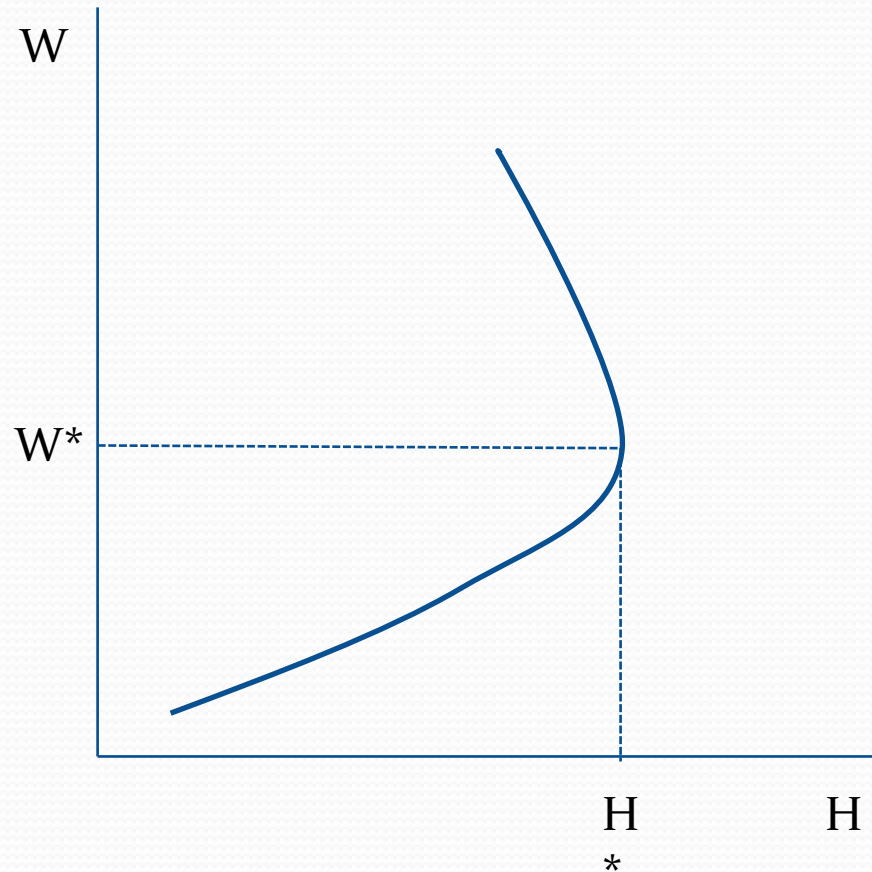
# Labour supply

- **Substitution effect:** if income is held constant, an increase in the wage rate will raise the price and reduce the demand for leisure, and thus increasing work incentives.
- **Income effect:** if income increases, holding wages constant, desired hours of work will go down -> as incomes rise, holding leisure's opportunity cost constant, people will want to consume more leisure
- What will result in only an IE but not an SE?

# Labour supply



# Labour Supply



Is this  
realistic?

# Household models of labour supply

- **Unitary model:** household with more than 1 member ( $U(C, L_1, L_2)$ ) but assumes utility is only due to total  $C$  and  $L$ , not the distribution
- **Collective model:** does not assume income pooling
- What can a crisis/economic downturn do to labour supply?

# Household models of labour supply

- Two effects during a crisis
  - **Added worker effect:** Facing a loss in income (and desire to smooth consumption), other household members join the labour force
  - **Discouraged worker effect:** A fall in expected wage (due to lower wages and probability of finding a job), workers withdraw from the labour force

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# Labour demand

- Labour demand is **derived demand**
- **Profit maximization** - demand for factors of production –  $Y = F(K,L)$
- **Short-run** (capital is fixed but labour is flexible):
  - Firms will hire workers till the point that the marginal value of the job equals the marginal cost
  - $MP_L = w/p$
- Aggregate labour demand will simply add up the number of jobs in each firm

# Labour demand

- **Long-run** (all factors of production are flexible):
  - Marginal rate of substitution:  $MP_L/MP_K = w/r$
  - The long-run demand curve for labour gives the number of workers at a given wage -> downward sloping
- **Static versus dynamic labour demand** (Hamermesh)
  - What can explain an non-linear adjustment in labour demand?



