# HUMAN IRRATIONALITY

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## An introduction to behavioural economics

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## Roadmap

- What is Behavioural Economics?
- How Do Scholars Study Behavioural Economics?
- Demonstrations of Behavioural Economics.
- Applications of Behavioural Economics.
- Does Communication Channel Matter?
- Where to Learn More?

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## What is Behavioural Economics?

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## What is Behavioural Economics?

*"Standard economics assumes that we are rational... But … we are far less rational in our decision making... Our irrational behaviors are neither random nor senseless - they are systematic and predictable. We all make the same types of mistakes over and over, because of the basic wiring of our brains."*

- Dan Ariely

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## What is Behavioural Economics?

- Irrationality refers to behaviour that does not “maximize your expected utility”.
  - Given what you know, assume, or expect about the world, you fail to make a decision that best achieves your objectives.

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## What is Behavioural Economics?

*"Behavioral economics increases the explanatory power of economics by providing it with more realistic psychological foundations"*

- Colin F. Camerer & George Loewenstein

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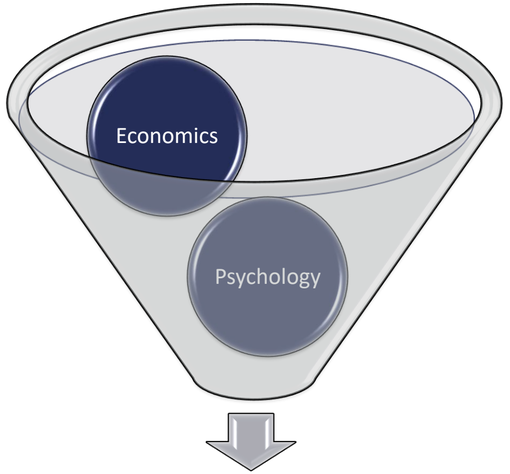
## What is Behavioural Economics?



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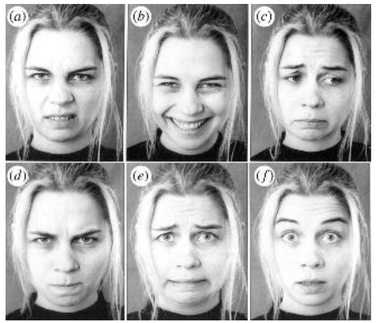
## What is Behavioural Economics?

- Behavioural economics studies the effects of psychological, social, cognitive, and emotional factors on the economic decisions of individuals and institutions.



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## What is Behavioural Economics?

**1978**

*"A wealth of information creates a poverty of attention."*

- Herbert Simon

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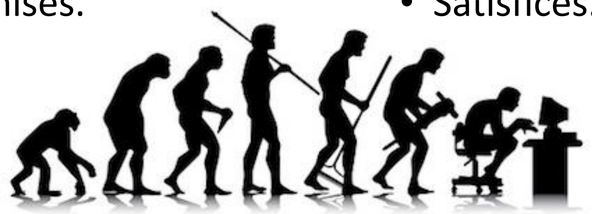
## What is Behavioural Economics?

*Homo Economicus*:

- Rational.
- Perfect memory.
- Limitless computational abilities.
- No emotions.
- Selfish.
- Maximises.

*Homo sapien*:

- Boundedly rational
- Limited memory.
- Limited computational abilities.
- Emotional.
- Altruistic.
- Satisfices.



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# What is Behavioural Economics?

**2002**

*"Most of the time, we think fast. And most of the time we're really expert at what we're doing, and most of the time, what we do is right."*

- Daniel Kahneman

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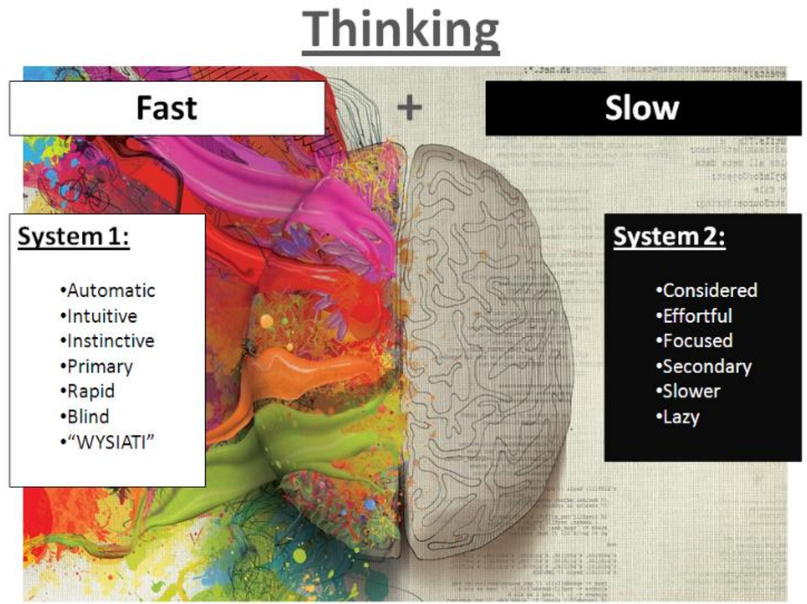
## What is Behavioural Economics?



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# What is Behavioural Economics?

2017

*"We humans actually need help controlling our impulses - nudges."*

- Richard Thaler

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## How Do Scholars Study Behavioural Economics?

