

Margin Maintenance

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Keeping the same Contribution

- As a Marketing Manager you have a plan for decreasing the price per unit, P, of a product that should increase the total contribution of the product.
- If profit, Z, is to increase then the volume of product, Q, sold must increase to compensate for the new lower price, Pn.

Keep the Current Contribution

- Someone (Accounting Office) will be concerned about the possibility of keeping the current total contribution as a minimum.
- i.e., $(P-V)Q$ must equal $(Pn - V)Qn$
 - Where Pn = new price
 - Qn = new quantity

The formula for a constant contribution is

$$y = \frac{-x}{(\text{markup} + x)}$$

- where y is the fractional change in quantity needed to maintain the same total contribution with a x% change in price and a given percentage markup on price.

Or the equivalent

$$Y = \frac{(M - Mn)}{Mn}$$

- Where M is the current margin per unit (P-V)
- Mn is the new margin (Pn - V)

For example

- You want to decrease your current price by 10% because you feel it will stimulate long term market share.
- Your boss does not want to see any decrease in the current total contribution from your product and is worried about the change in volume that is needed
- The current markup is 40%
- What is the minimum change in unit sales necessary to maintain the current margin?

For Example cont'd

$$y = \frac{-(-10\%)}{(40\% + (-10\%))}$$

- where y is the fractional change in quantity needed to maintain the same total contribution with a 10% decrease in price and a 40% markup on price. (Note the minus signs.)

For Example cont'd

$$y = \frac{10}{30} = 0.3333$$

- 33.33% increase in quantity needed to maintain the same total contribution with a 10% decrease in price and a 40% markup on price.

A Second Example Based On

$$Y = \frac{(M - Mn)}{Mn}$$

- Where M is the current margin per unit (P-V)
- Mn is the new margin (Pn - V)

Second Example

- The current margin is \$20 per unit, M
- The new higher price will result in a new margin of \$25 per unit, Mn.
- What is the minimum fractional decrease in the quantity sold that will maintain the current total contribution?

Second Example

$$Y = \frac{(M - Mn)}{Mn}$$

- Where M = 20
- Mn is the new margin (Pn - V) = 25

Second Example

$$Y = \frac{(20 - 25)}{25} = -0.2$$

- A 20% decrease in quantity sold results in the same total contribution.
- Management now asks is 20% a reasonable expectation in response to a \$5 price increase?

- The calculation to find the minimum change needed is a benchmark approach that most managers find easier than trying to estimate the product's price elasticity.
- Note that we did this with out knowing the original price P.

The Proof

- $MnQn = MQ$ the total contributions are set equal
- $Qn = Q(1+y)$ the new Qn in terms of old Q
- $Mn(Q)(1+y) = MQ$
- $1+y = M/Mn$
- $y = (M/Mn) - 1$
- $y = (M - Mn)/Mn$

Proof cont'd

- $y = (M - Mn)/Mn$
- Where $M = P-V$ and $Mn = Pn-V$
- $y = (P-V-Pn+V)/(Pn-V)$
- Where $Pn = P + xP$ new price in terms of old price
- $y = (P - (P + xP)) / (P + xP - V)$
- $y = -xP / (P-V + xP)$ times P/P
- $y = -x / ((P-V)/P) + x$
- $y = -x / (\text{markup} + x)$

Note

- Markup on Price has been shown again.