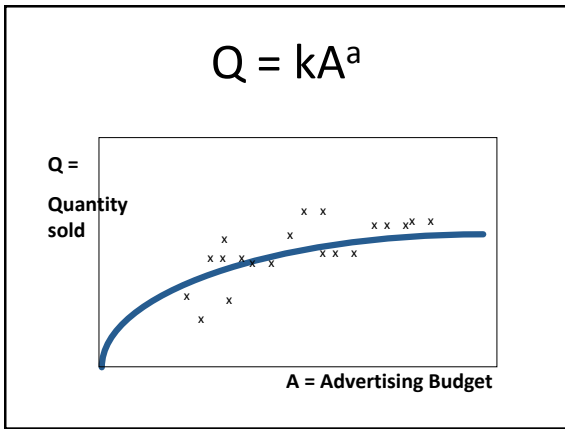
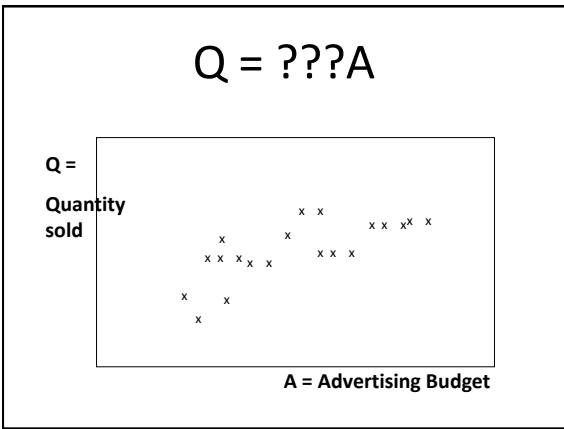


Elasticity of Advertising and ROME

Ted Mitchell

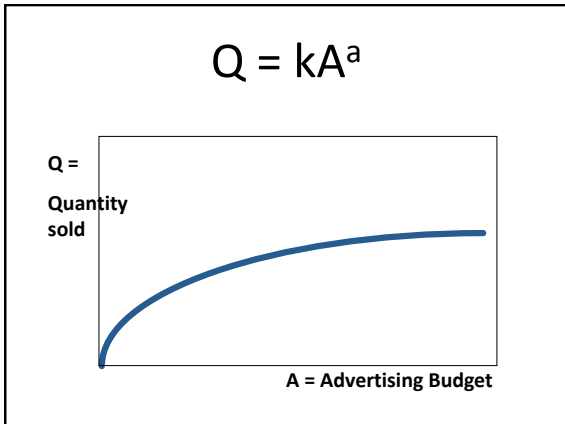
Remember the Customer Response to Advertising Effort

