



Theory and Model for food consumption

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Developmental model

- Exposure
- Social learning
- Associative learning



Social-Cognitive model

- Attitudes
- Social norms
- Perceived control
- Ambivalence



Psychophysiological model

- Neurochemicals
- Chemical senses
- Food and mood
- stress



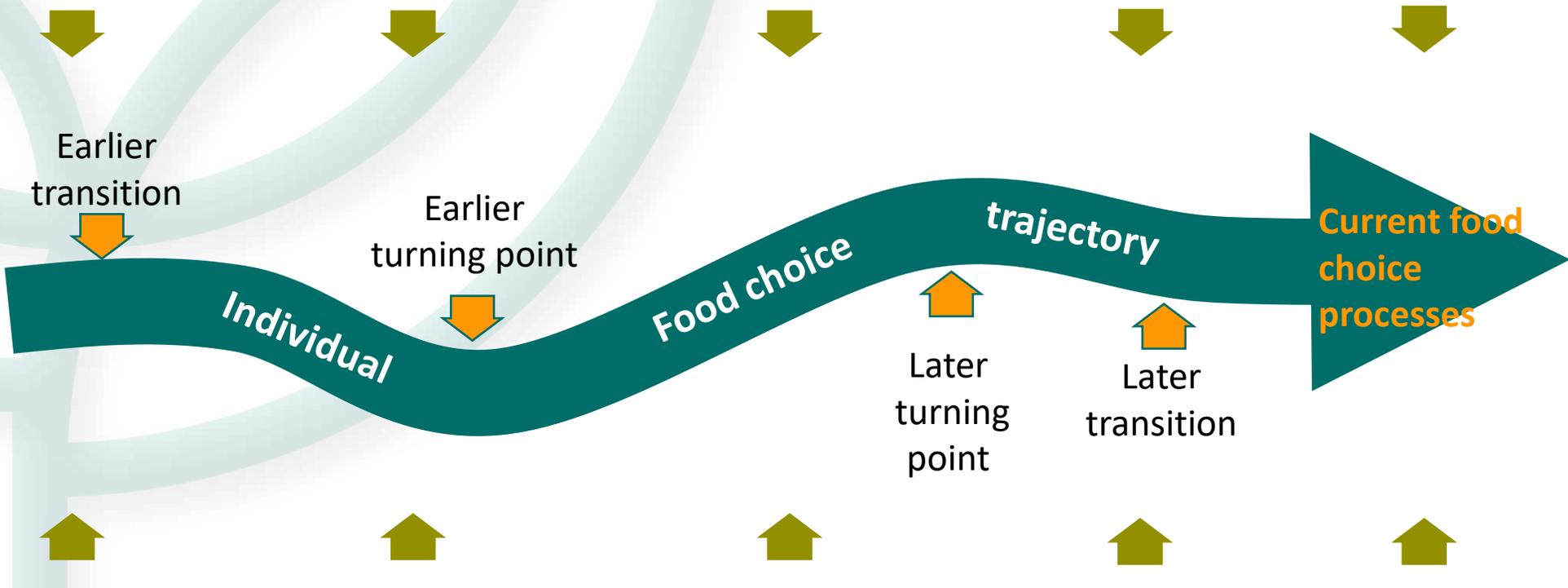
Food choice



Economic models

- Utility maximization and demand systems
- Household production theory
- Behavioural Economics
- Discrete choice theory
- Hedonic price analysis
- Non-market valuation: stated preference method
- Experimental methods
- Models of horizontal product differentiation

Macro-contexts (society, culture, economy, historical era of upbringing)

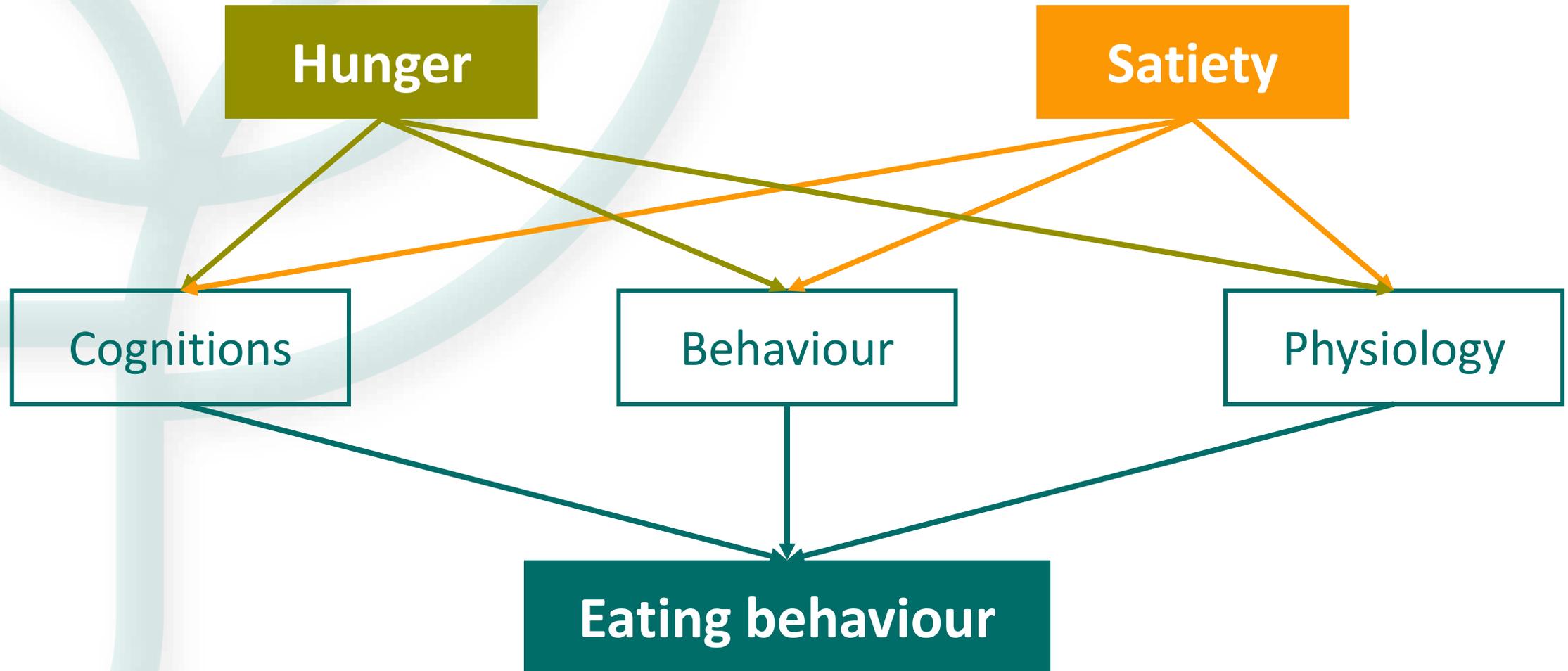


Micro-contexts (family, friends, school, work, community, place of resistance)

Meyer, K. B., & Simons, J. (2021). Good Attitudes Are Not Good Enough: An Ethnographical Approach to Investigate Attitude-Behavior Inconsistencies in Sustainable Choice. *Foods*, 10(6), 1317.

