

Input (Factor of Production) Markets

Introduction

- ◆ **Factor Markets**
- ◆ **Factors of Production: Land, Labour, Capital, Entrepreneurship**
- ◆ **Focus on Labour**
- ◆ **Review (to some extent)**

Derived Demand

- ◆ **The demand for a factor (say, labour) is a derived demand for the product that the factor produces.**

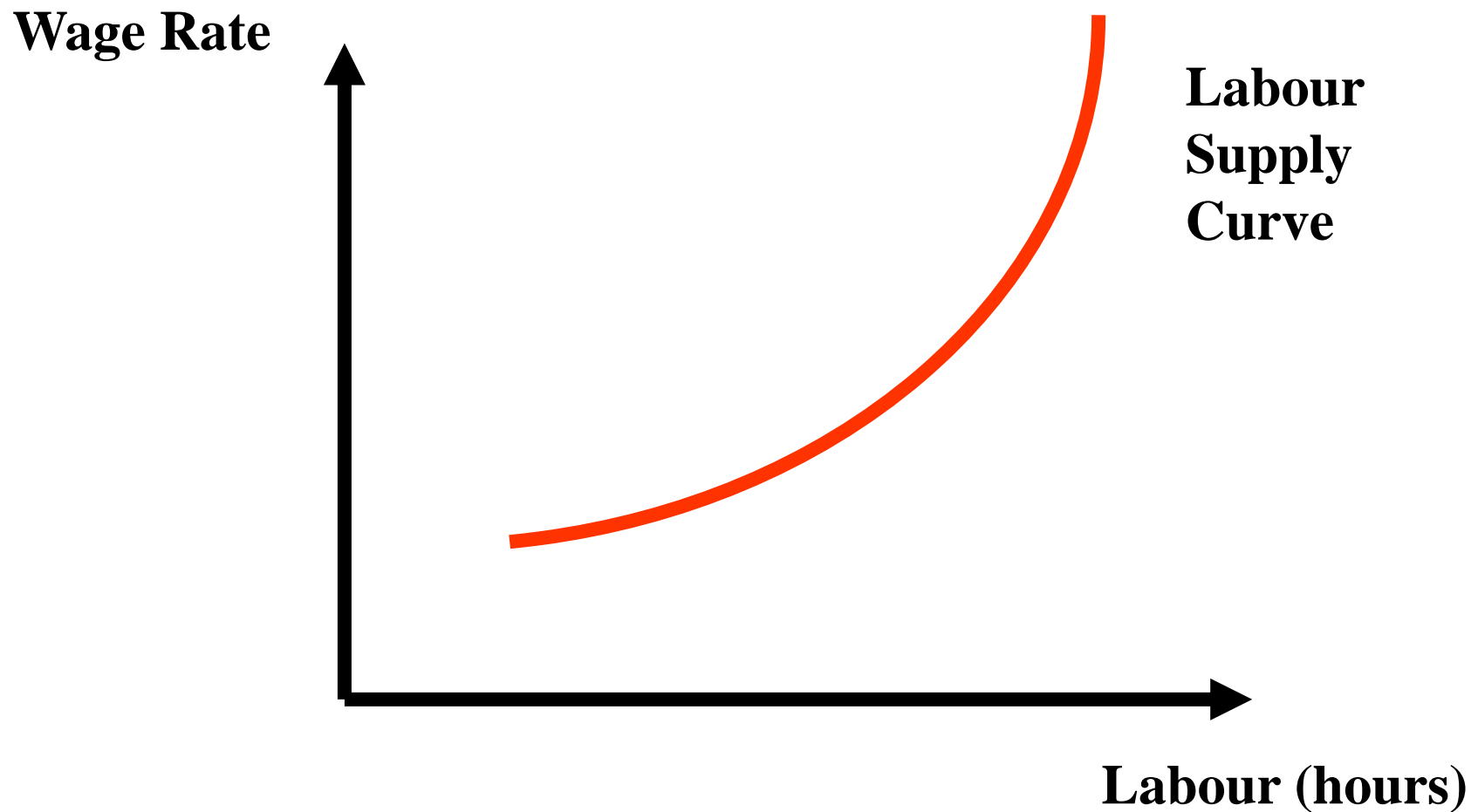
Individual Supply of Labour (Review)

Recall the income and substitution effects of a wage increase (i.e. labour-leisure trade-off)

**Substitution Effect: $w \uparrow \Rightarrow$ Price of Leisure $\uparrow \Rightarrow$
Demand for leisure $\downarrow \Rightarrow$ Supply of Labour \uparrow**

**Income Effect: $w \uparrow \Rightarrow$ Real Income $\uparrow \Rightarrow$ Demand
for leisure \uparrow (\downarrow) if leisure normal (inferior) \Rightarrow
Supply of Labour \downarrow (\uparrow)**

