



Behavioral Insights for Policy Design

Prof. Guilherme Lichand

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FOUNDATION

LEARNING GOALS:

At the end of the seminar, students should be familiar with methodologies to:

- 1. Identify promising behavioral mechanisms behind a complex social problem;**
- 2. Test the most relevant mechanisms with the audience of policies targeted at that problem; and**
- 3. Identify opportunities to augment policy tools with such behavioral insights.**

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REAL CITIZEN:

- Unable to perfectly process information about costs and benefits**
- Subject to internal conflicts between reason and affect and influenced by social pressure**
- Not always able to follow through on past plans**

INATTENTION PROBLEMS

WHAT WOULD YOU CHOOSE?

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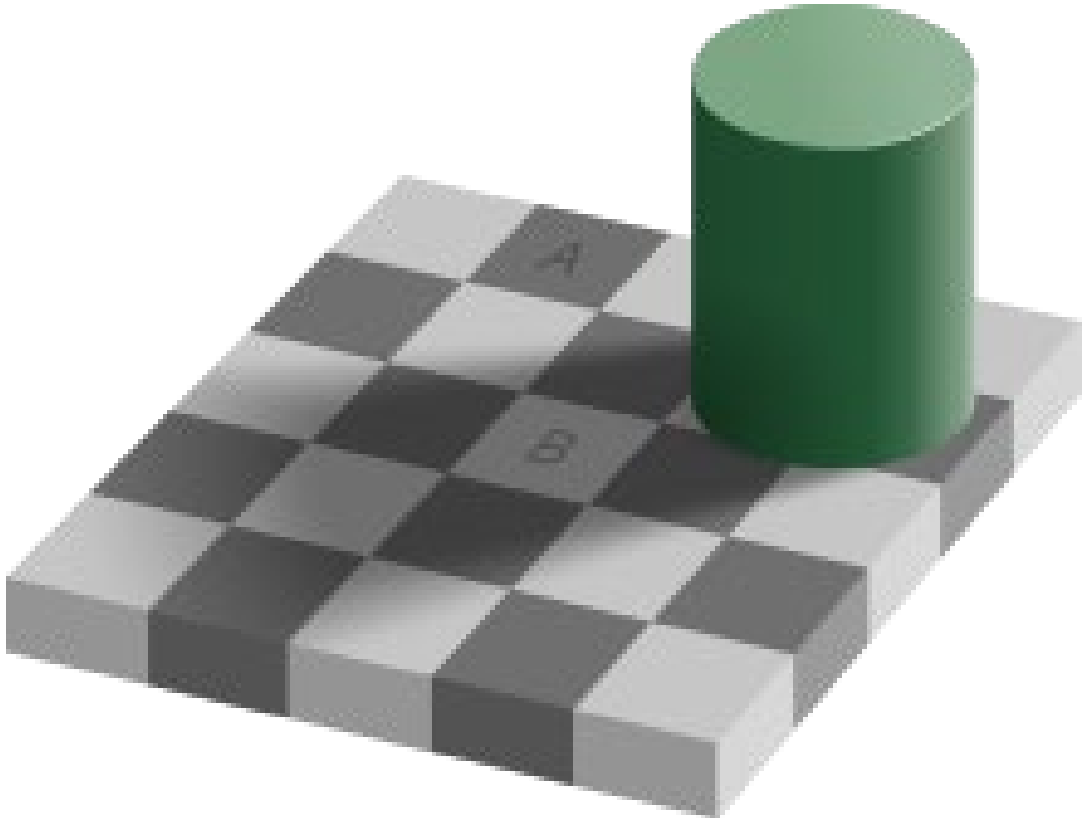
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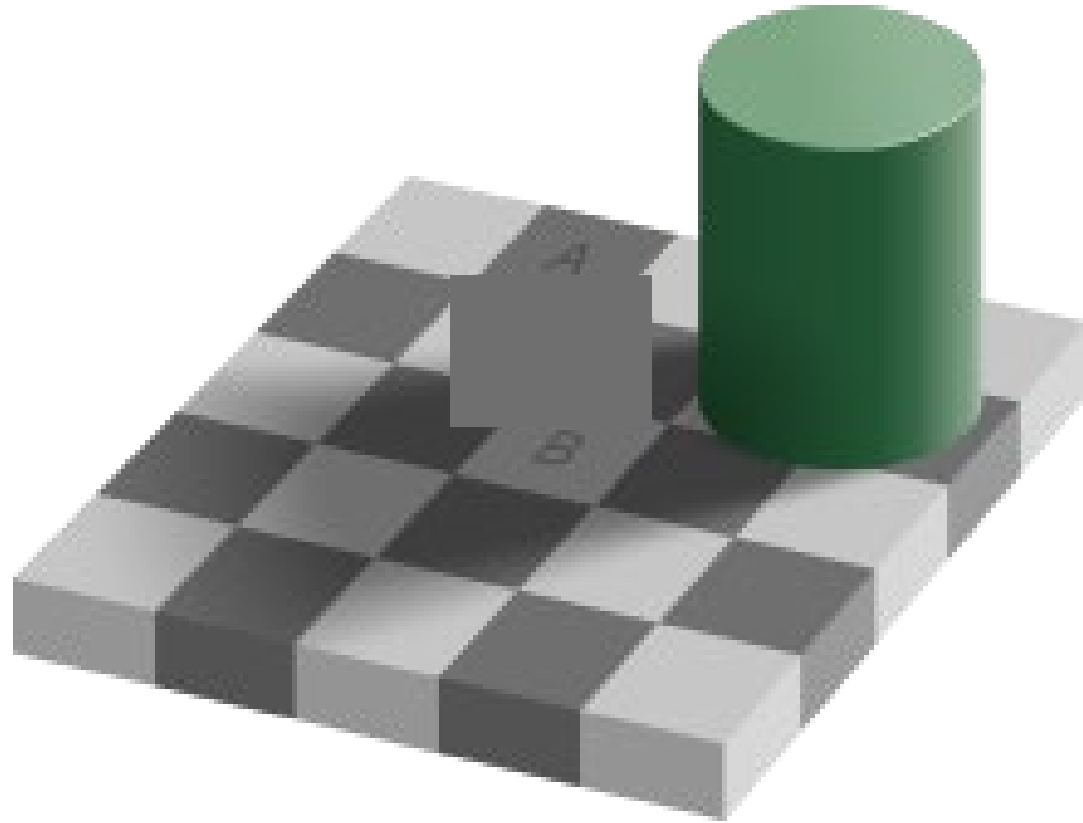
WHAT PEOPLE CHOOSE... WHY?



WHICH SQUARE IS DARKER?



WHICH SQUARE IS DARKER?



HOW THE BRAIN WORKS

So a typical adult human brain runs on around 12 watts—a fifth of the power required by a standard 60 watt lightbulb. Compared with most other organs, the brain is greedy; pitted against man-made electronics, it is astoundingly efficient. IBM's Watson, the supercomputer that defeated *Jeopardy!* champions, depends on ninety IBM Power 750 servers, each of which requires around one thousand watts.

– **Scientific American**, “Does Thinking Really Hard Burn More Calories?”, 18/07/2012

THE BRAIN NEEDS TO BE EFFICIENT

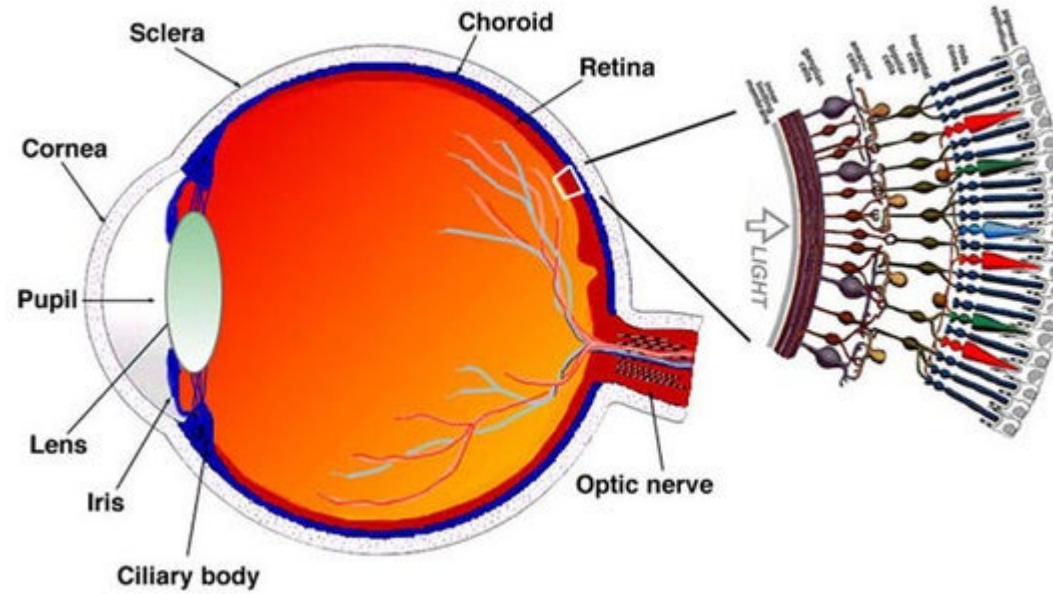
The brain needs to allocate limited energy (mental bandwidth) to all its executive functions:

- Attention
- Working memory
- Impulse control

Mental bandwidth is limited

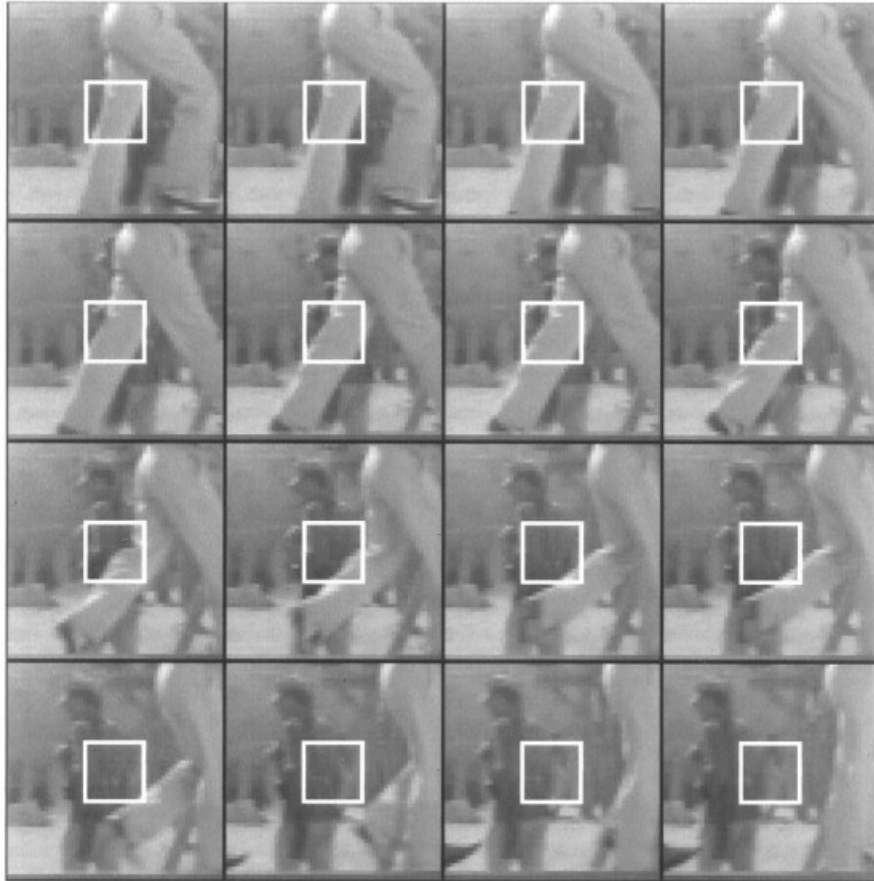
- Is it efficiently allocated?

