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India



**C4.1 General Insurance in India – A View**  
*Designing the Product that would be the APPLE of The Eyes  
of Customers & Partners*

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***Waves of Reforms...Oceans of Opportunities***

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# *Abstract*

" Product design is all about knowing what the customers as well as distribution partners want and at times what the customers want versus what the partners want maybe in conflict. The attempt is to elucidate statistical techniques that ensure a product design process creates products that while maintaining the profitability of general insurance companies gains immediate acceptance from both customers and partners."

# *Pricing & Product Features*

**Conjoint Analysis:** Attempts to determine the relative importance consumers attach to salient attributes and the utilities they attach to the levels of attributes. **Example:** Would consumers like a deductible or voluntary excess in their Motor policy



Knowing What Product Features A Customer Wants Is Critical To What Features & Pricing One Should Have

# Price Volume Tradeoff

$$y_{it} = \mu + \beta'x_{it} + \epsilon_{it}, \quad i = 1, \dots, N, \quad t = 1, \dots, T,$$

where

$$\epsilon_{it} = \delta_i + \gamma_t + \eta_{it}, \quad E\delta_i = E\gamma_t = E\eta_{it} = 0, \quad E\delta_i\gamma_t = E\delta_i\eta_{it} = E\gamma_t\eta_{it} = 0,$$

$$E\delta_i\delta_j = \sigma_\delta^2 \quad \text{if } i = j,$$

$$= 0 \quad \text{if } i \neq j,$$

$$E\gamma_t\gamma_s = \sigma_\gamma^2 \quad \text{if } t = s,$$

$$= 0 \quad \text{if } t \neq s,$$

$$E\eta_{it}\eta_{js} = \sigma_\eta^2 \quad \text{if } i = j, t = s,$$

$$= 0 \quad \text{otherwise,}$$

and

$$E(\delta_i x_{it}) = E(\gamma_t x_{it}) = E(\eta_{it} x_{it}) = 0.$$

Revenue = Price x Quantity

Change In Revenue = Change In Price x  
Change In Quantity

Elasticity = Percentage Change in Quantity

Demanded for a Percentage Change in Price

Price  $\uparrow$   $\Rightarrow$  Revenue  $\uparrow$  or  $\downarrow$  Depends On Quantity  $\uparrow$  or  $\downarrow$

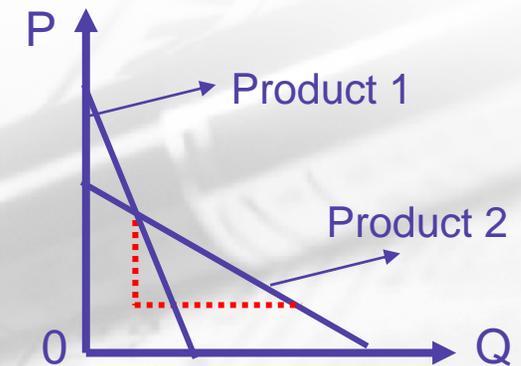
Price  $\downarrow$   $\Rightarrow$  Revenue  $\uparrow$  or  $\downarrow$  Depends On Quantity  $\uparrow$  or  $\downarrow$

Elasticity < 1  
Or Inelastic

Elasticity > 1  
Elastic

Product 1: Price  $\uparrow$  = Revenue  $\uparrow$

Product 2: Price  $\downarrow$  = Revenue  $\uparrow$



Elasticity Key Determinant Of Pricing Decision

## *Partner's Reaction*

- Lower Pricing Could Mean Lower Per Policy Remuneration but Overall Higher Remuneration
- Higher Pricing Could Mean Higher Per Policy Remuneration but Overall Lower Remuneration



# *Profitability*

- Lower Pricing Could Mean Higher Loss Ratios but Lower Combined Operating Ratio
- Higher Pricing Could Mean Lower Loss Ratios but Higher Combined Operating Ratio
- Capital Requirement ???



# *Profitability*

- And the Most Obvious ... Higher Per Policy Remuneration Means Lower Profitability or Higher Prices for Customers
  - Can we devise a trade-off between Per Policy Remuneration & Loss Ratios To Ensure Optimal Pricing ???