Psychophysiological model

- Metabolic models



Bandura's Social - cognitive theory

Albert Bandura

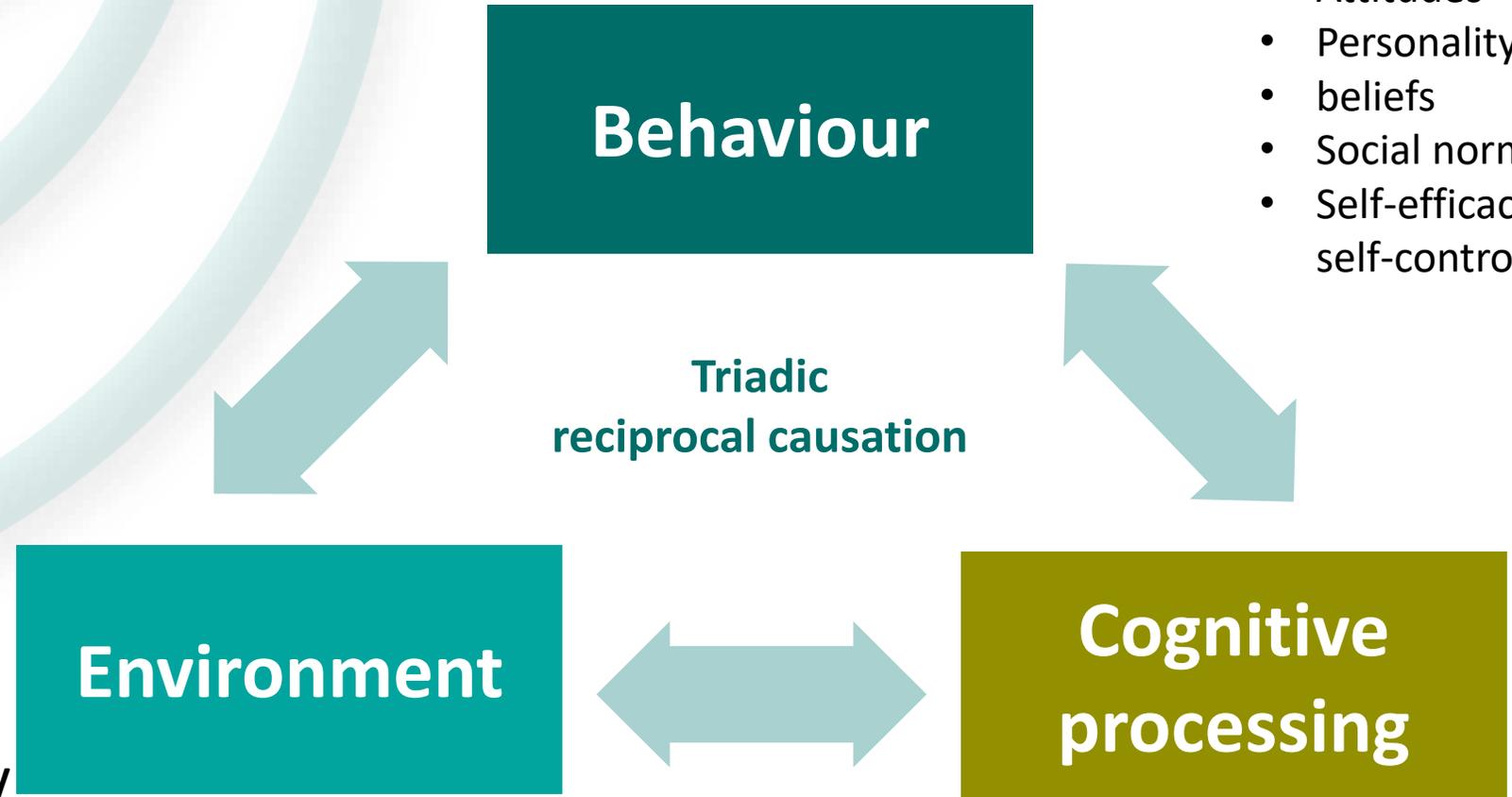
Cognitive behaviourism

Bandura proposes that internal states, the environment, and behaviour all affect on another. He maintains that people often regulate their own behaviour and that we engage in purposeful future-oriented thinking.

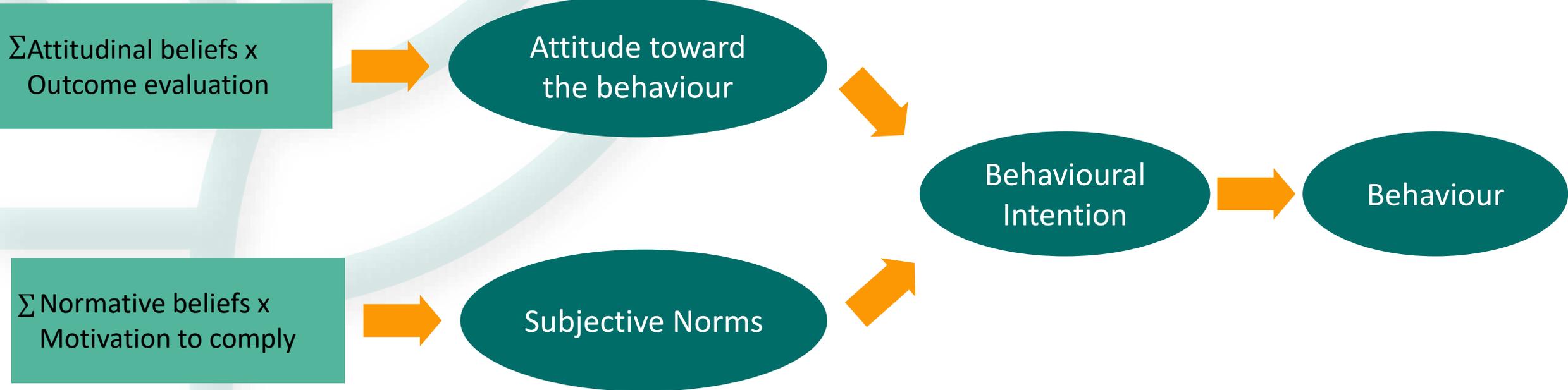
- The goal is to explain how learning results form interaction among 3 factors: personal characteristics, behavioural patterns, and social environment

Five concepts of social cognitive theory

- Observational learning/modelling
- Outcome expectations
- Perceived self-efficacy
- Goal setting
- Self-regulation

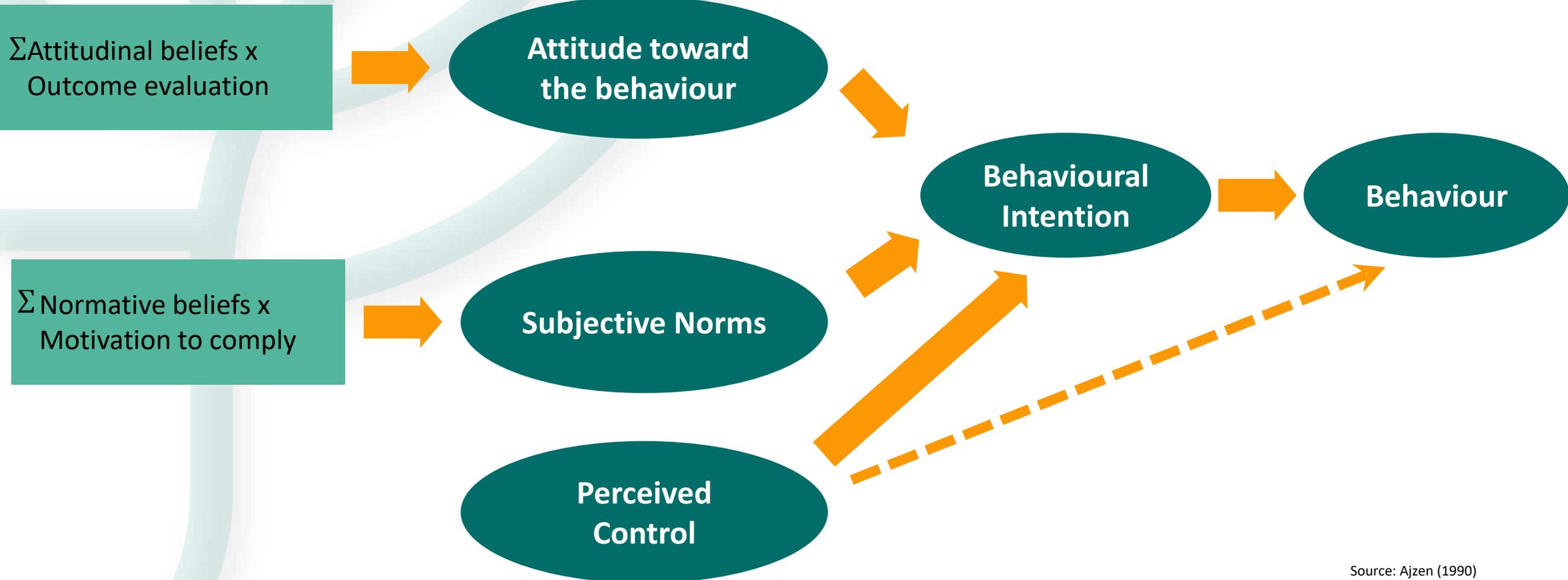


Theory of Reasoned Action

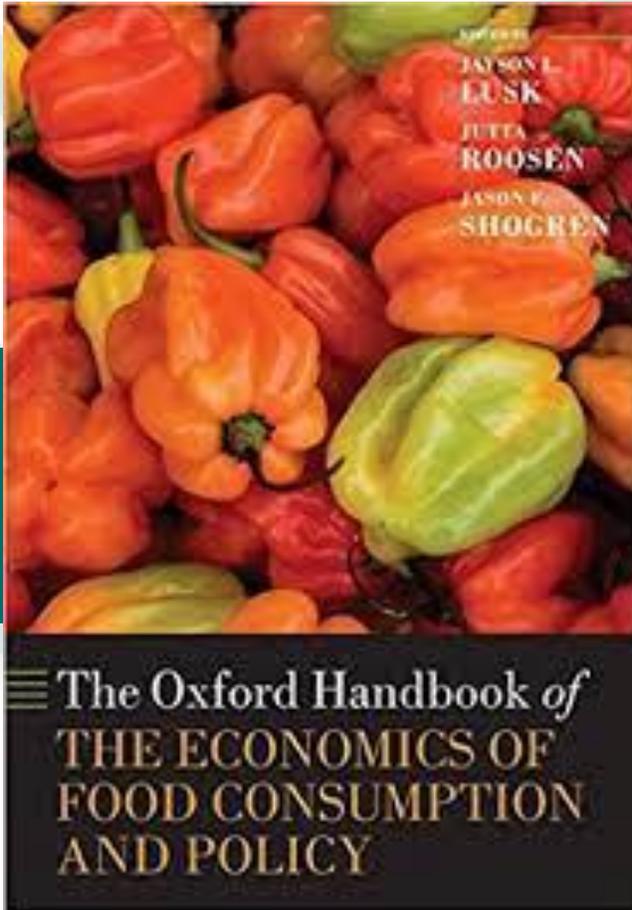


Source: Fishbein and Ajzen (1985)