EFFICIENT ENCODING

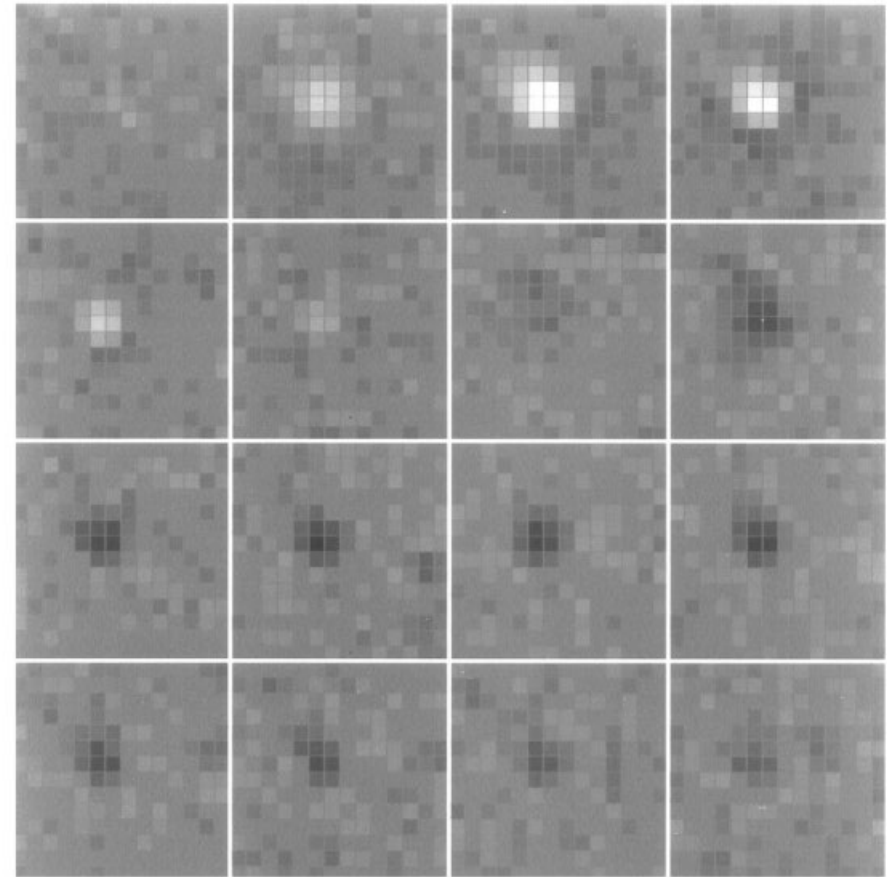


EFFICIENT ENCODING

a



b



[J Neurosci.](#) 1996 May 15; 16(10): 3351–3362.

PMCID: [PMC6579125](#)

doi: [10.1523/JNEUROSCI.16-10-03351.1996](#)

PMID: [8627371](#)

Efficient Coding of Natural Scenes in the Lateral Geniculate Nucleus:
Experimental Test of a Computational Theory

[Yang Dan](#),¹ [Joseph J. Atick](#),² and [R. Clay Reid](#)¹

EFFICIENT ENCODING

Information is compressed based on:

1. Low resolution and delay
2. Contrast

EFFICIENT DECODING

Information is decompressed based on:

1. Model
2. Contrast

EFFICIENT DECODING

Information is decompressed based on:

1. Model
 2. Contrast
- **Luminosity**
 - **Speed**
 - **Volume**

EFFICIENT DECODING

Information is decompressed based on:

1. Model
 2. Contrast
- **Luminosity**
 - **Speed**
 - **Volume**

... Numbers?

EFFICIENT DECODING



Cognition

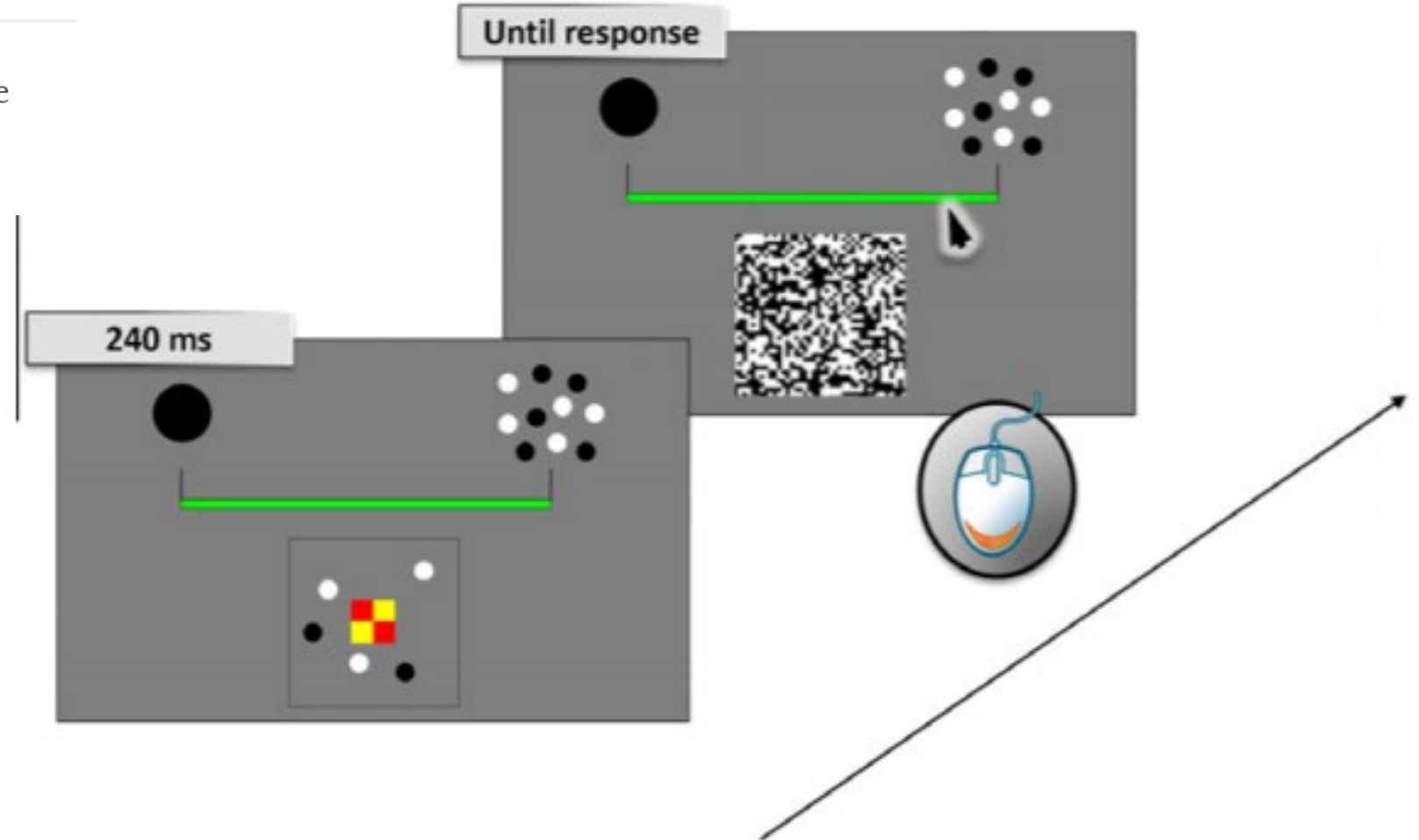
Volume 122, Issue 3, March 2012, Pages 454-459



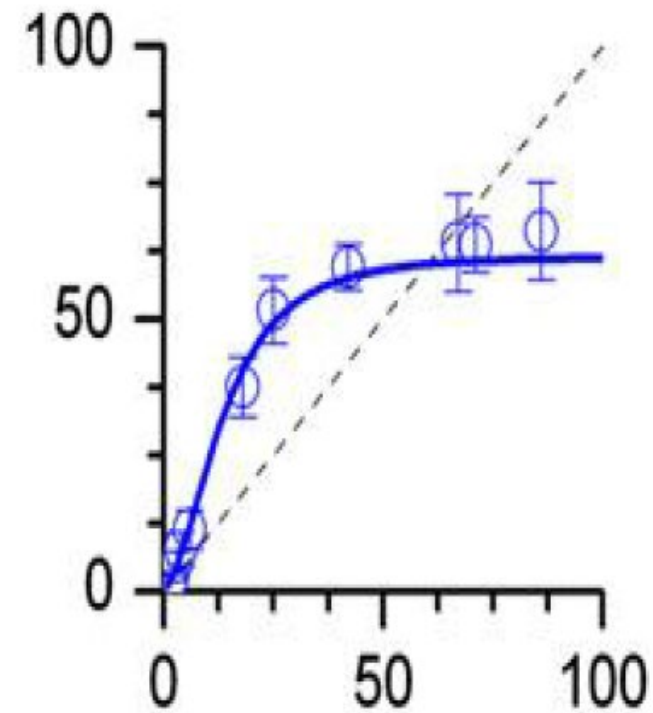
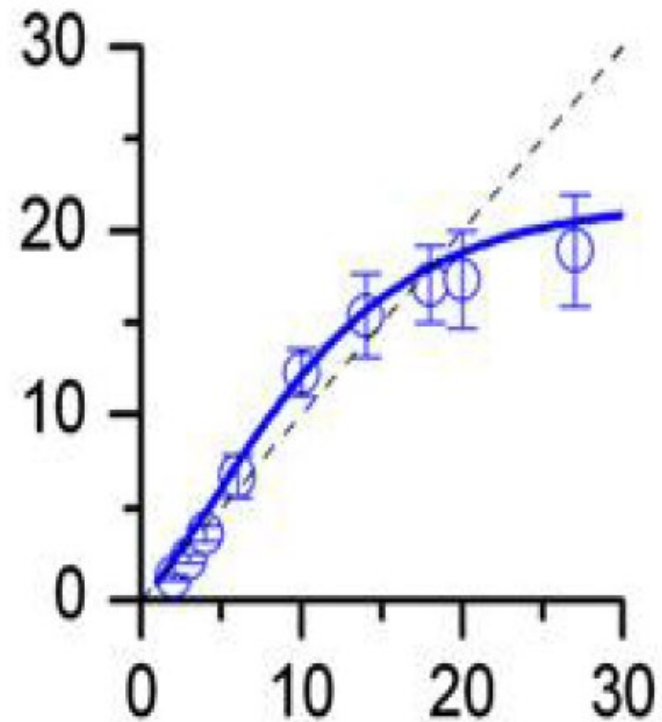
Brief article

Linear mapping of numbers onto space requires attention

Giovanni Anobile^a, Guido Marco Cicchini^b, David C. Burr^{a, b} ✉

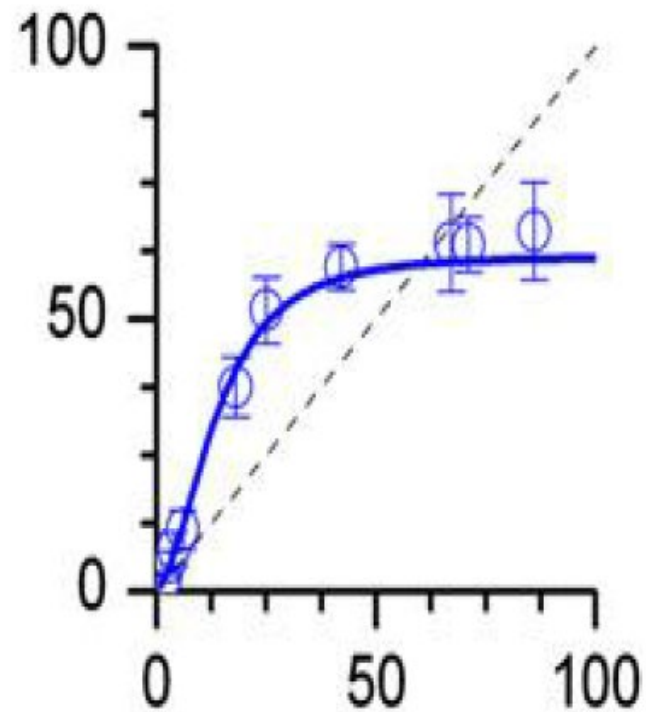
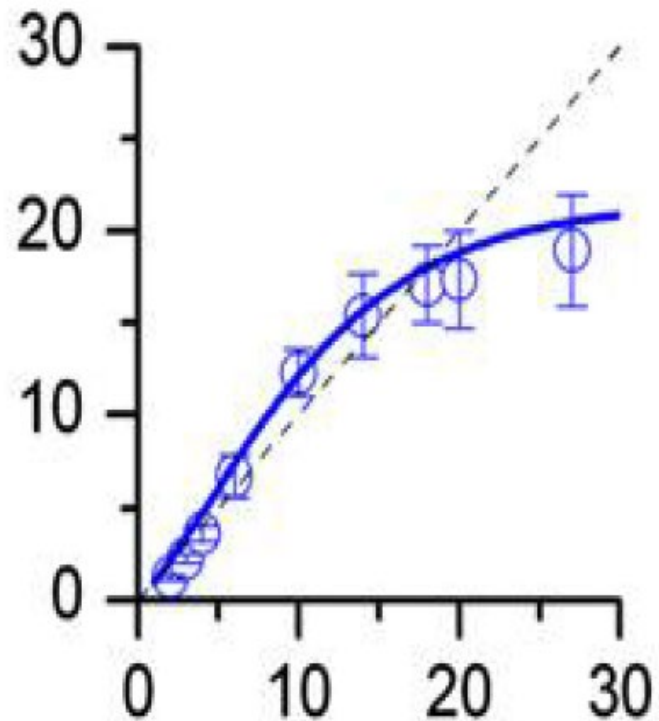


