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***Lessons from Behavioral Finance for
General Insurance Product Pricing and Design***

Current Issues in General Insurance

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Can behavioral traits affect pricing?

I trust my gut,
Our project is too complex
for logic and evidence.



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**Think of random variables
organized in a compound
distribution**

Motivation

Behavioral economics and the related field, **behavioral finance**, study the effects of social, cognitive, and emotional factors on the economic decisions of individuals and institutions.

Apart from data modeling, the Pricing Process and the Product Design Structure is also guided by the actuary's judgment.

This discussion aims to sensitize about behavioral traits that affect Product Pricing and Product Design.

Today's Discussion

▶ Anchoring

▶ Prospect Theory

▶ Money Illusion

▶ Mental Accounting

▶ Framing

▶ Myopic Loss Aversion

▶ Heuristics & Biases

▶ Compliance Prod



Applying Behavioural
Finance to P&C Pricing
and Design

1. Anchoring

Concept

Decisions are often made by adjusting from an existing position.

There are species that did not display the endowment effect but they are extinct now .. Amos Tversky

Q. Does the Endowment Effect exist i.e. both buyers and sellers feel entitled to the Terms of Trade they are accustomed to?

Consider 'Surge Pricing', OK for transactions with limited capacity, not otherwise (read: insurance)

Try withdrawing NCD, offer correspondingly lower premium!

1. Anchoring

Concept	Decisions are often made by adjusting from an existing position.
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Q. How would an absolute cap and a stratified cap affect the emergence of TP claims?

If an absolute or stratified cap on TP claims is notified, claim decrees would tend to approach such cap amount. So a careful cap, absolute or stratified, is imperative.

Audience question

Problem 1:

Which do you choose – i) or ii)?

i) Get Rs9,000 OR ii) 90% chance to get Rs10,000

Problem 2:

Which do you choose – a) or b)?

a) Lose Rs9,000 OR b) 90% chance to lose Rs10,000

Audience “Human Beings” answer (assuming all are mortals!)

Problem 1:

Which do you choose – i) or ii)?

i) **Get Rs9,000** OR ii) 90% chance to get Rs10,000

Problem 2:

Which do you choose – a) or b)?

a) Lose Rs9,000 OR b) **90% chance to lose Rs10,000**

High (low) risk choice when facing losses (gains)

Contradicts Utility Theory's assumption of non-satiation [$U'(w) > 0$, $U''(w) < 0$] and risk aversion.

2. Prospect Theory

Concept

People are risk-averse when facing gains, but become risk-seeking when facing losses.

Q. Is an over-eager (loss-making) insurer exposed to inordinate 'last quarter business risks' of defraying higher distribution expenses? Of underwriting lightly?

The underwriter's peril!

3. Money Illusion

Concept

Human beings tend to think about money in nominal, not real terms.

Q. Wouldn't it be easy to explain claims inflation through an upward premium revision?

Express absolute claim amounts for absolute premium rises, albeit nothing changed in relative % terms.

The situation should be read along with the 'present bias' i.e. the effect of communicating and securing a higher premium rate would wear off as time progresses.

4. Mental Accounting

Concept

Use of separate mental accounts (implicit and explicit cognitive activities) impacts financial decisions.

Q. Sunk costs (e.g. Insurer's fixed overhead) usually ignored?

Traditional actuarial theory ignores sunk costs in pricing, merely adds charges and leaves it to premium volume to absorb expenses.

4. Mental Accounting

Concept

Use of separate mental accounts (implicit and explicit cognitive activities) impacts financial decisions.

Q. Likewise sunk premium (e.g. Insured's premium) usually ignored?

Hint for insurer that longer-term products tend to be profitable due to the insured's mental accounting e.g. medium term insurance. Case for 3 yr upfront premium products?

Econs defer to opportunity costs, human being don't .. Richard Thaler

4. Mental Accounting

Concept

Use of separate mental accounts (implicit and explicit cognitive activities) impacts financial decisions.