# Predicting Losses

This is an area that is more developed in India as opposed to other areas in terms of statistical analysis

*Probability  
Of Losses*

## Tools Available

- **Hazard Rates**

- ✓ **Survival Functions**

$$\lambda(x) = \frac{f_X(x)}{1 - F_X(x)}$$

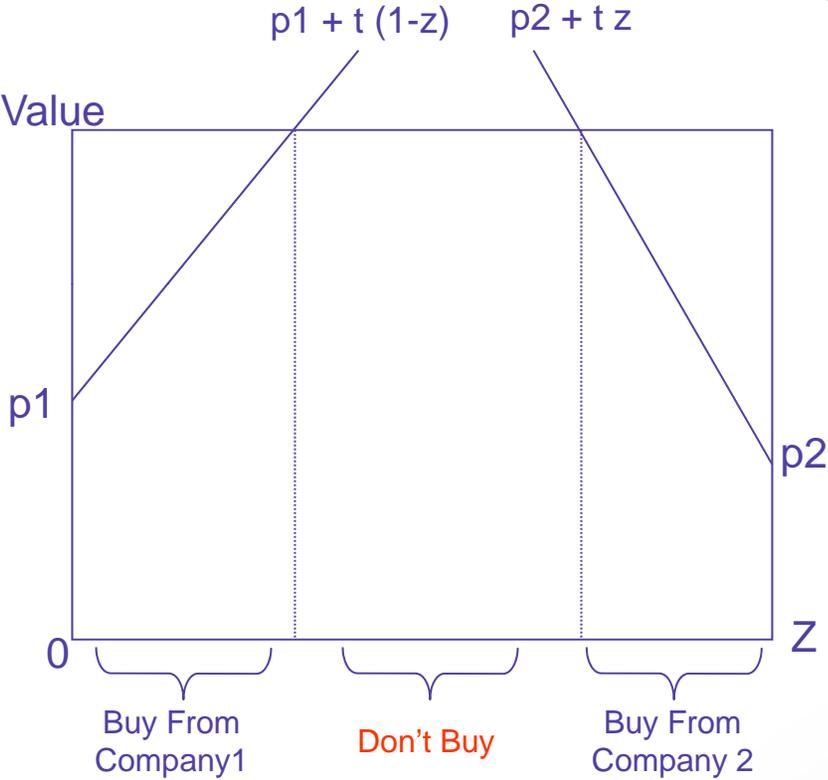
$$S_X(x) = e^{-\int_0^x \lambda(y) dy}$$

Challenge In India is  
Availability Of Reliable Long  
Run Customer Data

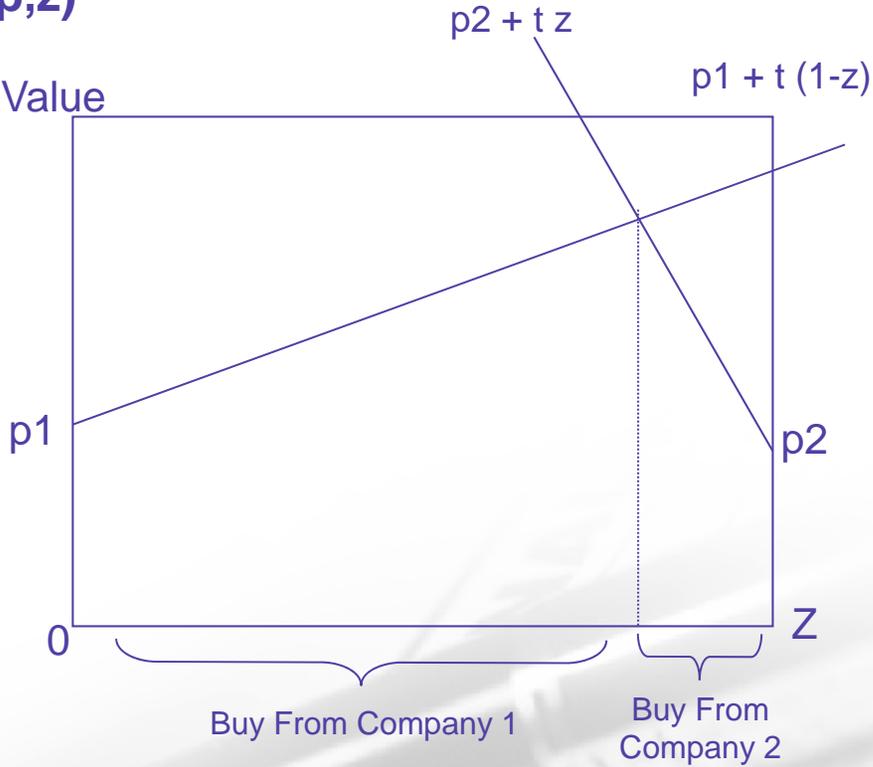
Revenue Maximization basis  
Location and Companies competing  
for market share

P = price, Q = quantity & z is a continuous variable taking values between [0,1] representing the customer