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# Competitive labour market

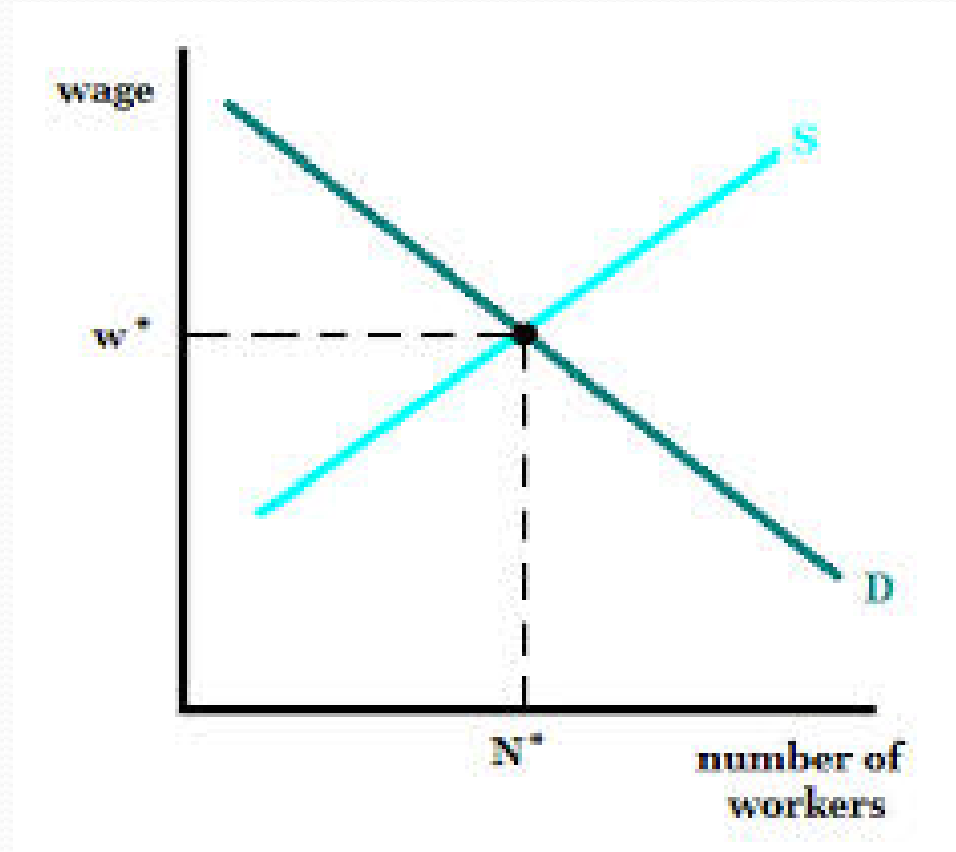
- **Assumptions**

- Perfect information about wages and job offers
- No frictions or costs involved in matching workers and vacancies (i.e. no job search cost)
- Workers are identical – so an employer can find any equally productive workers at the prevailing market wage

- **Equilibrium**

- Intersection of a downward-sloping  $L^d$  and upward-sloping aggregate  $L^s$  ( $w^*$ ,  $L^*$ )
- There is no unemployment - at  $w^*$ , no. of persons who want to work = no. of workers firms want to hire

# Competitive labour market



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# Education and human capital theory

- **Education** is a critical determinant of labour markets (theoretical and empirically)
  - **Theory of human capital** – Becker (1974)
- The basic assumptions in the **human capital model of education** (Boeri and van Ours):
  1. More education leads to higher productivity
  2. Higher productivity leads to a higher wage
  3. Individuals choose their level of education based on financial considerations
- **Implication** -> Wage differentials will be determined by differentials in productivity, which are driven by investment in education and training

# Benefits and costs of education – individual choice (Boeri and van Ours)

Earnings and costs

$W_1$

$W_0$

0

$-C$

Foregone earnings

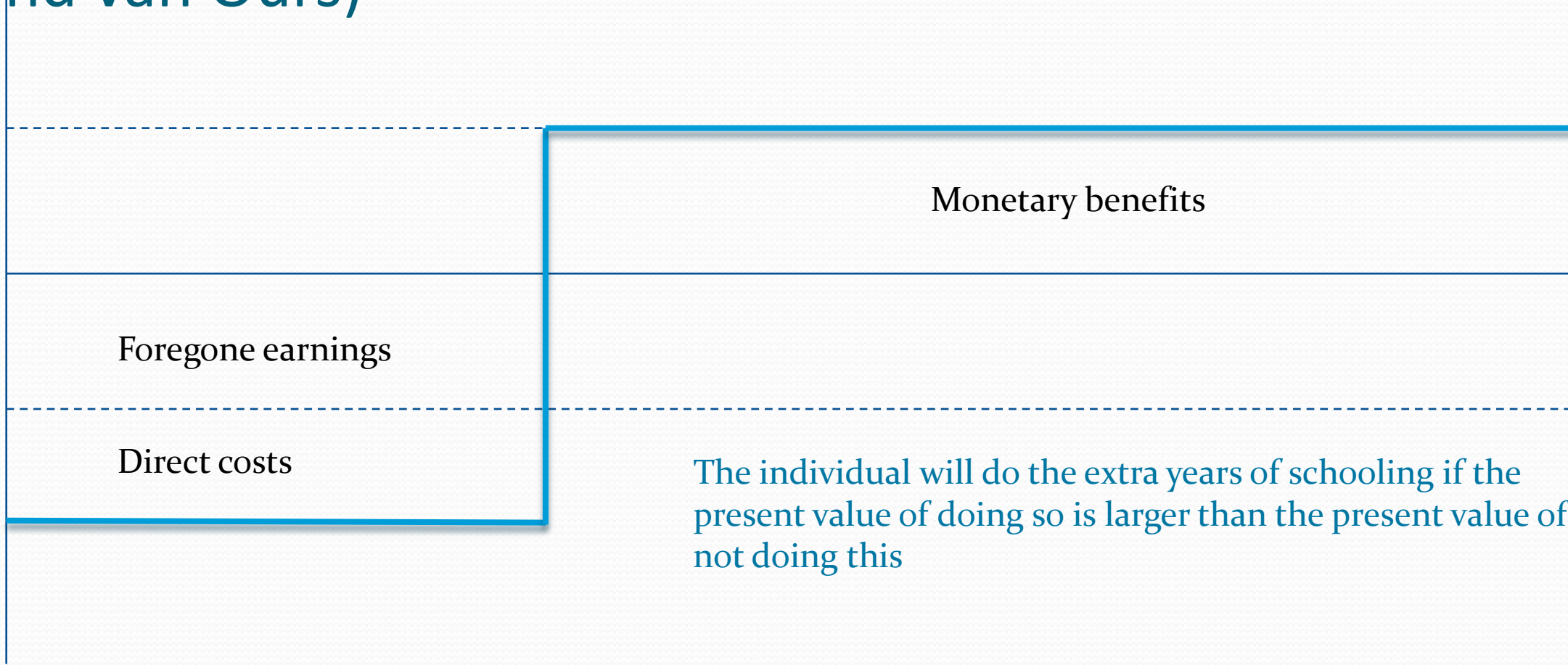
Direct costs

Monetary benefits

S

Years of schooling and age

The individual will do the extra years of schooling if the present value of doing so is larger than the present value of not doing this



# Education and human capital theory

- Competitive equilibrium and training
  - **General training** – firms will be reluctant to invest but worker will have an incentive to invest in training (but empirical work suggests otherwise – see Acemoglu and Pischke (1999))
  - **Specific training** – firms have stronger incentives to invest
- **Education as a signaling device** – Spence (1973)
  - Productive characteristics of individuals are unobservable so individuals invest in education to signal to employers
  - Can lead to over-education

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# Economics of imperfect labour markets

- Alan Manning, “*Imperfect Competition in the Labour Market*”: “In recent years, it has been recognized that many aspects of labour markets are best analysed from the perspective that there is some degree of imperfect competition”
- What constitutes “imperfect competition”?