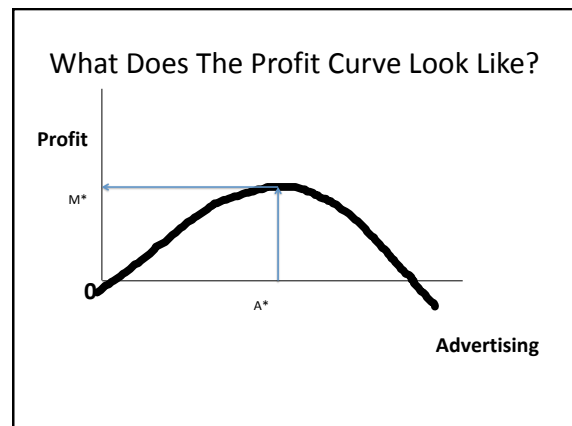
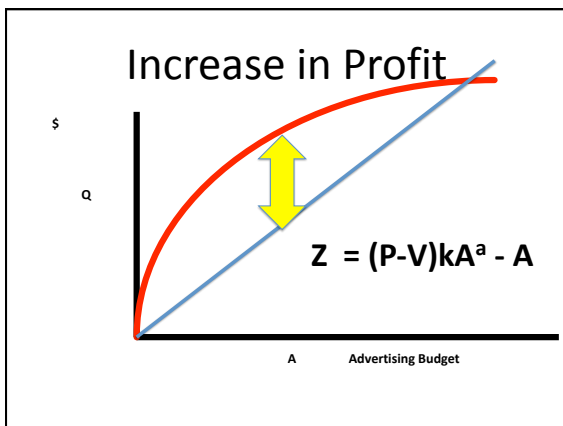
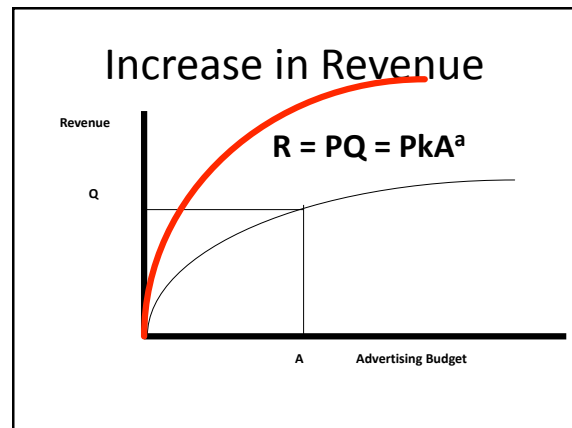
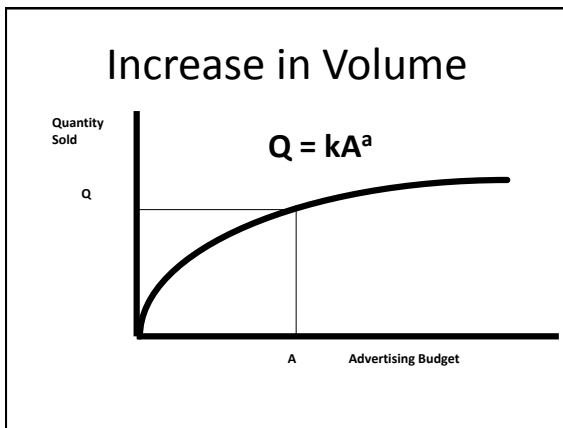
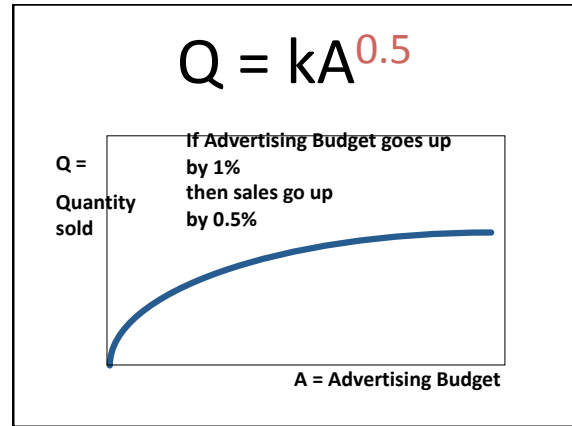
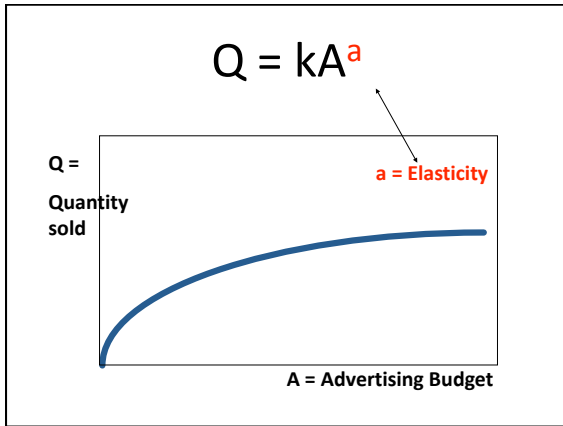


Sensitivity to Advertising

You Need Estimates of Advertising Responsiveness i.e., Advertising Elasticity

The percentage change in sales caused by a one percent change in Advertising Expenditures

