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# Testing Hypothetical Bias Countermeasures in Discrete Choice Experiments

**Evidence from an Embedded Plausibility Test**

Wojciech Zawadzki<sup>1</sup>, Mikołaj Czajkowski<sup>1</sup>, Milan Ščasný<sup>2</sup>

<sup>1</sup> University of Warsaw, Poland <sup>2</sup> Charles University, Czech Republic



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# Does hypothetical bias undermine DCE welfare estimates?

## A novel plausibility test to benchmark hypothetical bias countermeasures

- **Stated preference / DCE methods are the workhorse for non-market valuation**
  - But respondents choose in hypothetical settings, with no real consequences
- **Hypothetical bias: stated WTP/WTA diverges from real behavior**
  - A long-standing threat to the credibility of DCE-based welfare estimates
- **Common ex-ante countermeasures show mixed, inconclusive evidence**
  - Cheap talk, solemn oath, opt-out reminders, attribute-order changes
- **This study: a randomized DCE on coastal bathing-site choice (n=3,312)**
  - Travel distance as a salient, non-monetary numéraire
  - Area of interest: Gulf of Gdańsk & Vistula Lagoon, Poland
- **Key innovation: an embedded 13th "plausibility test" choice task**
  - Flags implausible high-distance choices → used to benchmark 4 hypothetical bias countermeasures

# Study design: an embedded plausibility test

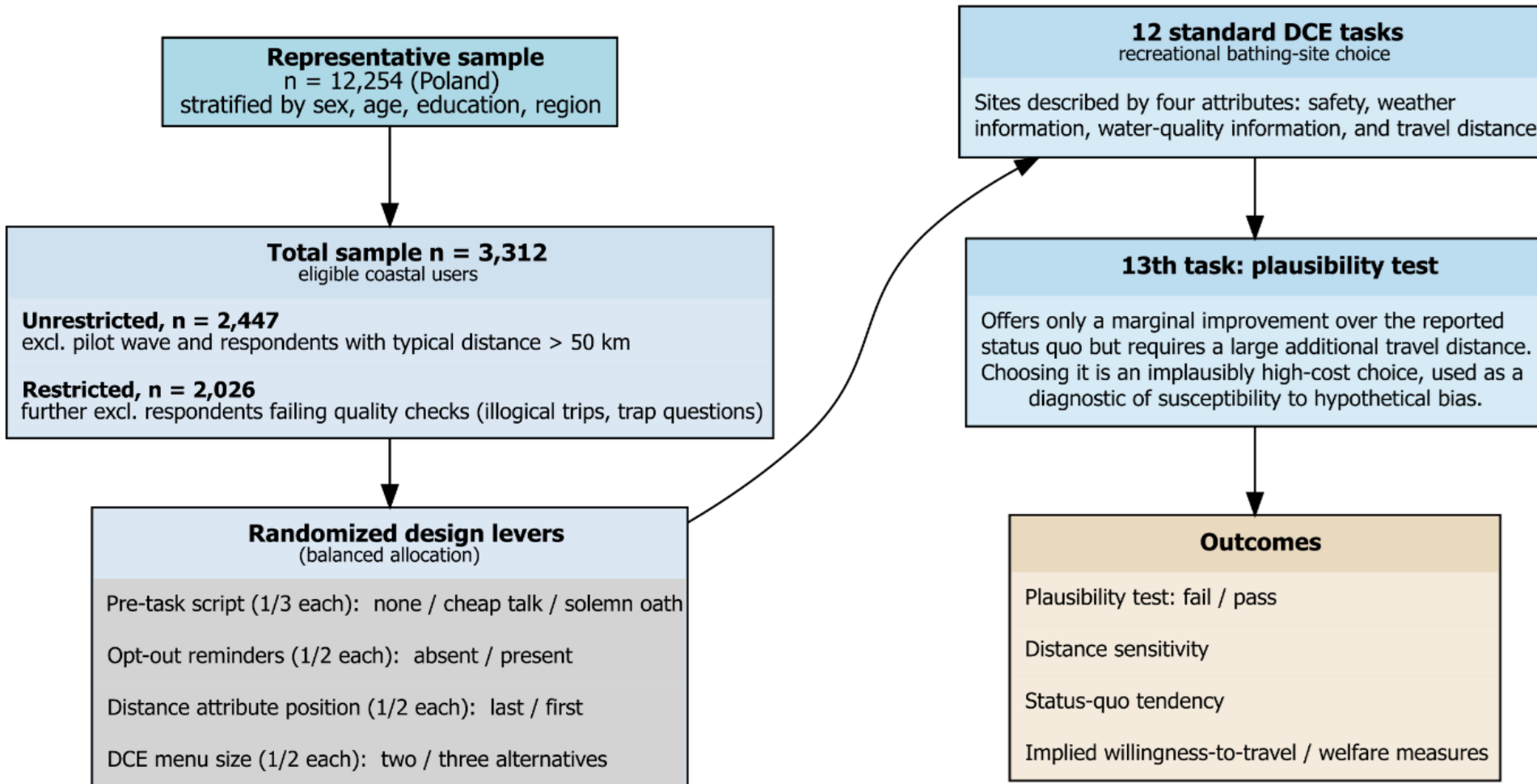
## Recreational users of the Gulf of Gdańsk & Vistula Lagoon coastal amenities