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# How Do Scholars Study Behavioural Economics?

| | | Approach | |
|---|---|---|---|
| | | *Qualitative* | *Quantitative* |
| **Data Type** | *Attitudinal* | Focus groups<br>Interviews | Surveys |
| | *Behavioural* | Ethnographic field studies | **Experiments** |

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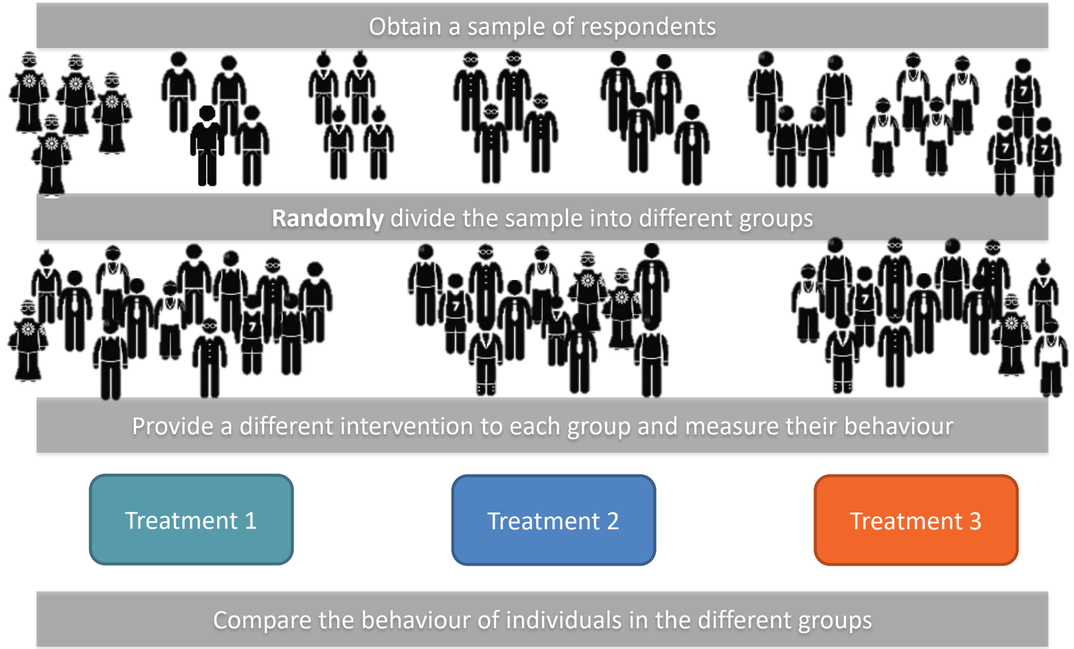
## How Do Scholars Study Behavioural Economics?



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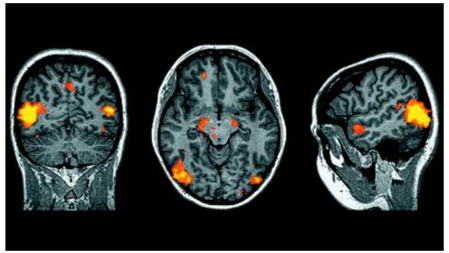
# How Do Scholars Study Behavioural Economics?

- More recently, methods are expanding to include:
  - Field data.
  - Field experiments.
  - Computer simulations.
  - Brain scans



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## Demonstrations of Behavioural Economics

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## Example 1

- Say we toss a coin and if it lands on heads you gain $10 and if it lands on tails you lose $10
  - Would you play this bet?
- What if we change the bet so that if it lands on heads you gain $11?
- How large must the win be for you to take the bet?

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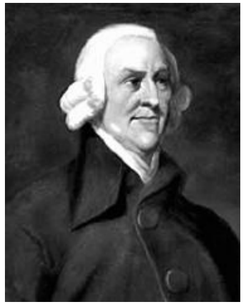
## Loss Aversion



*"We suffer more... when we fall from a better to a worse situation, than we ever enjoy when we rise from a worse to a better."*

- Adam Smith

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## Loss Aversion

- Disparity between the strong aversion to losses relative to a reference point and the weaker desire for gains of equivalent magnitude.
  - Losses are twice as powerful, psychologically, as gains.
  - Losses may be as much as five times as powerful for retirees.
- Why does this happen?
  - Enhanced activity in the participants' reward circuitry for potential loses.

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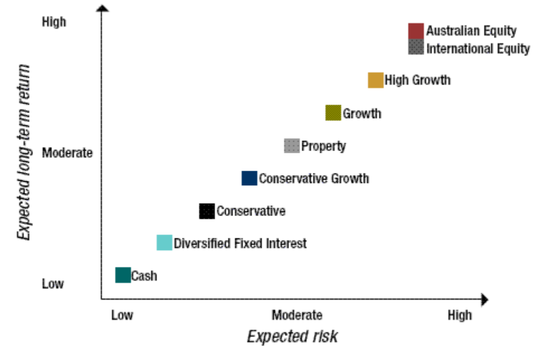
# Loss Aversion




This is a general guide only, and is not a reliable indicator of future performance.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# Example 2

- Scenario 1
- Which do you prefer?
  A. 100% chance to *win* $9,499.
  B. 95% chance to *win* $10,000.
- People seem to be "underweighting" the 95%:
  - Since $10,000 x 0.95 = $9,500
  - and $9,500 > $9,499.

- Scenario 2
- Which do you prefer?
  A. 100% chance to *win* $501.
  B. 5% chance to *win* $10,000.
- People seem to be "overweighting" the 5%:
  - Since $10,000 x 0.05 = $500
  - and $500 < $501.

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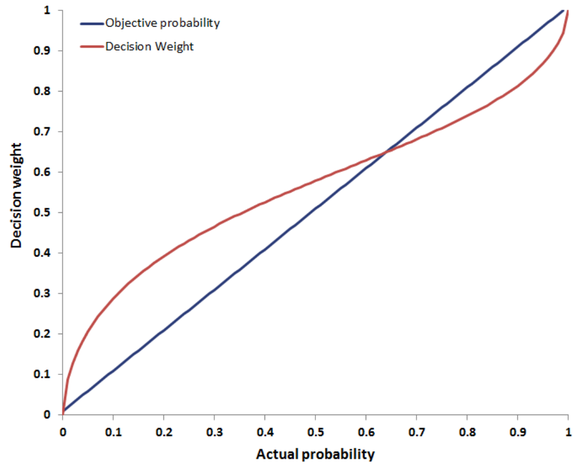
# Prospect Theory

- When outcomes and their likelihoods are explicitly **described**, people underweight low probability events and overweight high probability events.