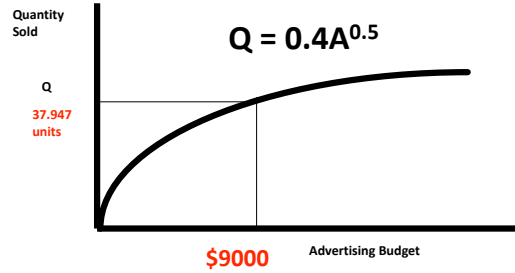




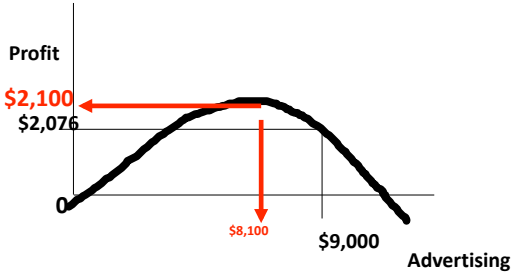
Profit Example

- Customer Response to advertising is
- $Q = 0.4A^{0.5}$
- How many units will be sold if \$9000 is spent on advertising?
- $Q = 0.4(9000^{0.5})$
- $Q = 37.947$ units

Profit Example

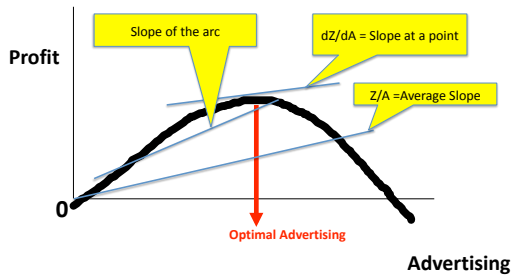


What Does The Profit Curve Look Like?

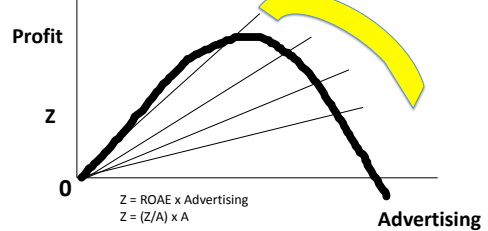


- What is the difference between average response and the marginal or incremental response?

Three Slopes



Return on Advertising Expense is always falling as Advertising Increases



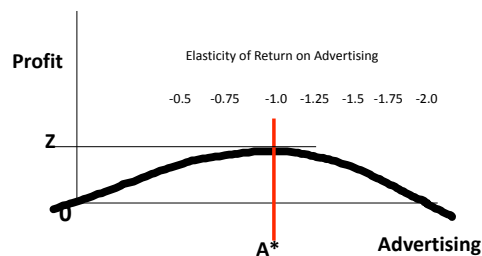
- Elasticity of the Return on Advertising
- Is a metric that indicates if an increase in advertising will result in an increase or decrease in the profit after advertising.
- Aka, Elasticity of Advertising Productivity
- In General the Elasticity of ROME
- In Marketing Slang the Elasticity of MROI

Point Elasticity of ROAE Defined

- Elasticity of Return on Advertising Effort
- Ratio of (Percentage Change in ROAE) ÷ (Percentage Change in Advertising Expense)
- $\% \Delta \text{ROAE} / \% \Delta A$

How to use Elasticity of ROAE

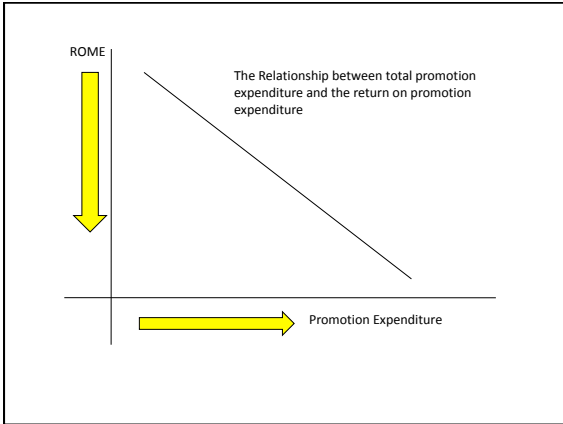
- If the Elasticity of ROAE is equal to -1, then the optimal level of advertising expense has been reached for maximizing profit after advertising
- If the Elasticity of ROAE is between 0 and -1, then a small increase in advertising should increase profits
- If Elasticity is more negative than -1.0 then a decrease in advertising will increase profits



