What is an hour of work worth?

A worker is hired for what they add: hire until MRP = MRC. Many employers → wage taker; one employer → monopsony.

1 Derived demand

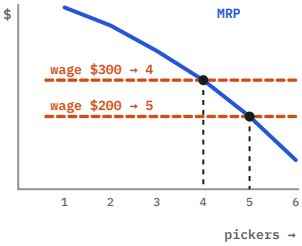
why firms hire

- **Derived demand** → demand for a worker comes from demand for what they make
- Frost ⇒ apple price ×2 ⇒ each basket worth more ⇒ pay per picker ↑ (same baskets, higher price)
- **MP** (marginal product) = extra output from one more worker · orchard: 50, 45, 38, 30, 20, 8 baskets (pickers 1 → 6)
- **Diminishing marginal returns** ⇒ fixed input (trees) ⇒ each extra worker adds less than the one before

2 Hiring rule

MRP and the wage

- **MRP** (marginal revenue product) = extra revenue (money from sales) from one more worker · `MRP = MP × P` · apples $10: $500, 450, 380, 300, 200, 80
- **Wage taker** = firm too small to move the wage ⇒ **MRC** (extra cost of one more worker) = wage
- **Rule** ⇒ hire while `MRP ≥ MRC` ⇒ **MRP curve = demand for labor** · wage $300 → **4** pickers · wage $200 → **5** pickers
- Practice · strawberries $10, MP 40, 34, 28, 20, 12, 4 ⇒ MRP $400, 340, 280, 200, 120, 40 · wage $250 ⇒ hire **3** · 4th picker: $200 − $250 = **−$50**



3 Shifts of demand

MRP curve moves

- **Product price** ↑ ⇒ MRP ↑ at every worker ⇒ curve **right/up** · price ↓ ⇒ curve **left/down**
- **Productivity** ↑ (motorized ladders) ⇒ MP ↑ ⇒ MRP +$100 at every worker ⇒ more pickers at $300
- **Other inputs** → machine replaces workers ⇒ demand ↓ · cheaper crates speed them up ⇒ demand ↑
- **Least-cost rule** → $MP_L \div wage = MP_K \div price\ of\ capital$ (L = labor, K = capital: machines, tools) · picker 30 baskets / $300 = 10 per $100 · ladder 20 / $100 = 20 per $100 ⇒ add ladders
- Practice · wage $110, price $10 → $5 ⇒ MRP halves: $200, 170, 140, 100, 60, 20 ⇒ pickers **5 → 3**
- Wage changes ⇒ move along MRP · anything else ⇒ MRP shifts

4 Labor market

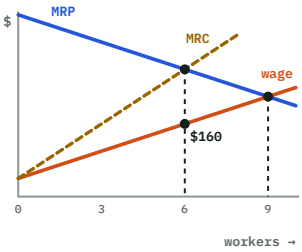
supply, wage, minimum wage

- **Labor supply** → higher wage ⇒ more people offer their time · market wage = supply meets demand
- Region: `demand W = 600 − 60L`, `supply W = 60L` (W = wage $/day, L = workers in 000s) ⇒ **$300**, **5,000** workers
- **Minimum wage** $360 > $300 ⇒ demand 4,000 < supply 6,000 ⇒ **2,000 unemployed**
- Practice · `W = 500 − 50L` vs `W = 50L` ⇒ $250, 5,000 · university: +2,000 at every wage ⇒ `W = 50(L − 2)` ⇒ **$200, 6,000** · wage ↓, jobs ↑

5 Monopsony

one employer

- **Monopsony** (Greek: “one buyer”) = the only employer (ski resort in a remote town) · one wage for all ⇒ hiring one more raises pay of everyone ⇒ **MRC > wage**
- Rule = same: `MRP = MRC` ⇒ **wage read on the supply curve**, not on MRC
- Resort: MRP `400 − 20L`, wage `40 + 20L`, MRC `40 + 40L` ⇒ **6** workers (MRP = MRC = $280) at **$160** · competitive: 9 workers, $220
- Practice · MRP `300 − 20L`, wage `60 + 20L`, MRC `60 + 40L` ⇒ **4** workers, MRP = MRC = $220, wage **$140** · competitive: 6, $180
- Monopsony ⇒ fewer workers and lower wage than competition · MRC − wage = the raise every worker gets × workers (practice: $20 × 4 = $80 = $220 − $140)



6 Minimum wage in a monopsony

can help, or hurt

- Floor (minimum wage) ⇒ no raise for others when hiring one more ⇒ MRC = floor (flat) ⇒ hire until `MRP = floor`
- Monopsony wage < floor **≤ competitive wage** ⇒ wage ↑ **and** jobs ↑ · resort: $220 ⇒ **9** workers (= competitive) · practice: $180 ⇒ **6** workers, wage $140 → $180
- Floor **> competitive wage** ⇒ fewer jobs than competition · practice: $260 ⇒ MRP = $260 at **2** workers, even < 4 (monopsony alone)
- Competitive market: floor above equilibrium ⇒ unemployment (block 4) · monopsony: floor at or below competition ⇒ can fix it
- A floor is not always bad for jobs: it depends on who sets the wage (market, or a single employer)