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## Prospect Theory

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# Example 2b

- Scenario 1b
- Which do you prefer?
  - C. 100% chance to *lose* $9,499.
  - D. 95% chance to *lose* $10,000.
- Again, people seem to be "underweighting" the 95%:
  - Since -$10,000 x 0.95 = -$9,500
  - and -$9,500 < -$9,499.

- Scenario 2b
- Which do you prefer?
  - C. 100% chance to *lose* $501.
  - D. 5% chance to *lose* $10,000.
- Again, people seem to be "overweighting" the 5%:
  - Since -$10,000 x 0.05 = -$500
  - and -$500 > -$501.

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## Prospect Theory

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## Example 3

- Imagine you buy 100 shares in a company each for $20, expecting it to go to $50. It reaches $43 or $44 swiftly, and then stalls.
- What do you do?
  - Hold onto the stock.
  - Buy more of the stock.
  - Sell the stock.
- How would you advise your friend in the identical situation?

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## The Endowment Effect

- People ascribe more value to things merely because they own them.

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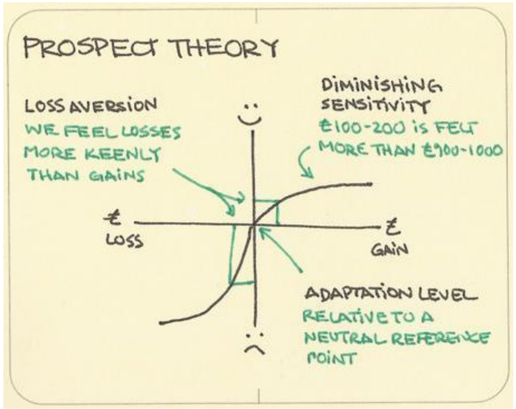
## The Endowment Effect

- Why does it happen?
  - Loss aversion.




But do people feel like they own their superannuation?

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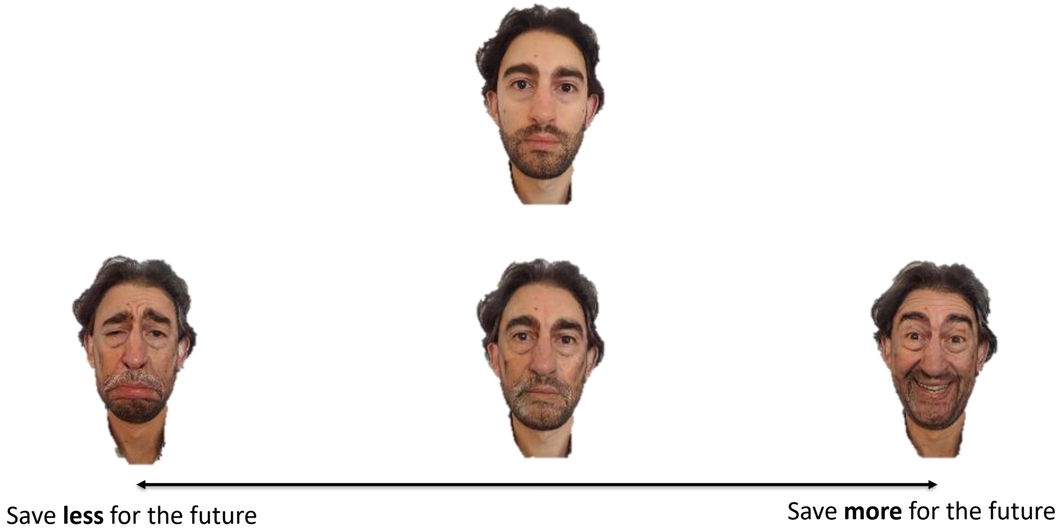
## The Endowment Effect



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# Example 4

## Scenario 1

- Imagine that you have decided to see a play where admission is $10 per ticket. As you enter the theater you discover that you have lost a $10 bill.
- Would you still pay $10 for a ticket for the play?

## Scenario 2

- Imagine that you have decided to see a play and paid the admission price of $10 per ticket. As you enter the theater you discover that you have lost the ticket. The seat was not marked and the ticket cannot be recovered.
- Would you pay $10 for another ticket?

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## Mental Accounting

- People treat money differently, depending on factors such as the money's origin and intended use, rather than thinking of it in terms of the "bottom line" as in formal accounting.

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# Mental Accounting

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## Mental Accounting

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## Example 5

Imagine that you have just moved to a new city and are getting your driver's license sorted out.

The forms asks about your about organ donation preference.

The default in this city is that you do **not** donate your organs when you die.

Which do you choose?

A. **Choose not to be an organ donor**
B. Choose to be an organ donor

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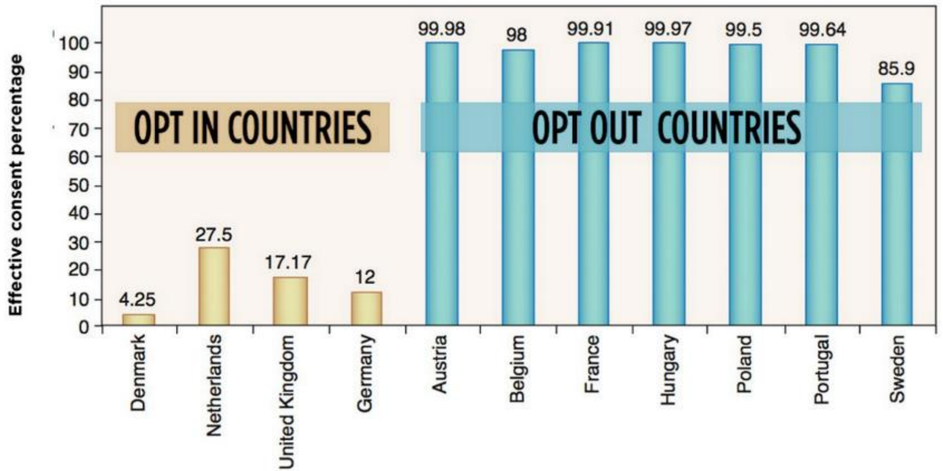
# Defaults


- People usually go with the default.
  - Increased organ donation rates:



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## Defaults


- People usually go with the default.
- Why does this happen?
  - People assume that the default has been singled out intentionally as a recommendation.
  - Default is perceived as already “owned” and therefore giving it up is a loss, which people hate.
  - It takes more effort to change a default.

