Is Survey Instability Due to Respondents who Don't Understand Politics or Researchers Who Don't Understand Respondents?<sup>1</sup>

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<sup>&</sup>lt;sup>1</sup>Slides, data, paper to come: GaryKing.org/mw

#### Introduction

Modeling the Survey Data Generation Process

The Causes of Effects of Survey Instability

**Empirical Evidence** 

Conclusions

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  - for substance:  $\tau_t \equiv \tau_t(X_t)$
  - for survey bias:  $\pi_t \equiv \pi_t(Z_t)$
- Instability:  $C_1 \neq C_2$ , with "assumptions":
  - no material changes:  $\tau_1 = \tau_2 \implies X_1 = X_2$
  - no memory:  $C_1 \perp C_2 \mid \tau_1 = \tau_2$

Modeling the Survey Data Generation Process

#### Special case 1: Rational Choice

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• No instability (unless  $\pi_1 \neq \pi_2$ ), but an important baseline

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Differences from Rational Choice

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- Differences from Rational Choice
  - Empirical, not rational, observation mechanism

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- · Empirical, not rational, observation mechanism
- "Irrational": less likely to get your preference

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#### Differences from Rational Choice

- Empirical, not rational, observation mechanism
- "Irrational": less likely to get your preference
- Strong supporting evidence: In humans, ants, bees, fish, pigeons, primates

• Preferences

$$\rho_t = \begin{cases} 1 & \text{w.p. } \tau_t \\ 0 & \text{w.p. } 1 - \tau_t \end{cases}$$

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· Differences from Probability Matching

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  - · Same strong empirical evidence

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  - · Same strong empirical evidence
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  - (Respondent variability generated at choice level)

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• (Wrong, but not terrible if effects >> respondent variability)

#### Introduction

Modeling the Survey Data Generation Process

#### The Causes of Effects of Survey Instability

**Empirical Evidence** 

#### Conclusions

The Causes of Effects of Survey Instability

The Source of Respondent Variability
(The "Causes of Effects" of Survey Instability)

(The "Causes of Effects" of Survey Instability)

Survey instability

The Causes of Effects of Survey Instability

(The "Causes of Effects" of Survey Instability)

#### Time-on-task ↓ Survey instability



Time limitations → randomly different survey responses

(The "Causes of Effects" of Survey Instability)

# 



50% of waking hours Random: onset, duration, content "Attention is an achievement"

(The "Causes of Effects" of Survey Instability)





Default Mode Network (DMN)

Central Executive Network (CEN)

(Figure: Bauer et al., 2020)

Humans are not "attention control machines" Multiple connected networks, released from outside attention  $\sim$  random mind wandering

(The "Causes of Effects" of Survey Instability)





Randomness may be an evolved (optimized) feature, not a bug (Figure: hallucinated by DALL-E)

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#### A Binary Choice Conjoint Question

(Ono and Burden, 2018)

Please carefully review the two potential candidates running for election to the U.S. House of Representatives, detailed below.

	Candidate 0	Candidate 1
Race/Ethnicity	Hispanic	Asian American
Age	52	60
Favorability rating among the pub- lic	70%	34%
Position on immigrants	Favors giving citizenship or guest worker status to undocumented immigrants	Opposes giving citizenship or guest worker status to undocumented immigrants
Party affiliation	Republican Party	Democratic Party
Position on abortion	Abortion is not a private matter (pro-life)	Abortion is a private matter (pro- choice)
Position on government deficit	Wants to reduce the deficit through tax increase	Wants to reduce the deficit through tax increase
Salient personal characteristics	Really cares about people like you	Really cares about people like you
Position on national security	Wants to cut military budget and keep the U.S. out of war	Wants to maintain strong defense and increase U.S. influence
Gender	Female	Female
Policy area of expertise	Education	Foreign policy
Family	Single (divorced)	Married (no child)
Experience in public office	12 years	4 years

If you had to choose between them, which of these candidates would you vote to be a member of the U.S. House of Representatives?

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    - No difference for: Burn-ins, attention checks, distractors

#### What changed from the last time you saw this?

# What changed from the last time you saw this? (Ono and Burden, 2018)

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Reducing Time-on-Task Increases Instability

#### **Empirical Evidence**

## Reducing Time-on-Task Increases Instability

Recall: max(Instability) = 0.5

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#### Reducing Time-on-Task Increases Instability Recall: max(Instability) = 0.5





Validation of Proxy: Mind Wandering Declines with Age

#### **Empirical Evidence**





Mind Wandering: Direct Measurement

#### **Empirical Evidence**

#### Mind Wandering: Direct Measurement



#### Mind Wandering: Direct Measurement



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Conclusions
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  - Causes of this effect: time-on-task ← mind wandering ← "Default mode network(s)" ← evolutionary optimization
  - Formalization: swapping error DGP
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  - Nonattitudes

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