AP Microeconomics
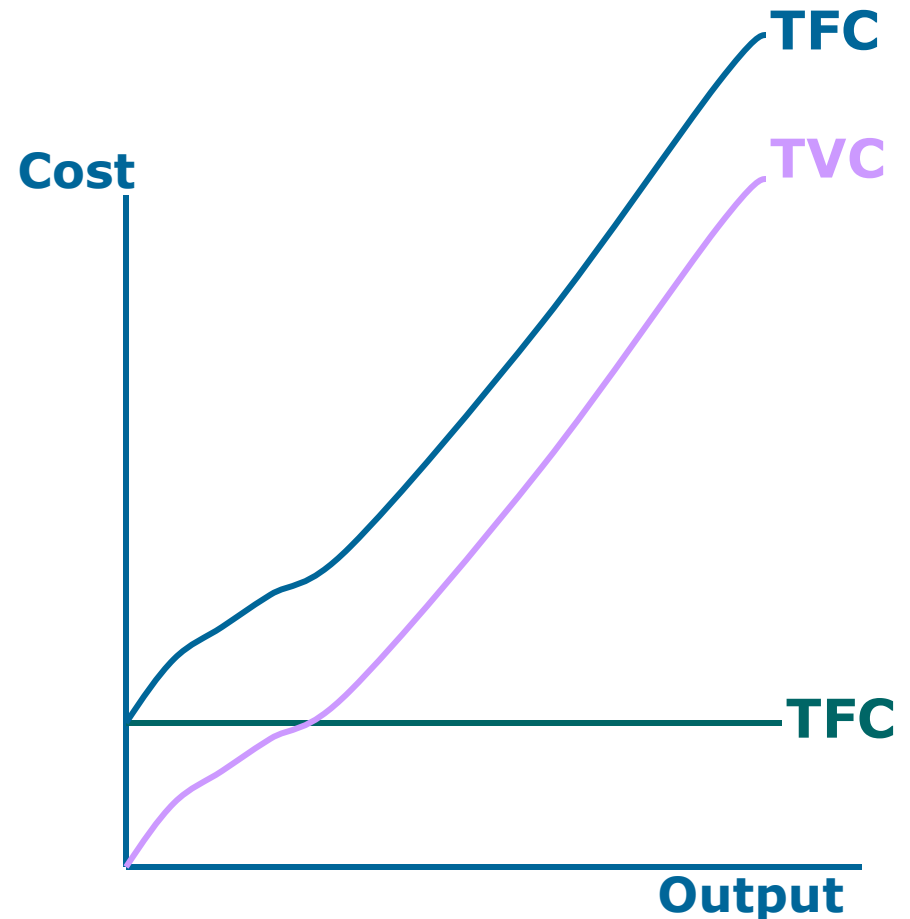
Total Costs

- TC = TFC + TVC
- TFC = Fixed Costs
  – Constant costs paid regardless of production
- TVC = Variable Costs
  – Costs that vary as production is changed

Profit = TR - TC

- Accounting:
- Calculates actual costs a business incurs
- Explicit!!
- Ex) inputs, salaries, rent, both fixed and variable

- Economic:
- Calculates all accounting costs plus the *what if*, or opportunity, costs
- Implicit!!!!

Short Run vs. Long Run

- Short Run
  - At least one fixed factor of production, usually capital
  - No Expansion
  - No entry/exit industry

- Long Run
  - All factors are variable
  - Expansion possible
  - Yes can enter or leave industry