Elasticity of Promotion Productivity

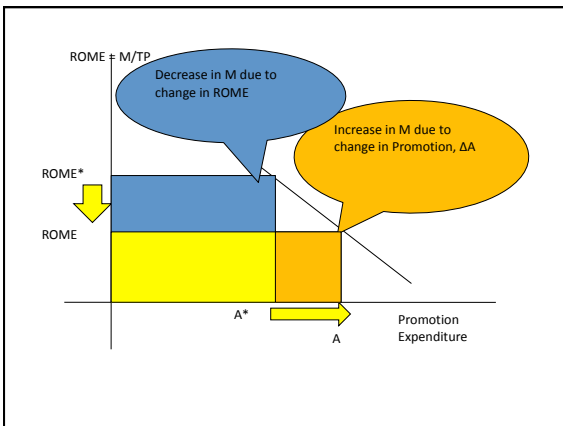
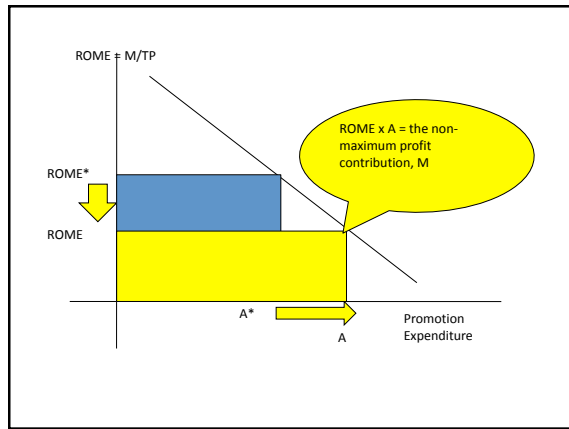
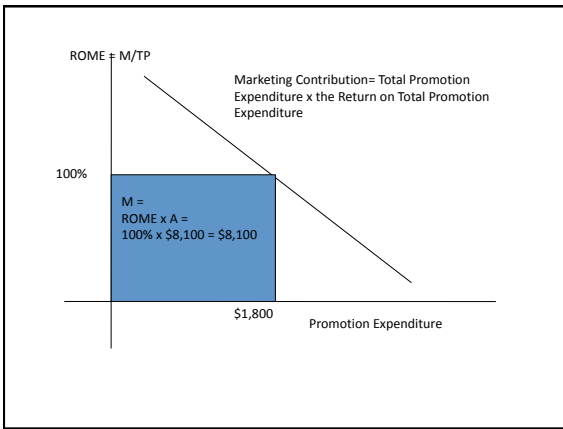
- How to estimate the arc elasticity of return on ANY individual communication expense or the total promotional expenditure, ROME
- $\% \Delta \text{ROME} / \% \Delta A$

	Period 1	Period 2
Price per unit	\$500	\$500
Quantity = $kA^a = 0.4A^{0.5}$	36	37.9
Variable Cost per unit, V	\$50	\$50
Gross Profit, $G = (P-V)Q$	\$16,200	\$17,100
Promotion, A	\$8,100	\$9,000
Profit after promotion, M	\$8,100	\$8,076
ROME = M/A	100%	90%

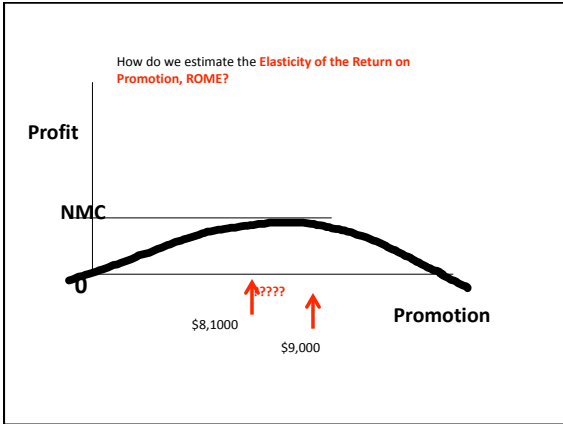


What We Know so far

- 1) That there is an optimal level of promotion, A^*
- 2) That maximizes Profit after Promotion, M
- 3) Therefore there is an optimal Return on Promotion Expenditure, $ROME^*$