# Economics of imperfect labour markets

- Manning
  - Worker -> Takes time and/or money to find another employer who is a perfect substitute for the current one
  - Employer -> Costly to find another worker who is a perfect substitute for the current one
- **Sources of imperfection**
  - Frictions – job search and matching, specific human capital
  - Market power and collusion
  - Labour market institutions

# Economics of imperfect labour markets

- What is relevant for developing countries, South Asia?

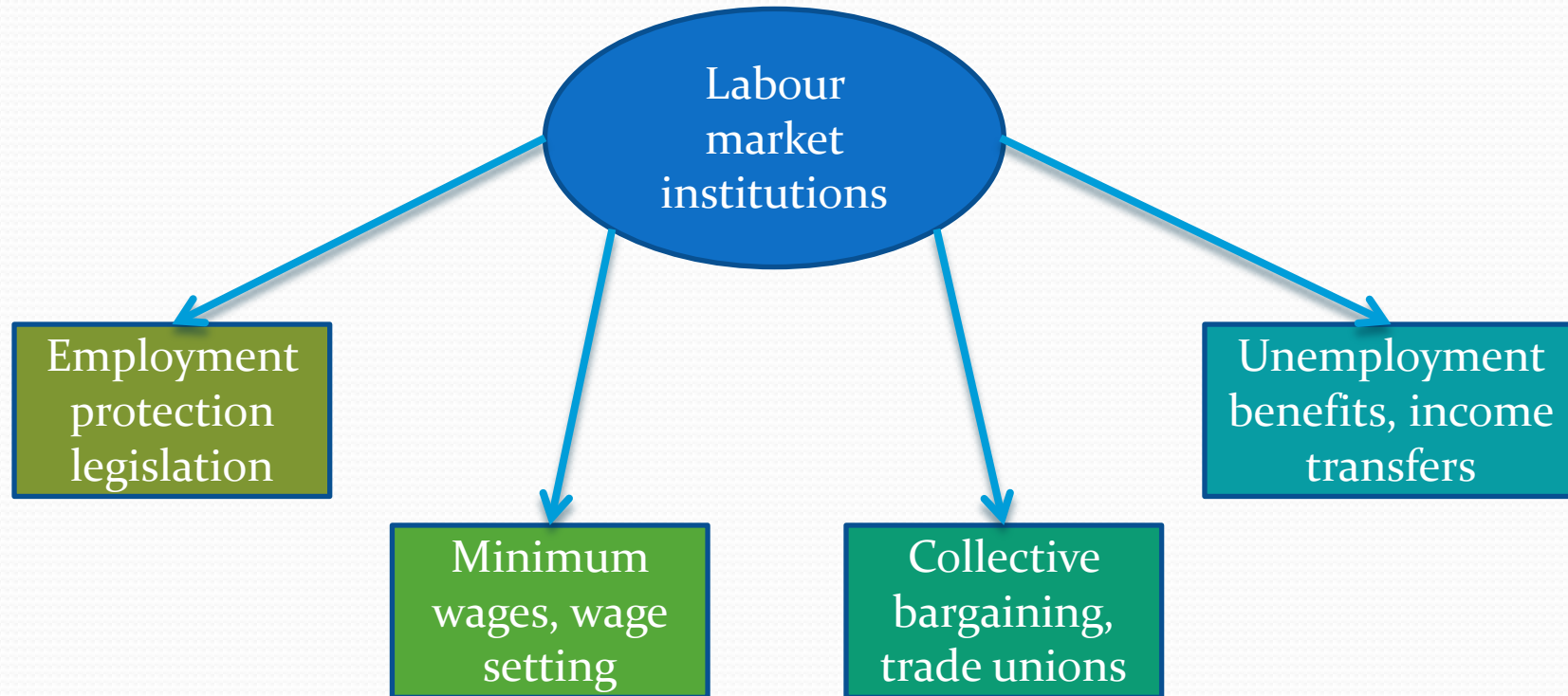
# Labour market institutions – Betcherman (2012)

- “The laws, practices, policies and conventions that fall under the umbrella of “labor market institutions” determine inter alia what kinds of employment contracts are permissible; set boundaries for wages and benefits, hours, and working conditions; define the rules for collective representation and bargaining; proscribe certain employment practices; and provide for social protection of workers.”

# Labour market institutions – Cazes and Verick (2013)

- A labour market institution is a system of laws, norms, or conventions resulting from a collective choice — at least in democracies — and providing constraints and incentives that influence individual choices over labour and remuneration.
- Labour market institutions usually refer to a long term horizon and are considered by individual as given when making their own decision.
- Often institutions are established by laws, but they can also be regulated by social norms or conventions.