Production Considerations

- Total Product: the relationship btwn inputs and outputs

- Marginal Product: the extra product gained by the change in inputs; MP = ΔTP

- Average Product: AP = TP/q

The Production Function

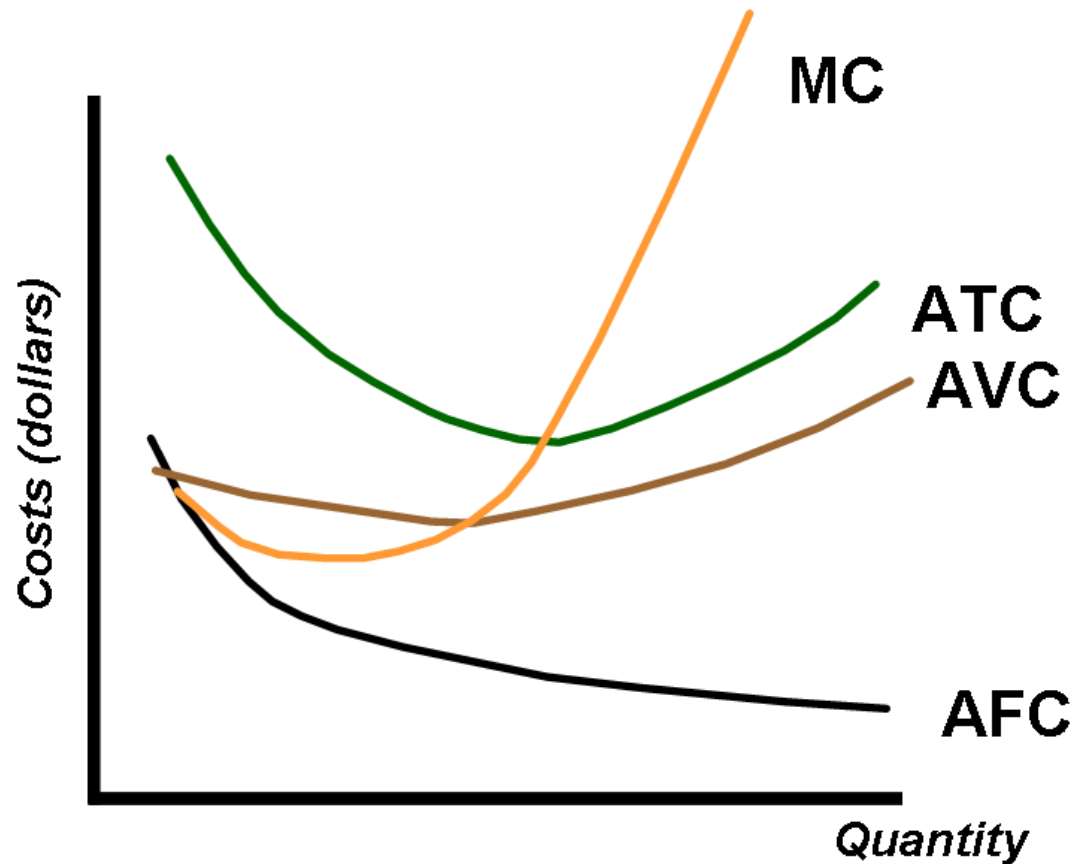| Input	Total Product	Marginal Product	Average Product	
1	10	+10	10	
2	24	+14	12	
3	39	+15	13	
4	52	+12	13	
5	60	+8	12	
6	66	+6	11	
7	63	-3	9	
8	56	-7	7	

8. Law of Diminishing Returns

- Output will slow down and then decrease beyond a certain point

Producer's Costs

- TFC: Total Fixed Costs
- AFC: Average Fixed Costs; TFC/q
- AVC: Average Variable Costs; TVC/q
- Marginal Costs ΔTC

Perfect Competition

- Characteristics: many firms, homogenous products, no barriers to entry, P = MC = MR

- Marginal Revenue: extra revenue gained with each additional unit of output; MR = ΔTR

- P = d = MR: Price Takers, each firm takes market price (or market demand) so P and MR are constant (perfectly elastic & horizontal)