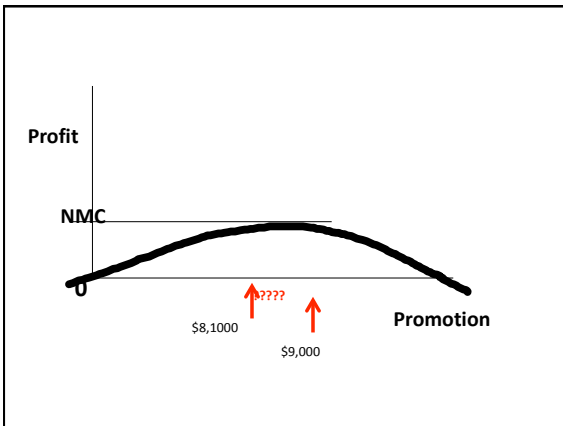


- When the decrease in Marketing contribution due to the impact of the change in $ROME$ is greater than the positive Impact of the change in Promotion, ΔA , then the marketing contribution to profit, M , must decrease



An Example

- Constant Price = \$500
- Constant Variable Cost = \$50
- Quantity sold, $Q = 0.4A^{0.5}$
- Total Promotion, A is changing
- What is the Gross profit, G?
- What is the Profit after Promotion, M?
- What is the ROME?



	Period 1	Period 2		
\$markup, P-V	\$450	\$450		
Quantity, Q	36.0	37.9		
Gross Profit, $G = (P-V)Q$	\$16,200	\$17,076		
Promotion, A	\$8,100	\$9,000		
Marketing Contribution, M	\$8,100	\$8,076		

An Example

- What is the ΔA ?
- What is the $\Delta ROME$?
- These will help explain the change in Profit after Promotion, M

	Period 1	Period 2	Δ	
\$markup, P-V	\$450	\$450		
Quantity, Q	36.0	37.9	1.9	
Gross Profit, $G = (P-V)Q$	\$16,200	\$17,076	\$876	
Promotion, A	\$8,100	\$9,000	\$900	
Marketing contribution, M	\$8,100	\$8,076	-\$24	
$ROME = M/A$	1.00	0.90	-0.10	

An Example

- What is the impact of the change in Promotion, ΔA , on the increase in the Profit after Promotion, ΔM ?
- What is the impact of the change in promotion productivity, $\Delta ROME$, on the increase in the Profit after Advertising, ΔM ?

	Period 1	Period 2	Δ	$I\Delta$ on ΔNMC
\$markup, P-V	\$450	\$450		
Quantity, Q	36.0	37.9	1.9	
Gross Profit, $G = (P-V)Q$	\$16,200	\$17,076	\$876	
Promotion, A	\$8,100	\$9,000	\$900	$I\Delta A =$
Marketing Profit, M	\$8,100	\$8,076	-\$24	$I\Delta A + I\Delta ROME$
ROME = M/A	1.00	0.90	-0.10	$I\Delta ROME =$

	Period 1	Period 2	Δ	$I\Delta$ on ΔNMC
\$markup, P-V	\$450	\$450		
Quantity, Q	36.0	37.9	1.9	
Gross Profit, $G = (P-V)Q$	\$16,200	\$17,076	\$876	
Promotion, A	\$8,100	\$9,000	\$900	$I\Delta A =$ $0.9(\$900) =$ $\$807$
Marketing Contribution, M	\$8,100	\$8,076	-\$24	$I\Delta A + I\Delta ROME$
ROME = M/A	1.00	0.90	-0.10	$I\Delta ROME =$ $\$8,100(-0.1)$ $= -\$831$

An Example

- What is the ARC Elasticity of ROME?