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# Defaults


| ASSET CLASS | STRATEGIC ASSET ALLOCATION AS AT 27 APRIL 2017 | | | | | | |
|---|---|---|---|---|---|---|---|
| Australian Shares | 0% | 5% | 25% | 28% | 35% | 100% | 0% |
| International Shares | 0% | 5% | 25% | 28% | 35% | 0% | 100% |
| Property | 0% | 10% | 11% | 12% | 12% | 0% | 0% |
| Infrastructure | 0% | 5% | 6% | 7% | 7% | 0% | 0% |
| Growth Alternatives | 0% | 10% | 9% | 11% | 11% | 0% | 0% |
| **Total Growth Assets** | **0%** | **35%** | **76%** | **86%** | **100%** | **100%** | **100%** |
| Defensive Alternative | 0% | 18% | 7% | 6% | 0% | 0% | 0% |
| Australian Bonds | 0% | 9% | 6% | 3% | 0% | 0% | 0% |
| International Bonds | 0% | 8% | 6% | 2% | 0% | 0% | 0% |
| Cash | 100% | 30% | 5% | 3% | 0% | 0% | 0% |
| **Total Defensive Assets** | **100%** | **65%** | **24%** | **14%** | **0%** | **0%** | **0%** |

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## Defaults

behavioural.business.lab@rmit.edu.au

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## Defaults

| | No Default (Active Choice) | Dumb Default (Balanced) | Smart Default (Lifecycle Model) |
|---|---|---|---|
| No Information | Group 1 | Group 2 | Group 3 |
| Static Information | Group 4 | Group 5 | Group 6 |
| Dynamic Information | Group 7 | Group 8 | Group 9 |

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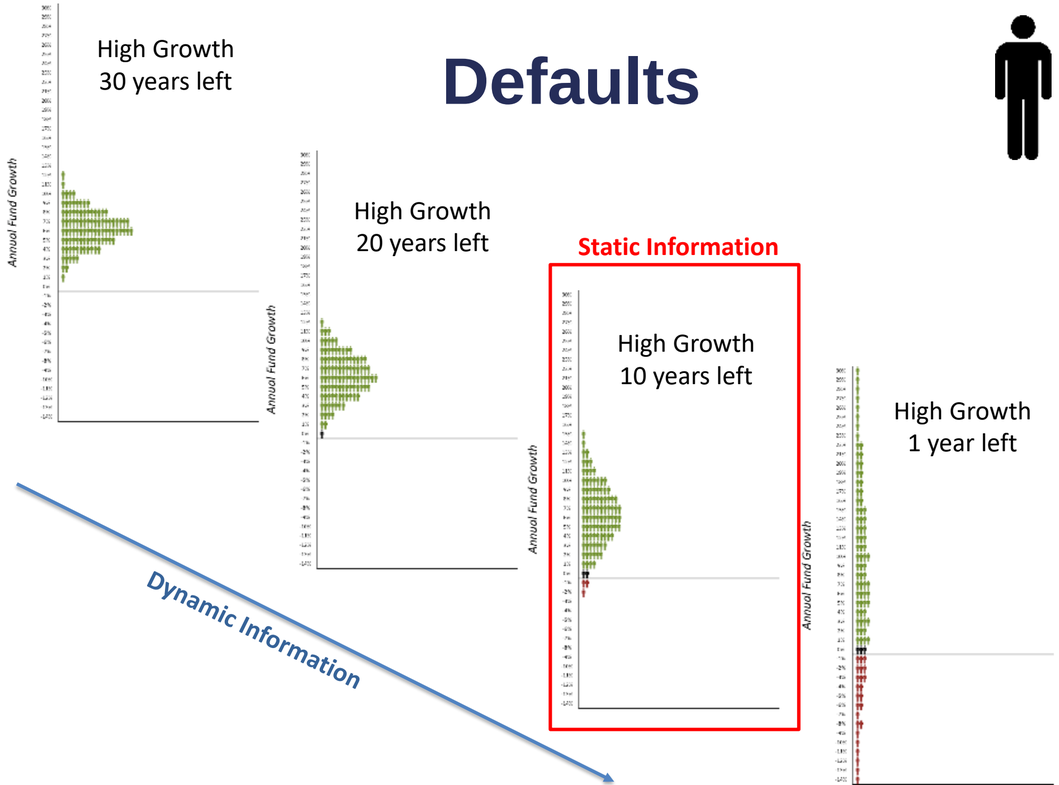
# Defaults