EFFICIENT DECODING



EFFICIENT DECODING

- Conservative bias (model)
- Central tendency (contrast)



“EFFICIENT” BIASES AND HEURISTICS

- Status quo bias (model)
- Anchoring (model)
- Loss aversion (model)

- Decoy effects (contrast)
- Endowment effects (contrast)
- Accessibility biases (contrast)

POLICY-MAKING WITH INATTENTIVE CITIZENS

□ Attention problems change how policies work:

1. Addressing externalities:

- Effectiveness of pricing, regulatory and information policies

2. Addressing social inequalities:

- Access and incidence

SHOPPING IN THE US



SHOPPING IN THE US

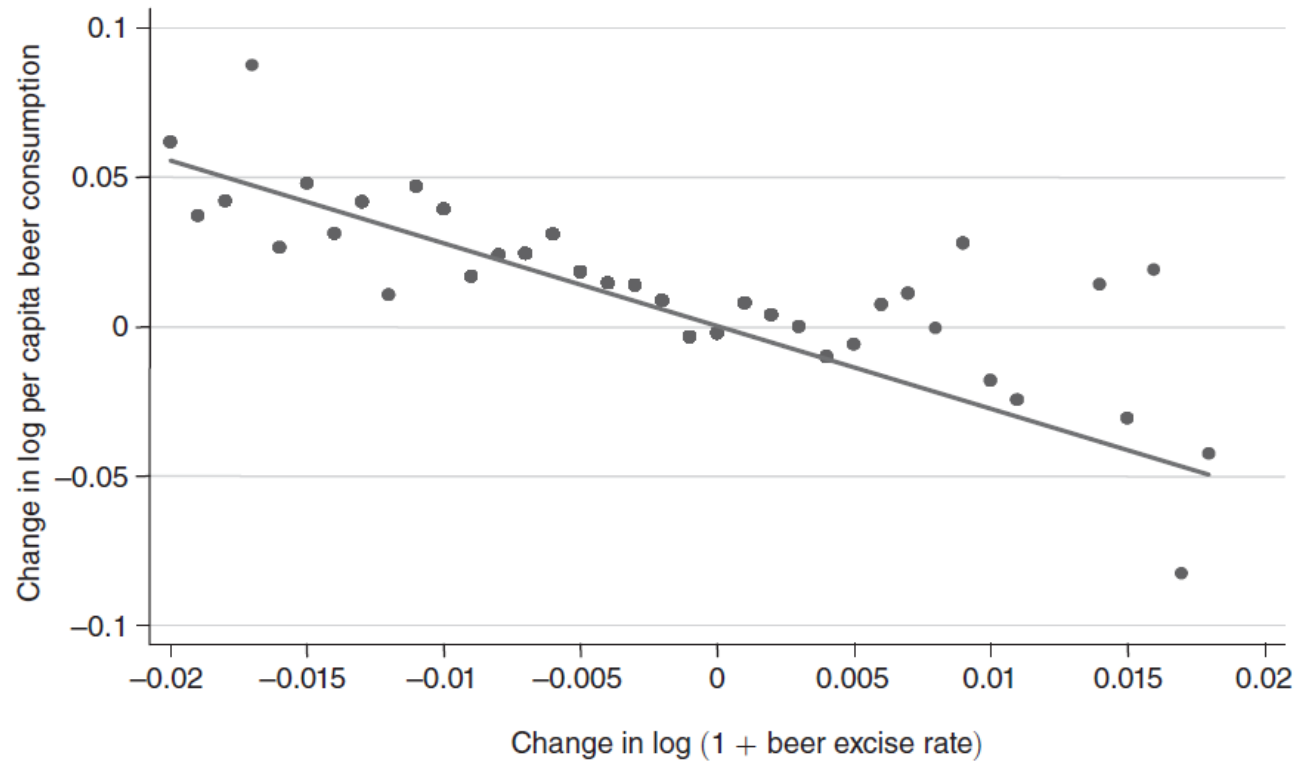


REACTIONS TO CHANGES IN TAX RATES

American Economic Review 2009, 99:4, 1145–1177
<http://www.aeaweb.org/articles.php?doi=10.1257/aer.99.4.1145>

Salience and Taxation: Theory and Evidence

By RAJ CHETTY, ADAM LOONEY, AND KORY KROFT*

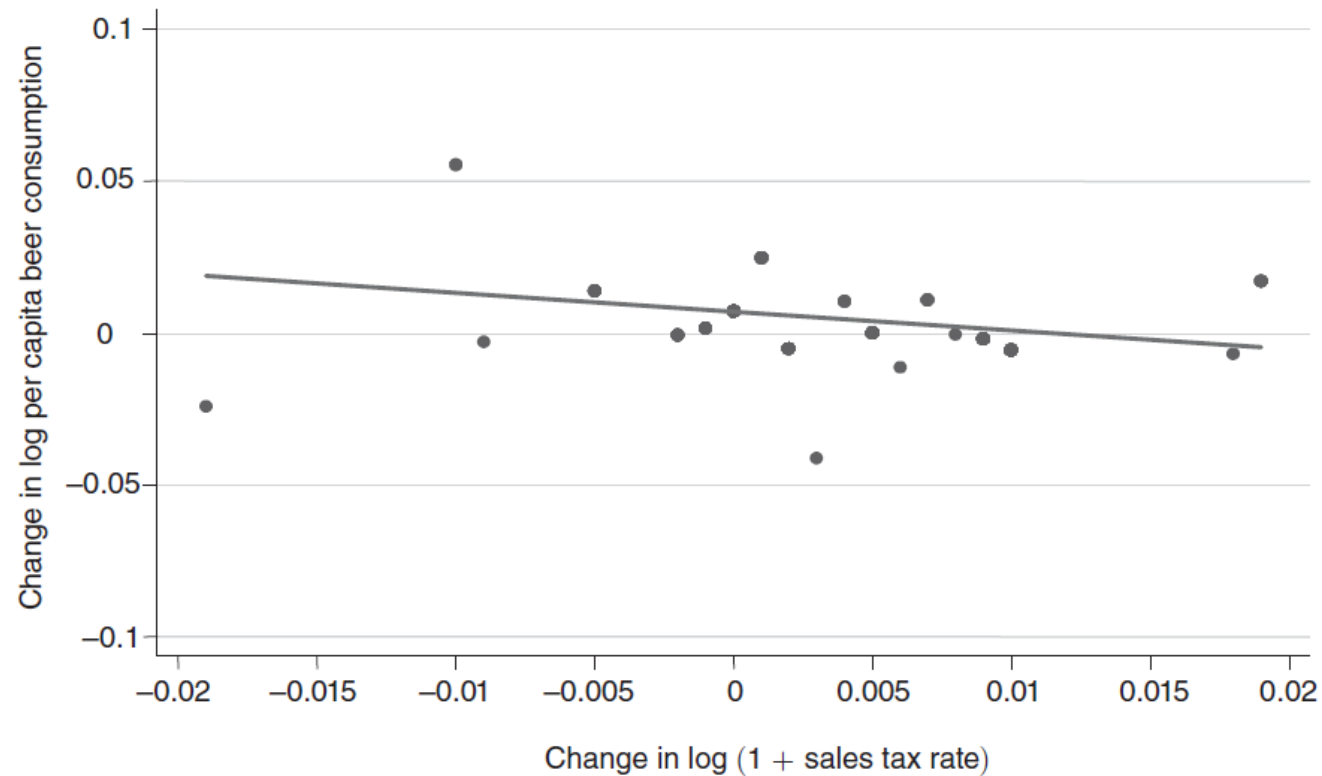


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← Orig.
Tag

← Exp.
Tag

8% lower sales!

SHOPPING IN THE US

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Typical customer accurately reports their State tax rate!
> Not about inaccurate beliefs

8% lower sales!

Orig. Tag
Exp. Tag

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COGNITIVE LOAD

- External demands on an someone's attention, memory, and impulse control act as a 'psychological tax'
 - Less mental bandwidth available for everything else
- Financial worries triggered by poverty
 - Poverty makes one more prone to cognitive biases
 - ✓ Efficient encoding/decoding → costly mistakes

LEARNING-THROUGH-NOTICING

- Some decisions are one-off
 - You decide to be an organ donor or not once, and typically do not revisit this decision
- Many decisions, however, come up again and again:
 - Shopping for healthy food
 - Driving or cycling to work
 - Monitoring children's learning outcomes

LEARNING-THROUGH-NOTICING

- In repeated decisions, there is scope to systematically ignore key elements of the decision environment
 - Inefficient learning even if information is available
 - ✓ Costly mistakes

POLICY-MAKING WITH INATTENTIVE CITIZENS

□ Attention problems change how policies work:

1. Addressing externalities:

- Effectiveness of pricing, regulatory and information policies

2. Addressing social inequalities:

- Access and incidence

MOTIVATION PROBLEMS

EXPERIMENT

- **How would you share 100 CHF with your classmates?**

1. Each of you will be assigned to a group;
2. Pick whom you want to be paired with;
3. Pick how you want to share 100 CHF with a person of that group.

- Access [menti.com](https://www.menti.com) and type **7817 2032**



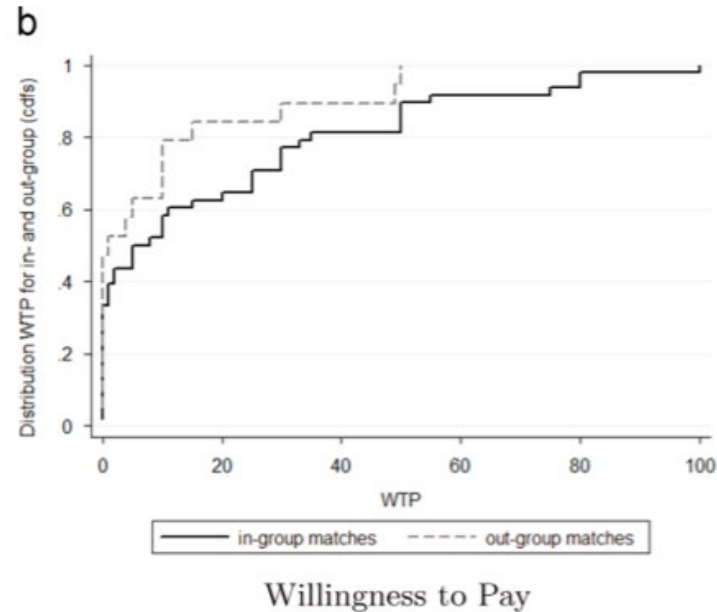
SOCIAL PRESSURE

- Experiments all over the world suggest a natural human tendency to identify as part of social groups, and to treat in-group and out-group members differently

Identity, homophily and in-group bias

Sergio Currarini ^{a,b,*}, Friederike Mengel ^{c,d}

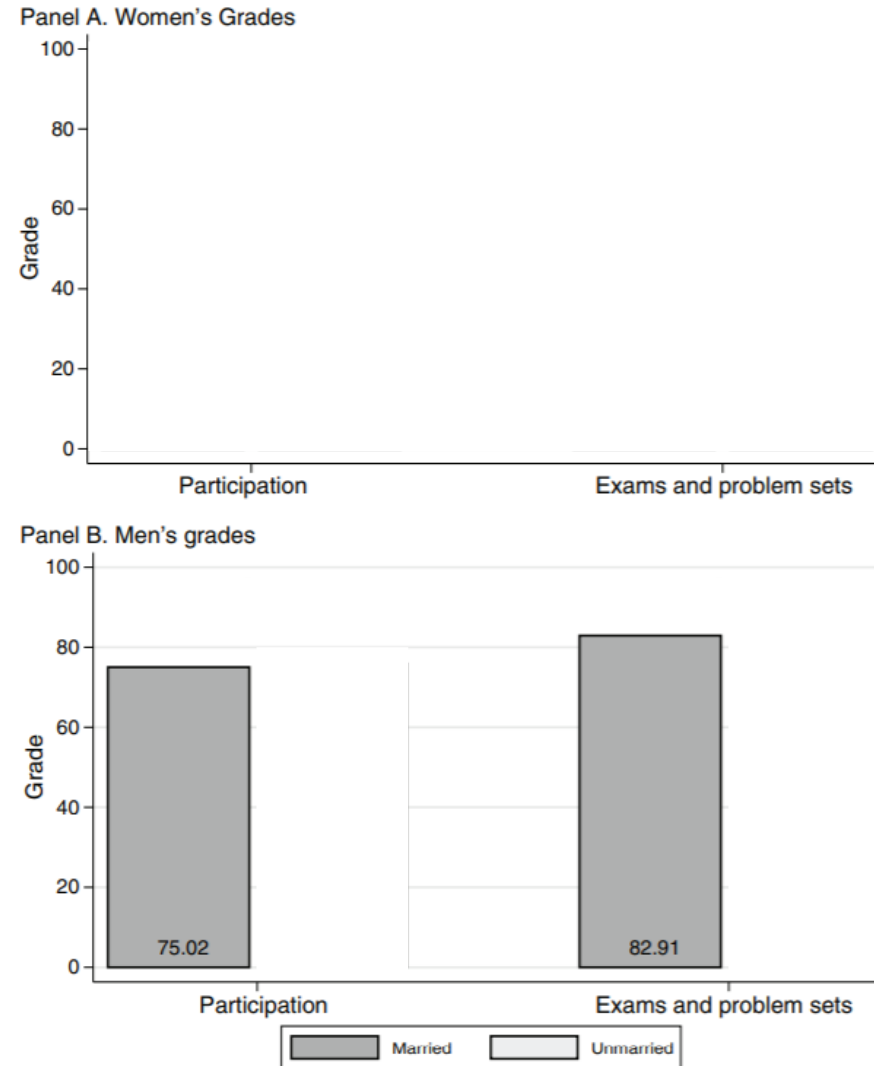
➤ 72%
pick someone
from the same group!