# Labour market institutions defined



# Why do LMIs exist?

- Betcherman (2012); Boeri and van Ours (2013), WDR 2013:
  - **Efficiency:** labour market is imperfect
  - **Equity:** redistribution or to tackle discrimination
  - **Policy failures:** powerful groups establish institutions to secure benefits
  - **Stability:** avoid excessive churning and under-investment in training
  - **Crisis mitigation:** newer role that emerged in GFC

# Modelling LMIs – Boeri and van Ours (2012)

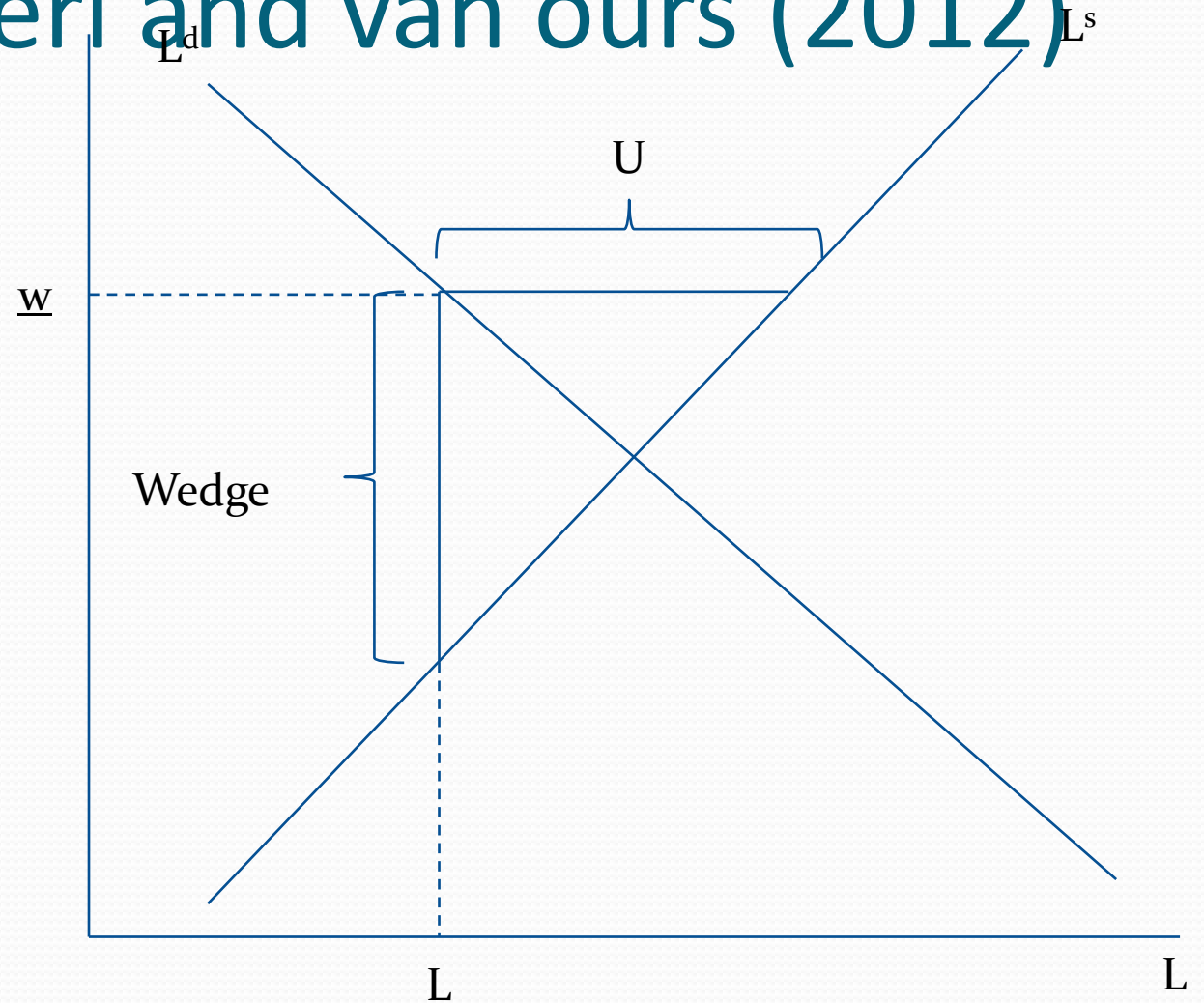
- All labor market institutions operate by introducing a wedge between labor supply and demand
  - **Price-based** – minimum wages, taxes, trade unions and unemployment benefits
  - **Quantity-based wedge** – employment protection legislation