Putting it all together

Market (Industry) **Firm**

Price

S

P_X

D

Quantity

Cost

MC

ATC

AVC

MR

Q_X Output
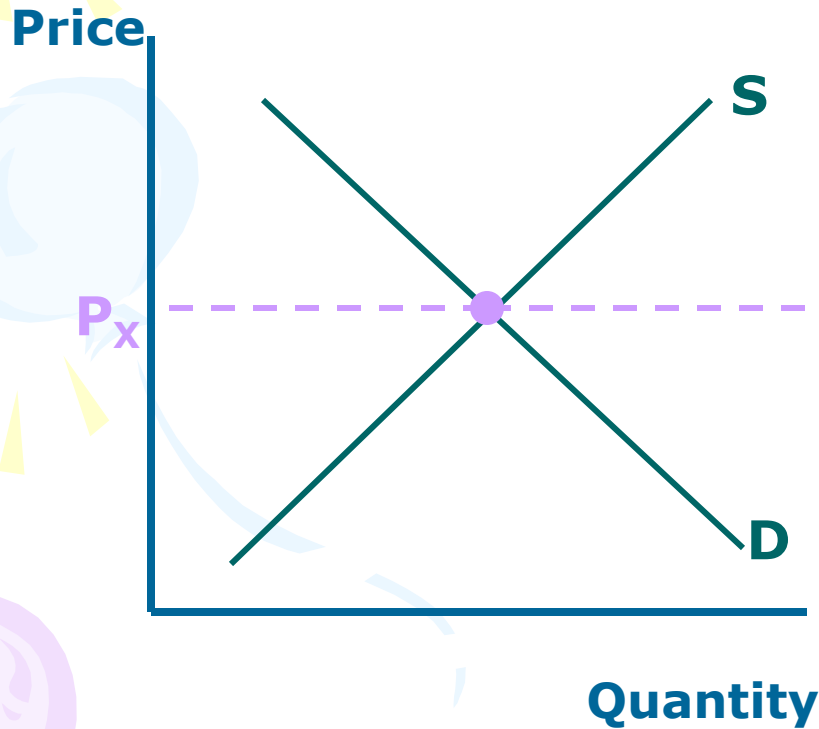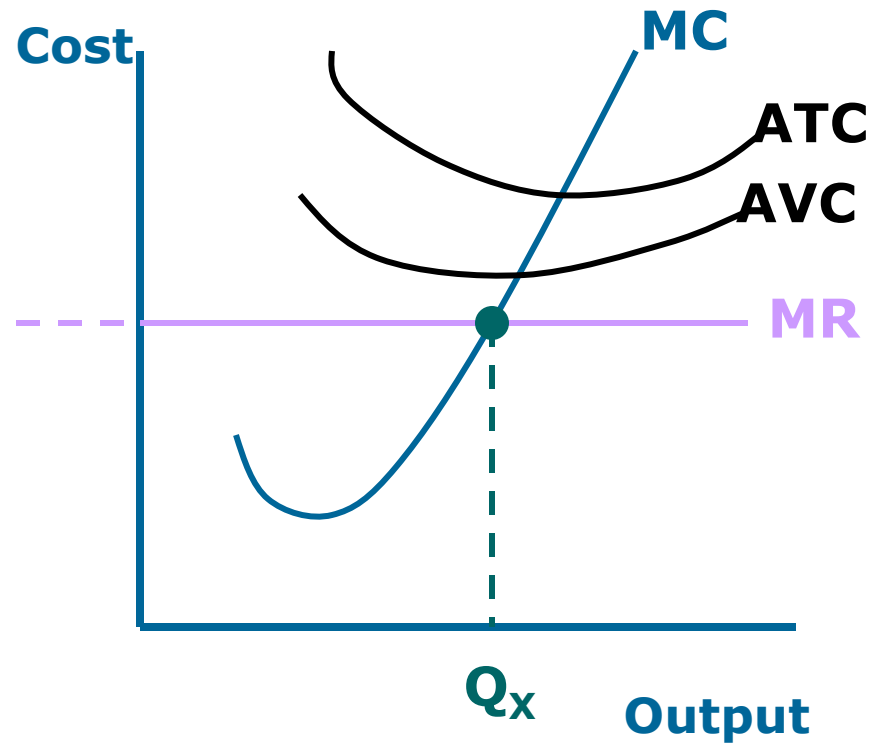
More Questions