SOCIAL EXPECTATIONS

'Acting Wife': Marriage Market Incentives and Labor Market Investments[†]

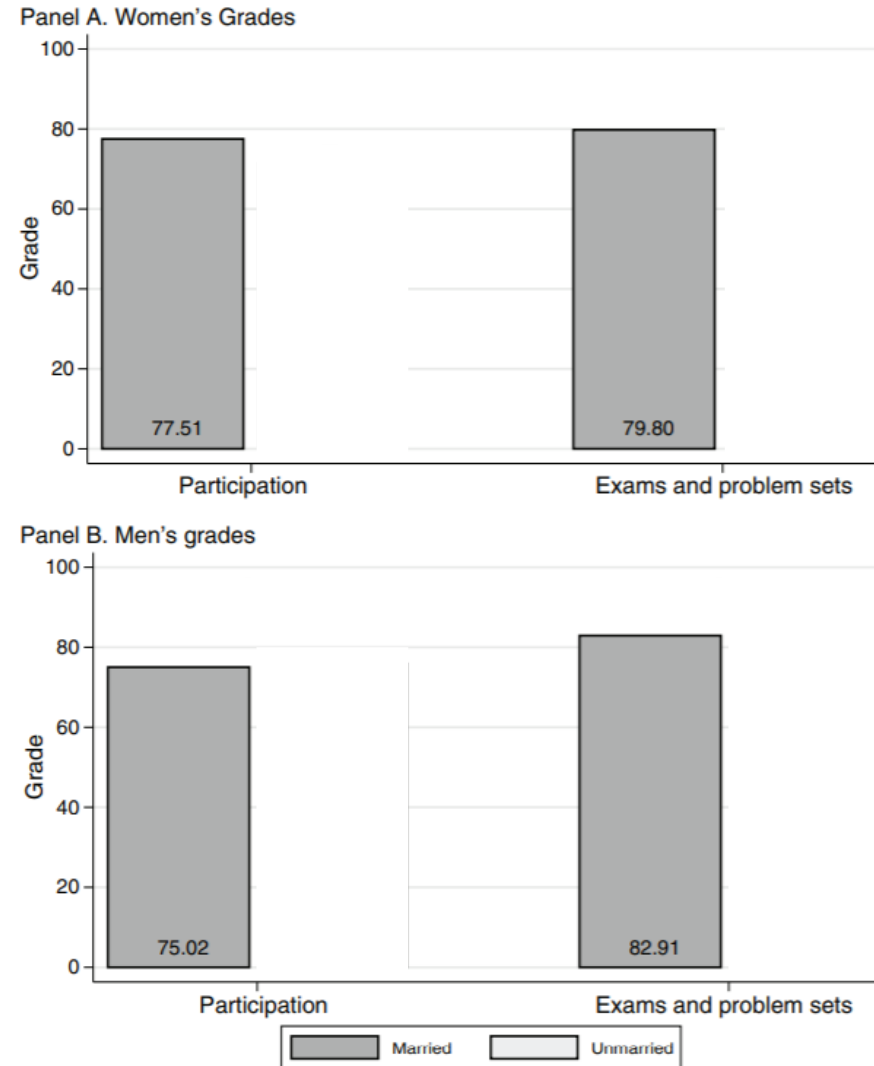
By LEONARDO BURSZTYN, THOMAS FUJIWARA, AND AMANDA PALLAIS*