Q. Do clients think differently when evaluating the value for different products? Match Column A with Column B.

Column A	Column B
A. YOY change in premium	1. Fire Insurance
B. Premium as % of SI	2. Health Insurance
C. Premium as % of Annual Income	3. Aircraft Insurance
D. Premium as % of Assets	4. Motor Insurance

4. Mental Accounting

Concept

Use of separate mental accounts (implicit and explicit cognitive activities) impacts financial decisions.

Did you also think this way?

Column A	Column B	Remarks
YOY change in premium	Fire Insurance	Many options to motor premium
Premium as % of SI	Health Insurance	Very low fire insurance rates as % of SI
Premium as % of Annual Income	Aircraft Insurance	Health premium is tax deductible from annual income
Premium as % of Assets	Motor Insurance	Aircrafts are critical to the asset base

5. Framing

Concept

The framing of a problem can materially impact how a decision is made.

Q. Whilst a 20% reduction in premium is the mathematical equivalent of a 25% No Claims Discount or increase in sum insured, would customers tend to choose the latter?

Just the 5% natural differential!

And the absolute value of the increased Sum Insured due to No Claims Discount

“Framing” read with “Money Illusion”

5. Framing

Concept

The framing of a problem can materially impact how a decision is made.

Q. Could framing be used to improve persistency?

Recognizing a healthy family with a long “no health claim” record. Especially as ‘family’ is a stable potent force in India.

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Concept

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Q. Could framing be used to convey premium rate rise following a natural disaster?

Read with Money Illusion, the nominal value of losses and not the change in loss ratio is a viable frame!

6. Myopic Loss Aversion

Concept

The frequency with which something is monitored can impact the decision. Shorter the term of monitoring, higher the loss aversion.

Q. A case for selling 're-load option' or 'constant price products'?

Binoculars with a spare lens instead of myopia spectacles?

6. Myopic Loss Aversion

Concept

The frequency with which something is monitored can impact the decision. Shorter the term of monitoring, higher the loss aversion.

Q. Does the lower frequency of monitoring 'inexpensive purchases' lead to money on the table for the insurer?

Case for experience analysis on 'client's frequency of monitoring' e.g. corporate health plans are monitored with high frequency, individual personal accident plans not so.

7. Heuristics and Biases

Concept

Human beings often employ thumb rules

Q. Are “Easy come, easy go” subsidized products likely to have reduced persistency?

Crop insurance may not survive beyond the subsidy phase unless the ‘free product’ bias is handled by suitable communication or tied to a different offering.

Narrower the moat, higher the price!

7. Heuristics and Biases

Concept

Human beings often employ thumb rules

Q. If an employee has an individual health insurance policy and is also covered under the company health plan, she claims health costs from the company plan.

Case for the number of and SI in respect of employees with an individual health plan as a rating factor to price the company health plan?

Concept

Human beings feel happy to spend if someone else guides the decision

Anil's wife gives him an expensive Kurta for Diwali. Anil had seen the sweater in the store and decided it was too big an indulgence to feel good about buying it. He is nevertheless delighted about the gift. Anil and his wife pool all their financial assets; neither has any separate source of money.

Anil feels better about spending family resources on an expensive Kurta if his wife made the decision, though the Kurta was no cheaper.

8. Compliance Prod

Concept

Insurance products bought because 'law' or 'bank' or 'embassy' requires may not be as price-sensitive

Consider the examples:

- Motor premium bundled with the car loan and EMI**
- Fire premium on hypothecated stocks charged to cash credit a/c**
- Overseas medical insurance premium paid in anticipation of a visa**