# Modelling LMLs – Boeri and vanours (2012)

## Acting on prices

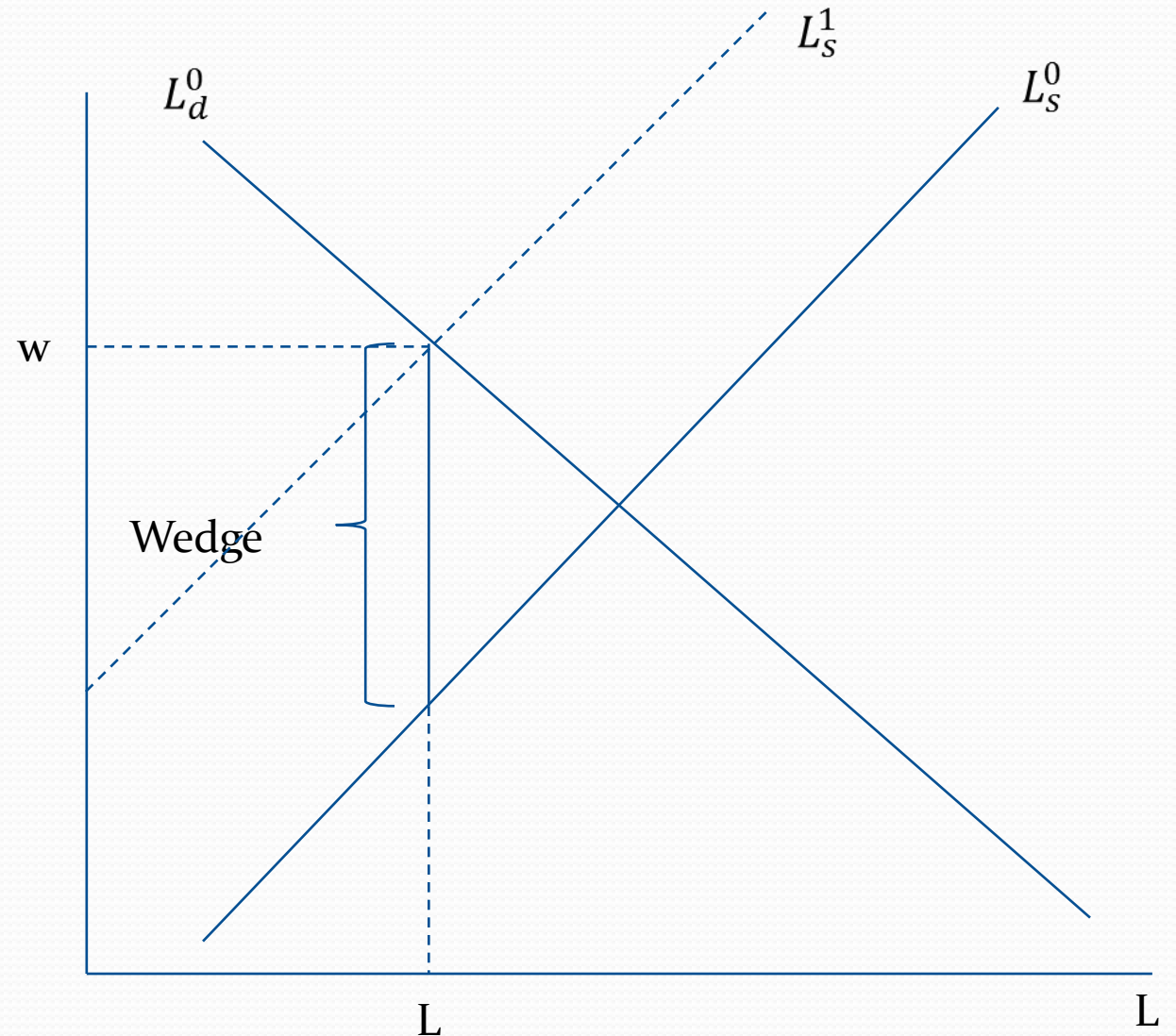
- Minimum wage
- Taxes on labor
- Trade unions affecting wages
- Unemployment benefits



# Modelling LMIs

## Acting on quantities

- Regulations of working hours
- Immigration policies
- Compulsory schooling age
- Employment protection legislation
- Early retirement programs



# Theory: impact of employment protection legislation (EPL)

- EPL = restrictions/rules that govern firing of workers (individual and collective) and use of temporary contracts
- EPL imposes adjustment costs on firms – adjusting workforce
- Theoretical impact depends on assumptions regarding workers, wages and nature of EPL

# Theory: impact of employment protection legislation (EPL)

- Neutrality result (Lazear 1990; Boeri and van Ours 2013)
  - Workers are risk-neutral
  - Wages are flexible
  - EPL consists only of a transfer (severance pay) – can be negotiated and spelt out in a contract
  - Results in a lower wage initially (but no employment effect)

$$(w - b) + \frac{w + SP}{1 + i} = w + \frac{w}{1 + i}$$

# Theory: impact of employment protection legislation (EPL)

- **EPL + risk aversion**

- EPL (bond) will cause a welfare loss for workers
- Utility losses associated with income fluctuations
- Workers will ask for monetary compensations for this loss. Costs increase for the employers

- **EPL + rigid wages**

- Has no effects on average employment or unemployment
- Lowers the volatility of employment over the business cycle, and
- Reduces profits.

# Theory: impact of employment protection legislation (EPL)

- **EPL as a tax** (e.g. payment to a third party such as a lawyer)
  - Deadweight costs from tax cannot be negotiated ex-ante
  - Cannot be undone by contractual arrangements
  - Effects on both job creation and destruction as employers anticipate these costs when issuing a vacancy
  - Reduce labour market flows (lower welfare for the unemployed – “outsiders”)
    - with EPL tax, there is less job creation, job destruction, and unemployment inflows, as well as unemployment outflows, and hence longer unemployment duration
  - Effects on stocks ambiguous

# Theory: impact of employment protection legislation (EPL)

- What is the impact of a threshold after which an enterprise is covered by a law restricting firing of workers?
- Why do governments use such exemptions in laws?
- What would be an alternative?

# Theory: impact of employment protection legislation (EPL)

- **Summary of costs:**

- EPL imposes costs on firms when adjusting the number of workers
- EPL will moderate employment fluctuations (hiring and firing, unemployment inflows/outflows) -> but net effect on employment (and unemployment) levels is ambiguous (Bentolila and Bertola 1990)



# Theory: impact of employment protection legislation (EPL)

- **Summary of costs:**

- EPL acts as a disincentive for firms to grow -> **threshold application of rules** (e.g. Germany, Italy, “missing middle” in India)
- EPL encourages (high turnover) firms to remain in the informal sector (e.g. Kugler 2004)

# Theory: impact of employment protection legislation (EPL)

- **Summary of benefits:**

- **Individual/HH:** Protect workers from (unfair) dismissal; prevent exploitation of temporary workers; provide insurance against job loss
- **Enterprise:** Less turnover, greater investment in human capital
- **Macro:** Act as an “automatic stabilizer”

# Theory: impact of minimum wages

- As a **wage floor**, impact of minimum wages on LM efficiency and earnings inequality will depend on
  - Level the wage is set at in relation to the average/median wage
  - Nature of the labour market