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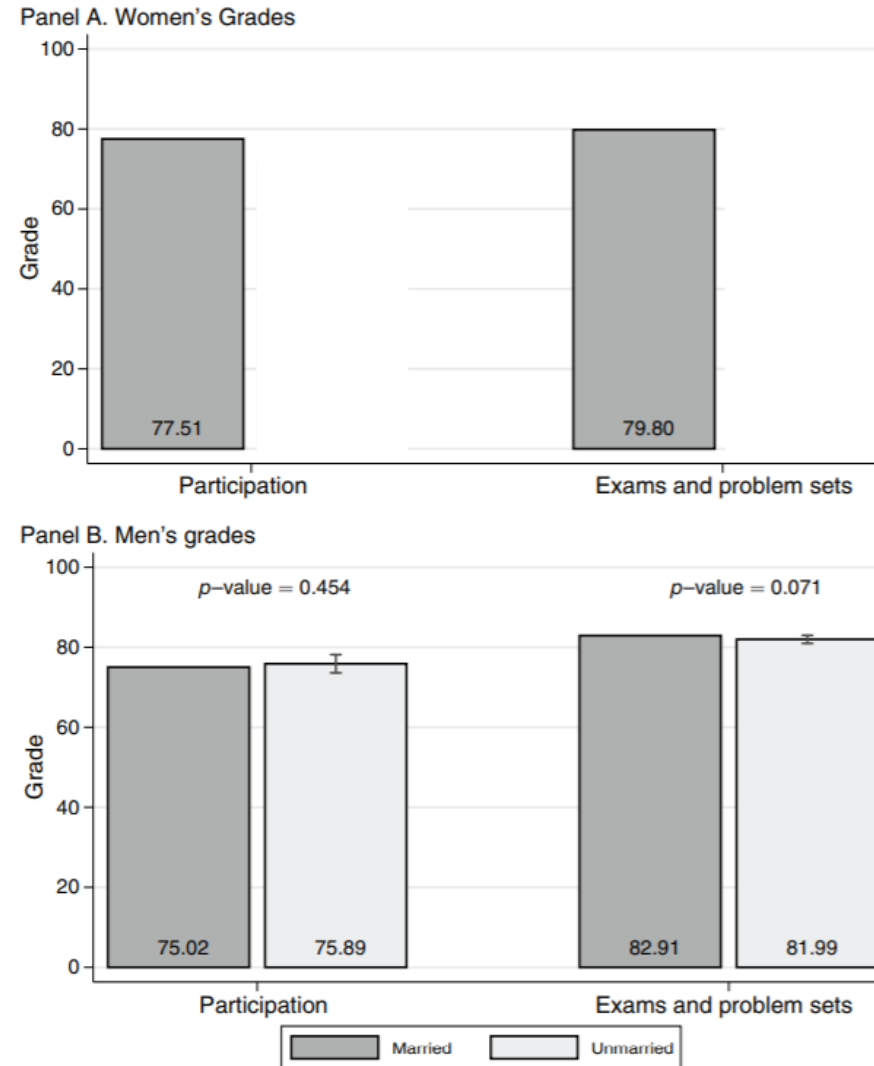
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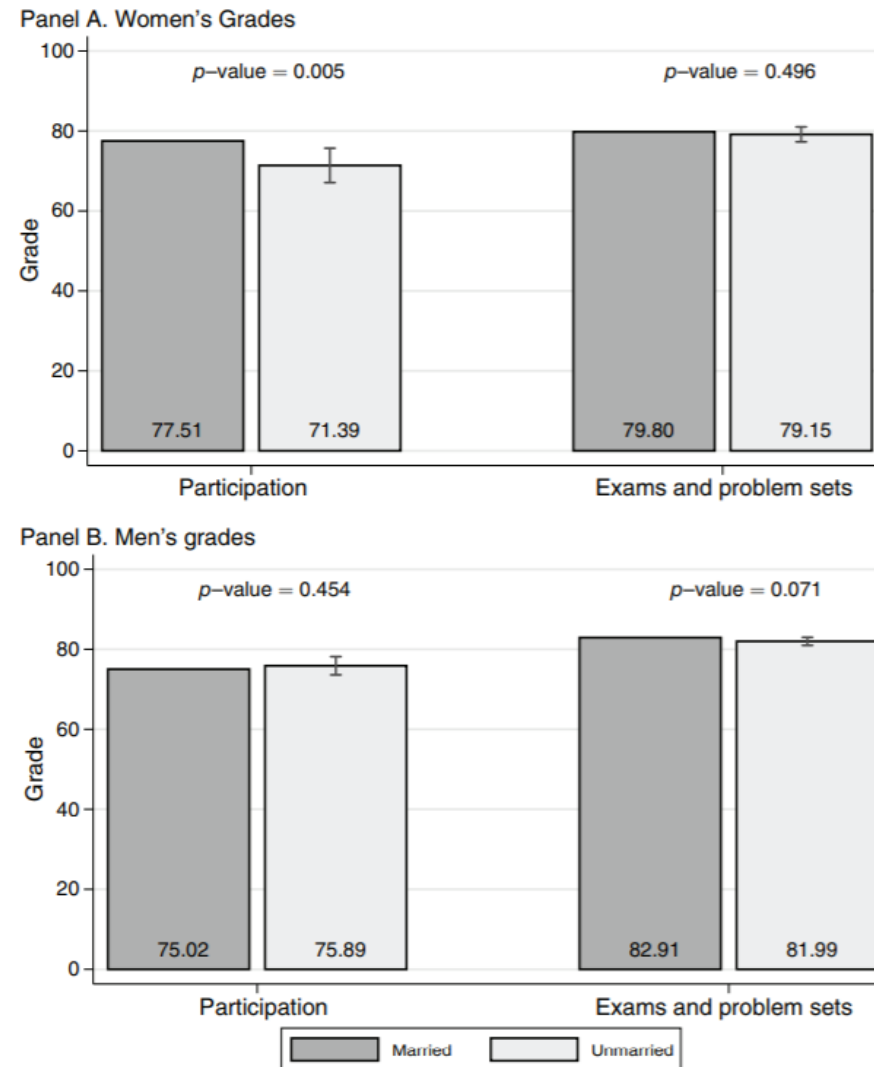
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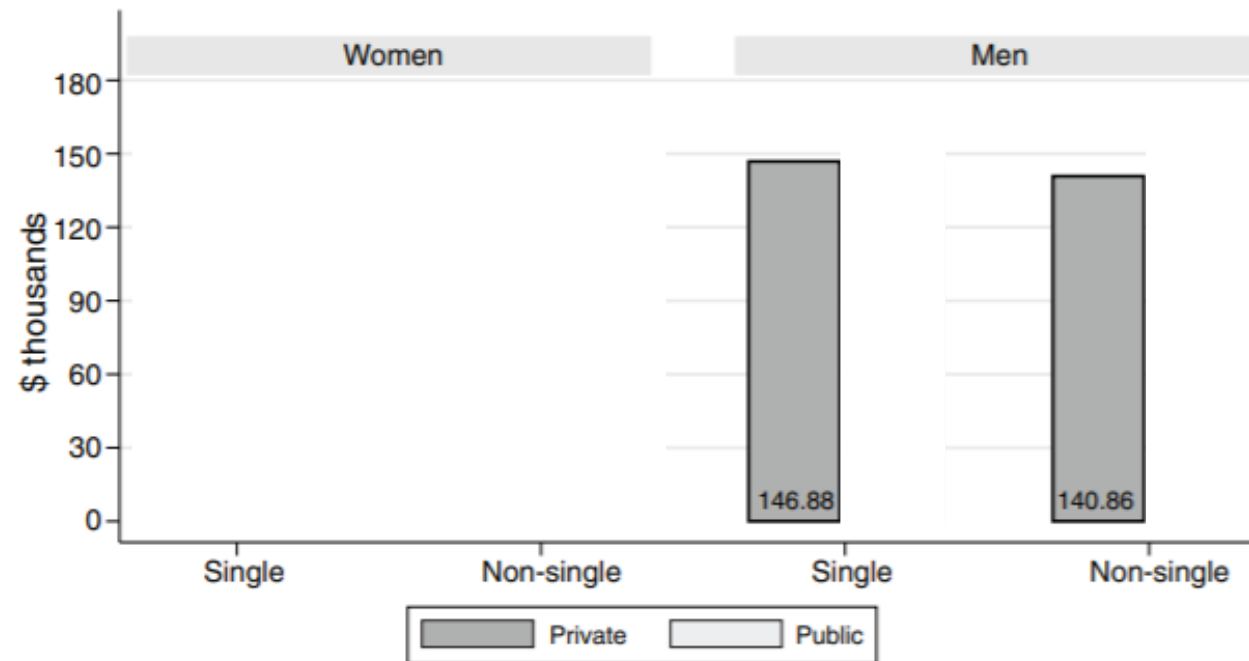
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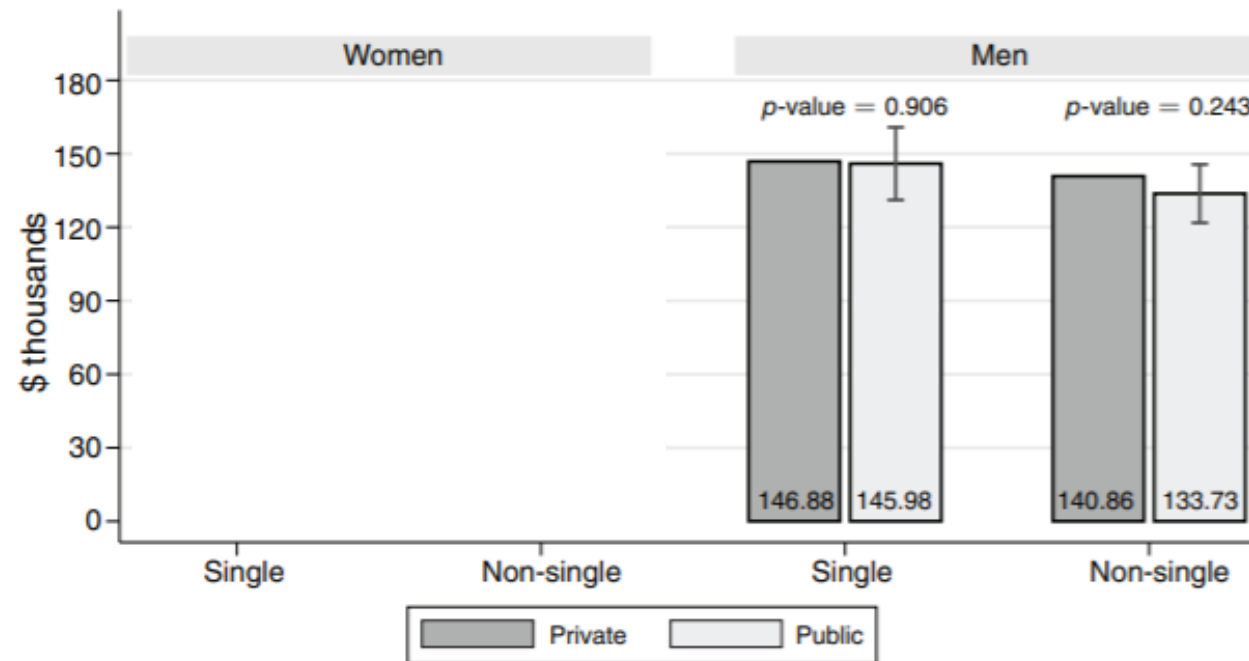
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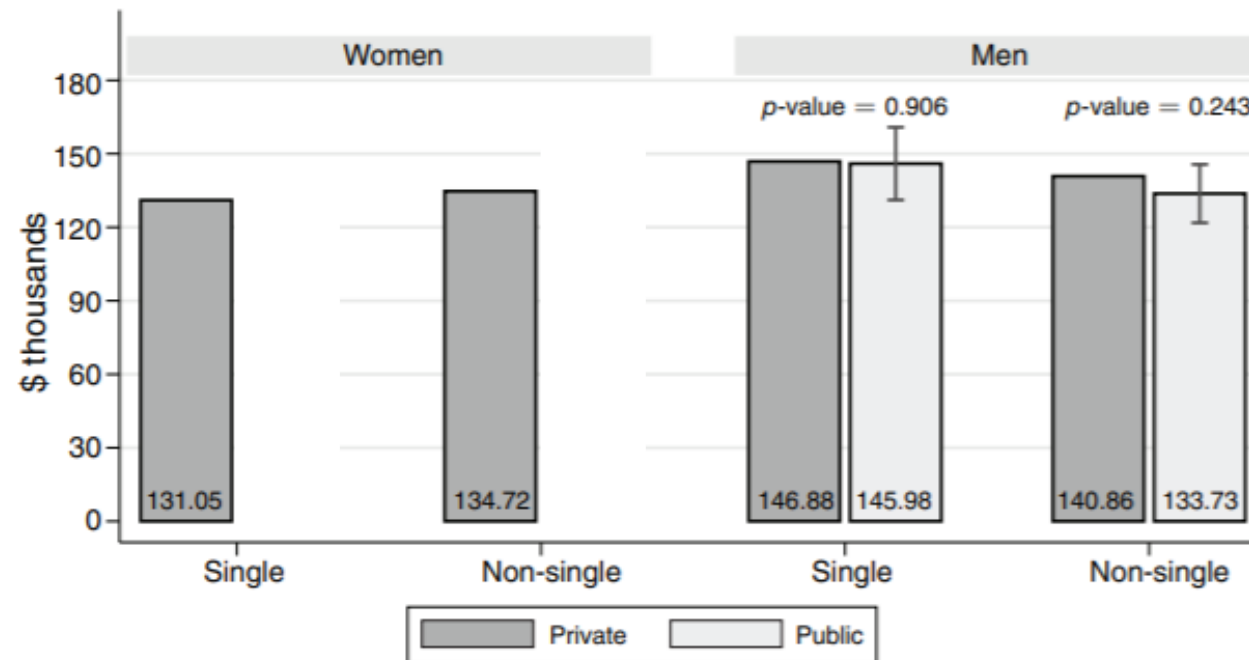
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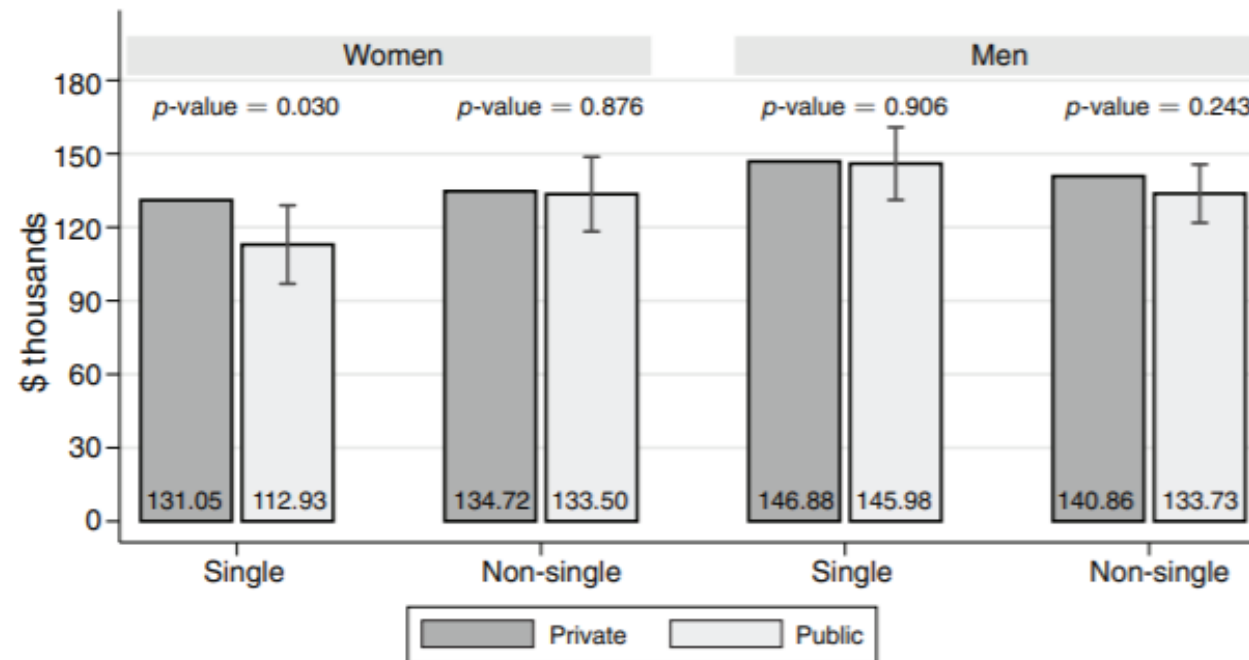
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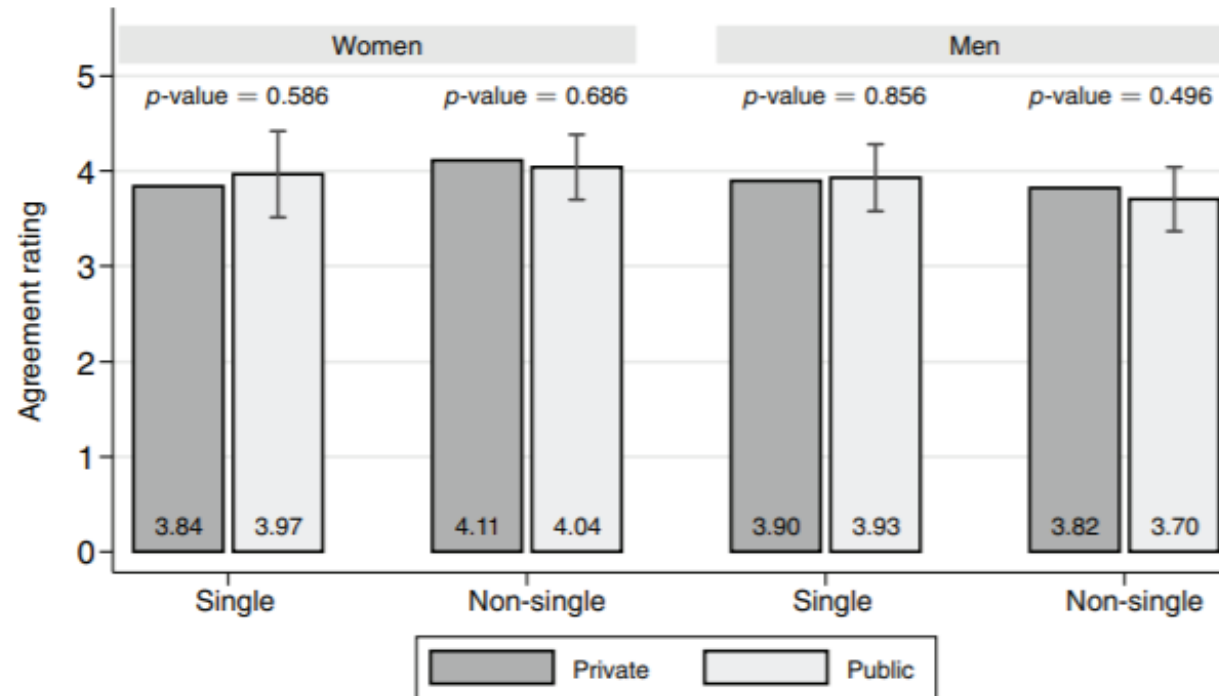


FIGURE 8. WRITING ABILITY (*Primary Experiment*)