Market Supply of Labour (Review)



Labour Demand (Review)

Maximise output subject to $wL + rK = \bar{C}$

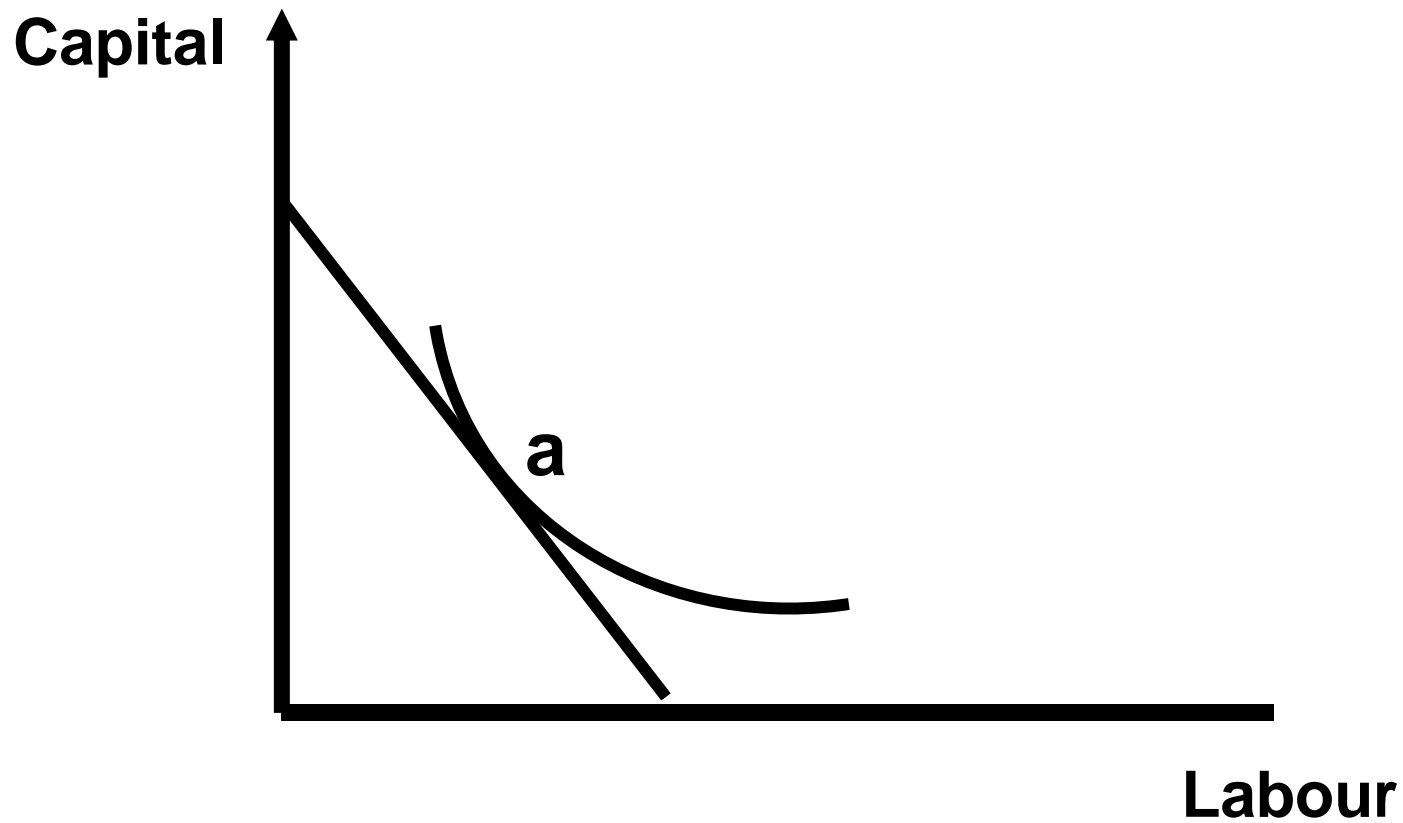
$$\rightarrow \frac{\partial L}{\partial w} \quad ?$$