Theory of Planned Behaviour



Source: Ajzen (1990)



Economic models

Utility maximization and demand

Axioms of choice

1. Reflexivity
 2. Completeness
 3. Transitivity
 4. Closure
 5. Non-satiation
 6. Convexity
- Indifference Curve
 - Marginal rate of substitution
 - Elasticity
 - Income & Substitution Effects
 - Normal goods, inferior good, & giffen goods.
 - Law of diminishing marginal utility
 - Law of demand
 - Expenditure function
 - Indirect Utility function
 - Distance function
 - The Almost Ideal Demand Function (AIDS)

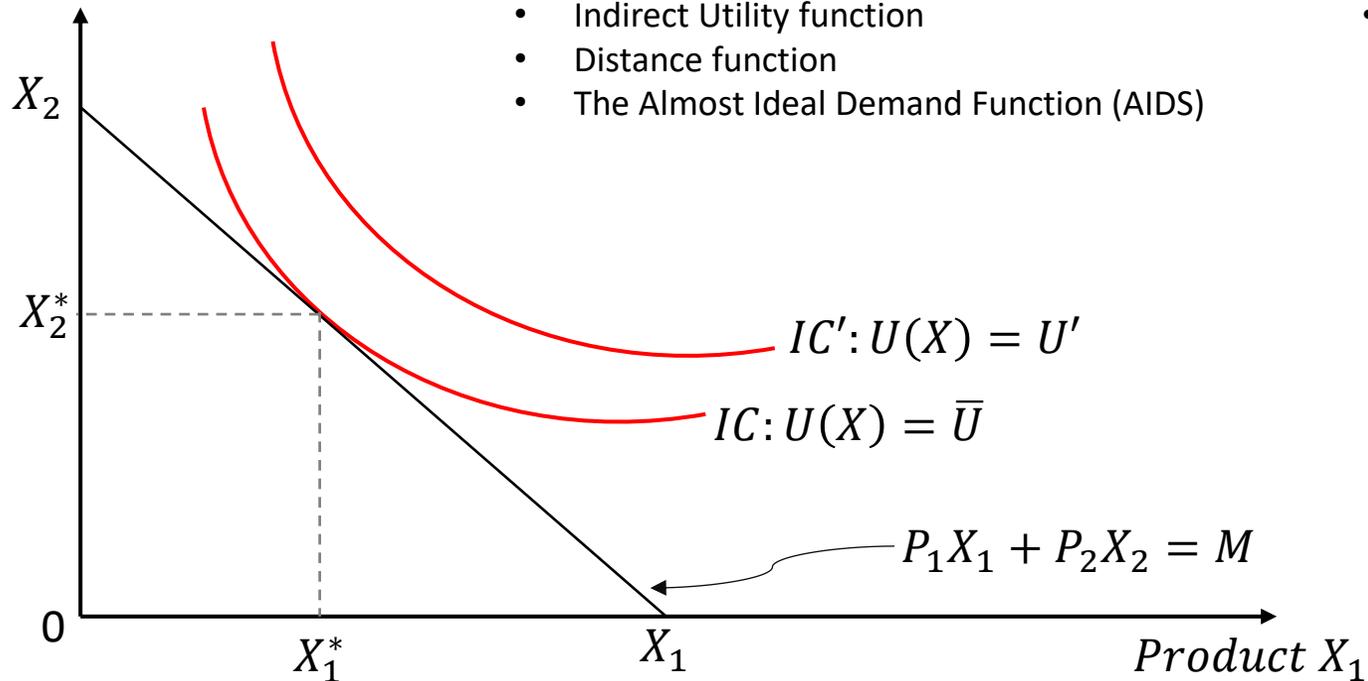
Expected utility theory

- bases on truly rational decision under uncertainty.

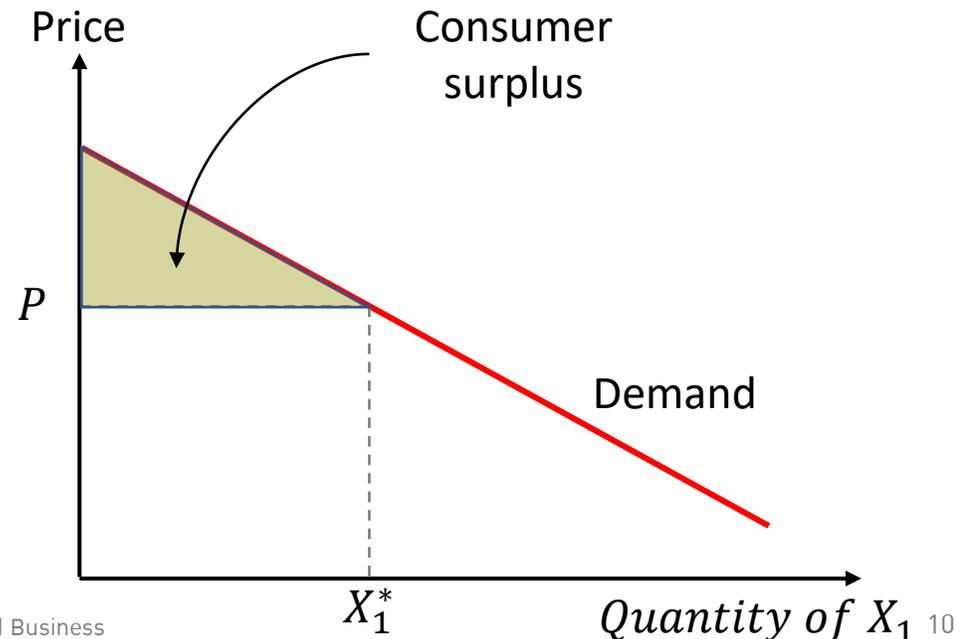
Theories based on the concept of expected utility theory:

- Marginal utility theory
- Game theory
- Decision theory
- Subjective expected utility (Bayesian decision theory)
- Von Neumann-Morgenstern theory, an extension of the theory of consumer preferences that incorporates a theory of behaviour toward risk variance.

Product X_2



https://courses.byui.edu/econ_150/econ_150_old_site/lesson_05.htm



Household Production Theory

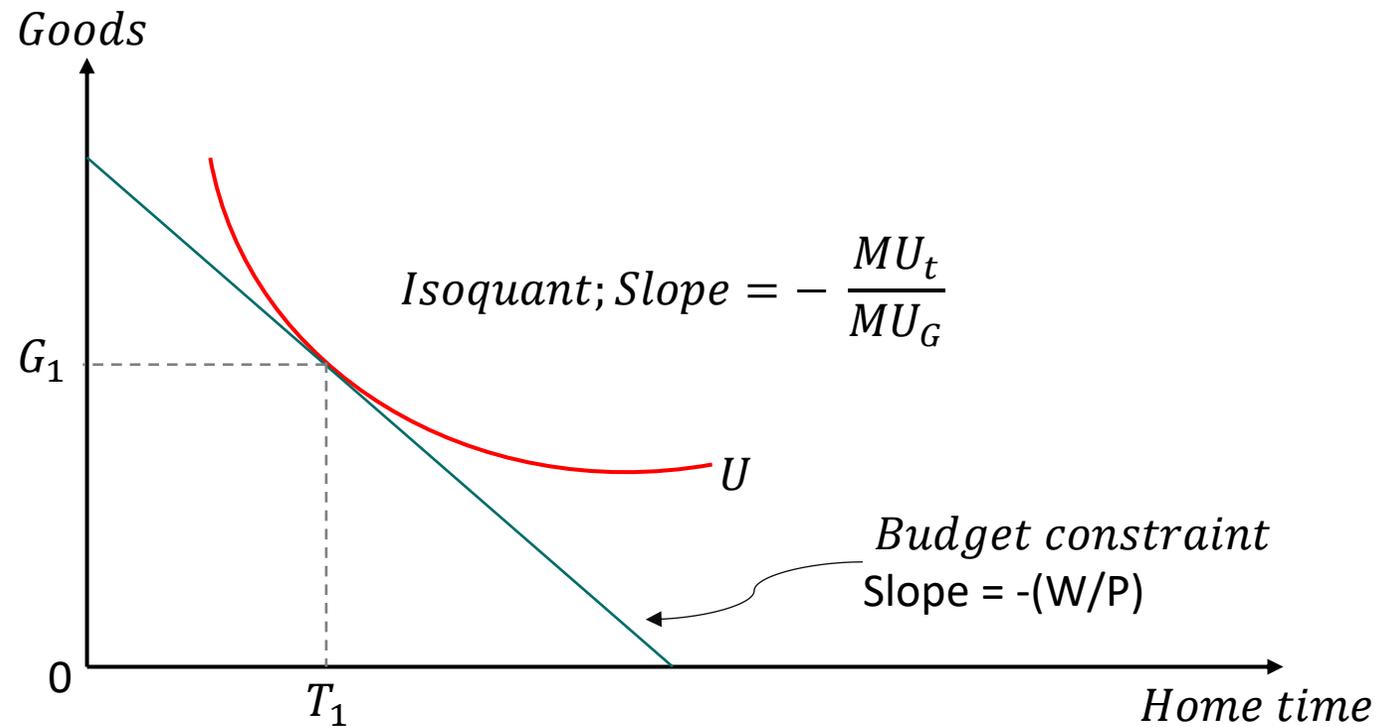
Becker (1976) proposed a model to explain household decision and resource allocation where a household is both a producing and a consuming unit.