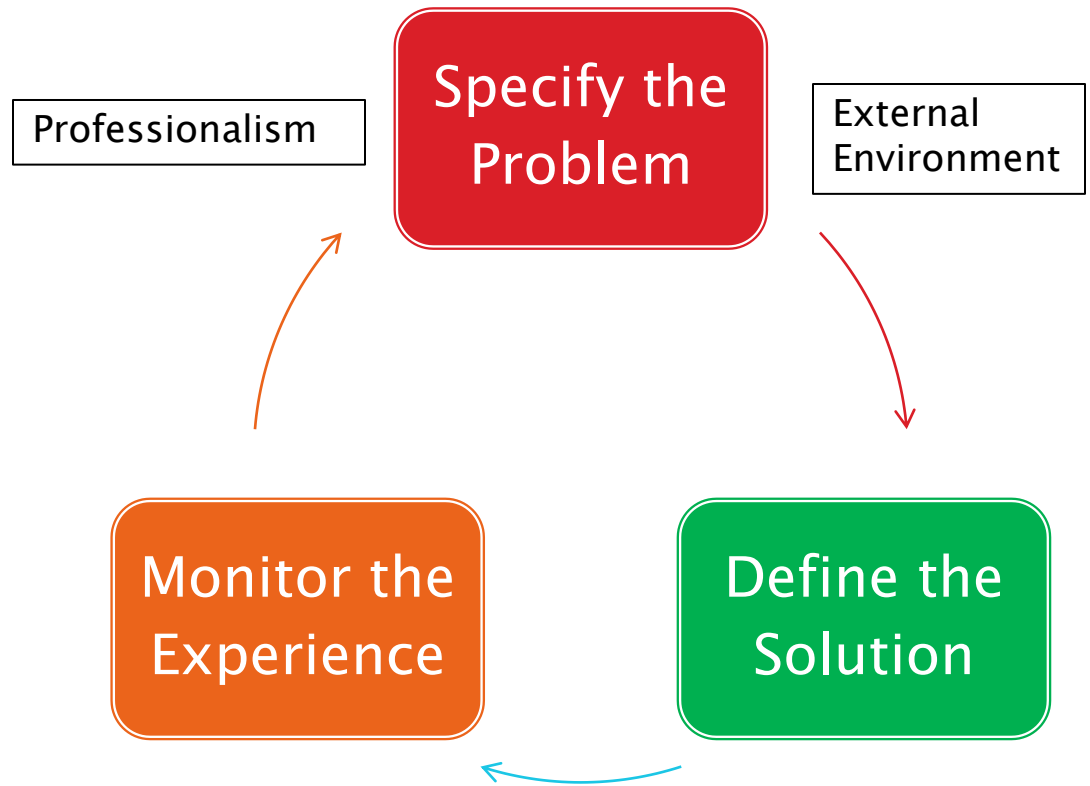
Compliance prods do not hurt. Human beings are happy to pay premiums if someone else is driving the decision.

Should 'compliance prods' be the first products to be introduced?

Applying Actuarial Theory

Behavioral Economics may appear simplistic in 'Cause and Effect.'

The Actuarial Control Cycle is a worthy tool to evaluate the tenets and improve the future set of actions.



Takeaways



Anchoring – Surge pricing is likely to work with products having limited supply; TP Claims likely to link to decree cap.



Prospect Theory – Large premium growth in the last quarter is an ominous signal to analysts.



Money Illusion – Express absolute claim amounts for absolute premium rises albeit nothing changes in relative % terms.



Mental Accounting – Sunk costs are ignored so aim for longer term products; different LOBs value different premium expression metrics e.g. % of assets for aircraft, % of SI for fire.

Takeaways .. Contd.

▶ **Framing** – Could improve persistency by rewarding ‘healthy family’ or expressing absolute and relative growth in SI as compared with absolute reduction in premium.

▶ **Myopic Loss Aversion** – Price products based on ‘frequency of monitoring’ as a rating factor; evaluate ‘re-load’ option. Push products to a longer term.

▶ **Heuristics & Biases** – Persistency of ‘easy come easy go’ products. ‘Individuals with personal health plans’ as rating factor for group health insurance.

▶ **Compliance Prod** – Get these products off the ground. Decide the pecking order.

Finally apply the actuarial control cycle!

Q & A

