

Factor Markets

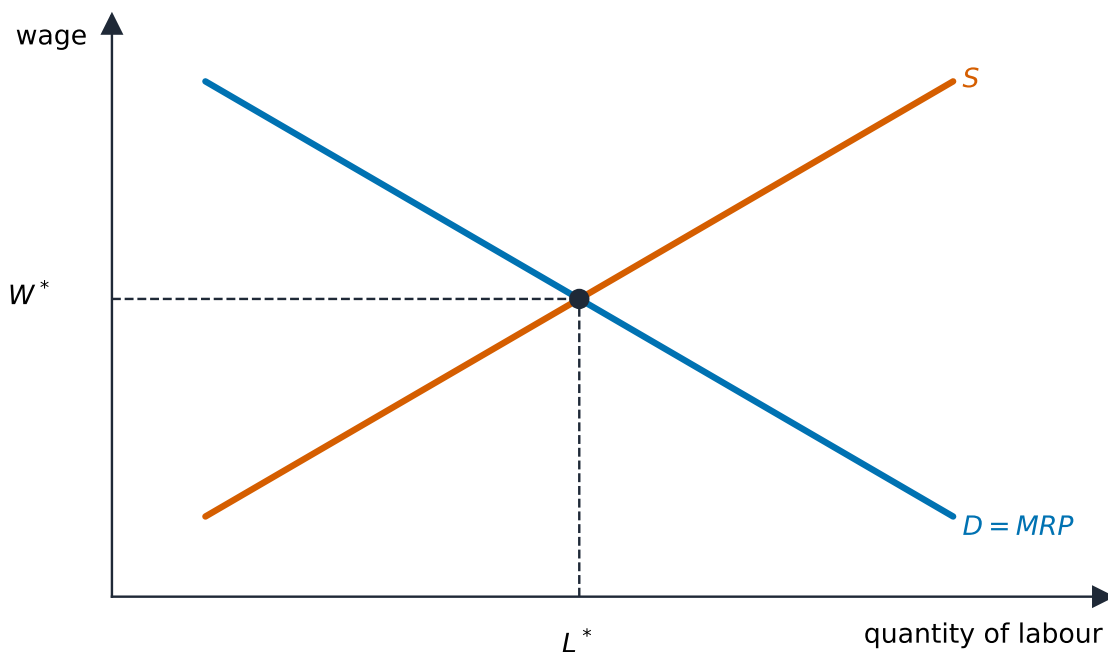
AP Microeconomics

Introduction to Factor Markets



A garment factory: factor markets determine wages for labour and other inputs

A **factor market** 要素市场 is where firms buy the **factors of production** – labor, land, capital. The roles reverse: **firms demand** and **households supply**. The most-tested factor is **labor**.



A competitive labour market sets the wage where labour demand meets labour supply

Factor demand is a **derived demand** 派生需求 – firms want labor not for itself but for the output (and revenue) it produces. So the demand for workers depends on the demand for the product they make.

Changes in Factor Demand and Factor Supply

Labor demand shifts when:

- the **product price** or product demand changes (more valuable output $\Rightarrow$ more labor demanded),
- **worker productivity** changes (better training or capital),
- the **price of other inputs** changes (a substitute input like machines, or a complement).

Labor supply shifts with the **number of qualified workers**, **immigration**, workers' **preferences** (wages needed to attract them), and the wages available in **other jobs**. The market wage is set where labor demand meets labor supply.

Profit-Maximizing Behavior in Perfectly Competitive Factor Markets

A firm decides how many workers to hire with the same **marginal logic** as everything else – compare the marginal benefit and marginal cost of one more worker.

- The marginal benefit of a worker is the **marginal revenue product** 边际收益产品 (MRP): the extra revenue from one more worker, $MRP = MP \times \text{product price}$ (in a competitive product market, where $P = MR$). MRP falls as more workers are hired, because of **diminishing marginal product**.
- The marginal cost of a worker is the **wage** (in a competitive labor market the firm is a wage **taker**, so marginal factor cost = the wage).
- **Hiring rule:** hire workers up to where $MRP = \text{wage}$ (more generally, $MRP = MFC$). The MRP curve is the firm's labor **demand** curve.