Treat house as a firm:

- Output is utility
- G = goods
- T = time

$$U = F(G, T)$$

- Wages and goods intensive vs time intensive home production
 - How do we cook?
 - How do wages affect household size?
 - How should we divide work and home time?
 - How do relative wages affect time allocation?



Application of household production theory to health with food as an input : Health

Assumption: A household has a strictly concave utility function
The general form of the household's health supply (and demand) function for (current) adult health:

$$H^* = H(LP^*, X^*, I^*; He, Z, \varphi) = H(W, P_X, P_I, P_C, V, He, Z, \varphi)$$

Where:

- H = the current health status of the household members
- X = Consumption of food and drink
- I = purchased health input/medical care
- C = other purchased goods (excluding purchased health care)
- LP = Physically active leisure
- LO = other leisure time
- V = household non-labour income
- W = wage rate/ opportunity cost of time of an adult
- He = early health status
- Z = fixed observed variable e.g., education, gender, race/ethnicity
- φ = unobserved variable factors

Huffman, W. E., Huffman, S. K., Rickertsen, K., & Tegene, A. (2010, June). Over-nutrition and changing health status in high income countries. In Forum for Health Economics & Policy (Vol. 13, No. 1). De Gruyter.

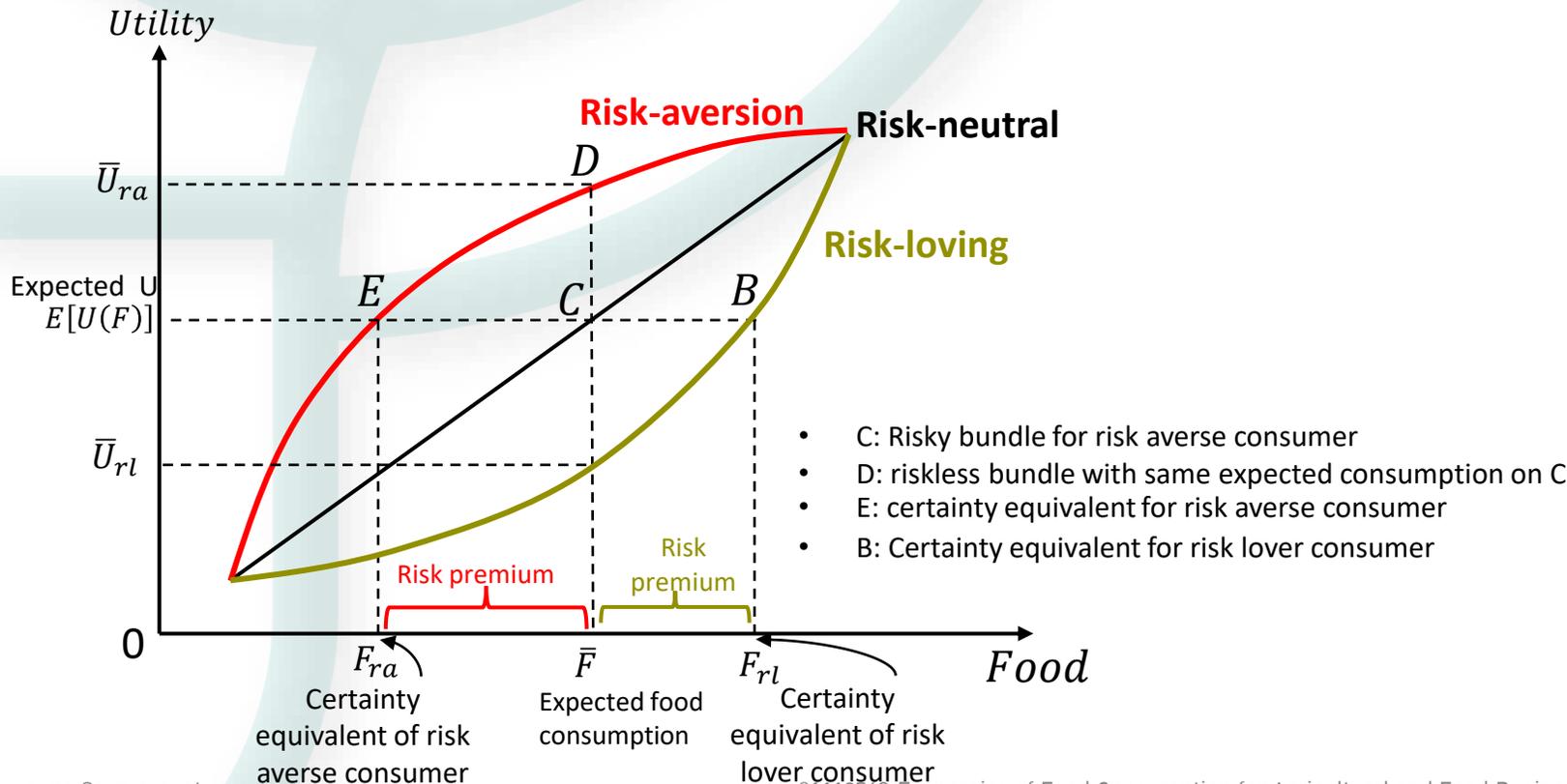
Table 7. IV-Panel Estimates of the Demand for Calories and Supply of Health as Reflected in Mortality Rates: 18 Developed Countries, 1971-2001 (absolute z-values are in parentheses, $N = 18 \times 31 = 558^{ad}$)

Explanatory Variables ^{b/}	ln(Cals)	Supply of Health as Mortality Rate	
		ln(H ₁)	ln(H ₂)
ln(P _x)	-0.114 (6.93)	-0.136 (5.68)	0.012 (0.24)
ln(P _c)	-0.061 (0.77)	-1.121 (8.66)	0.111 (0.67)
ln(W)	-0.009 (6.58)	-0.026 (11.96)	-0.007 (2.33)
ln(V)	0.077 (2.57)	-0.132 (2.57)	-0.462 (6.40)
ChildDepRatio	0.004 (3.52)	-	-
ShareWomen	-	2.550 (5.50)	0.981 (1.01)
ln(LFPR)	0.151 (2.87)	0.108 (1.20)	0.537 (4.40)
Ed	-0.012 (3.69)	0.019 (2.76)	-0.021 (2.09)
Sm2	7.527 (7.17)	0.584 (0.24)	26.539 (8.70)
Sm3	10.654 (14.66)	1.973 (0.67)	9.980 (2.91)
t	0.005 (3.81)	-0.017 (11.80)	0.011 (6.39)
ChildDepRatio ·ln(LFPR)	-	0.0015 (3.27)	0.001 (1.72)
Sm2·t	-0.004 (14.78)	-0.0003 (0.24)	-0.013 (2.99)
Sm3·t	-0.005 (14.78)	-0.001 (0.65)	-0.005 (2.99)
Constant	-2.762 (1.10)	39.714 (13.97)	-12.712 (4.08)

Risk preference and food choices

Risk perception risk preferences or risk attitudes are inextricably linked in terms of their impact on food choices.

- How to explain whether and how food consumption choices are connected to individual risk preferences?
- What are the connections between risk preferences and food choices?



Risk averse individual

$$E[U(F)] < U(\bar{F})$$

$$CE < \bar{F}$$

Risk neutral individual

$$E[U(F)] = U(\bar{F})$$

$$CE = \bar{F}$$

Risk lover individual

$$E[U(F)] > U(\bar{F})$$

$$CE > \bar{F}$$

Prospect Theory

Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty.

