

## **Mental Accounting and Hedonic Psychology**

### **Mental Accounting:**

It is a study of how we organize, evaluate, plan and keep track of financial activities.

It explains many anomalous saving and spending (consumer) behaviors that appear to be contrary to our economic self-interest.

### **Hedonic Heuristics:**

Rules of thumb to maximize hedonic values of choice

### **The Economic Principle of Fungibility:**

Economists refer the broad usefulness of money with the term **fungibility**: A dollar can be perfectly substituted to pay any account.

But people violate the principle of fungibility: Money in one mental account is not perfectly substituted for money in another mental account.

### **Ex.**

A \$10 off discount in Condition A does not equal a \$10 off discount in Condition B.

Thus, a violation of fungibility

### **Implications:**

Don't give all the rewards to employees at once (but smaller rewards separated in time will lose the magic if recipients know the schedule).

Don't give in on a number of issues at once when negotiating with another party.

## **Three Kinds of Mental Accounts**

(Kahneman & Tversky, 1984)

### **Comprehensive Accounts:**

Focus on a net change in total wealth by pooling all assets into a single account, in which a dollar is a dollar and perfect fungibility holds.

### **Minimal Accounts:**

Keep track of only the differences between options, disregarding all their common features.

### **Topical Accounts:**

Relate outcomes of possible choices to a reference level that is determined by the context within which the decision arises.

### **Theater ticket problem**

## **Hedonic Mental Accounting and Consumer Preference**

Discount Ratio effects and  
Hedonic values and utilitarian values of a product

### **Jacket and Calculator problem**

Just noticeable difference (jnd)

We often use a topical account rather than a comprehensive or minimal account.

### **Mental Accounting and Prospect Value Functions**

Mental Accounting: A study of how we organize, plan, and keep track of financial activities

As Thaler (1999) pointed out, the jacket and calculator problem demonstrates that mental accounting is **piecemeal and topical**.

Mental accounts can protect long-term goals from competing short-term goals (Shefrin & Thaler, 1992).

#### **The prospect value function:**

(1) The value function is defined over gains and losses relative to some reference point.

(2) Both the gain and loss functions display diminishing sensitivity.

(3) Loss aversion:  $v(x) < -v(-x)$ .

#### **Mental Accounting Arithmetic (Hedonic Heuristics):**

Given the shape of the prospect theory value function, Thaler (1985, 1999) derived the following principles of hedonic framing, that is, the way of evaluating joint outcomes to maximize utility.

(1) Segregate gains (because the gain function is concave)

(2) Integrate losses (because the loss function is convex)

(3) Integrate smaller losses with larger gains (to offset loss aversion)

(4) Segregate small gains (silver lining) from larger losses (because the gain function is steepest at the origin, the utility of a small gain can exceed the utility of a slightly reducing a large loss).

Because closing an account at a loss is painful, a prediction of mental accounting is that people will be reluctant to sell securities that have declined in value.

Mental accounting favors selling the winner whereas a rational analysis favors selling the loser because capital gains are taxable and capital losses are deductible.

A prior expenditure (now a sunk cost) makes someone keeping the activity for which the expenditure was made.

Shoe example and Leclerk et al (1995) study

Tracking expenses for personal budgets (Heath & Soll, 1996)

Two stages:

For financial accounting: (1) expenses must be booked and (2) posted.

For mental accounting: (1) expenses must first be noticed and (2) then assigned to their accounts.

**Self Control and Gift Giving:**

Although the usual economic advice is that a gift in kind can be at best as good as a gift of cash, the ideal of luxurious gifts can be better than cash.

**The “Credit” of Credit Cards**

Credit cards insulate the purchase decision from the feeling of loss as it combines modest individual purchases into a sum total against which any one purchase seems like a barely perceptible loss.

**One-side (loss-side) stopping rule:**

People often set aside a certain amount of money with which to play and they stop after losing that amount. They have, however, no equivalent stopping rule for winning.

**Hedonic Psychology of Preferences**

Individuals possess slightly different and fairly stable “happiness set points”  
Personal well-being seems to behave a bit like our body weight.

**Instant utility:**

Experience at a particular moment

**Remembered utility:**

The global evaluation that is respectively assigned to a particular past episode or situation or retrospective evaluation of experience

**Satisfaction:**

Questions concern a domain of life, such as family life or work.

**Happiness and Well-being:**

Overall experiences and evaluations that encompass all domains of life

**Objective Happiness** is defined by the average of utility over a period of time.

It can be measure by on-line ratings along a Good/Bad dimension over time.

Objective happiness is derived from a record of instant utility over the relevant period. It is labeled objective because the aggregation of instant utility is governed by a logical rule and could in principle be done by an observer with access to the temporal profile of instant utility.