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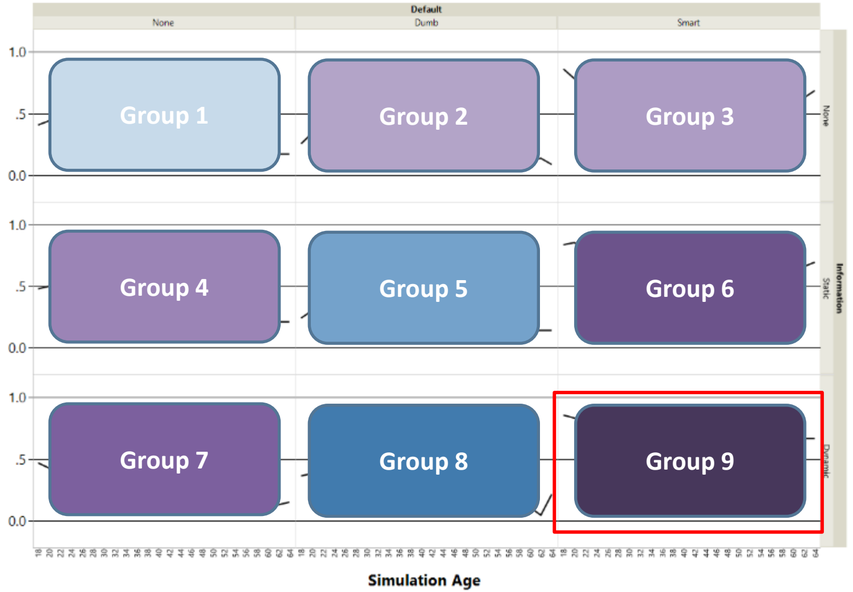
# Defaults

Which group had the most number of optimal choices?



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# Example 6

## Scenario A

Imagine that Australia is preparing for the outbreak of an unusual disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume the exact scientific estimate of the consequences of the programs are as follows:

A. If Program A is adopted, 200 people will be saved.
B. If Program B is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.

Which do you choose: A or B?

## Scenario B

Imagine that Australia is preparing for the outbreak of an unusual disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume the exact scientific estimate of the consequences of the programs are as follows:

C. If Program C is adopted, 400 people will die.
D. If Program D is adopted, there is a two-thirds probability that 600 people will die and a one-third probability that no people will die.

Which do you choose: C or D?

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## Framing


- Appraisal of alternatives can depend on the way the choice is presented or “framed”:
  - Scenario A: “…200 people will be saved”: 75% prefer program.
  - Scenario B: “…400 people will die”: 22% prefer program.
- Why does this happen?
  - People’s thinking is biased by the information that is presented such that they tend not to consider information is isn’t salient.

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## Framing

That’s a good bond! It has a 99% chance of paying its promised yield

That’s a bad bond! It has a 1% chance of defaulting

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## Framing

I'm deciding between investing in a bond that has a 2% chance of defaulting and one that has an 8% chance of defaulting …

The riskier bond has a 300% higher chance of defaulting.

The safer bond has a 75% lower chance of defaulting.

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# Framing

- Annuity:

**Lump Sum:**
$100,000

**Monthly Amount:**
$500 per month for life

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## Example 7

- What is the weight of an empty Boeing 747 (in kgs)?
- From the list below, pick the range of values for which you are 90% confidence includes the true answer.

A. 120,000 – 220,000
B. 10,000 – 150,000
C. 200,000 – 350,000
D. 80,000 – 170,000
E. 150 – 150,000
F. 460,000 - 670,000
G. 480,000 – 1,200,000
H. 310,000 – 560,000
I. 20,000 – 90,000
J. 1 - 1,000,000

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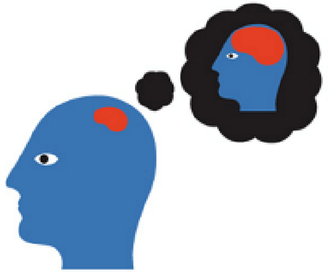
## Overconfidence

- People believe that their judgments and decisions are better than they really are:
  - Correct answer: 180,983 kg.
- Why does this happen?
  - People prefer to be informative than accurate.
    - Few people answer “1 - 1,000,000 kgs”.
  - People’s best estimates are very poor to start.
  - People remain too close to their best estimate.



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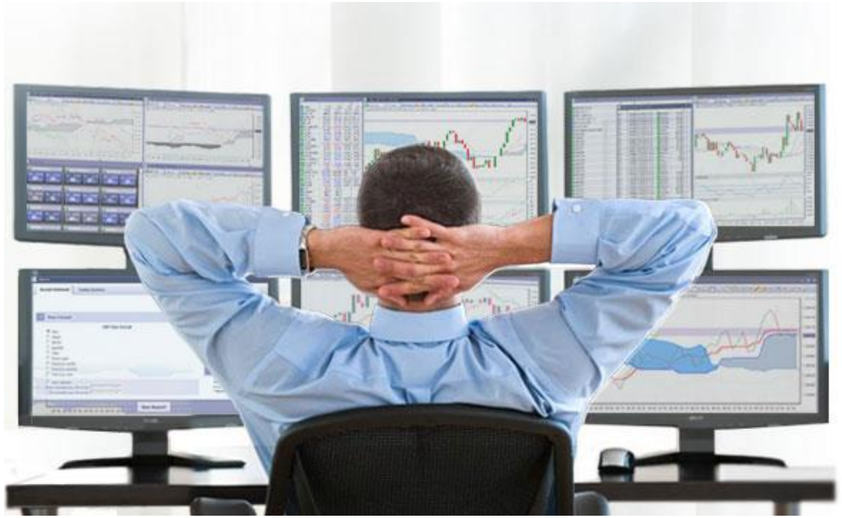
## Overconfidence



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## Applications of Behavioural Economics

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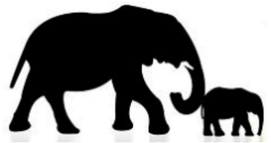
## Who Is Using Behavioral Economics?

- Findings from behavioural economics research that have been strategically applied to influence behaviour are called ***nudges***.
  - Designed to alter people's behavior without forbidding options or significantly changing economic incentives.