Amos Tversky and Daniel Kahneman

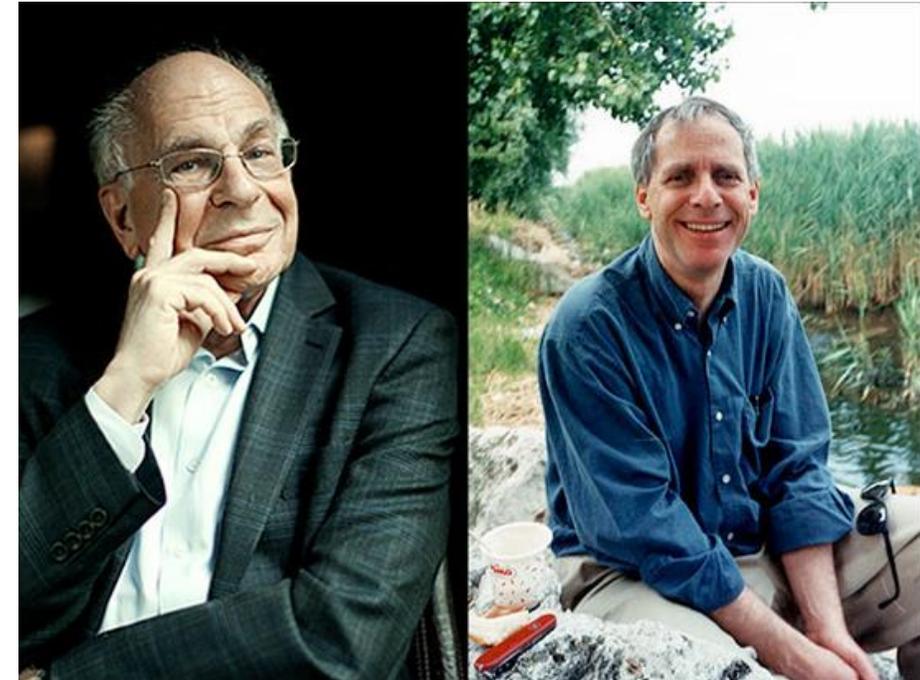
SCIENCE

27 Sep 1974 Vol 185, Issue 4157 pp. 1124-1131

DOI: 10.1126/science.185.4157.1124

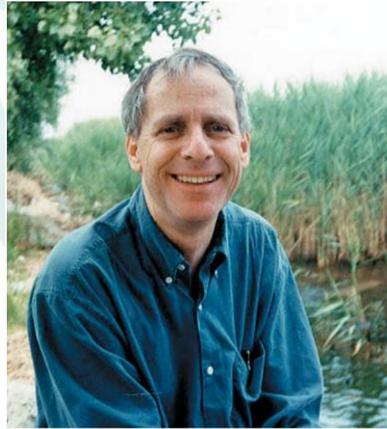
Abstract

This article described **three heuristics** that are employed in making judgments under uncertainty: (i) **representativeness**, which is usually employed when people are asked to judge the probability that an object or event A belongs to class or process B; (ii) **availability** of instances or scenarios, which is often employed when people are asked to assess the frequency of a class or the plausibility of a particular development; and (iii) **adjustment from an anchor**, which is usually employed in numerical prediction when a relevant value is available. These heuristics are highly economical and usually effective, but they lead to systematic and predictable errors. A better understanding of these heuristics and of the biases to which they lead could improve judgments and decisions in situations of uncertainty.



Daniel Kahneman (left) and Amos Tversky (right).
Cr. tokresource.org/cognitive-bias

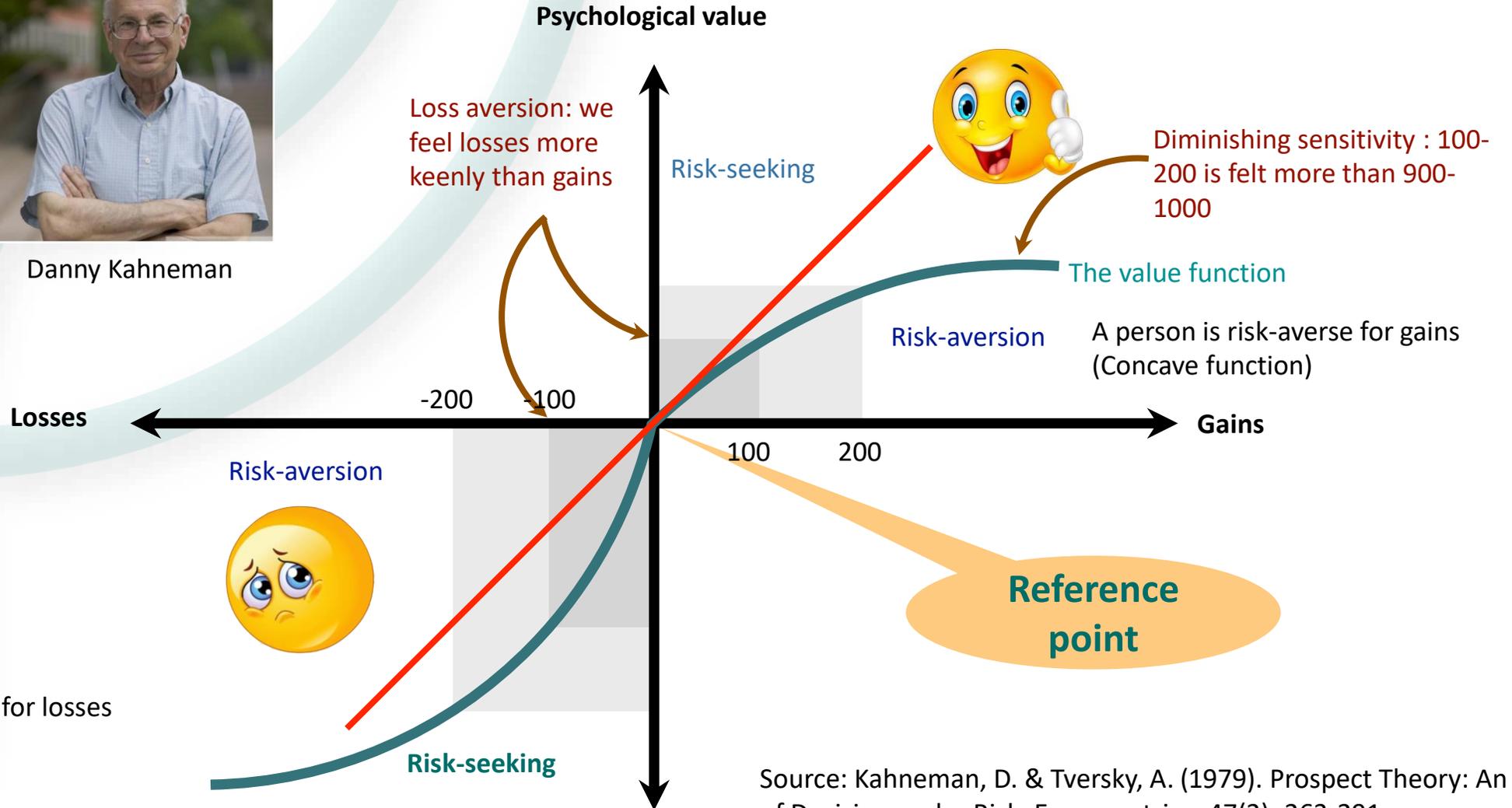
Prospect Theory



Amos Tversky



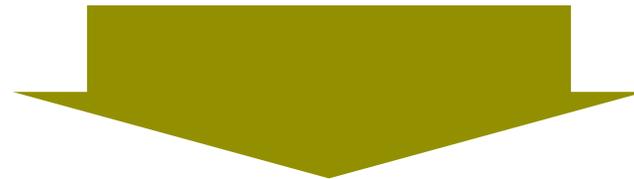
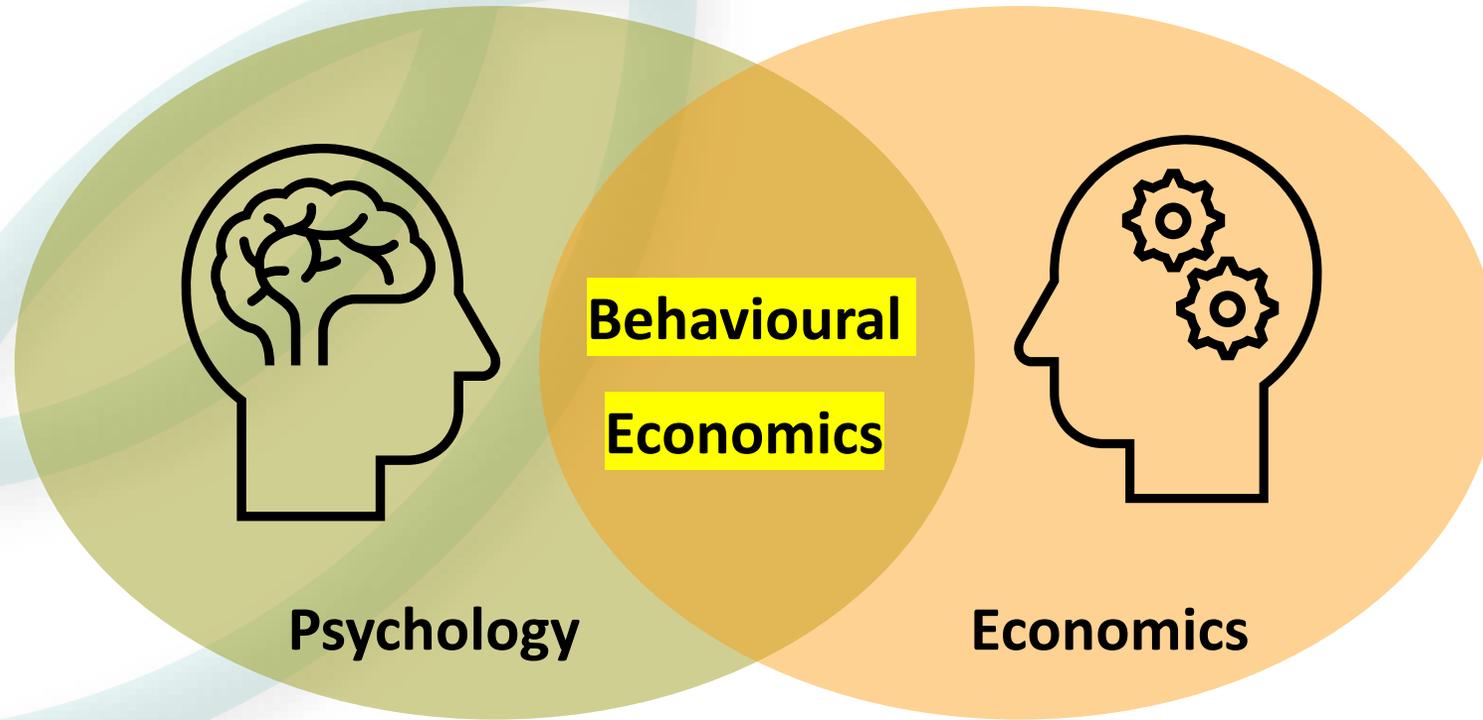
Danny Kahneman



A person is risk-seeking for losses (Convex function)

Source: Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*. 47(2): 263-291.