Minimise cost subject to $F(K, L) = \bar{Y}$

$$\rightarrow \frac{\partial L}{\partial w} \quad ?$$

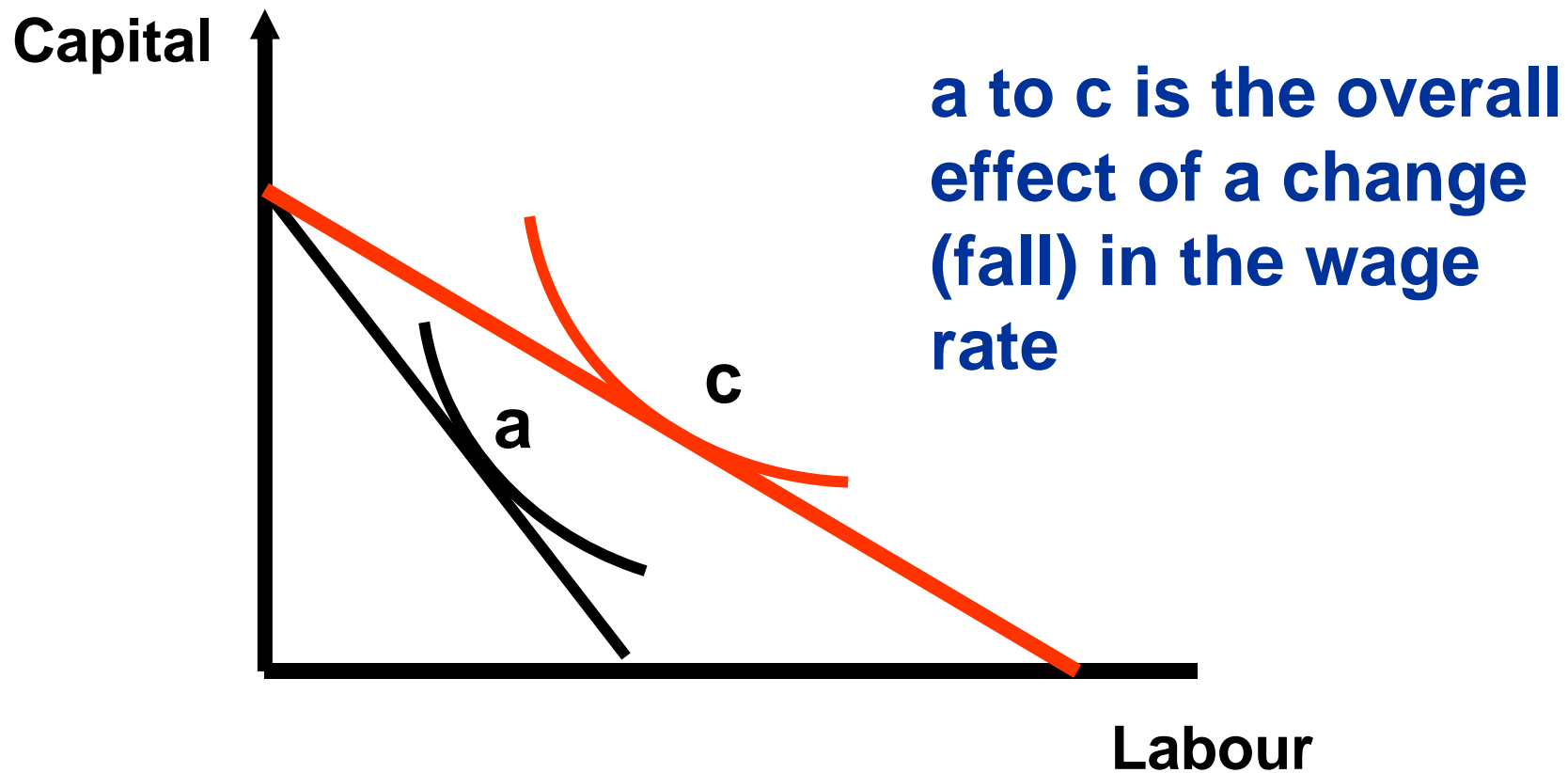
Labour Demand (Review)