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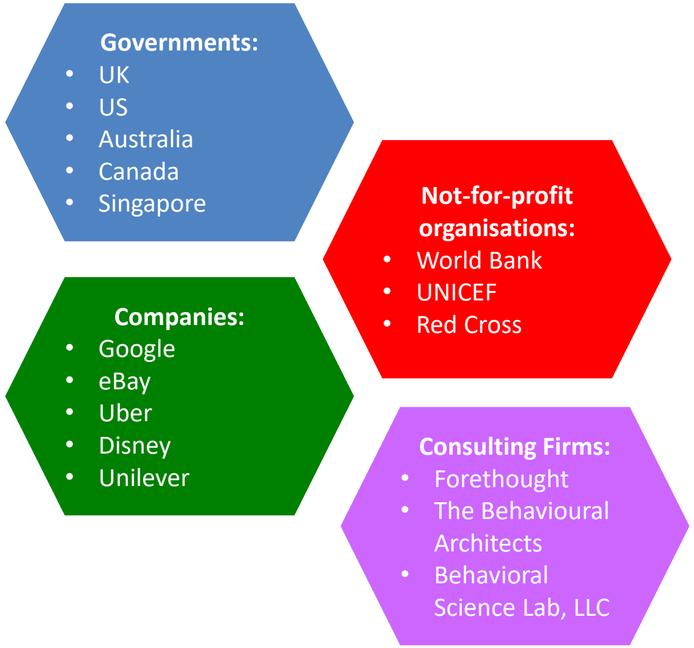
## Who Is Using Behavioral Economics?



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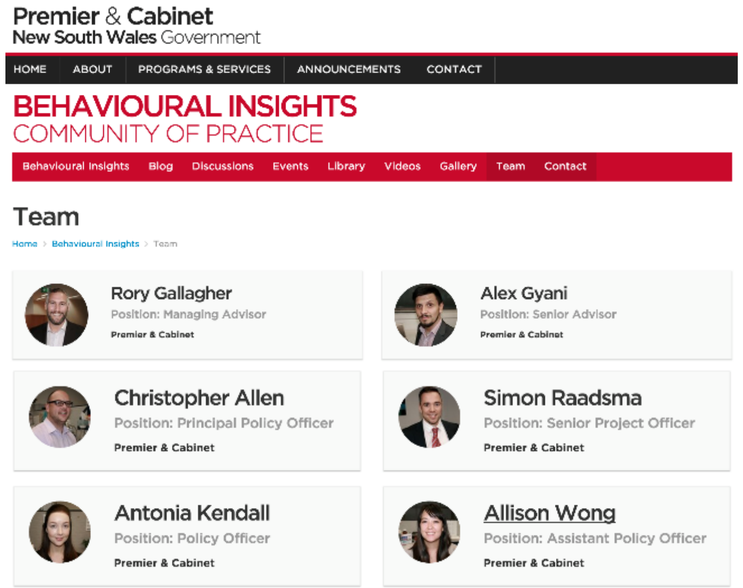

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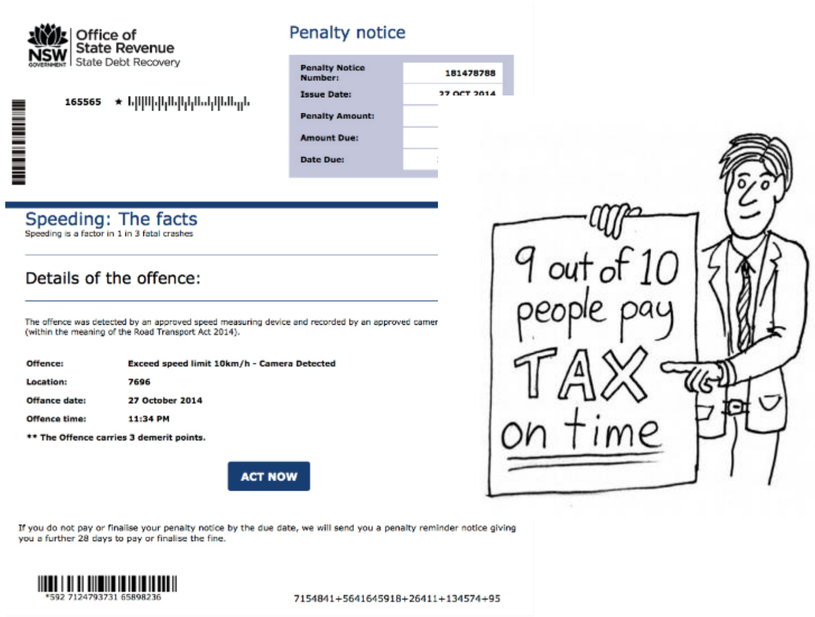

Office of State Revenue
State Debt Recovery

Penalty notice

| | |
|---|---|
| Penalty Notice Number: | 181478788 |
| Issue Date: | 27 OCT 2014 |
| Penalty Amount: | |
| Amount Due: | |
| Date Due: | |

165565

Speeding: The facts

Speeding is a factor in 1 in 3 fatal crashes

Details of the offence:

The offence was detected by an approved speed measuring device and recorded by an approved camer (within the meaning of the Road Transport Act 2014).

| | |
|---|---|
| Offence: | Exceed speed limit 10km/h - Camera Detected |
| Location: | 7696 |
| Offance date: | 27 October 2014 |
| Offence time: | 11:34 PM |

** The Offence carries 3 demerit points.

ACT NOW

If you do not pay or finalise your penalty notice by the due date, we will send you a penalty reminder notice giving you a further 28 days to pay or finalise the fine.