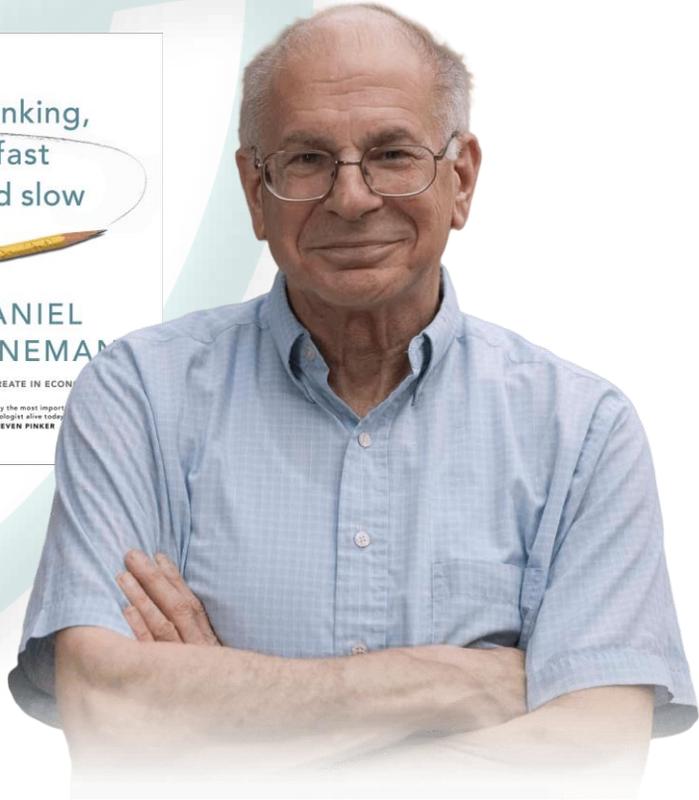
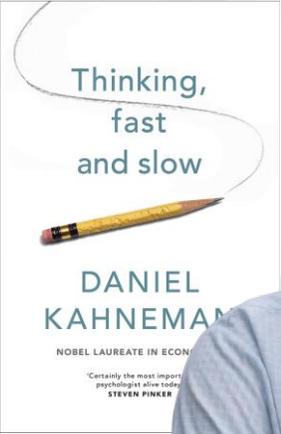
Behavioural Economics and Food Consumer



Food consumption

System 1

- Autopilot**
- Fast**
- Implicit**
- Effortless**
- Associative**
- Difficult to control or modify**
- No self-awareness**



System 2

- Slow**
- Serial**
- Explicit**
- Effortful**
- Logical & skeptical**
- Deliberately controlled**
- With self-awareness**

“System 1 runs the show, that’s the one you want to move.”

“System 1 is gullible and biased to believe, System 2 is in charge of doubting and unbelieving, but System 2 is sometimes busy, and often lazy”

Thinking, fast and slow
- Daniel Kahneman

What is behavioural economics?

- Economics meets psychology
- Explores alternatives to perfect rationality
- Seeks to provide micro-foundations for our choices

Econs

- Super-smart
- Rational
- Well defined preferences
- Self-interested/selfish
- Utility maximisers

Classic Economics

Consumers are rational
Supply & Demand

Humans

- Flawed
- Biases in behaviour
- Social animals
- Not driven purely by the need to maximise their welfare

Psychology/Advertising

Humans are emotional:
Persuasion



We will look at

- Known biases in behaviour
- Default behaviours
- Important of social norms
- Significance of emotion and affected states when making choices

Behavioural Economics

Humans are **predictably irrational**

Constant flaws in decision-making

Empirically validated and true for a significant majority

Happy now!!!

- Spend money first and save later
- Eat first, lose weight later
- Enjoy eating now, ill later
- Eat now, exercise tomorrow
- Play first, read later



I know it's good, but I can't resist it.

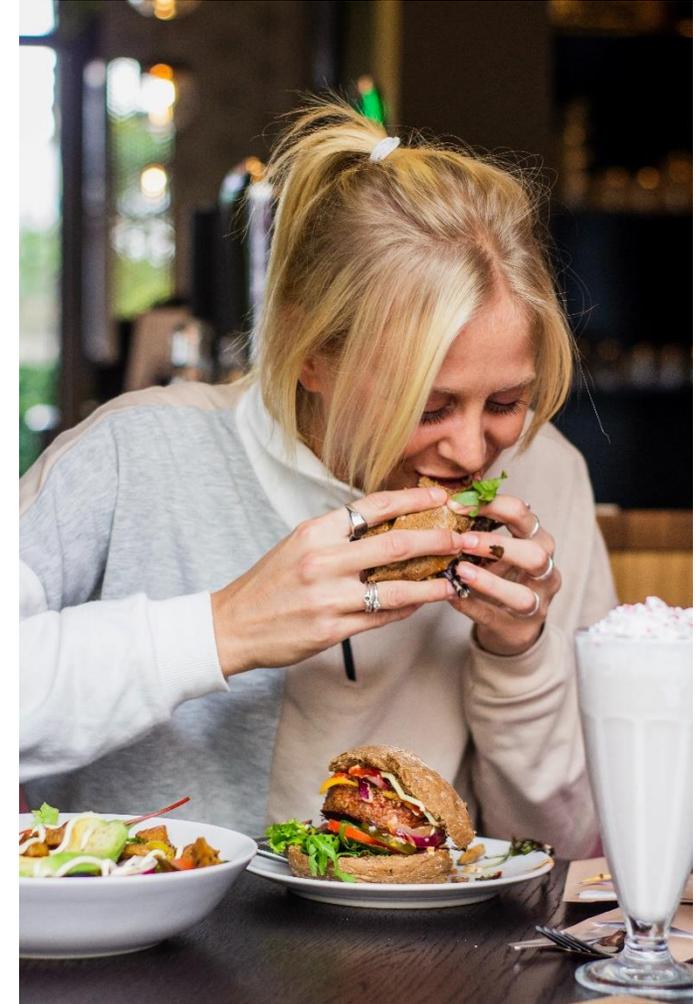


Photo by [Louis Hansel](#) on [Unsplash](#)

Hot state vs Cold state



Photo by [Sander Dalhuisen](#) on [Unsplash](#)

Create obstacle of payment

- No auto payment setting e.g. credit card
- Pay by cash as much as possible
- Delay shopping for 3 days or 1 weeks

Mental accounting

- We have accounts in mind that cause us to interpret the value of things differently.
- We have rules for using money in each account differently.



VS



Street food
80 ฿

Bubble tea
80 ฿

- Habits, addiction, and rationality
- Self-control and time discounting
- Dual process models of food consumption
- References and anchoring
- Mental accounting and food
- Eating environment and social norm
- Mindless eating

Emotional

Bias

External factors



The Science of Addictive Food



[CBC News: The National](#)

1.35M subscribers

Habits, addiction, and rationality

- We are addict to food.
- Food choice and the battle between good and craving.
- Food decisions that we make appear mostly habitual.
- Making a decision often involve the trade-off between current happiness and future benefits.
- Making a choice between hedonic and utilitarian attributions.

Habits



VS

Addition



VS

Rationality



Habit

Done by choice. The person with the habit can choose to stop, and will subsequently stop successfully if they want to. The psychological/physical component is not an issue as it is with an addiction.

VS

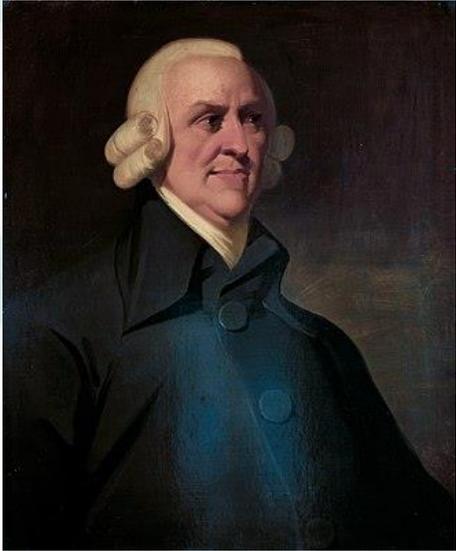


Addiction

There is a psychological/physical component; the person is unable to control the aspects of the addiction without help because of the mental or physical conditions involved.