Maximise output subject to fixed amount of costs



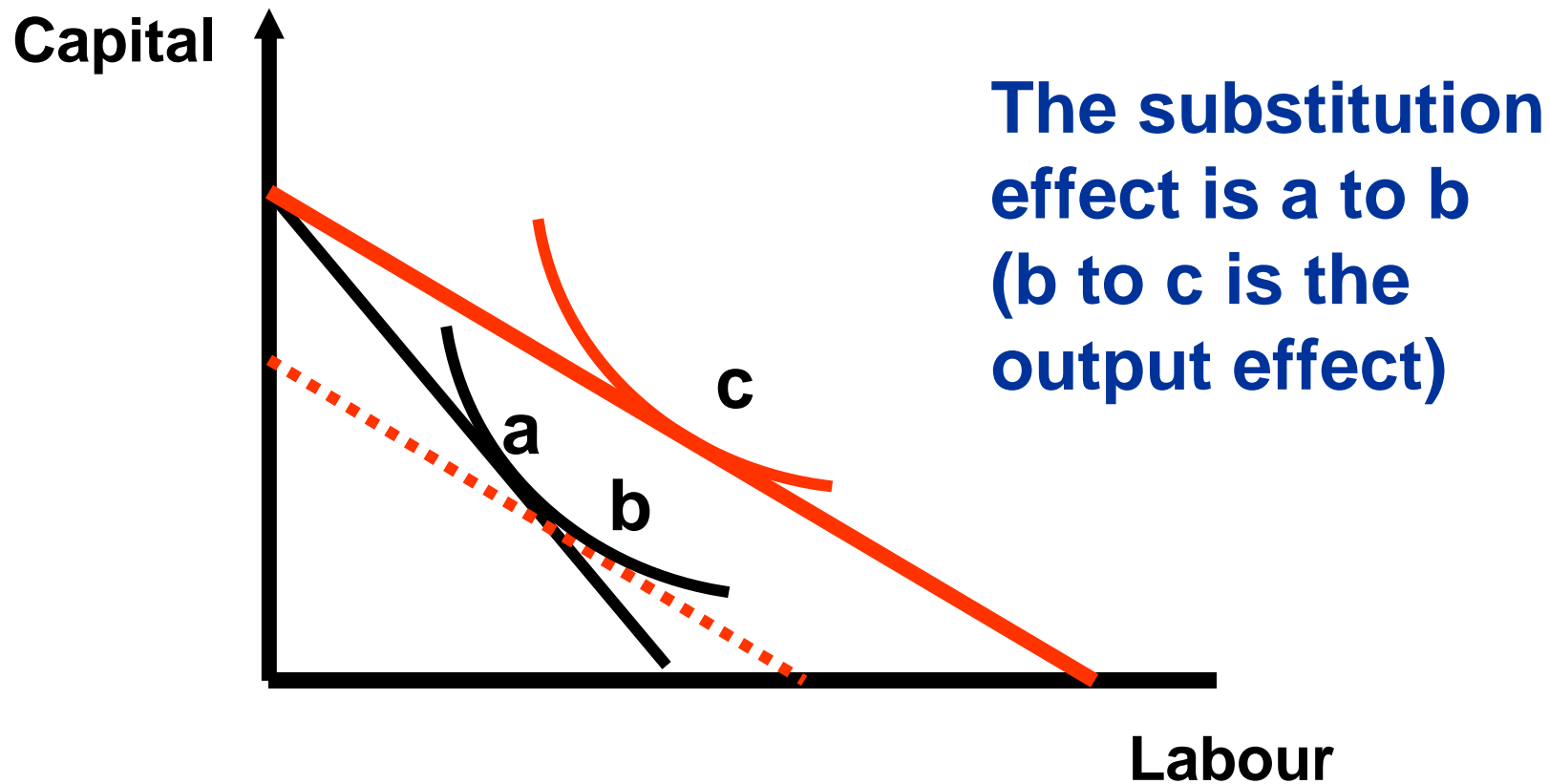
Labour Demand (Review)

Maximise output subject to
fixed amount of costs



Labour Demand (Review)

Maximise output subject to fixed amount of costs



Labour Demand (Review)

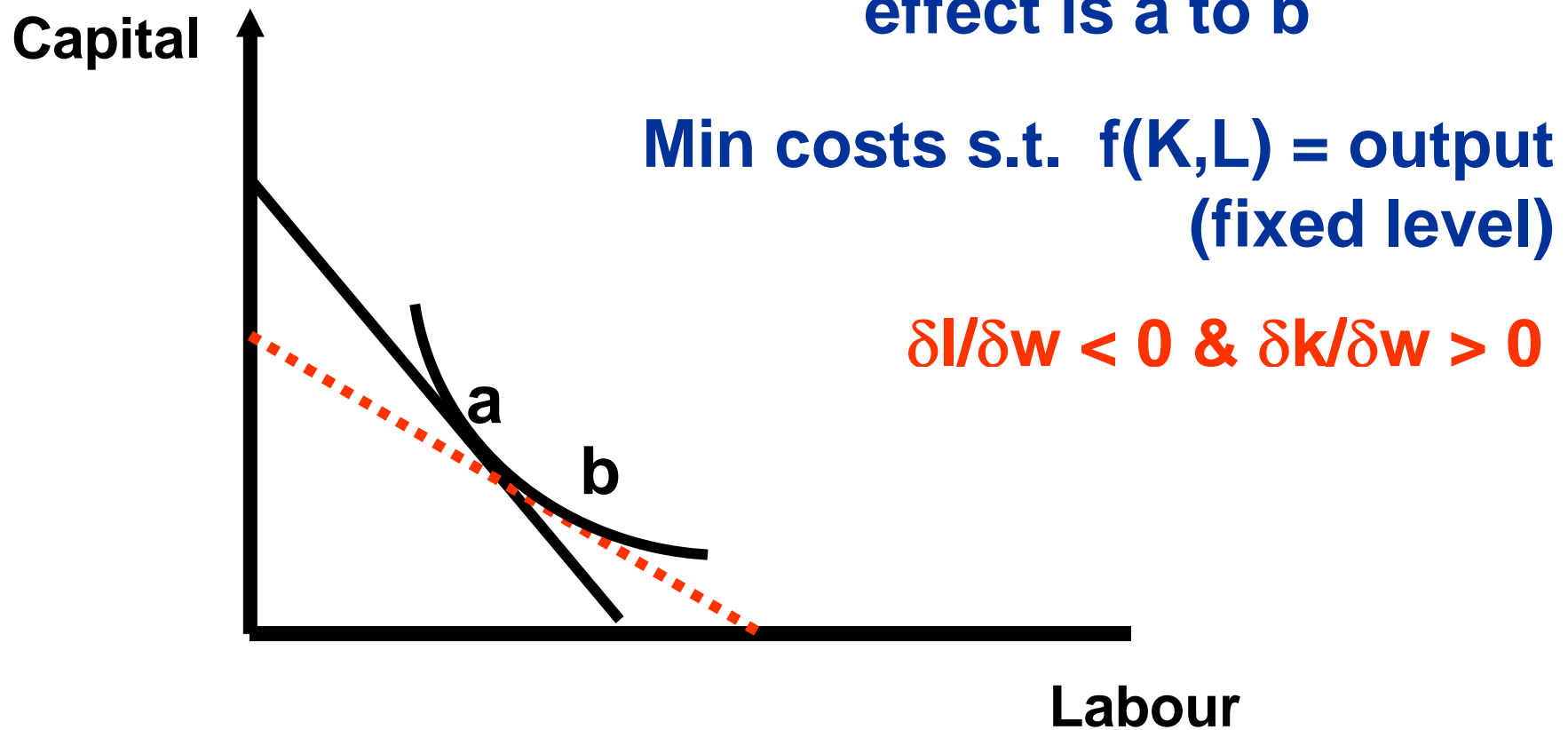
Minimise costs subject to output constraint