14. How can you tell if we are talking about long-run or short-run?

Look for multiple short run graphs, look for LRAC, profit leads to expansion

15. Profits in long run? Explain.

Will lead to Long-Run Equilibrium where firms will no longer have economic profits (characteristics of market make long run profits impossible)
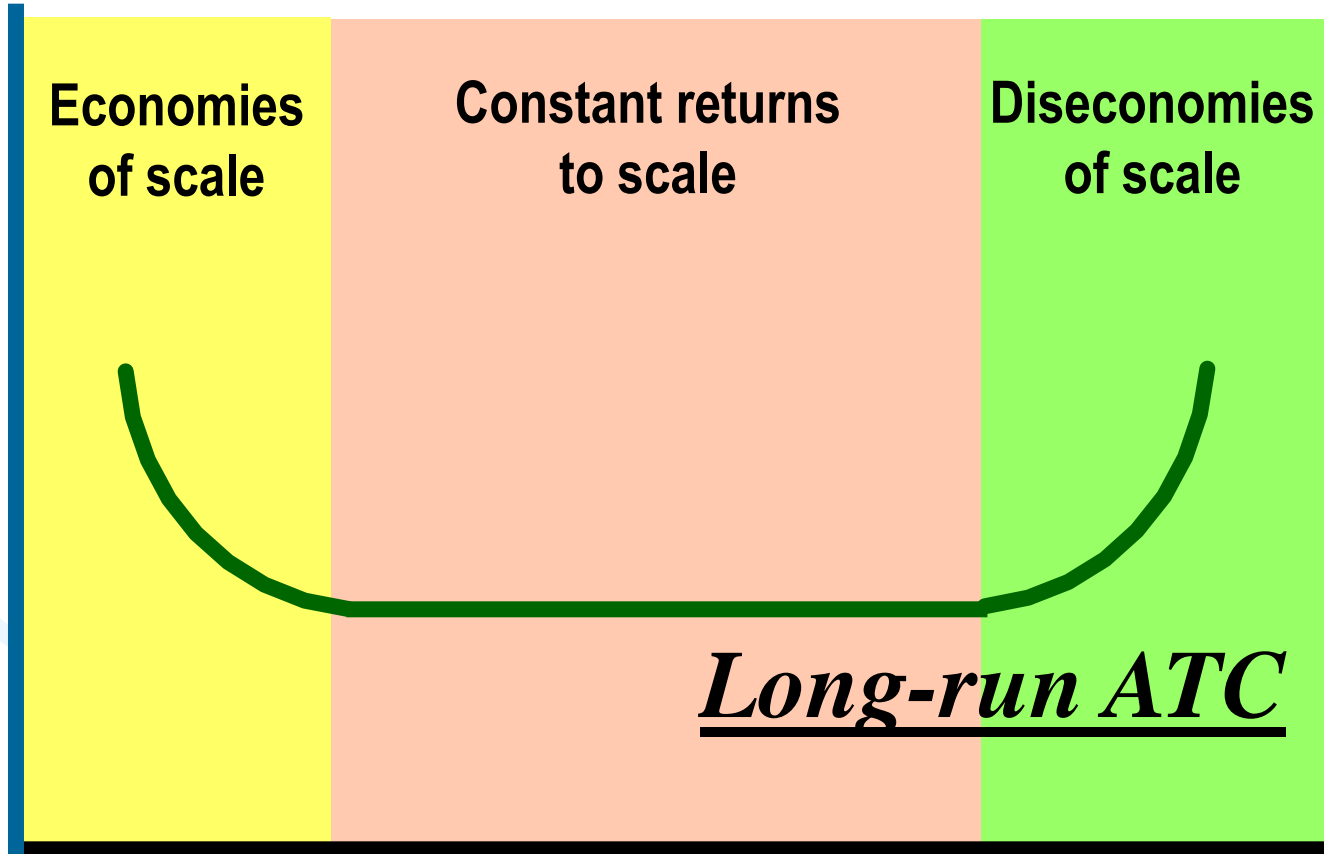
Expanding Production

- Economies of Scale
  - LR, expand and more efficient (decrease costs)

- Diseconomies of Scale
  - LR, expand and less efficient (increase costs)