Put simply: with a habit you are in control of your choices, with an addiction you are not in control of your choices.

Rational choice theory



- **Self-Interest**
- **Invisible Hand**

Adam Smith was one of the first economists to develop the underlying principles of the rational choice theory. Smith elaborated on his studies of self-interest and the invisible hand theory in his book “An Inquiry into the Nature and Causes of the Wealth of Nations,” which was published in 1776.

Key Takeaways

- Rational choice theory states that individuals rely on rational calculations to make rational choices that result in outcomes aligned with their own best interests.
- Rational choice theory is often associated with the concepts of rational actors, self-interest, and the invisible hand.
- Many economists believe that the factors associated with rational choice theory are beneficial to the economy as a whole.
- There are many economists who dispute the veracity of the rational choice theory and the invisible hand theory.

https://en.wikipedia.org/wiki/Adam_Smith
<https://www.investopedia.com/terms/r/rational-choice-theory.asp>

Habits, addiction, and rationality

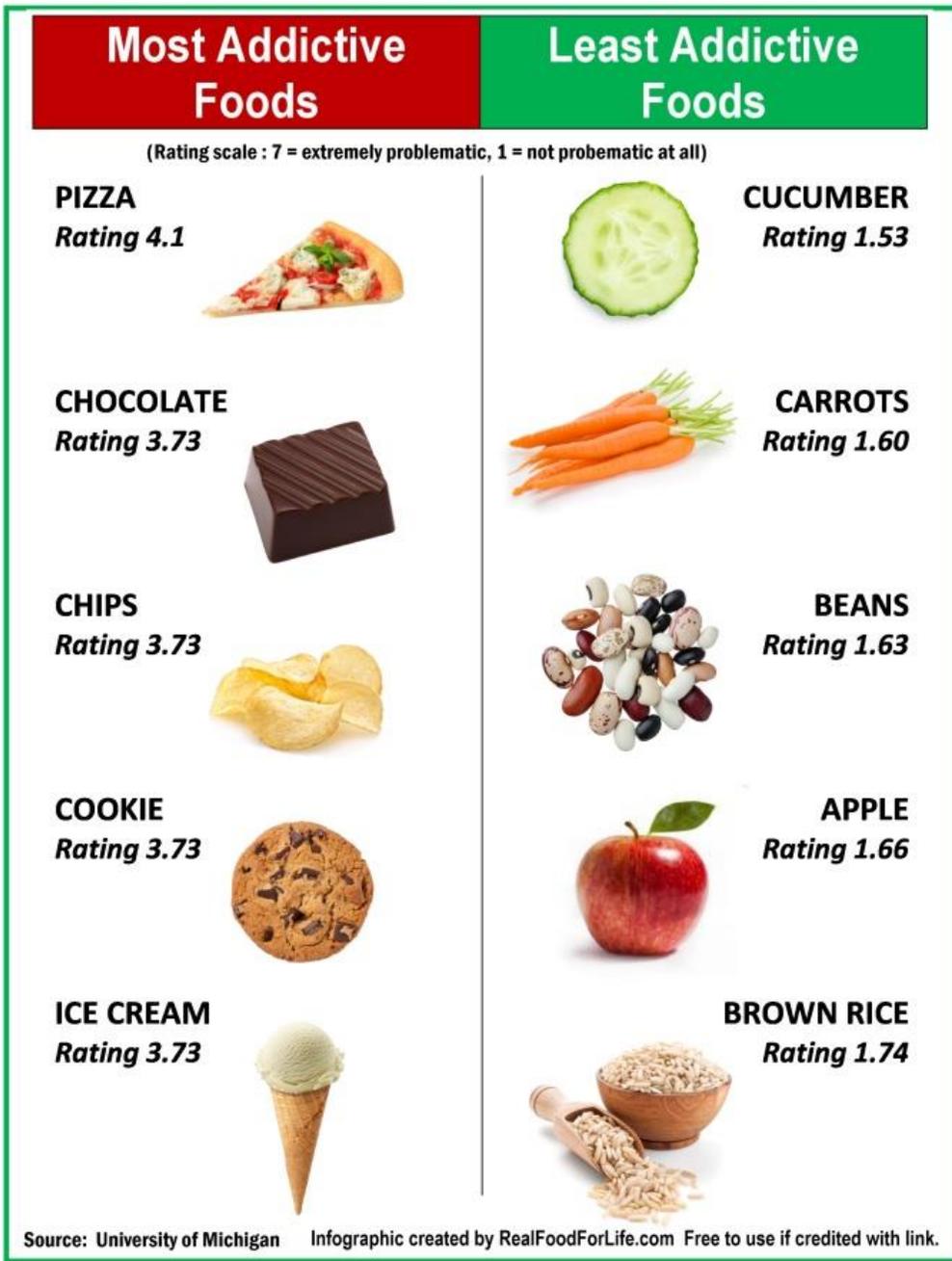
Criticism of rational addiction model

- Rational addiction model cannot explain overeating behaviour.

“...addicted individuals report that they never planned to become addicted”

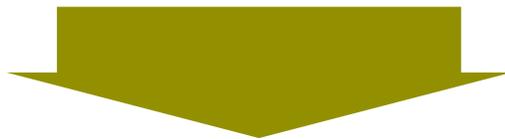
The Oxford Handbook: The Economics of Food Consumption and Policy, p.102.

Source: <https://www.realfoodforlife.com/the-most-addictive-foods-and-least-according-to-science/>



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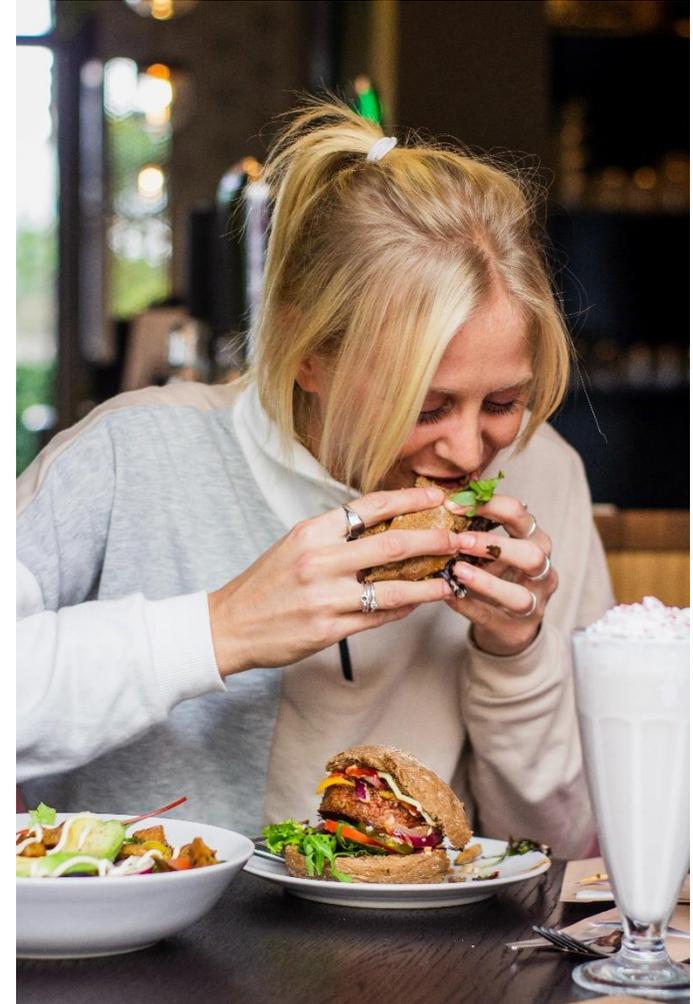


Photo by [Louis Hansel](#) on [Unsplash](#)

Overweight/Obesity and Time Preference: Evidence from a Survey among Adults in the UK

“People who have low time preference are more likely to invest time and resources in physical activities and healthy lifestyles to reap future health benefits hence value utilities-in-anticipation. Public health programmes should therefore use the knowledge of the association between time preference and overweight/obesity to inform designs of intervention programmes.”



Touray, M. M., Cohen, D. R., Williams, S. R. P., Alam, M. F., Groves, S., Longo, M., & Gage, H. (2022). Overweight/obesity and time preference: evidence from a survey among adults in the UK. *Obesity Facts*, 15(3), 428-441.

The decision between “wants” and “shoulds” is often framed as a battle between two separate decisions processes: rational thought and emotion.

The Oxford Handbook: The Economics of Food Consumption and Policy, p.103.

Cognitive – Experiential Self Theory (CEST) proposed by Epstein in 1993

- Process 1: Cognitive – careful, rational decision-making
- Process 2: Experiential – Quick, emotional response
- Consumers use these two processes under a condition of available resources surrounding them.



