Overview: Production and Cost I

- Production Processes
  - Trade-offs among inputs
- Economic versus Accounting Profits
  - Key: Opportunity Cost
- Cost Concepts
  - Marginal, Total, Variable, Fixed, Sunk
  - Averages & Relationships
  - Long Run Versus Short Run

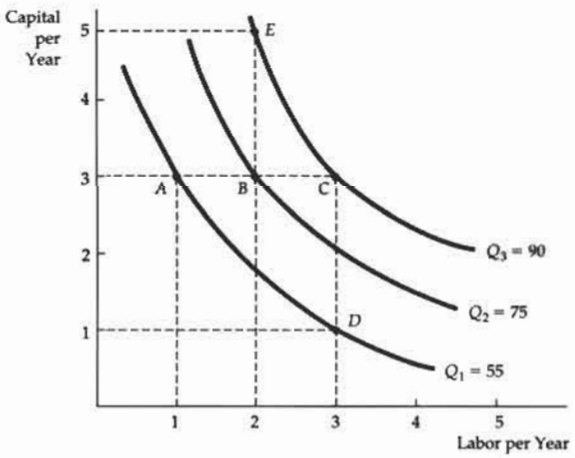
Production

- What are some examples of production processes?
- Production function: Q=f(K,L)
  Represents technology to transform inputs into an output.
- Trade-offs in Inputs - Isoquants
- Why would we care?

TABLE 6.1 Production with Two Variable Inputs

CAPITAL INPUT	LABOR INPUT 1	2	3	4	5
1	20	40	55	65	(75)
2	40	60	(75)	85	90
3	55	(75)	90	100	105
4	65	85	100	110	115
5	(75)	90	105	115	120

Figure 6.1 Production with Two Variable Inputs



Profits

- Definition:

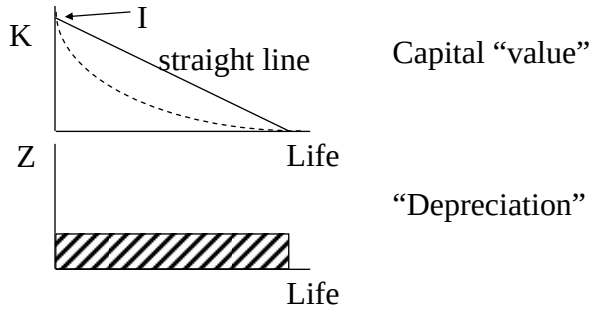
  Profits = Revenues – Costs

- Okay, what are Revenues and Costs?

- Accountants versus Economists

Accounting Depreciation

- Rules for “writing off” capital expenses



- Other methods
- Issue: appropriate values reflected?
- Divergent results

Opportunity Cost

- Definition:
  - Highest value that could be received for an input
  - 'Best alternative use' is comparison
- Examples

- Why important?

Types of Cost

- Variable cost (VC)
- Fixed cost (FC)
- Total cost TC = VC + FC
- Average Cost (AC)
- Marginal Cost (MC)

Solutions 4 U

- Purpose: Provide business solutions for small and medium size businesses
- Business Model
  - 5 Partners
  - One week engagements
  - Each engagement staffed with 1 Partner and 1 Analyst
- "Production Capacity": 5 cases per week for 48 weeks per year = 240 cases/year

Solutions 4 U: Costs

	Weekly Per Individual	Weekly Total	Annual	Other
Partner salaries	$ 3,750	$ 18,750	$ 900,000	
Analyst salaries	$ 1,000	$ 5,000	$ 240,000	
Rent			$ 50,000	
Staff		$ 2,500	$ 120,000	
TV Ads		$ 500	$ 24,000	
Office Eqmt			$ 36,000	
Research Tools		$ 1,250	$ 60,000	
Market Research, Website Design, Billboard and Brochures				$ 150,000

Variable Cost

- Definition:
  - Costs that vary with the level of output
- Examples

Fixed Cost and Sunk Cost

- Definition: Fixed Cost
  - Costs that do not vary with the level of output
  - Recoverable if firm is shut down
- Definition: Sunk Cost
  - Costs that cannot be recovered
  - Zero opportunity cost
- Examples

Marginal Cost

- Definition:
  - The incremental cost of producing an additional unit of output
- Examples
- Why important?