# MW in a competitive LM

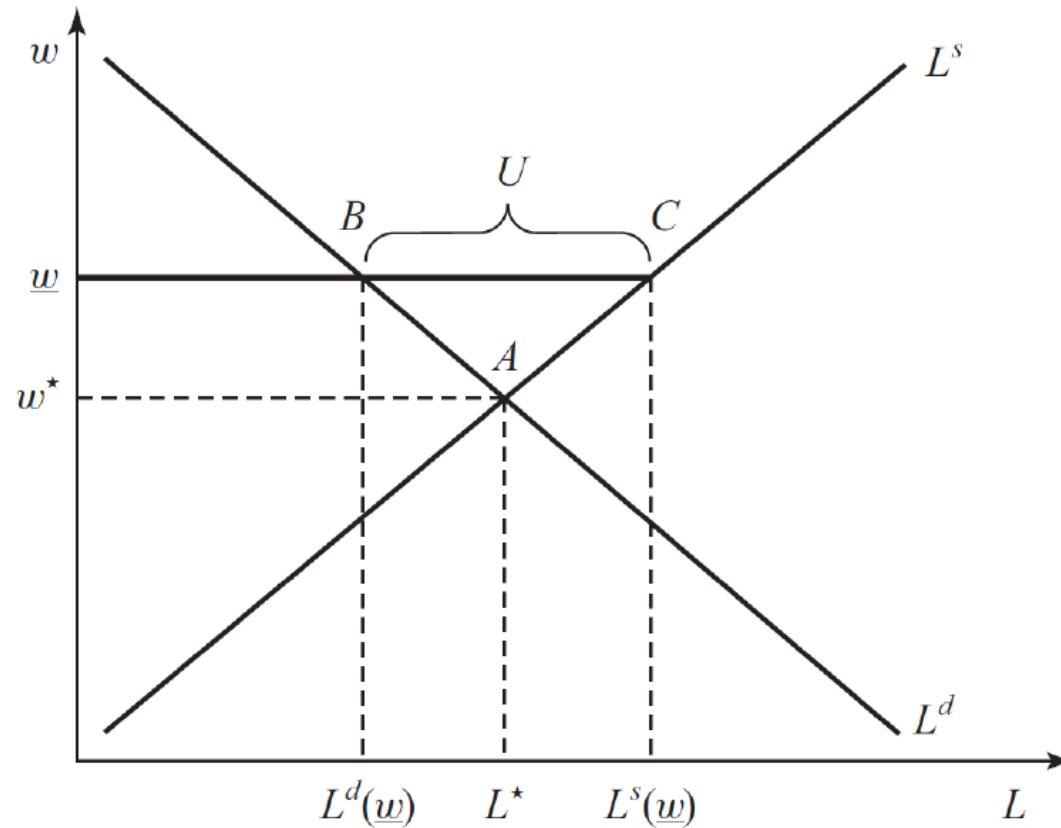


FIGURE 2.2 The minimum wage in a competitive labor market



# Minimum wages

When can a minimum wage increase employment?

# MW and monopsony

- A **monopsony** – single buyer of labour – leads to a very different result
- But how realistic is this assumption?
  - More realistic is that a few employers collude to suppress wages and extract rents from workers
- Introduction of a minimum wage in such a labour market
  - Increase in wages and employment (towards competitive equilibrium)