*592 7124793731 65898236

7154841+5641645918+26411+134574+95

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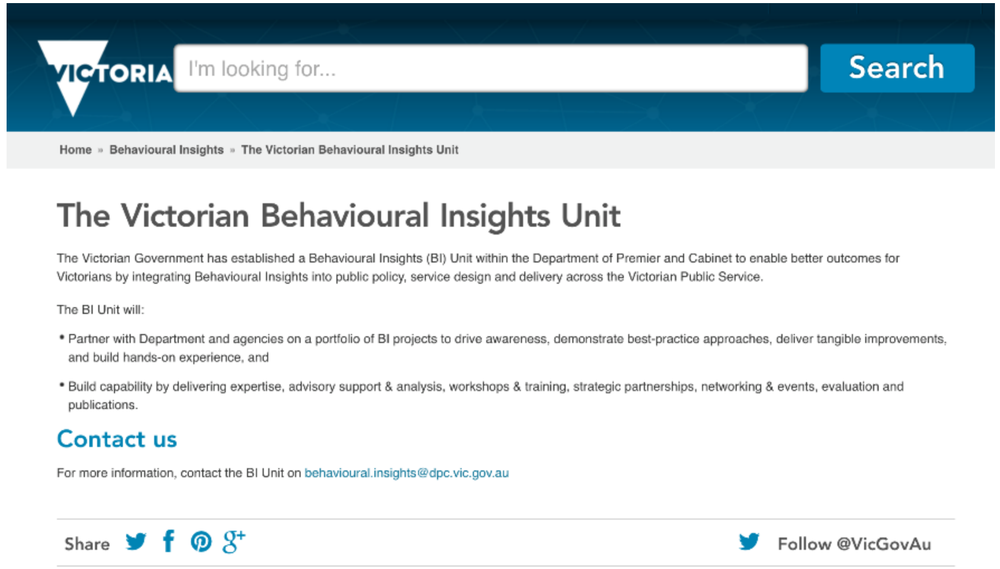

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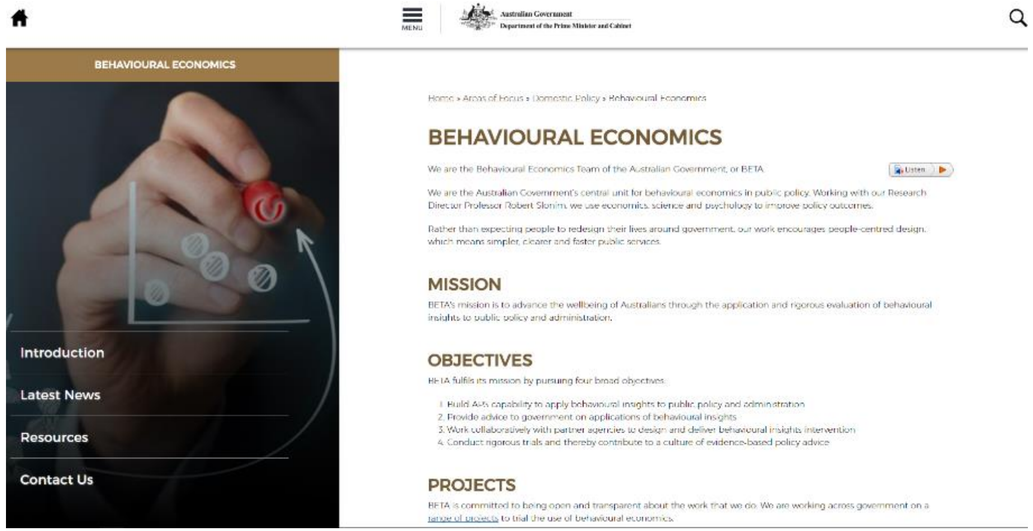

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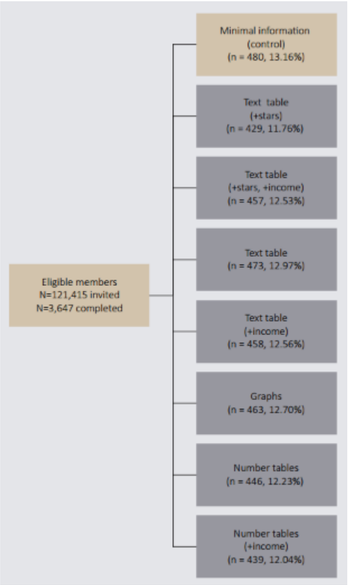
## Supporting Retirees In Retirement Income Planning

- Studied how to present information about the new Comprehensive Income Product for Retirement (CIPR) product.
- In partnership with the Treasury and five superannuation funds, conducted an experimental survey with over 3,700 members aged 45 and over.



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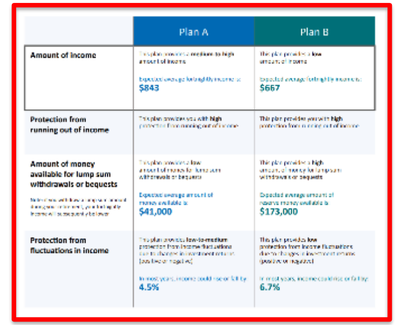
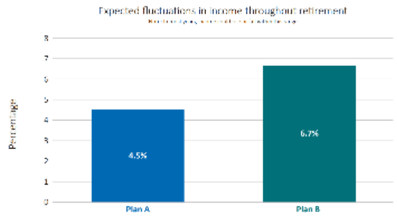
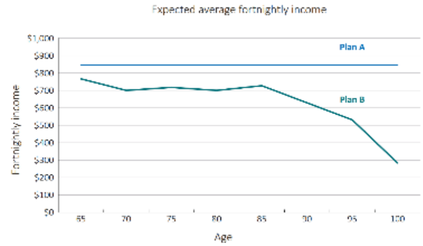
# Supporting Retirees In Retirement Income Planning

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## Who Is Using Behavioral Economics?

**2017**

*"Retirement savings is probably behavioral economists' greatest success story. It is a prototypical behavioural economics problem because saving for retirement is cognitively hard - figuring out how much to save - and requires self-control."*

- Richard Thaler

# HUMAN IRRATIONALITY

Adrian Camilleri

## Retirement Savings

- The “Save More Tomorrow” plan:
  - Automatically enrolling employees into a pension fund.
  - Increasing pension contributions with pay-raises until a pre-set maximum.
  - In one implementation of the program, the average saving rates for participants increased from 3.5% to 13.6% over 40 months.
  - Estimated $29.6 billion extra to retirement accounts

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## Does Communication Channel Matter?