**Subjective Happiness** is assessed by asking respondents to state how happy they are.

## Hedonic Treadmill

Happiness or well-being is relative to one's circumstances.

Brickman and Campbell (1971): People continue to adapt to their improving or worsened circumstances so that the improvement yield no real benefits, and adverse conditions will not necessarily result in a lower assessment of well-being.

## Reference-dependent well-being

Are you satisfied with your job?

<u>Events Recalled</u>	<u>Reference</u>	<u>Satisfaction</u>
Good	5 days ago	High
Bad	5 days ago	Low
Good	5 years ago	Low
Bad	5 years ago	High

How can we get off of the hedonic treadmill?

## Hedonic Adaptations and Biases

### Coombs and Avrunin Hypothesis (1977):

Good characteristics satiate (the function relating goodness to amount has a slope that is positive and decreasing), and bad things escalate (the function relating bad characteristics to amount has a slope that is negative and decreasing - becoming more negative).

The resulting sum of good and bad outcomes will be always single-peaked.

### Helson Hypothesis (1947, 1948, 1964):

Adaptation Level (AL) is the average of past stimulus levels (  $X$  = stimulus level, and  $t$  = time)

$$AL_t = 1/t \sum_{i=0}^t X_i$$

An individual's hedonic state ( $u$ ) at any time ( $t$ ) is a function of the difference between the current stimulus level,  $X_t$  and  $AL$

$$u_t = f(X_t - AL_t)$$

### Parducci's Range-Frequency Hypothesis (1968, 1995):

Hedonic reactions to a stimulus depend on the position and the rank of the stimulus among other relevant stimuli.

Suppose that a salesman earns \$0, \$95, \$100, \$100, and \$90 on the first five days of work, respectively. **The range (mean) principle** alone would predict that \$90 as the next earning to be evaluated favorably because \$90 exceeds the midpoint of the stimulus

range (\$50). **The frequency (median) principle** alone would predict that \$90 to be experienced negatively because it ranks below the median stimuli (\$95).

The overall hedonic experience would depend on the relative importance of the two principles.

**Range-Frequency with Temporal Components** (e.g., Hardie, Johnson, & Fader, 1993; March, 1988; Ryder & Heal, 1973)

$$AL_t = \alpha X_{t-1} + (1 - \alpha) AL_{t-1}$$

The  $\alpha$  parameter determines the speed of hedonic adaptation. If  $\alpha = 1$ , the adaptation level is equal to the last period's stimulus level. If  $\alpha = 0$ , then adaptation level will not be influenced by past stimulus levels.

Assume that  $\alpha = 0.5$ , and X represents the objective level of some positive stimulus occurring on seven consecutive days (e.g., number of computers sold), u is hedonic state, and the past stimulus level had been 3.

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Sun.
X	3	5	12	4	5	5	5
AL	3	3	4	8	6	5.5	5.25
u	0	+2	+8	-4	-1	-0.5	-0.25

(1) The affective intensity and valence of a given stimulus level depend on past stimuli (not that Tuesday is a good day, and Friday is a bad day, though the objective values are the same on both days).

(2) The affective intensity of a constant stimulus diminishes over time (not that the experience of receiving five units of X gets better [less bad] from Friday to Sunday)

### Hedonic Evaluation Biases

(1) "Peak-and-end" rule and duration neglect

Retrospective evaluations of episodes give specific weight to *Peak Affect* and *End Affect* and are insensitive to the duration of episodes.

(2) When evaluating well-being, people often **average** when they should **add** (Kahneman, 2002). Because **sum** (distribution) is NOT automatically accessible but the **mean** (average) is intuitive, performance in assessing the sum of values in a set is often systematically flawed.

Kahneman et al (1993) Demonstration: Adding values to a set so that they lower the average while increasing the sum.

People prefer longer pain than shorter pain!

Which of these two experiences do you want to repeat?

Short pain 60 sec at 14<sup>0</sup> C (mean= 14)

Long pain 60 sec at 14<sup>0</sup> C + 30 sec in 15<sup>0</sup> C (mean= 14.3 a “better” average)

A majority (65%) of the participants chose the longer pain than the shorter pain.

### **Wealth and Well Being**

(Argyle, 1999)

#### **What does and does not affect our subjective well-being?**

<u>Factors</u>	<u>Effects on Well-being</u>
Income	Weak positive effects at lower end of the income scale only
Comparison ratio	Strong effects
Marriage	Strong positive effects
Social support	Some positive effects
Leisure and sports	Strong positive effects
Watching TV	Very weak positive effects
Religion and church attendance	Small positive effects
Frequency of life events	Strong effects
Intensity of life events	Weak effects
Unemployment	Strong negative effects, independent of income
Retirement	Small positive effects
Ethnic minority	Very small negative effects