$$wL + rK = C$$


$$Y = f(K,L)$$

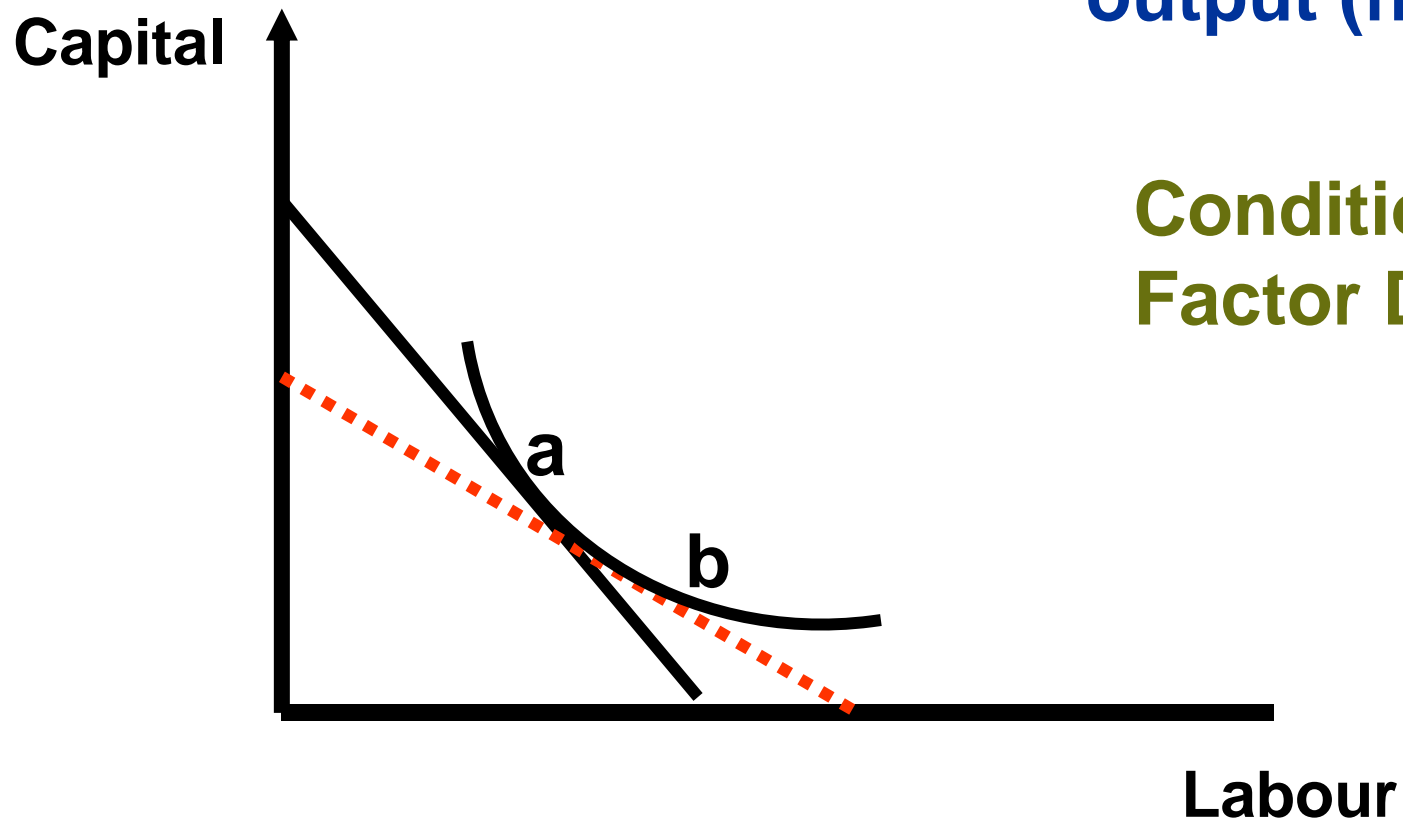
Labour Demand (Review)