# MW in monopsony LM

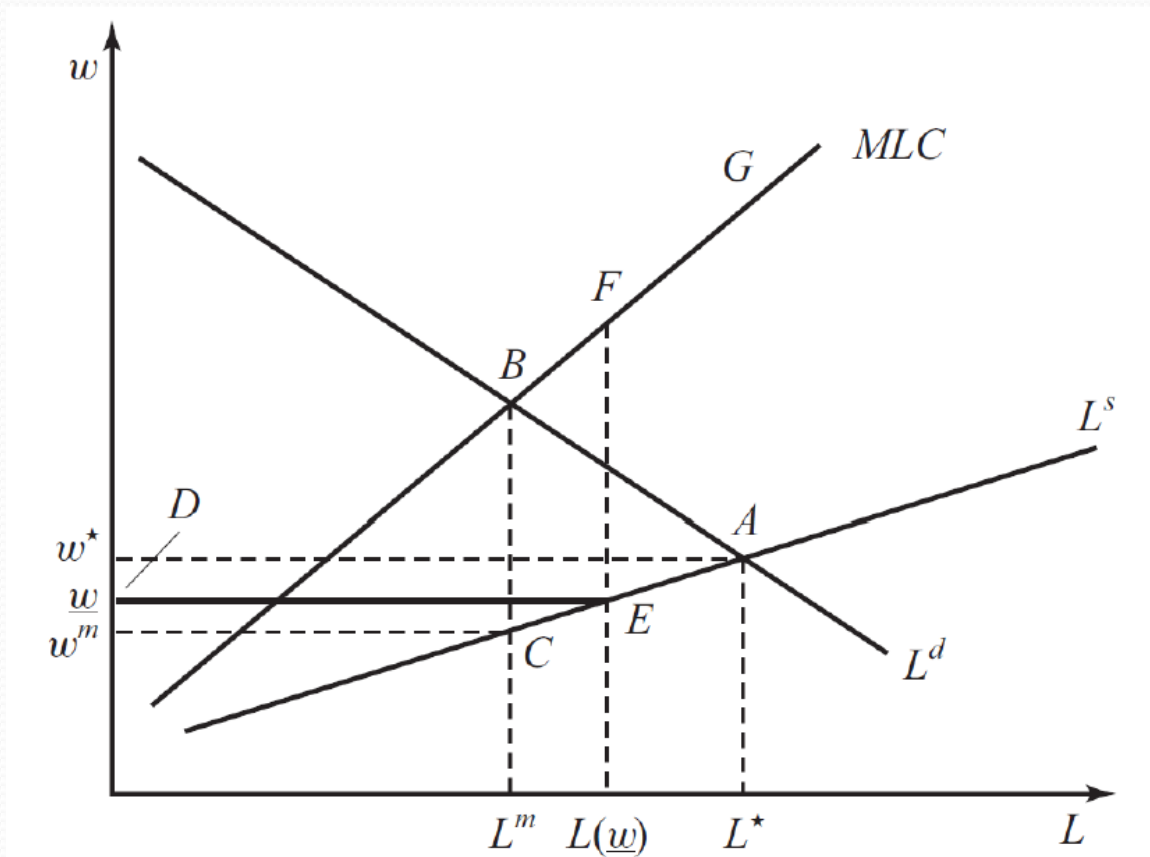


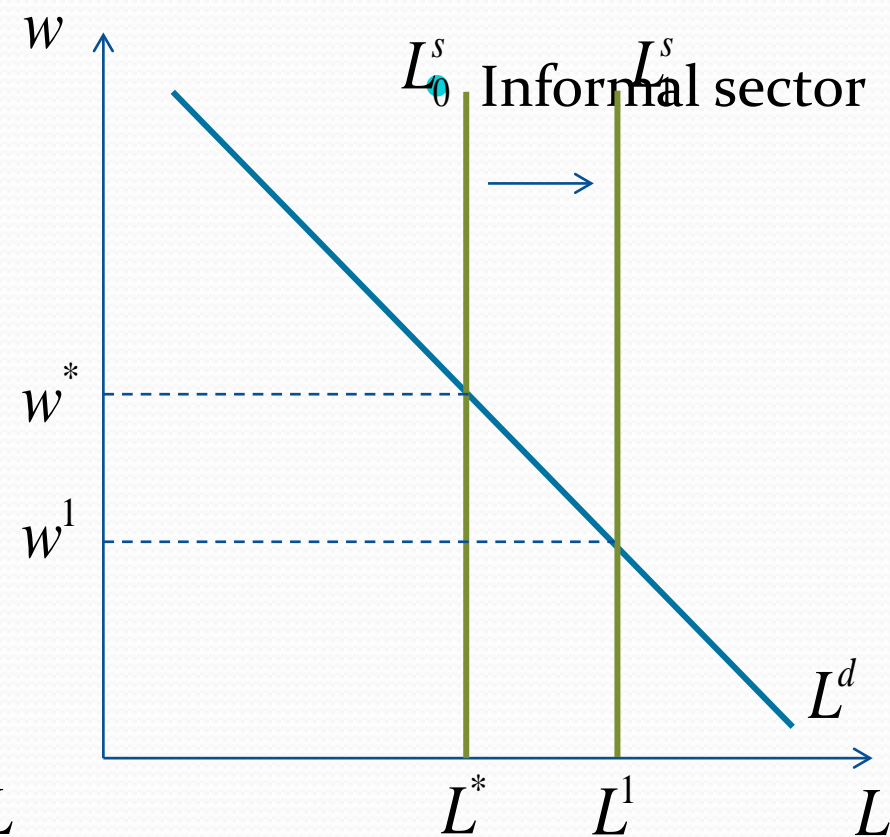
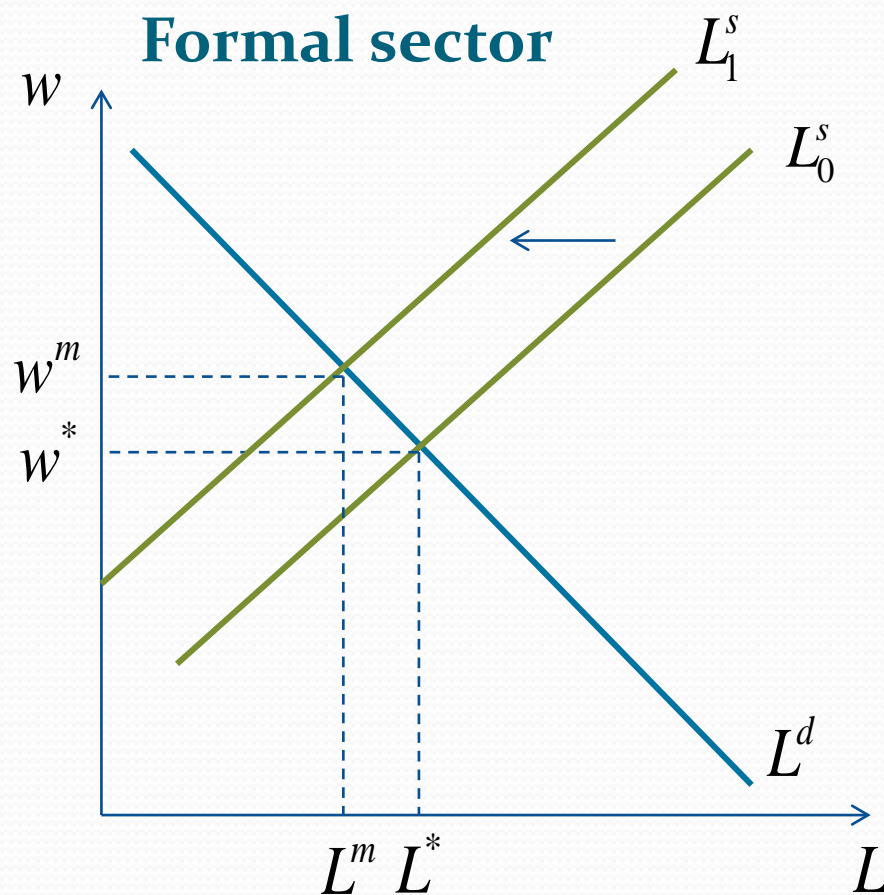
FIGURE 2.3 Monopsony and the minimum wage

# Spillovers to informal sector

- Minimum wages can lead to a spillover of workers in a dual labour market (e.g. Mincer 1974)
  - MW creates unemployment in formal sector
  - Unemployed workers shifts to informal sectors
  - Labour supply curve shifts to left in formal sector
  - Labour supply curve shifts to right in informal sector → wages in informal sector decline



# Spillovers in a dual labour market



- 
- Why are minimum wages often age dependent?