Worked example. A worker's marginal product is 8 units and the firm sells each in a competitive market for \$5, so $MRP = 8 \times \$5 = \40 . If the wage is \$30, the firm hires this worker because $MRP > \text{wage}$. As more workers join, diminishing marginal product pulls MRP down; the firm keeps hiring until a worker whose $MP = 6$ gives $MRP = 6 \times \$5 = \30 , exactly the wage – the profit-maximizing stopping point.

To choose the **least-cost combination** of two inputs, set the **MP-per-dollar equal** across inputs: $\frac{MP_L}{P_L} = \frac{MP_K}{P_K}$ – the same equal-bang-per-buck rule as consumer choice.

Exam skill: compute MRP from a table (marginal product $\times$ price) and find how many workers to hire at a given wage – a common free-response task.

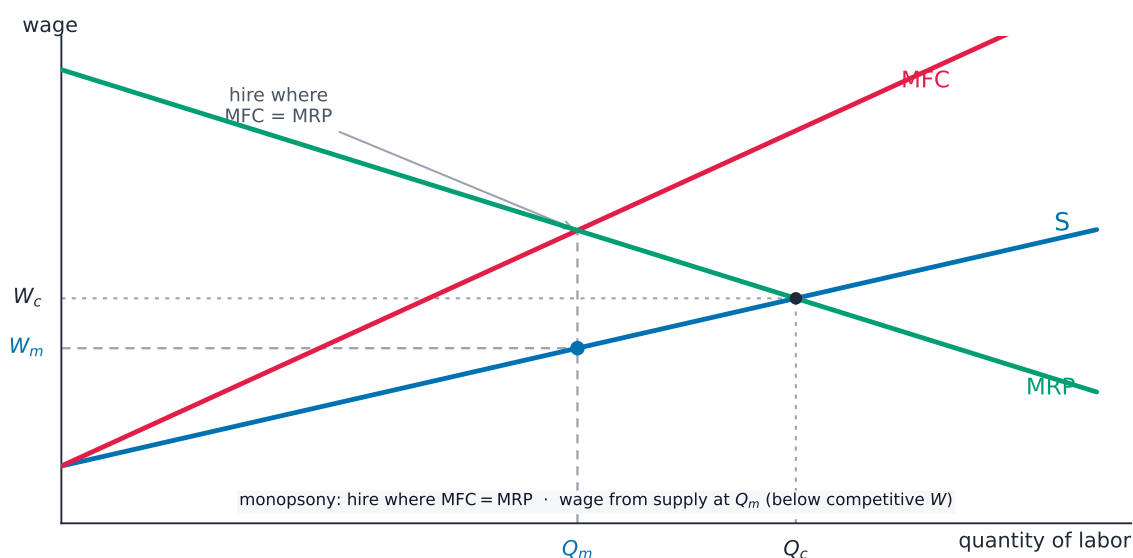


A car assembly line: firms hire labour until the marginal revenue product equals the wage

Monopsonistic Markets

A **monopsony** 买方垄断 is a market with a **single buyer** of a factor – for example, the only large employer in a town.

- Because it is the whole market, the monopsonist faces an **upward-sloping labor supply curve**: to hire more workers it must raise the wage **for everyone**.
- So the **marginal factor cost** 边际要素成本 (MFC) is **above** the wage (like $MR < P$ for a monopoly, in reverse), and the MFC curve lies above the supply curve.
- The monopsonist hires where $MRP = MFC$, then pays the **lower wage** the supply curve allows at that quantity.
- Result: compared with a competitive labor market, a monopsony hires **fewer** workers at a **lower** wage – the mirror image of monopoly.



A monopsony hires where $MFC = MRP$ and pays a lower wage than a competitive market

Exam skill: draw the monopsony graph (supply, MFC above it, MRP as demand), mark quantity at $MRP = MFC$ and the wage down on the supply curve, and contrast it with the competitive wage and quantity.

Exam tips

- Factor demand is **derived demand**; hire labour up to where $MRP = \text{wage}$ ($MRP = \text{marginal product} \times \text{price}$).
- MRP falls as more workers are hired (diminishing marginal product).

- For least-cost input use, equalise the **marginal product per dollar** across inputs.
- A **monopsony** faces an upward supply, so its marginal factor cost is **above** the wage; it hires fewer workers at a lower wage.
- Draw the monopsony graph (supply, MFC above it, MRP as demand) and contrast with the competitive outcome.