The substitution effect is a to b



Labour Demand

Min costs s.t. $F(K,L) =$
output (fixed level)



Conditional
Factor Demand

Labour Demand: Agenda

- ◆ **Profit maximising labour demand curves – what determines the basic shape?**
- ◆ **Restrictions: Product and factor markets are assumed to be perfectly competitive.**

Labour Demand: Agenda

Short Run (capital fixed)

- ◆ Firm's demand curve for labour?
- ◆ Market demand curve for labour?

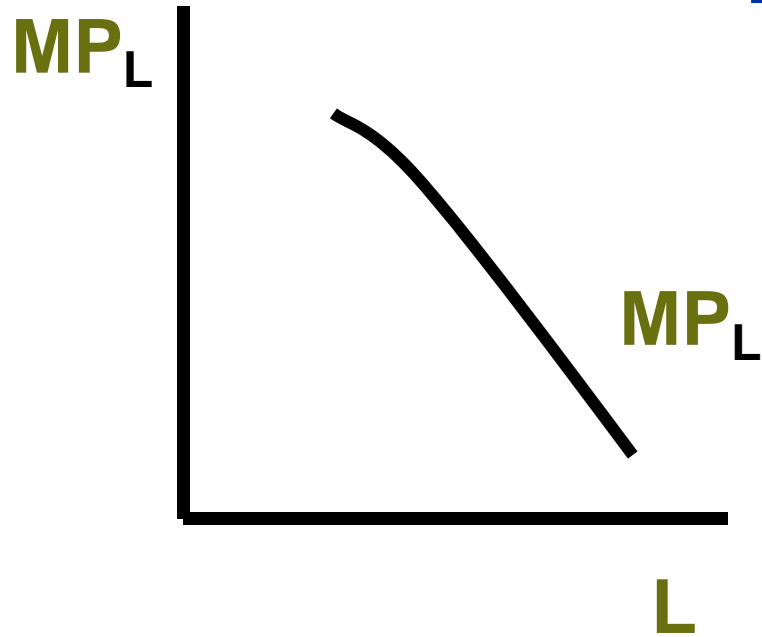
Long Run (capital variable)

- ◆ Firm's demand curve for labour?
- ◆ Market demand curve for labour?

Short Run: Firm's Demand for Labour

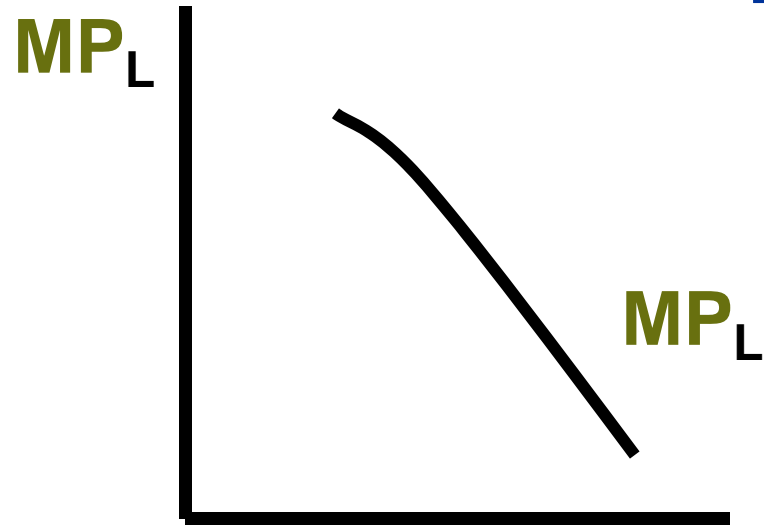
- ◆ Capital is fixed, Labour is variable.
- ◆ As labour is increased the extra output resulting from the additional unit of labour declines, i.e. MP_L declines.
- ◆ The additional revenue from employing an extra unit of labour is referred to as the Value of the Marginal Product (VMP_L) = $P \cdot MP_L$.

