

A Salesperson is Paid a Salary and a Commission.

Think of
Salary as a Fixed Cost
Commission as a variable cost
(percent of selling price)

The salesman can be seen in two ways:

- How much does he have to sell to breakeven (i.e., cover his salary)?
- What equation describes his contribution to other fixed costs at any sales volume he might produce?

The contribution equation

$$Z = PQ - xPQ - VQ - F$$

- where
- Z = Total Profit contribution
- P = price per unit
- x = commission rate
- Q = quantity sold
- V = variable cost per unit
- F = salary and support costs

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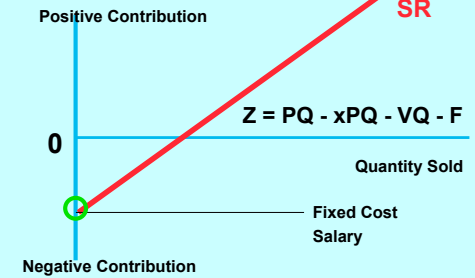
If He doesn't sell anything
Contribution is negative. (i.e., down
the cost of the Salary)

$$Z = PQ - xPQ - VQ - F$$

if Q = 0 then
 $Z = -F$

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Our Own Salesman



How many does he have to sell to
breakeven (i.e., cover his salary)?

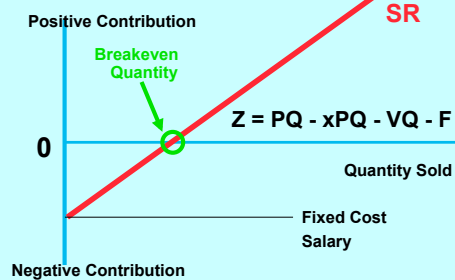
$$Q = \frac{F}{P - xP - V}$$

- where
- Q = Breakeven Quantity
- F = salary
- P = price
- x = sales commission (on price)
- V = other variable costs

$$Q = \frac{\text{Salary}}{P - x(P) - V}$$

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Our Own Salesmen



Breakeven Revenue with the
sales commission

- Breakeven Quantity = $F/(P-V-xP)$
- Multiple both sides by P
- $P(\text{BEQ}) = F/(P-V-xP)$
- $\text{BER} = F/((P-V-xP)/P)$
- $\text{BER} = F/((P-V)/P) - (xP/P)$
- $\text{BER} = F / (Mp - x)$
- The advantage of using Markup on price when dealing sales commissions

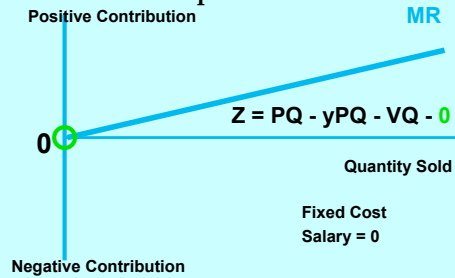
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The Most Obvious Advantage on Using Manufacturer's Reps is

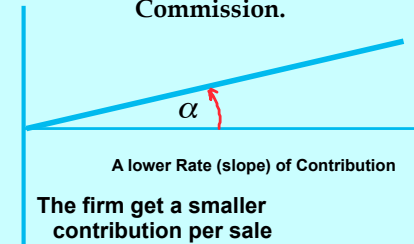
- There is no fixed cost such salary, allowances, etc.
- $Z = PQ - yPQ - VQ - F$
- $F = 0$
- y = commission rate to the Rep
- there is no breakeven point
- and a positive contribution is made to sales every time something is sold

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Hire A Manufacturer's Representative

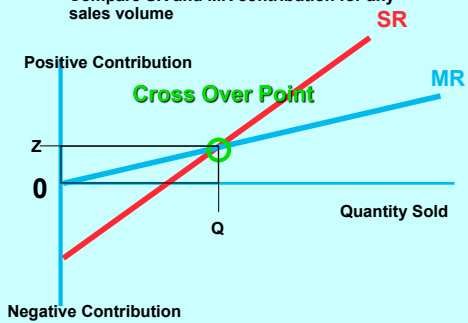


The most Obvious Disadvantage in Using Manufacturer's Reps is that They receive a Higher Sales Commission.



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- Compare SR and MR contribution for any sales volume



Calculate Cross Over Point
Set The Contribution Rate of the Sales Representatives and Make It equal to The Contribution Rate of The Manufacturer's Reps.

- $Z_{MR} = PQ - yPQ - VQ - 0$
- $Z_{SR} = PQ - xPQ - VQ - F$
- $Z_{SR} = Z_{MR}$

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Calculate Cross Over Point
Set The Contribution Rate of the Sales Representatives and Make It equal to The Contribution Rate of The Manufacturer's Reps.

- $Z_{SR} = Z_{MR}$
- $PQ - xPQ - VQ - F = PQ - yPQ - VQ - 0$
- $PQ - xPQ - VQ - PQ + yPQ + VQ = F - 0$
- $yPQ - xPQ = F - 0$
- $PQ(y-x) = F - 0$
- $PQ = (F - 0) / (y-x)$... Crossover revenue
- $Q = F - 0 / P(y-x)$... Crossover quantity

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In general it's the difference between fixed costs divided by variable costs.

• $PQ = (F - 0) / (y-x)$... Crossover revenue

• $Q = F - 0 / P(y-x)$... Crossover quantity

$$Q = \frac{F}{P(y-x)}$$

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Example 1

- You are starting a new SBU and you have been asked to find the breakeven sales revenue for each sales rep in your sales force. Your own reps have a $x = 30\%$ commission rate and a salary of \$5,000 per month. The markup on price is $Mp = 50\%$
- Breakeven Sales Revenue = ?

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Example 1

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- Breakeven Sales Revenue = $F/(Mp - x)$
- Breakeven Sales Revenue = $\$5,000/(0.5-0.3)$
- Breakeven Sales Revenue = **\$25,000**

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Example 2

- You are starting a new SBU and you have been asked to find the cross-over point in terms of sales revenue (i.e., where you will be indifferent between the use of independent manufacturer's reps and your own force of sales reps). Manufacturer's reps have a $y = 40\%$ commission rate
Your own reps have a $x = 30\%$ commission rate and a salary of \$5,000 per month.
- Crossover Sales Revenue = ?

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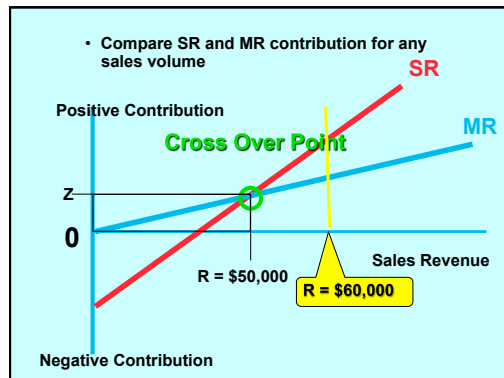
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Your own reps have a $x = 30\%$ commission rate and a salary of \$5,000 per month.
- Crossover Sales Revenue = $F/(y-x)$
- Crossover Sales Revenue = $\$5,000/(0.4-0.3)$
- Crossover Sales Revenue = **\$50,000**

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- Your best forecast for the monthly sales revenue is \$60,000 a month per sales territory.
- You make more profit using independent sales reps than hiring your own sales force.
- True or False

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- The Breakeven and Cross-over points are benchmarks for detailed analysis
 - They provide a starting point for bringing qualitative variables into the debate
 - Is the BEQ do-able?
 - How much will alternative customer research cost if we don't get call reports from the sales reps?
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