# Theory: impact of minimum wages

- **Summary of costs:** A rise in the MW can...
  - Destroy jobs (thus, only benefiting low-wage earners who remain in jobs) and result in higher unemployment if wages are set too high (above equilibrium wage)
  - Decrease employment in formal sector and increase employment in informal sector (with reduced wages)
  - Other channels: reduce working hours; change the composition of workers (shift to more skilled workers)

# Theory: impact of minimum wages

- **Summary of benefits**

- **Individual/HH:** Raise wages of the low paid; redistributes rents from firms to workers; reduces poverty; a moderate rise in MW can increase job search
- **Labour market:** Acts as a wage floor; +ve impact on informal sector wages (lighthouse effect)

# Theory: impact of minimum wages

- **Summary of benefits**

- **Enterprise:** Reduce monopsonistic power; increase training of low-wage workers (to make them more productive)
- **Macro:** Reduce poverty/inequality; support aggregate demand (consumption)

- 
- Do unemployment benefits/social transfers discourage people from working?

# Theory: impact of UB

- **Unemployment benefits** provide protection of income (unemployment risk is uninsurable in the presence of moral hazard and adverse selection)
  - UB schemes address **adverse selection** (workers have information on their own risk of job loss that is not available to insurance providers) by making it compulsory,
  - But UB schemes are not able to address **moral hazard** (reduced incentives to stay in a job and once unemployed, undertake job search) -> unless combined with activation strategies

# Theory: impact of UB

- Different features characterize a UB system:
  - *Assistance versus insurance*
  - *Level* of the income transfer compared to the previous (future) wage
  - Maximum *duration* for which they can be offered
  - *Eligibility* conditions (conditions for access)
  - *Entitlement* (rules for duration including sanctions after assessment of search intensity)



# Theory: impact of UB on a competitive labour market

- UB increase reservation wage which reduces labour supply -> leisure is a normal good (and hence the higher UB, the greater the value of non-participation)
- Larger UB, greater the increase in the RW and the greater probability a recipient won't work -> higher non-participation (but no unemployment!)
- UB have to be funded -> distortionary effect of taxation

# Theory: impact of UB on an imperfect labour market

1. *Job search effect* (increase reservation wage)
2. *Wage effect* (increase wages through improvement of bargaining position or through an increase in efficiency wage)
3. *Entitlement effect* (increase in participation of those not receiving UBs)
4. *Tax effect* related to funding of UBs

# Job search effect

- Takes time and it is costly to look for jobs
- Job seekers become more choosy. Longer duration of unemployment among UB recipients.
- They only accept job offers involving a higher wage
- An increase in the generosity of UB reduces the optimal level of search intensity
  - Job-finding probability declines, increasing the duration of unemployment

# Wage effect

- UB Increase the equilibrium market wage
  - Higher outside option of workers at the bargaining table (bargaining effect)
- UB may also increase the equilibrium market wage because they force employers to pay their employees more in order to deter shirking (“efficiency wage” effect). The penalty associated with unemployment is reduced in presence of UBs

# Entitlement effect

- UBs increase the value of employment
- More participation in the labour market (shifts across participation margins)
  - If UB only paid to active jobseekers, an increase in UB will result in a shift of individuals from inactivity to unemployment
  - Leads to an increase in labour supply
- Lower reservation wage of job seekers not receiving UBs.
- Higher job finding rates of unemployed not eligible to UBs.

# Theory: impact of UB

- **Summary of costs**

- Increases reservation wage and unemployment duration (reduces job search)
- UB schemes have to be funded -> distortionary impact of taxation

# Theory: impact of UB

- **Summary of benefits**

- **Individual/HH:** Protects incomes; consumption smoothing; alleviates liquidity (credit) constraints
- **Labour market:** Facilitate job search and improve quality of match between worker and vacancy (matching model); improve participation (to be entitled to benefits); increase mobility (encourage to take high-productivity, risky jobs)
- **Macro:** Acts as an “automatic stabilizer” and provides stimulus to aggregate demand

# Theory: impact of CB and TUs

- The role of trade unions and collective bargaining is more complex
  - Bargain over wages, working hours, overtime, other employment benefits, job security, and health and safety standards



# Theory: collective bargaining and trade unions

- A standard (and realistic) characterization of collective bargaining is one in which unions and employers' organizations bargain over wages, which are then taken as given by individual employers who have the right to manage
- This model predicts that the stronger the bargaining power of unions, the higher the wedge imposed by unions over the reservation wage

# Theory: impact of CB and TUs

- Economic theory suggests that unions increase wages above the reservation wages of individuals, extracting rents, if any are available, from employers.
- **Summary costs:**
  - Due to wage premium, increase unemployment (and protect insiders)
  - Negotiated working hours and pay reduce productivity
  - TUs extract rents

# Theory: impact of CB and TUs

- **Summary of benefits:**

- **Individual:** Improve bargaining power of workers (and efficiency in monopsony labour market)
- **Labour market:** Reduce labour turnover and increase earnings of workers
- **Enterprise:** Improve communication and flow information from workers to employers (reduce information failures) -> increase productivity
- **Enterprise:** Enhance industrial relations
- **Macro:** Support adjustment in response to a shock

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