- Constant Return to Scale
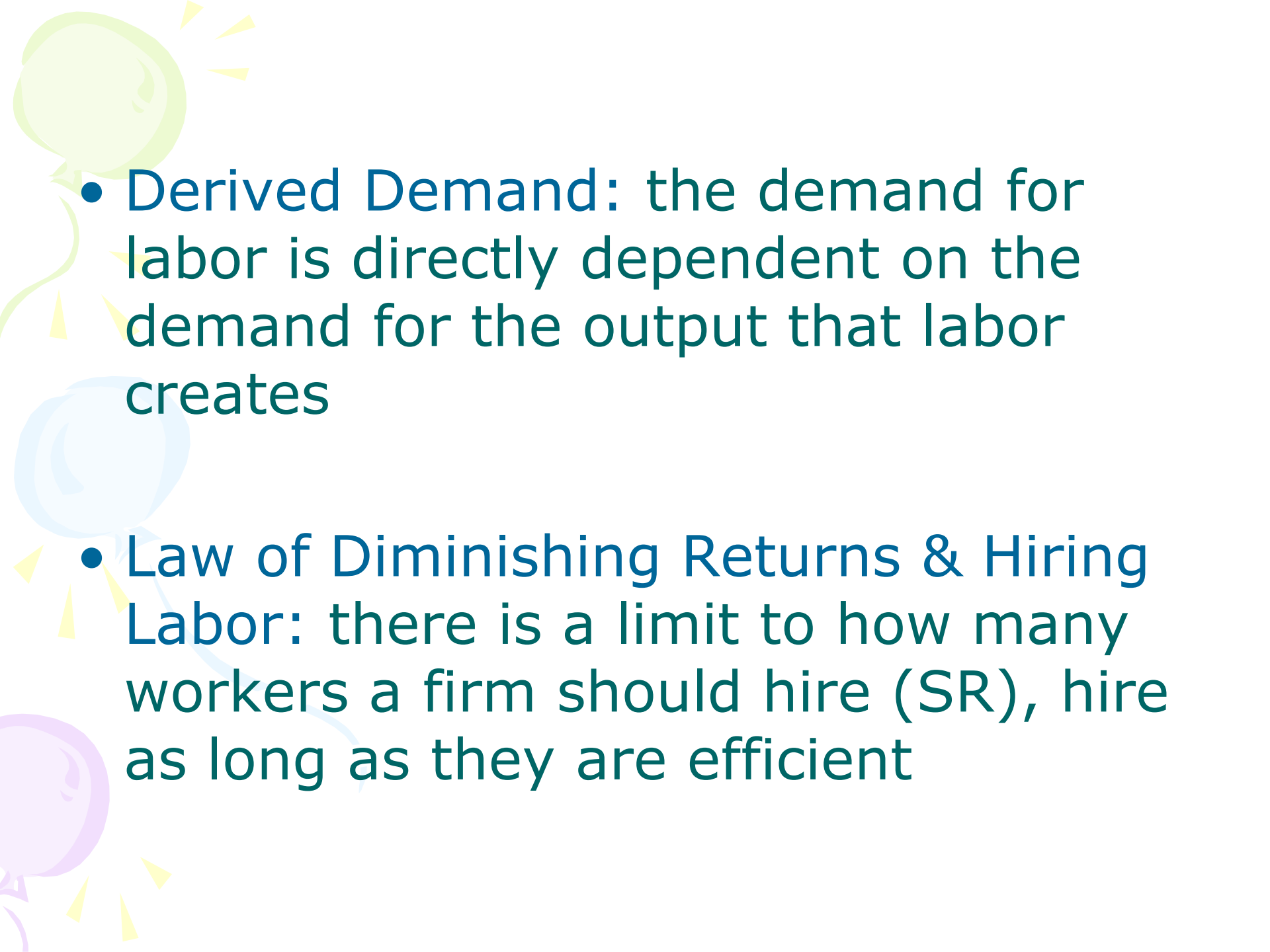 - LR, expand and costs are same per unit

Graphing Expansion

Firm

Chart showing Long-run ATC curve across three regions: Economies of scale, Constant returns to scale, and Diseconomies of scale. Vertical axis: Unit Costs. Horizontal axis: Output.