*System 1 & System 2
Thinking, fast and slow
- Daniel Kahneman*



Availability heuristic

90% lean



VS

10% fat



References and Anchoring



GRAND | HYATT
ERAWAN BANGKOK

COME 4 PAY 3
DINNER BUFFET (SUN-THURS)
FROM NORMAL PRICE: ~~THB 1,850++~~/PERSON TO **THB 1,388++**

 THE DINING ROOM

*T&C apply

Consumer behaviour model in Business

Models of Consumer Behaviour

Schiffman and Wisenblit Model : A Model of Consumer Decision - Making

Input

External influences

Firm's Marketing Efforts

1. Product
2. Promotion
3. Price
4. Channels of distraction

Sociocultural Environment

1. Family
2. Reference groups
3. Noncommercial sources
4. Social class
5. Culture and subculture

Process

Consumer Decision Making

Need Recognition

Pre-purchase search

Evaluation of alternatives

Psychological field

1. Motivation
2. Perception
3. Personality
4. Attitudes

Learning Knowledge Experience

Output

Post-decision behaviour

Purchase

No Purchase

Post-purchase evaluation

Re-Purchase

NO Re-Purchase

Trust and Loyalty

- Motivation = Drive (Fulfill Needs)
- Perception = Image in mind
- Learning = Knowledge
- Personality = Habit
- Attitudes = Like or dislike

Consumption process



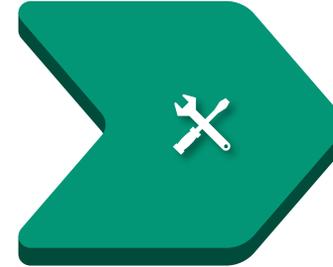
Awareness



Thinking



Planning



Implementing/Acti
ng



Evaluating

Consumer Decision-Making Process



Need
recognition



Information
searching and
processing



Identification and
evaluation of
alternatives

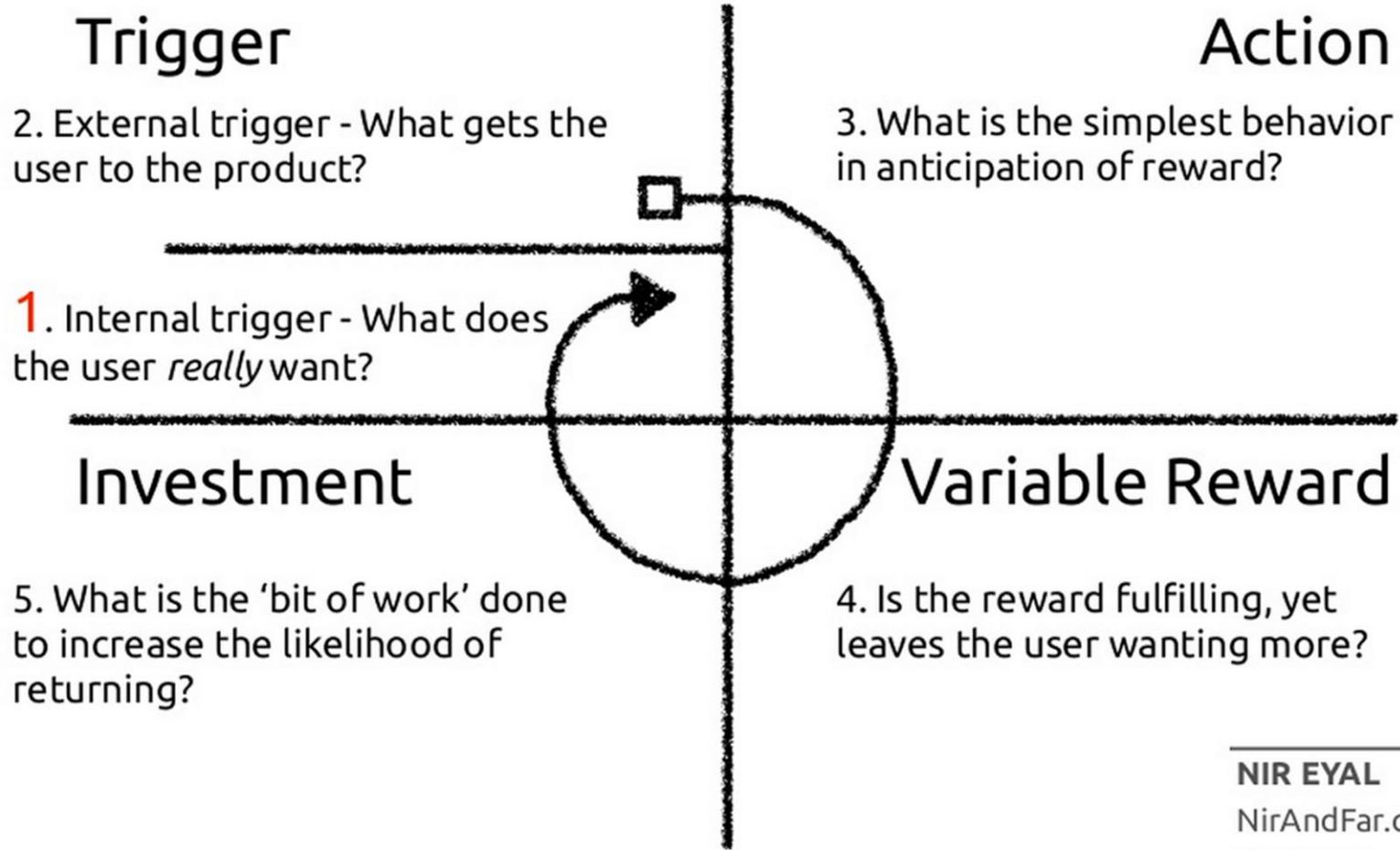


Purchase decision



Post-purchase
behaviour

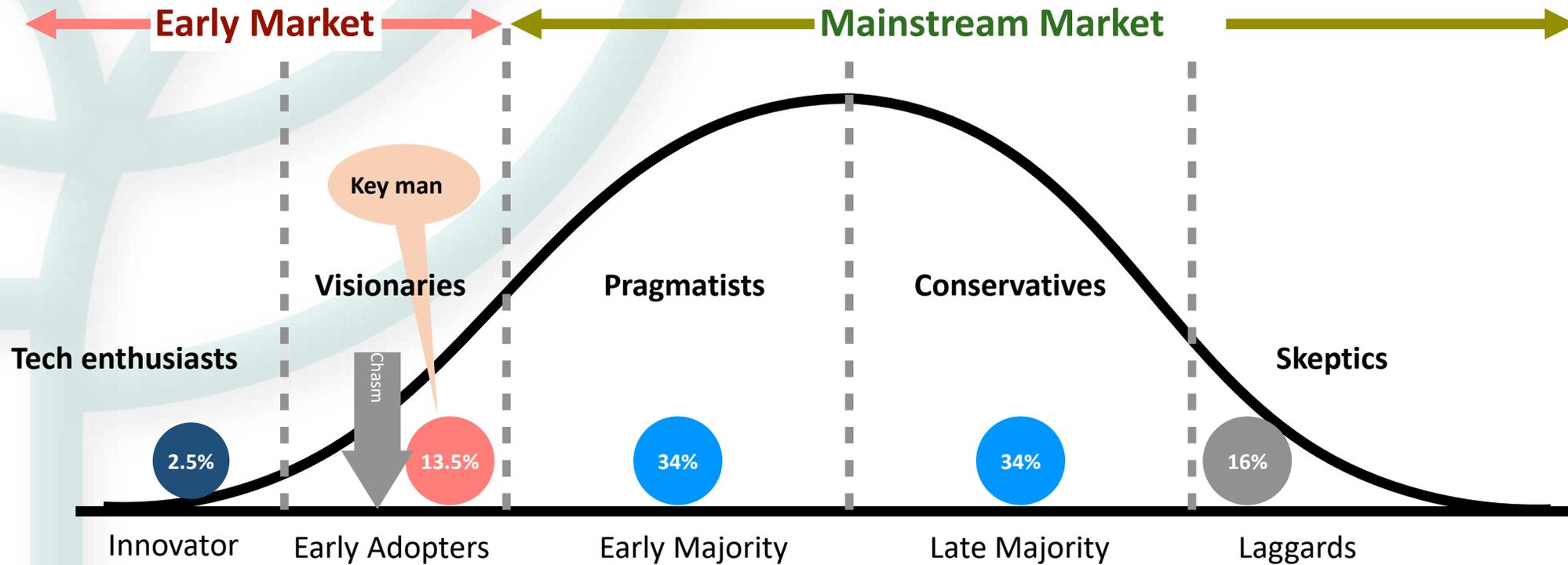
The hook canvas



NIR EYAL
 NirAndFar.com
 @nireyal

Rogers Technology Adoption Curve

Everett Rogers - Diffusion of Innovations 1962



Self-fulfillment needs



Maslow's Hierarchy of needs Theory of Motivation



Self-actualization

desire to become the most that one can be

Hedonic
value

Psychological needs



Esteem

respect, self-esteem, status, recognition, strength, freedom



Love and belonging

friendship, intimacy, family, sense of connection

Basic needs



Safety needs

personal security, employment, resources, health, property



Physiological needs

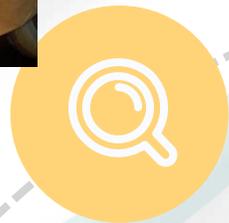
air, water, food, shelter, sleep, clothing, reproduction

Utilitarian
value





Symbolic Needs



Hedonic Needs



Social Needs



Functional Needs



Nonsocial Needs

Needs