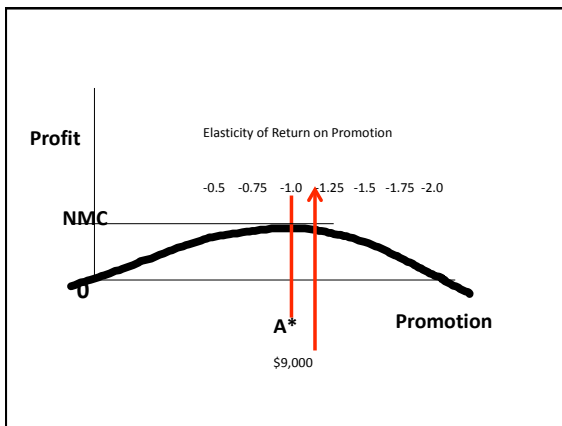
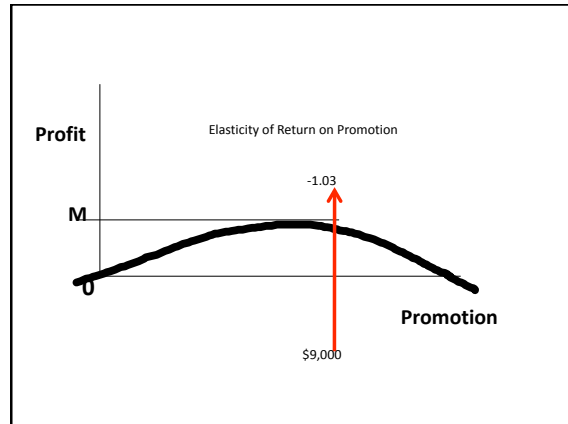
	Period 1	Period 2	Δ	$I\Delta$ on ΔNMC
\$markup, P-V	\$450	\$450		
Quantity, Q	36.0	37.9	1.9	
Gross Profit, $G = (P-V)Q$	\$16,200	\$17,076	\$876	
Promotion, A	\$8,100	\$9,000	\$900	$I\Delta A =$ $0.9(\$900) =$ $\$807$
Marketing Contribution, M	\$8,100	\$8,076	-\$24	$I\Delta A + I\Delta ROME$
ROME = M/A	1.00	0.90	-0.10	$I\Delta ROME =$ $\$8,100(-0.1)$ $= -\$831$

Arc Elasticity of ROME =

	Period 1	Period 2	Δ	$I\Delta$ on ΔNMC
\$markup, P-V	\$450	\$450		
Quantity, Q	36.0	37.9	1.9	
Gross Profit, $G = (P-V)Q$	\$16,200	\$17,076	\$876	
Promotion, A	\$8,100	\$9,000	\$900	$I\Delta A =$ $0.9(\$900) =$ $\$807$
Profit after promotion, M	\$8,100	\$8,076	-\$24	$I\Delta A + I\Delta ROME$
ROME = M/A	1.00	0.90	-0.10	$I\Delta ROME =$ $\$8,100(-0.1)$ $= -\$831$

Elasticity of ROME =
 $I\Delta ROME / I\Delta A = -\$831 / \$807 = -1.03$

- Elasticity of our Promotional Productivity is equal to -1.03
- If we spend more on promotion, then will we make more profit?



What are learning

- The goal of marketing is to maximize marketing's contribution to profit
- Too much or too little marketing effort reduces profit

What we are learning

- The Productivity of Marketing Effort, Rome, is always decreasing as you increase your Effort
- If you have estimates of the changes to advertising, and marketing profit contribution, then use them to estimate the elasticity of ROME
- When the elasticity of ROME is equal to -1, then the profit from marketing effort is the maximum

Sometimes your immediate goal is **NOT** profit

- Advertising Goals might include:
 - Reaching a critical sales volume
 - Establishing a market share
 - Establishing awareness of product
 - Supporting the efforts made by the PR or the Sales Force department