- Derived Demand: the demand for labor is directly dependent on the demand for the output that labor creates

- Law of Diminishing Returns & Hiring Labor: there is a limit to how many workers a firm should hire (SR), hire as long as they are efficient
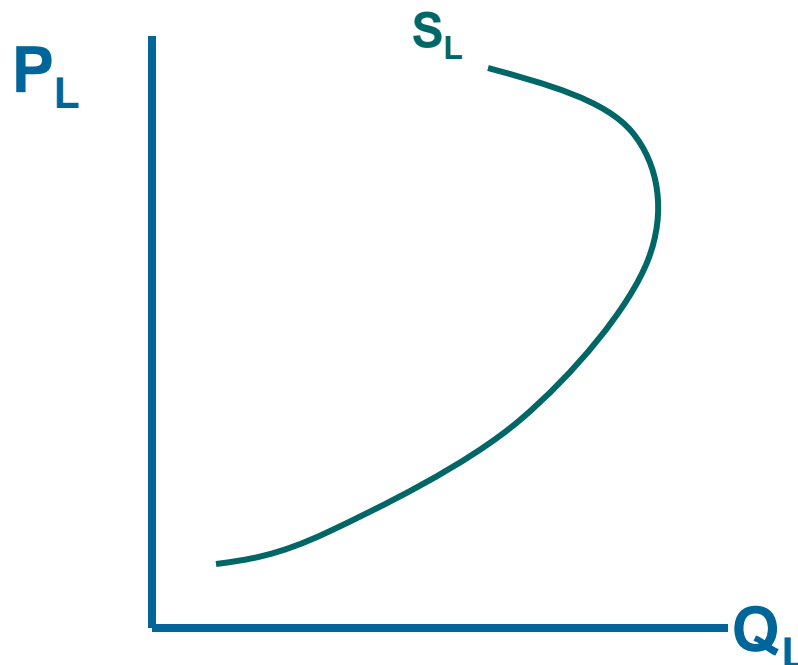
Income vs. Substitution

- Substitution Effect

Choose to subs work for leisure to get more money

- Income Effect

Choose current income with less work, want more leisure time

Normal Supply Curve

Backward Bending

P_L

S_L

Q_L

P_L

S_L

Q_L
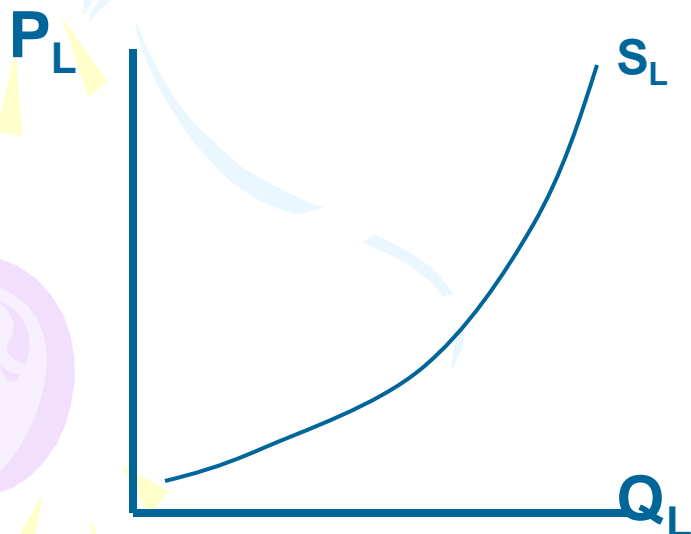
- **Marginal Product of Labor: (MP$_L$)**
- The additional output produced as one more unit of labor is added
- **Marginal Revenue Product of Labor: (MRP$_L$)**
- The addition to the firm's revenue as the result of the marginal product per labor unit
  - Represents the firm's demand curve for labor

Marginal Resource Cost = Wage of Labor = Price of Labor

- MFC = W_L = P_L

- All refer to the cost of the input labor and are interchangeable.
- In a perfectly competitive labor market, the PL comes from market and is a horizontal line for the firm
  - It is the supply curve of labor faced by the firm