SOCIAL EXPECTATIONS

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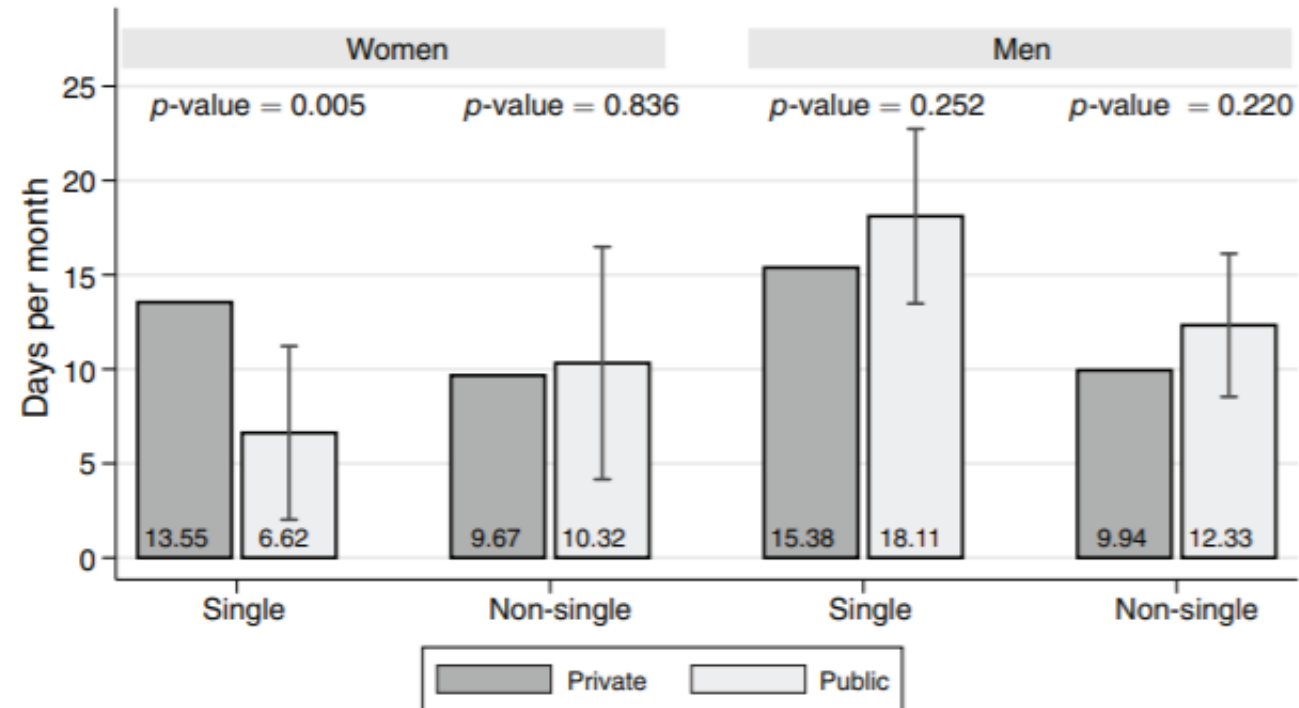


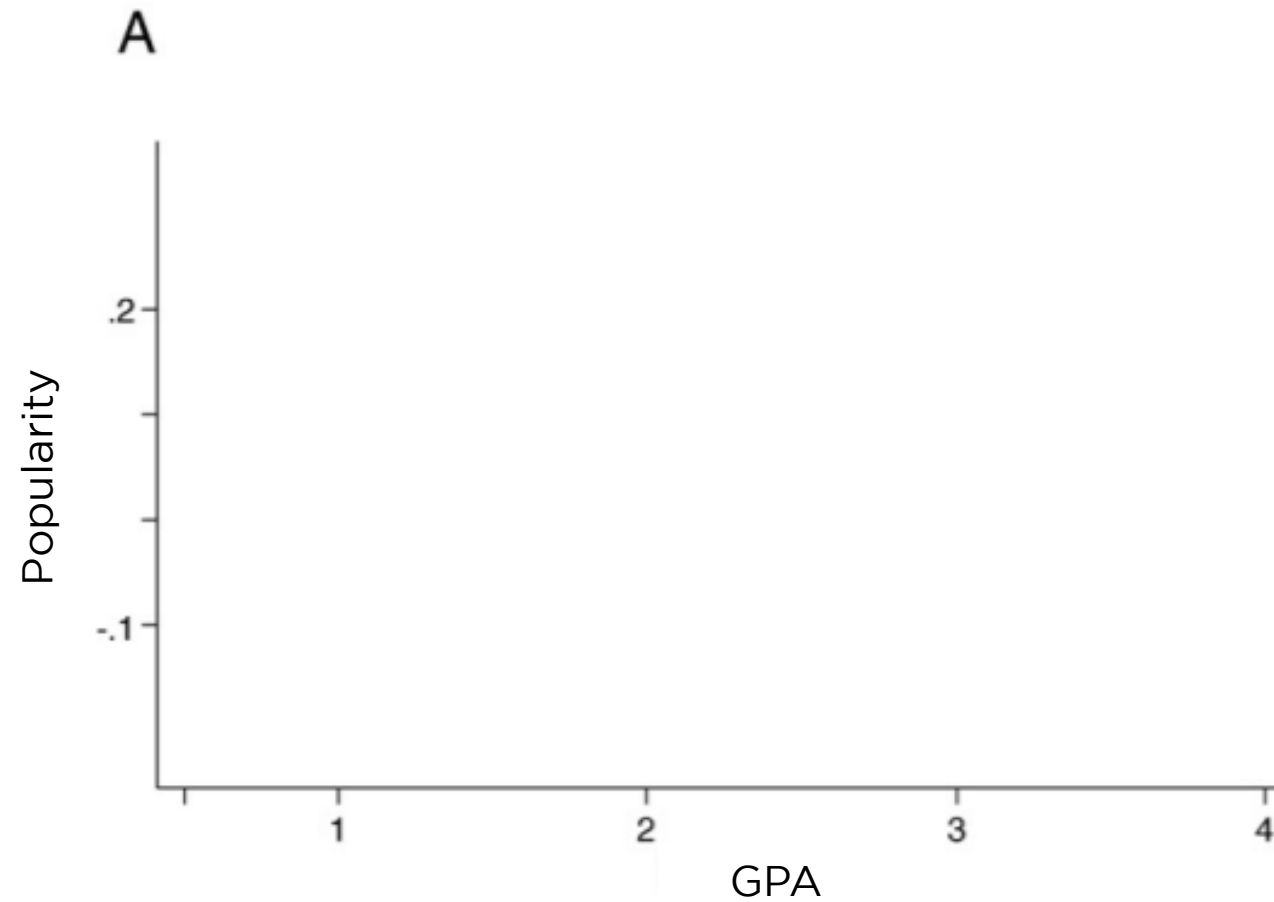
FIGURE 3. DAYS PER MONTH WILLING TO TRAVEL (*Primary Experiment*)

PUBLIC IMAGE CONCERNS



An empirical analysis of 'acting white'

Roland G. Fryer Jr. ^{a,b,*}, Paul Torelli ^c

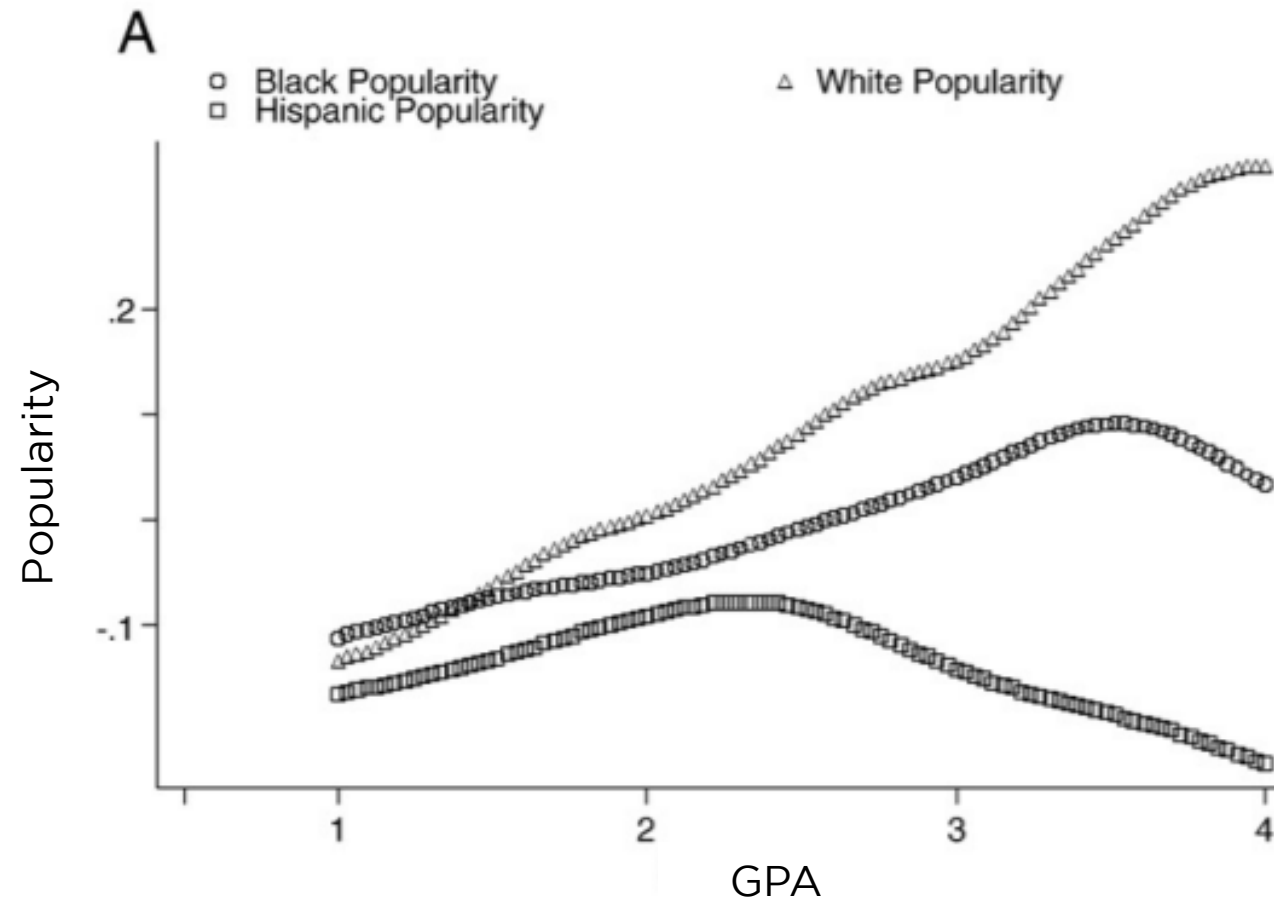


PUBLIC IMAGE CONCERNS



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EXTRINSIC VS. INTRINSIC MOTIVATION

- Two sources:
 1. Extrinsic
 - Social expectations
 - Public image concerns
 2. Intrinsic
 - Identity
 - Values
 - Culture
 - Religions

POLICY-MAKING WITH MOTIVATED CITIZENS

□ Motivation problems change how policies work:

1. Addressing externalities:

- Effectiveness of pricing, regulatory and information policies

2. Addressing social inequalities:

- Access and incidence

SELF-CONTROL PROBLEMS

IMPULSIVITY

Heart and Mind in Conflict: The Interplay of Affect and Cognition in Consumer Decision Making

BABA SHIV
ALEXANDER FEDORIKHIN*



X



IMPULSIVITY

Heart and Mind in Conflict: The Interplay of Affect and Cognition in Consumer Decision Making

BABA SHIV
ALEXANDER FEDORIKHIN*

Cognitive load (Lo): “Memorize the following number: 8362903”

Available mental bandwidth (Hi): “Memorize the following number: 62”