Solutions 4 U: Costs and Business Decisions

What are the relevant costs:

- Start-up decision?
- Continue operating after
  - 6 months?
  - One year?
- If a company wanted you to add them to your already-full schedule?

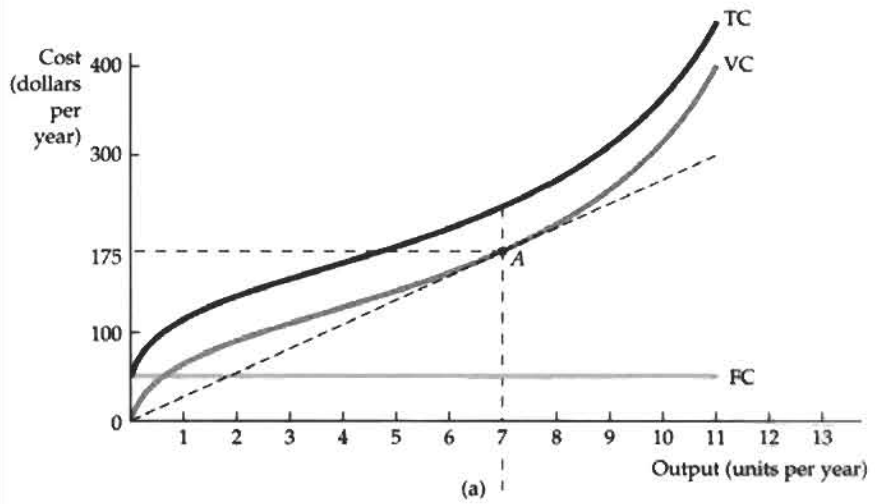
Important Distinctions

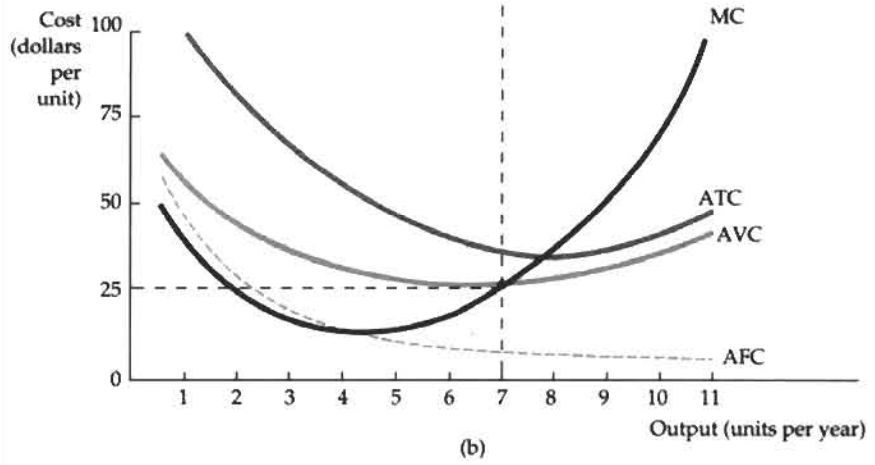
- Marginal Costs are key to production decisions
- Marginal Costs typically differ from Average Costs
- Average Cost is just a convenient way to look at Total Cost.
- Sunk Cost matters in that it shouldn't matter.

Relationships Among Cost Concepts

- Relationship between MC and AC
  - MC > AC implies AC increasing
  - MC < AC implies AC decreasing
- Why is it important to know this?

Figure 7.1 Cost Curves for a Firm





Long Run and Short Run

- Issue is flexibility
  - 'Long Run' - all inputs variable, including plant (capacity), as well as possible technologies.
  - 'Short Run" – some inputs fixed, typically plant (capacity), and production technology fixed.

- Why important?

Take Away Points

- Understanding cost types and cost structure helps you to see the true profitability of a product or client (economic versus accounting profit).
- Key pitfalls
  - Ignoring opportunity costs
  - Considering sunk costs
  - Not distinguishing between MC and AC (optimal level vs. shutdown)
- Cost structure is also important for strategic issues, such as competitive dynamics and entry barriers.