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# Does Communication Channel Matter?

| | Multi-channel management | Omni-channel Management |
|---|---|---|
| **Concept** | Division between the channels | Integration of all widespread channels |
| **Channel scope** | Retail channels: store, online website, and direct marketing (catalogue) | Retail channels: store, online website, and direct marketing, mobile channels (i.e., smart phones, tablets, apps), social media Customer Touchpoints (incl. mass communication channels: TV, Radio, Print, C2C, etc.). |
| **Separation of channels** | Separate channels with no overlap | Integrated channels providing seamless retail experiences |
| **Objectives** | Channel objectives (i.e., sales per channel; experience per channel) | Cross-channel objectives (i.e., overall retail customer experience, total sales over channels) |
| **Sales people** | Do not adapt selling behaviour | Adapt selling behaviour using different arguments depending on Each customer's needs and knowledge of the product |

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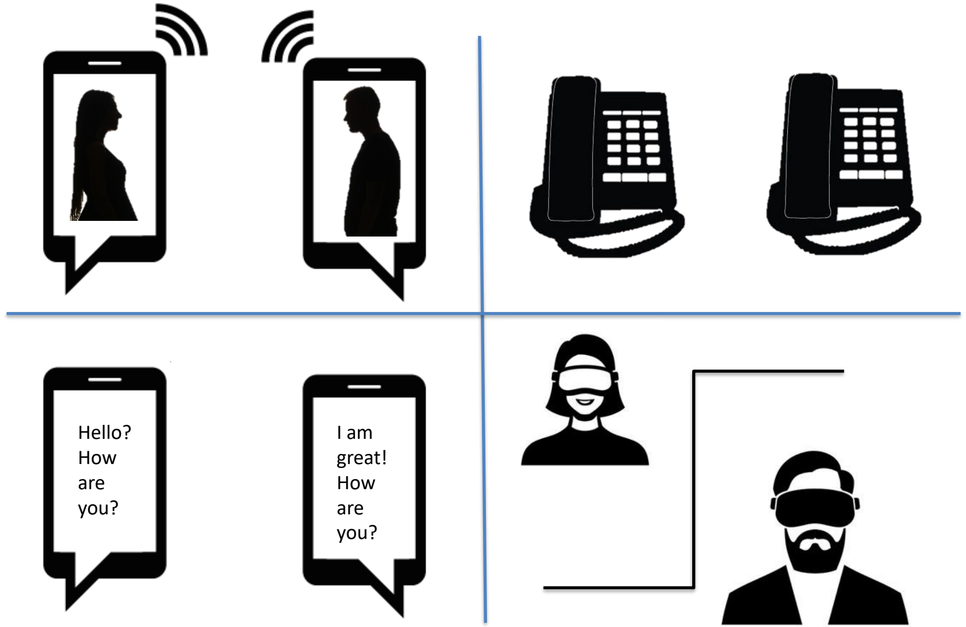
## Does Communication Channel Matter?



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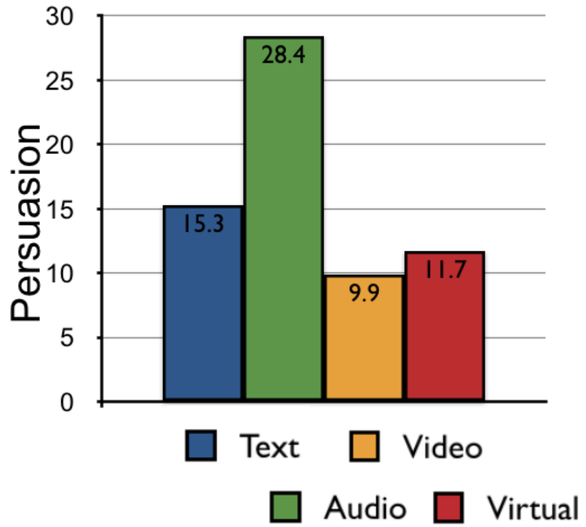
## Does Communication Channel Matter?



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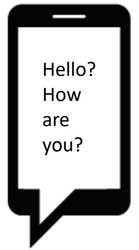
## Does Communication Channel Matter?

- There are many outstanding questions…
- Are decision biases more or less prevalent in different channels?

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## Where to Learn More?

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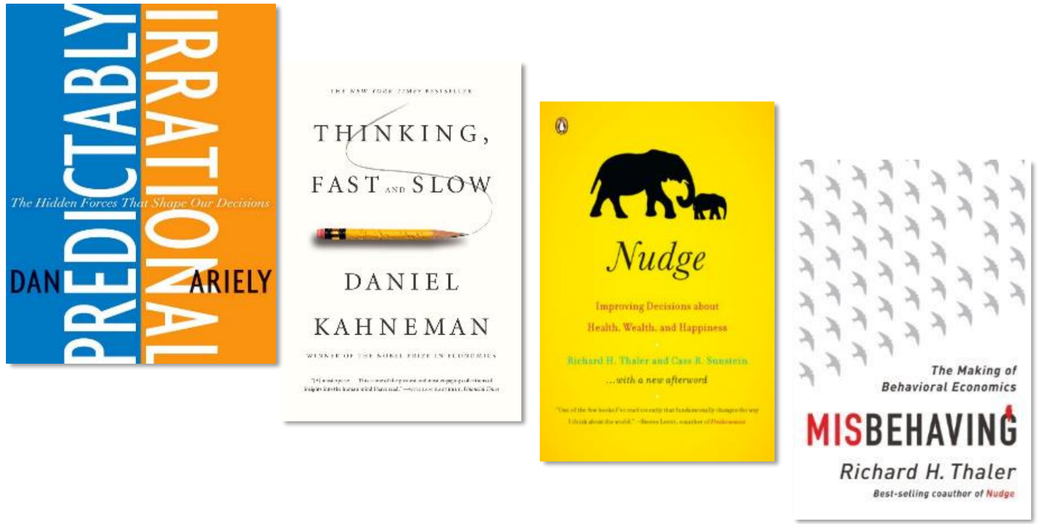
## Where to Learn More?



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