$Q = f(p,z)$



Higher Pricing, Lower Volume



Higher Volume, Lower Pricing

**Competition ????**

# *Profitability*

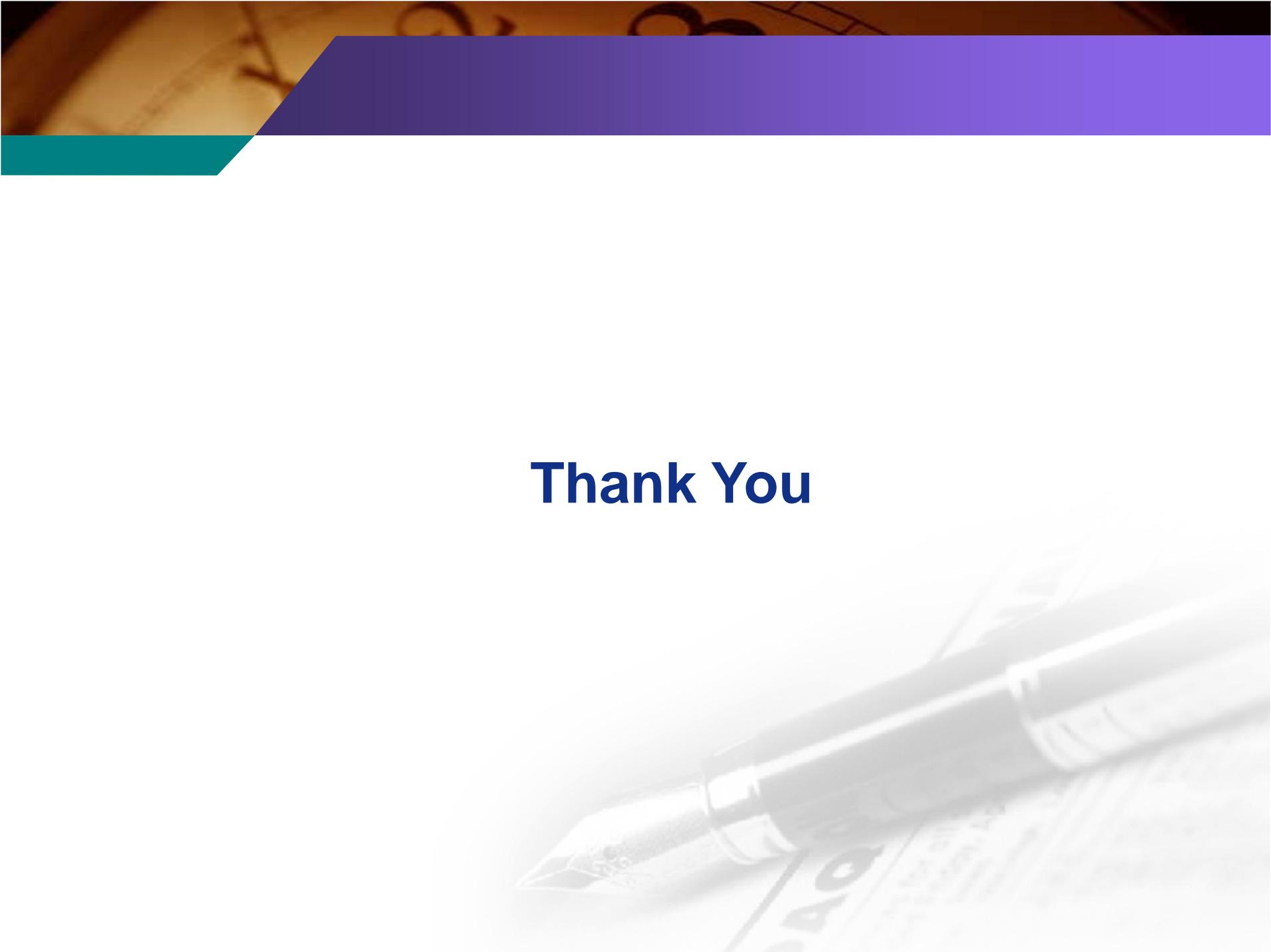
**So Where Is The APPLE ???**



# Final Comments

- 1 Know Your Customers, Partners & Competition
- 2 Test & Learn .. And Learn More .. As There is No Simple Answer
- 3 Requires Creation Of Separate Expert Team
- 4 CEO Driven .. Organization Wide Buy In
- 5 Focus On Selling Value, Not Price

**Having An Analytics Mindset & Executing On This Initiative In The Indian Insurance Industry Will Be Very Critical To Its Success**



**Thank You**