

MARGINAL REASONING AND PROFIT MAXIMIZATION

Models: simplification of reality; based on assumptions; help to explain events/behavior

e.g. helping victims of NYC bombing

Economists would argue that all of this was motivated by self-interest

Other examples:

1. come home from college and keep room clean while there
 2. leave a relatively big tip at the Homestead (40%), but a smaller tip at Iris' (20%)
 3. man walks into convenience store and drinks a quart of oil
- Self-interested individuals consider only those costs and benefits that affect them (personal cost-benefit analysis vs. social cost-benefit analysis)
 - Cost-benefit analysis may be performed formally or informally
 - Can only consider anticipated costs and benefits; all actual costs and benefits will not be known until after the fact

Total vs. Marginal Analysis

Marginal: extra or additional

Utility: personal satisfaction (maximized by self-interest-seeking individ.)

e.g. soccer player and water & hot fudge sundays

e.g. accounting class & economics class

Cost and Benefit Analysis revisited...hidden costs and imaginary costs

Examples

1. free pizza & “no such thing as a free lunch”
2. costs of attending college full-time:

Opportunity Cost: the most valuable alternative you must give up

3. Otto’s Garage
Using own plot of land in the center of town “because we own the land and it won’t cost us anything to use it”
4. buying vs. leasing a car
 - buying: \$3000 down (trade-in) and \$399/mo. (2yrs. old) for 5 yrs.
 - Leasing: \$3000 down (trade-in) and \$349/mo. (new) for 3 yrs.
5. friend lost \$40,000 in the stock market as tech stocks continue to lose their value...should he sell or hold
 - must consider future trend only, cannot consider what is already lost that’s a **sunk cost**

Fixed Costs vs. Variable Costs

Fixed Cost: costs that do not vary with activity level (usually output level)

Variable Cost: vary with level of activity (i.e. output)

e.g. car rental costs \$20 per day and 10 cents per mile

e.g. pizza costs \$9 and 50 cents per topping

e.g. internet service

service #1: \$24 per month for unlimited usage
local number so no l.d. charges

service #2: 7 hours per month free and \$1 per hour afterward
no local number, so 5 cents per minute l.d. charges

who should you use?

Business Decision Making and Profit Maximization

Individuals maximize personal utility

Businesses maximize profits

Profit = Total Revenue – Total Cost

$$\text{i.e. } P = TR - TC$$

Total Revenue = total amount of money a firm takes in from its sales (not including sales tax)

$$\text{i.e. } TR = P \times Q$$

Total Cost = sum of all fixed costs and variable costs incurred by a business in producing a g/s for later sale

$$\text{i.e. } TC = TFC + TVC$$

If $TR > TC$ then firm is making a profit

If $TR < TC$ then firm is incurring a loss

Selecting the Profit Maximizing Level of Output

- In reality, it is like blindly shooting at a target, but knowing what you are shooting for is important
- Even the best made decisions cannot guarantee profits; if the market is depressed, then the best a manager can do is minimize the firm's losses
- Because they involve neither current nor future costs, sunk costs should have no influence on deciding what is currently the most profitable thing to do.
 - e.g. love, war and poker hands
 - just because you have invested heavily already does not mean you should stick with it if the prospects of winning become very small
 - at every moment of decision making, maximizing behavior should be based on this time forward

Selecting the Profit-Maximizing Level of Output

Optimal level of output: one, which maximizes profit (or minimizes losses)

Marginal Revenue (MR) = Marginal Benefit = additional revenue for producing one more unit of output

Marginal Cost (MC) = cost of producing one more unit of output

- A firm will continue to produce additional units of output so long as $MR > MC$
- The optimal level of output (profit maximizing/loss minimizing) will be at the level where $MR = MC$

Example: the pine lumberyard

Output/Day	TR	MR	TC	MC
4	\$1,080	\$270	\$1,075	\$210
5	1,350		1,285	
6	1,620	270	1,525	240
7	1,890	270	1,795	270
8	2,160	270	2,125	330
9	2,430	270	2,515	390

Notes:

1. Note that it makes no difference (from a profit standpoint) whether we produce 6 units or 7 units; we shall assume for consistency purposes that the firm will produce the extra unit (i.e. where $MR = MC$)
2. In some cases, there will be no (non-fractional) output level where $MR = MC$; in that case the firm will produce each unit of output where $MR > MC$

Pete Rose's Batting Statistics
From the Baseball Encyclopedia

	Old Average	Marginal	New Average
Year	Lifetime Batting % at Start of Season	Batting % during Season	Lifetime Batting % at End of Season
1963	0.0000	0.2729	0.2729
1964	0.2729	0.2694	0.2713
1965	0.2713	0.3119	0.2863
1966	0.2863	0.3135	0.2935
1967	0.2935	0.3009	0.2949
1968	0.2949	0.3355	0.3019
1969	0.3019	0.3477	0.3085
1970	0.3085	0.3159	0.3095
1971	0.3095	0.3038	0.3088
1972	0.3088	0.3070	0.3087

Notes:

1. Whenever his performance during a season was better than his lifetime batting average at the start of the season, his lifetime batting average rose.

Whenever his performance during a season was worse than his lifetime batting average at the start of the season, his lifetime batting average fell.