Short Run: Firm's Demand for Labour



Diminishing Marginal Returns

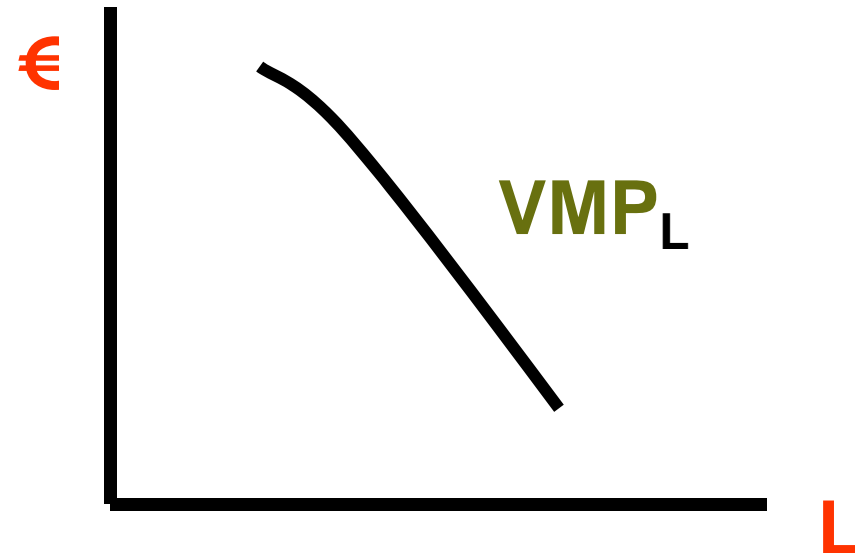
Short Run: Firm's Demand for Labour



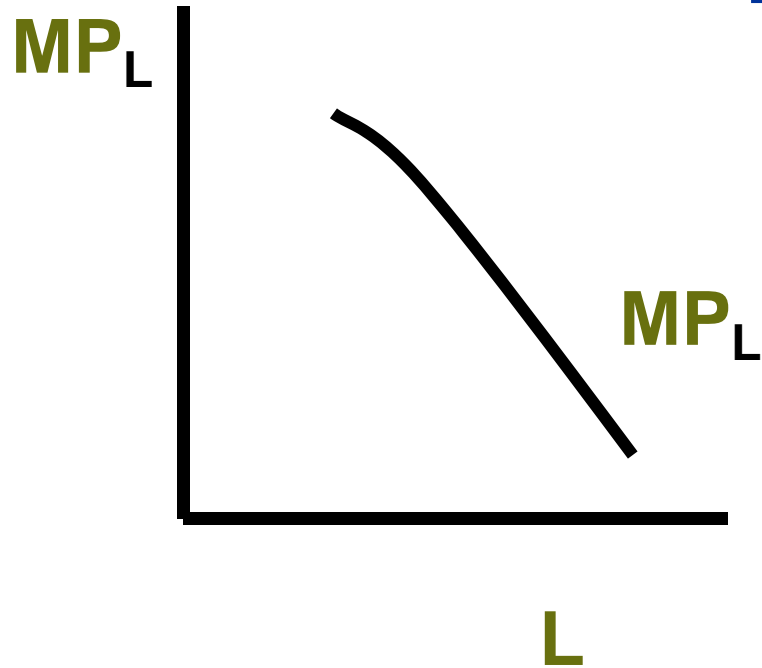
Diminishing Marginal Returns

L

$$VMP_L = P \cdot MP_L$$



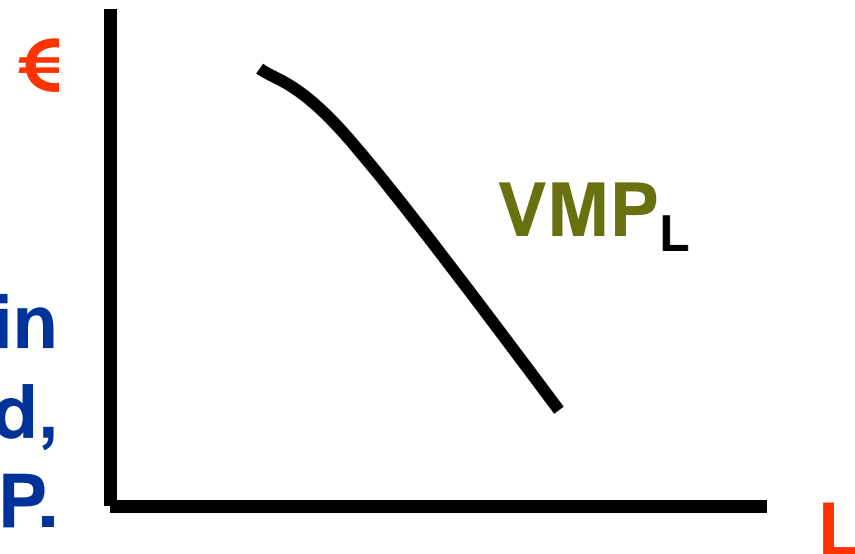
Short Run: Firm's Demand for Labour



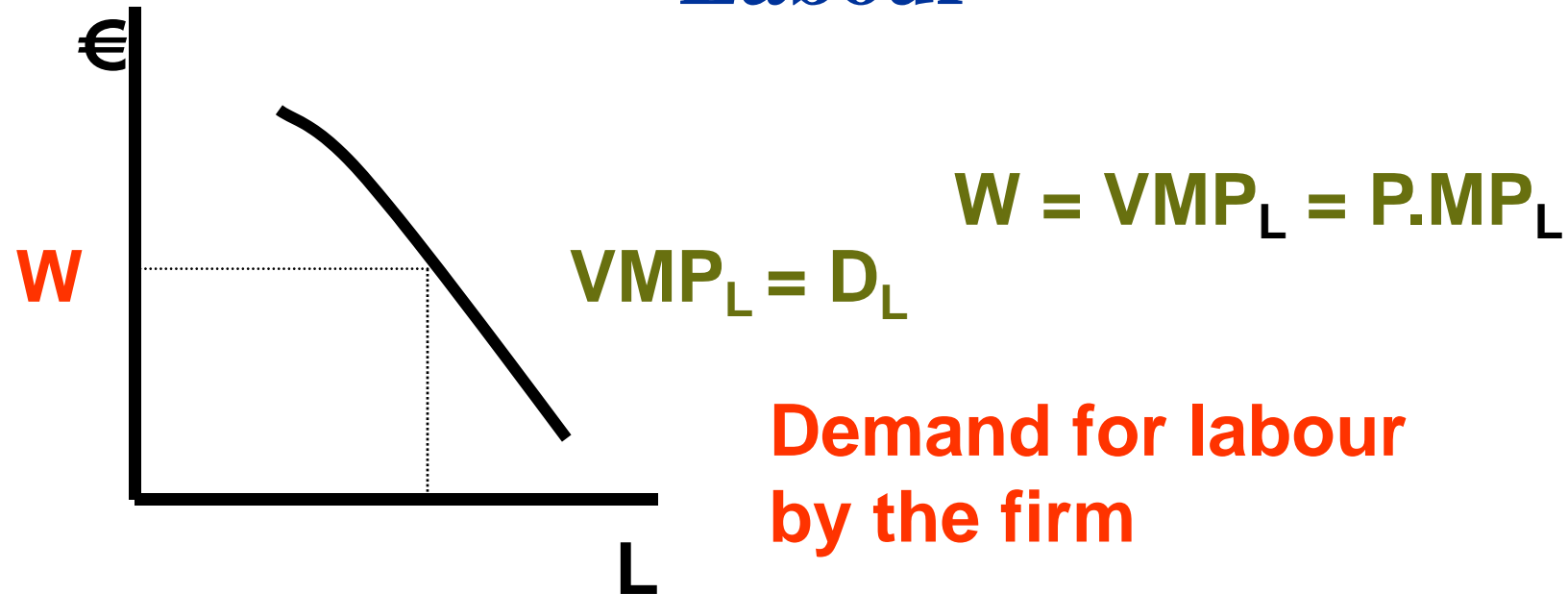
Diminishing Marginal Returns

$$VMP_L = P \cdot MP_L$$

Perfect competition in product market assumed, i.e. firm cannot change P .



Short Run: Firm's Demand for Labour



The wage is the marginal cost of an extra unit of labour and VMP_L is the marginal benefit of an extra unit of labour.

Short Run: Market Demand for Labour

As wage ↓

⇒ L_d ↑ for each firm

⇒ Output ↑

⇒ Price (P) ↓

⇒ VMP_L shifts inwards

⇒ Market demand for labour curve is less elastic than the firm demand for labour curve

Draw this yourself

Long Run: Firm's Demand for Labour

As wage ↓

⇒ $L \uparrow$ and usually $K \uparrow$

⇒ If $K \uparrow$ then $MP_L \uparrow$

⇒ $L \uparrow$ again (i.e. an extra “kick”)

⇒ The long run demand for labour curve is more elastic than the short run demand for labour curve

Draw this yourself

Long Run: Market Demand for Labour

As wage ↓

⇒ **Ld ↑ for each firm**

⇒ **Output ↑**

⇒ **Price (P) ↓**

⇒ **VMP_L shifts inwards**

⇒ **Long run market demand for labour curve is less elastic than the short run market demand for labour curve**

Draw this yourself