Example:
$P_L = \$60$ and $P_X = \$10$

Labor (L)	Total Output (Q)	Marginal Product (MP$_L$)	Marginal Revenue Product (MRP$_L$)
1	5	+5	$50
2	20	+15	$150
3	30	+10	$100
4	35	+5	$50
5	35	+0	$0

$MP_L = \Delta Output$
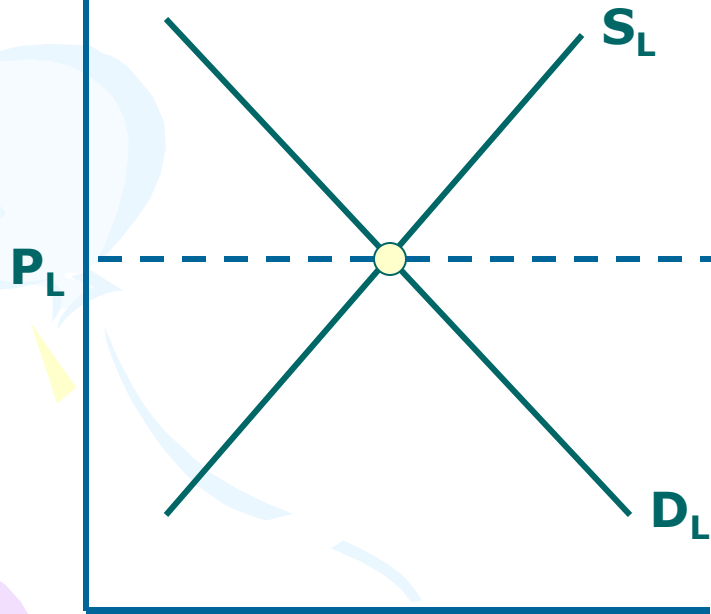
$MRP_L = MP_L \times MR$

How many workers should be hired?

- P_L = $60

- The firm will hire 3 workers**; any more and the additional cost will not cover the additional revenue earned; or MRP$_L$ ≥ MFC.**
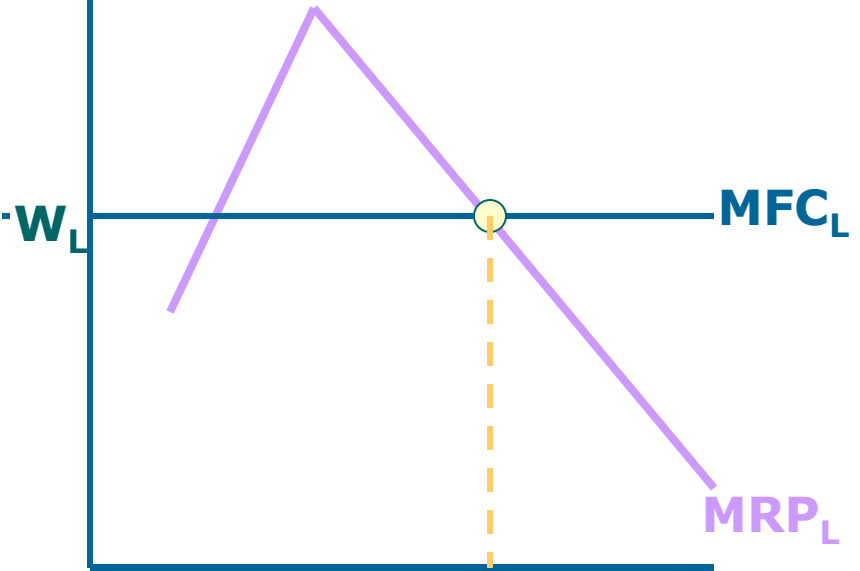
Graph:

Labor Market

Firm

Price

Cost & Rev

S_L

P_L

D_L

W_L

MFC_L

MRP_L

Q_L

Quantity

Quantity

Parts to Remember:

#1: MFC is the labor supply curve available to the firm

#2: MRP is the labor demand curve of the firm

#3: find where they intersect and that is the quantity of labor hired!!

(MFC = MRP)