IMPULSIVITY

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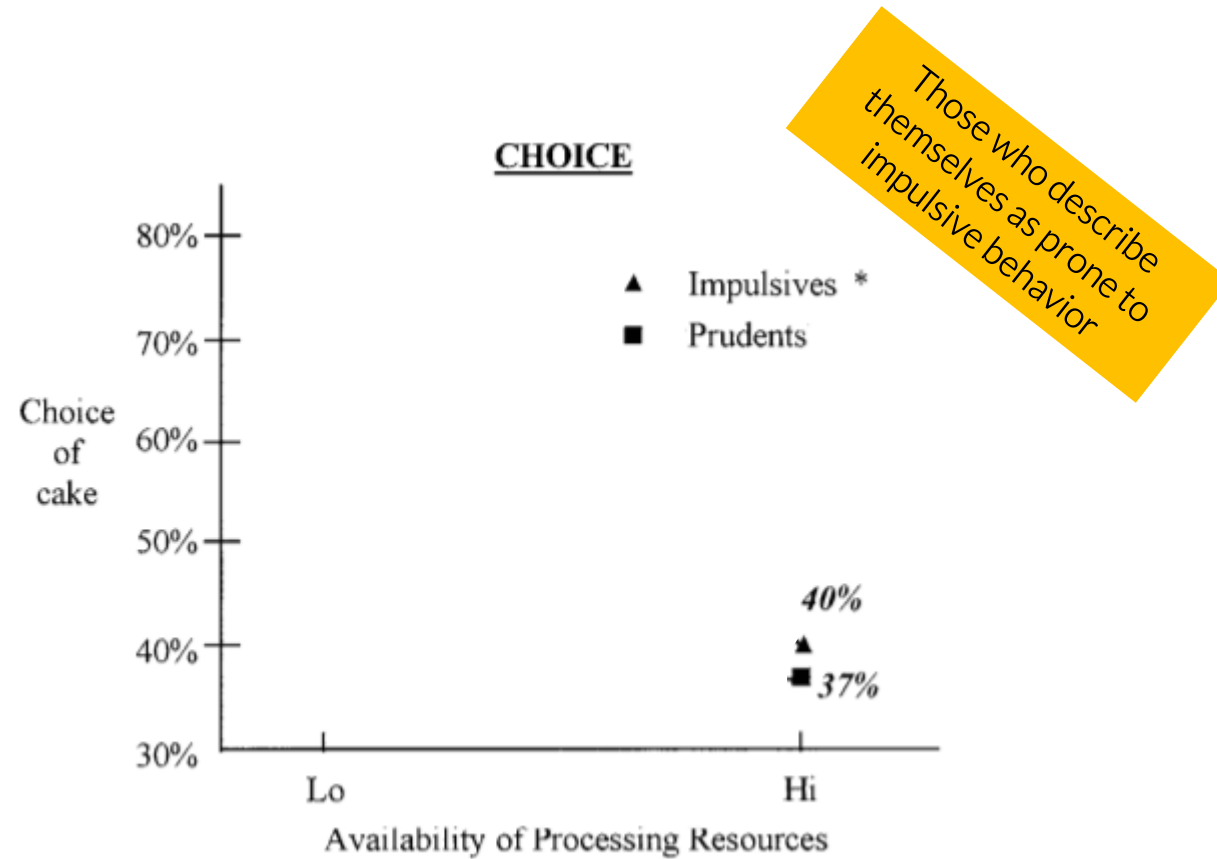
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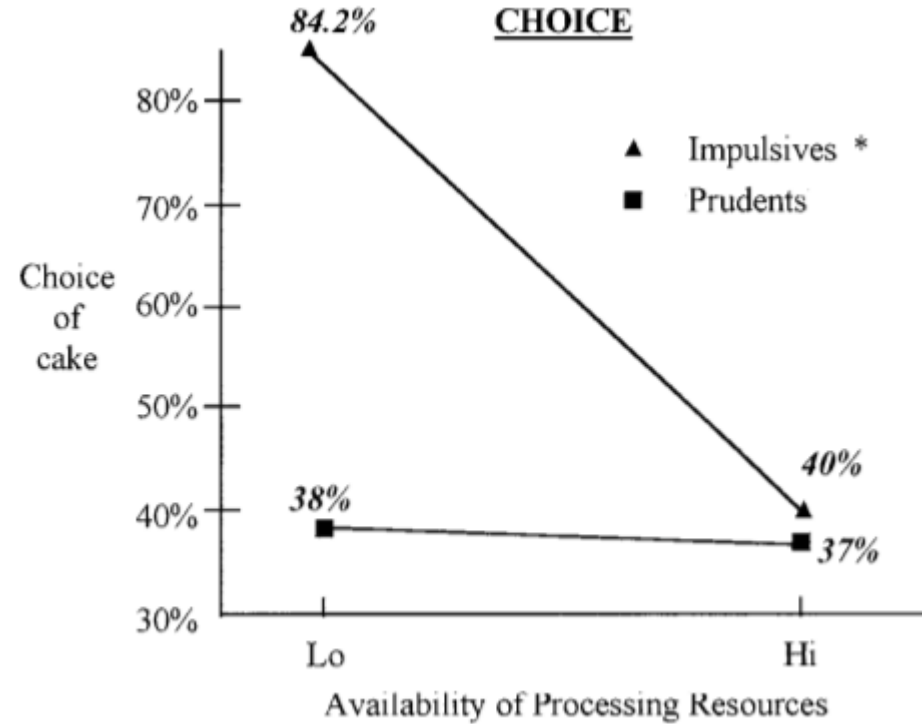
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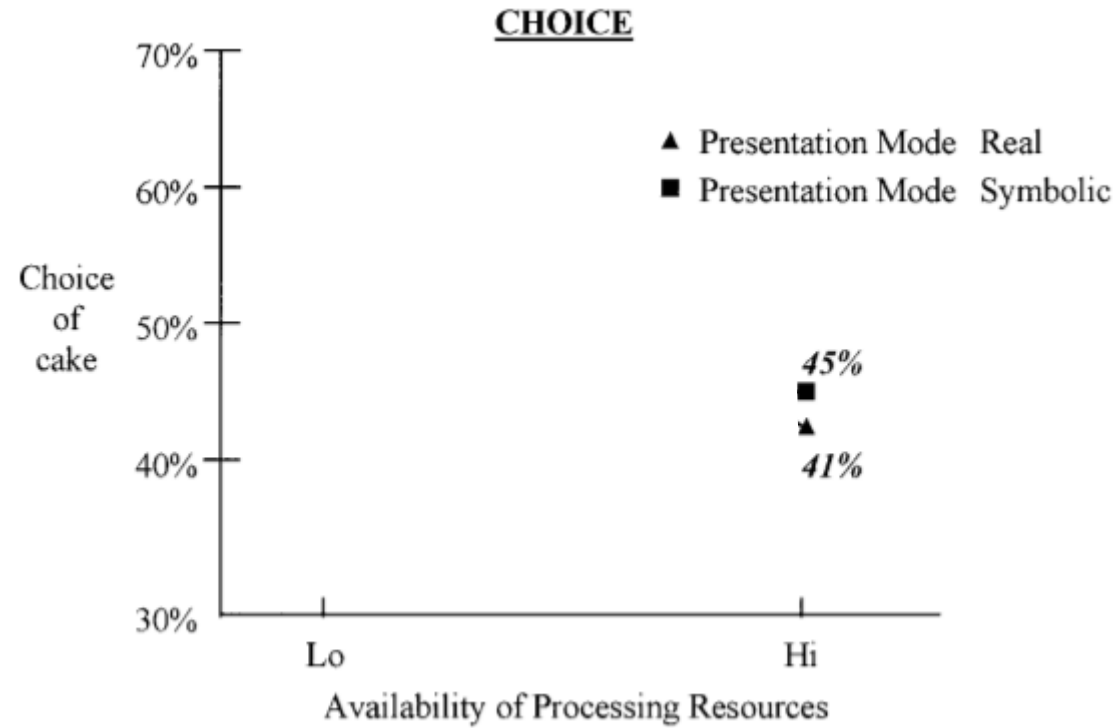
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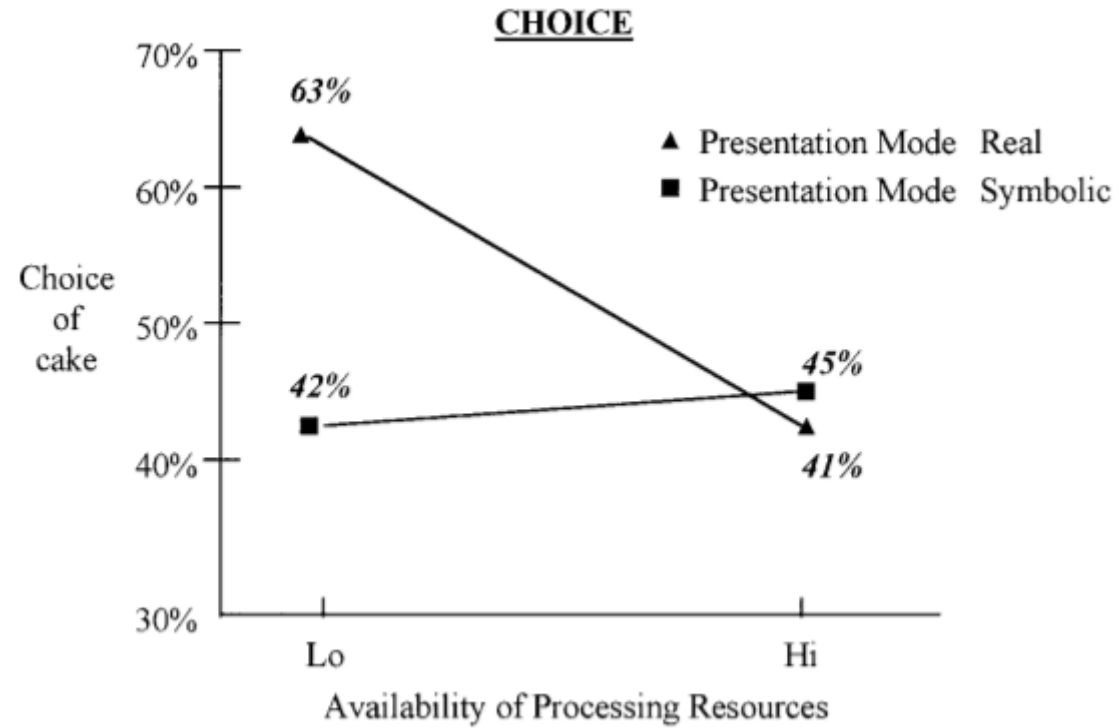
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IMPULSIVITY

- Two 'selves':
 1. Rational ('Cold state')
 2. Impulsive ('Hot state')

PROCRASTINATION

- Two 'selves':
 1. Present
 2. Future

PROCRASTINATION

- Two 'selves':
 1. Present (Impatient)
 2. Future (Patient)

PROCRASTINATION

- Two 'selves':
 1. Present (Selfish)
 2. Future (Generous)

LIMITING MENTAL MODELS

Growth mindset tempers the effects of poverty on academic achievement

Susana Claro^{a,1}, David Paunesku^b, and Carol S. Dweck^{b,1}

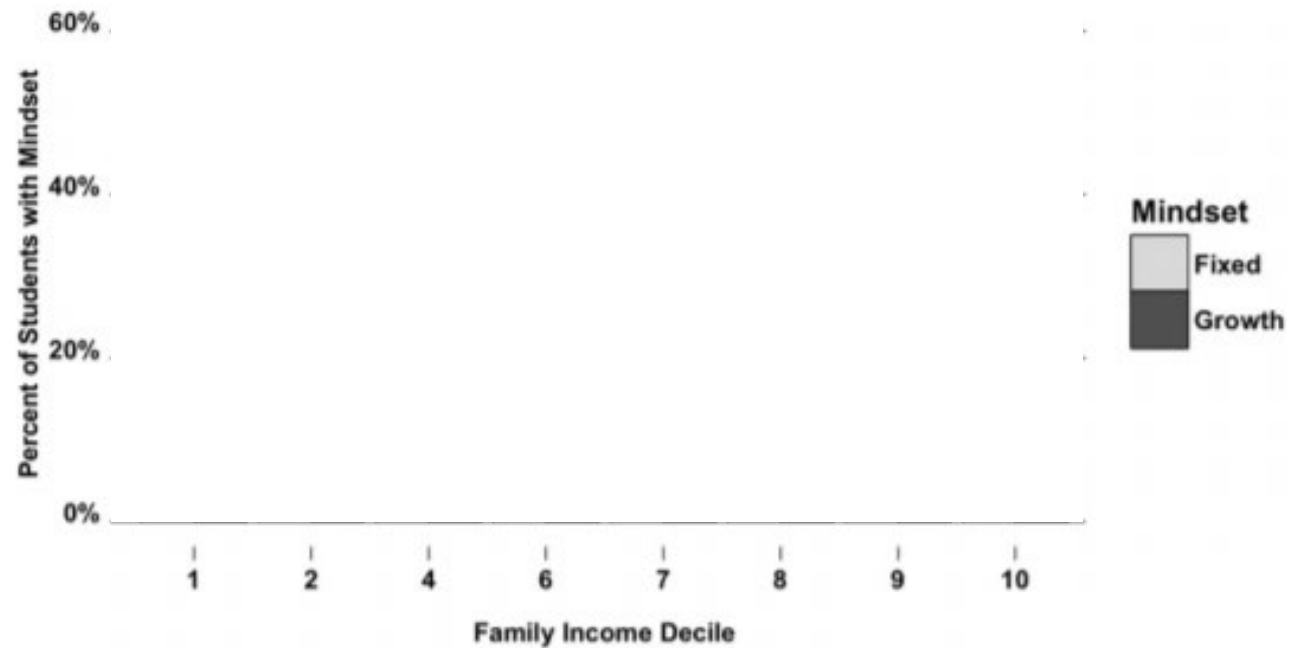
Do you agree with the following claims?

- “Your intelligence is something you are born with and cannot be changed much.”
- “If you are not good at something, you will never be good at that.”

FIXED VS. GROWTH MINDSET

Growth mindset tempers the effects of poverty on academic achievement

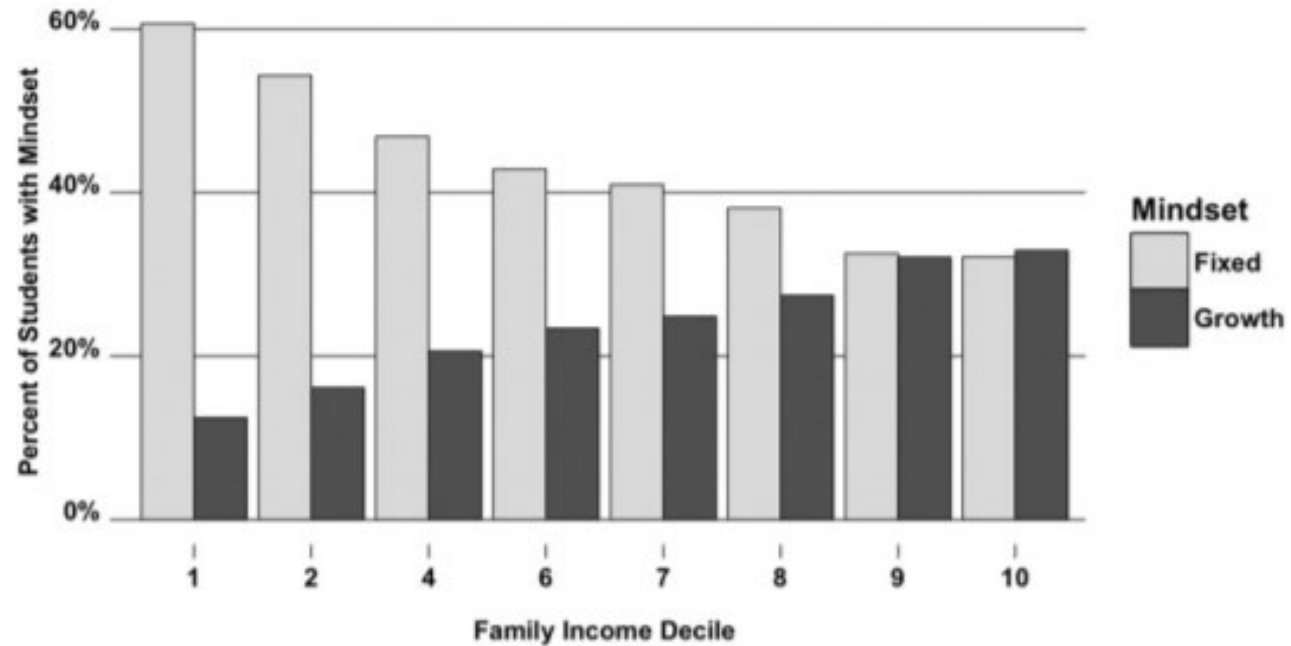
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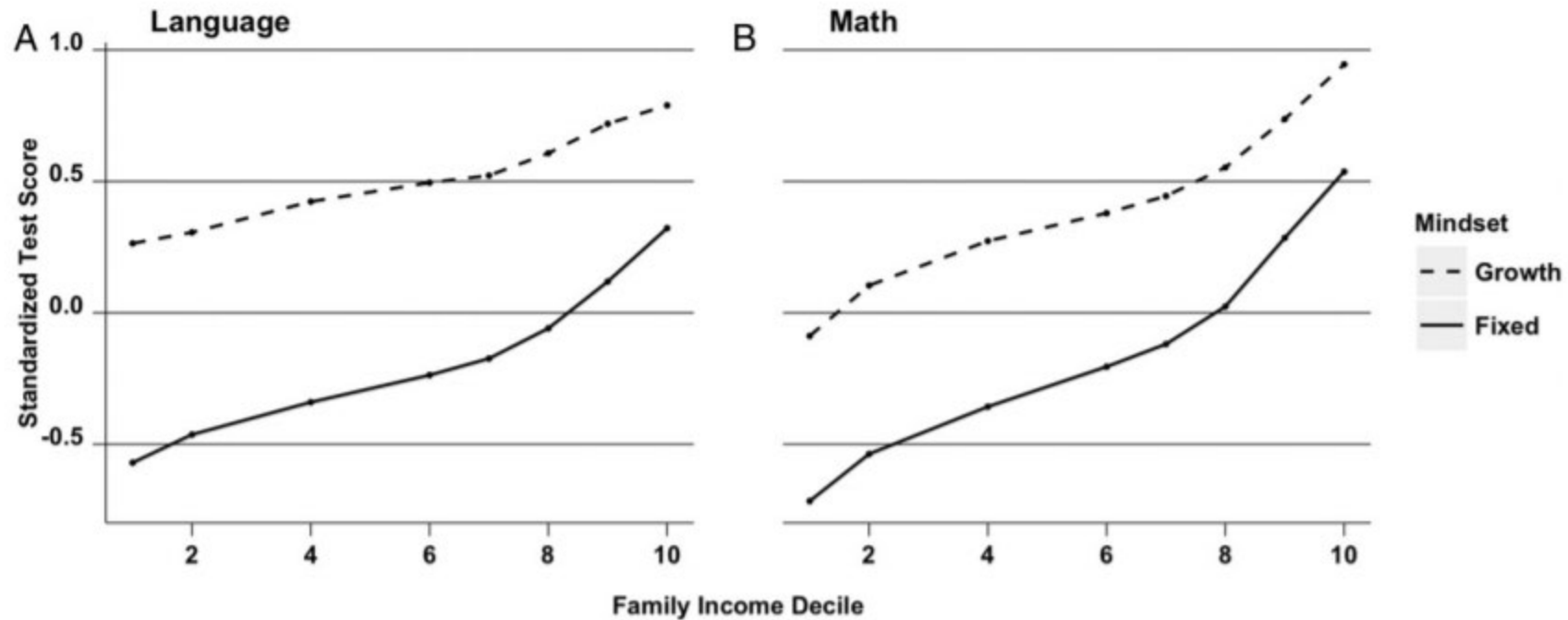
Susana Claro^{a,1}, David Paunesku^b, and Carol S. Dweck^{b,1}



MENTAL MODELS SEEM RELEVANT

Growth mindset tempers the effects of poverty on academic achievement

Susana Claro^{a,1}, David Paunesku^b, and Carol S. Dweck^{b,1}



LIMITING MENTAL MODELS

- Two 'selves':
 1. Growth mindset
 2. Fixed mindset

LIMITING MENTAL MODELS

- Two 'selves':
 1. Growth mindset
 2. Fixed mindset

Triggered by
cognitive load!

POLICY-MAKING WITH DUAL-SELF CITIZENS

□ Self-control problems change how policies work:

1. Addressing externalities:

- Effectiveness of pricing, regulatory and information policies

2. Addressing social inequalities:

- Access and incidence

MSI FRAMEWORK

MSI FRAMEWORK

Motivation problems	Self-control problems	Inattention problems
Intrinsic motivation Social expectations Social image concerns	Impulsivity Procrastination Limitating mental models	Cognitive biases Cognitive load Learning through noticing

**IN
PRACTICE**

GROUP WORK

- 4 groups
- Each group should pick a wicked social problem:
 - Creates externalities and inequality
 - Affects a population you have access to
 - Resistant to business-as-usual pricing, regulatory, and/or information policies

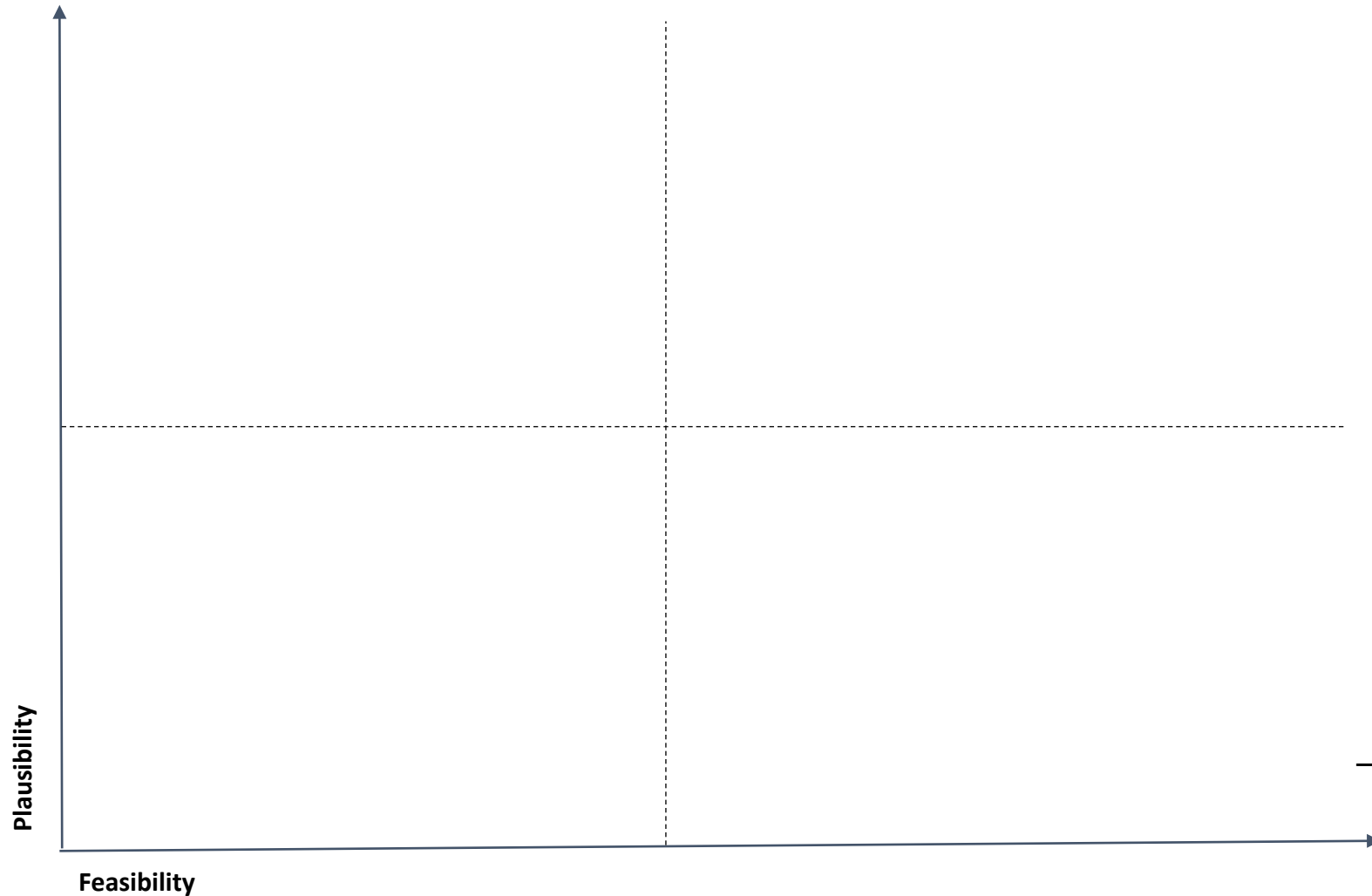
STRUCTURAL DIAGNOSTICS

- With the 'ideal citizen' in mind

BEHAVIORAL DIAGNOSTICS

- With the 'real citizen' in mind

BEHAVIORAL MECHANISMS



Intrinsic motivation Do values, identity, culture or religion discourage the desirable action?	Social expectations Do expectations about group behaviors or conformity pressure discourage the the desirable action - even when that action cannot be observed by others?	Social image concerns Do social image concerns discourage the the desirable action - when that action can be observed by others?
Impulsivity Does impulsive behavior the gets in the way of the desirable action - regardless of previous plans?	Procrastination Does excessive optimism about future plans discourage the the desirable action in the present?	Self-limiting beliefs Do self-limiting beliefs about one's ability to achieve positive outcomes discourage the desirable the desirable action?
Cognitive biases Do perceptual errors lead to undesirable actions?	Cognitive load Is the quality of decision-making compromised due to external conditions that compete for one's executive functions, leading to undesirable actions?	Learning-through-noticing Does ignoring (some of) available information in recurring decisions lead to undesirable actions?

→ <https://miro.com/app/board/uXjVPjLT3tg=/>