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### The DCE: bathing-site choice

#### • DCE attributes

- **Designated bathing site:** none / designated / lifeguarded
- **Weather information board:** yes / no
- **Water-quality monitoring:** none → every 2 weeks / 1 week / 2 days / daily
- **Distance (numéraire):** pivoted at -50%, -25%, 0%, +25%, +50%, +100% of the respondent's usual trip

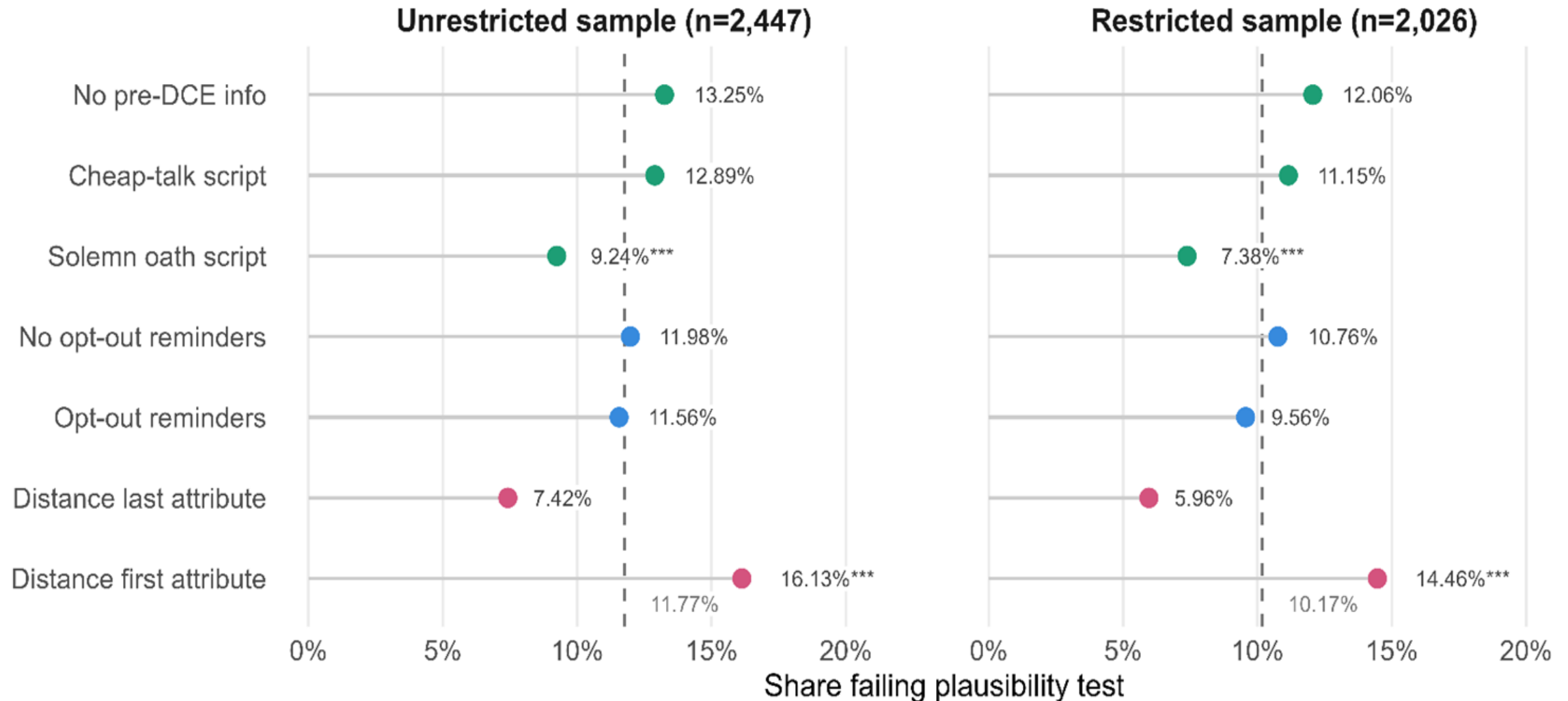
#### • The 13th task: plausibility test

- Only marginal attribute gain, but +50 km detour
- Choosing it = "fail", our diagnostic for hypothetical bias susceptibility



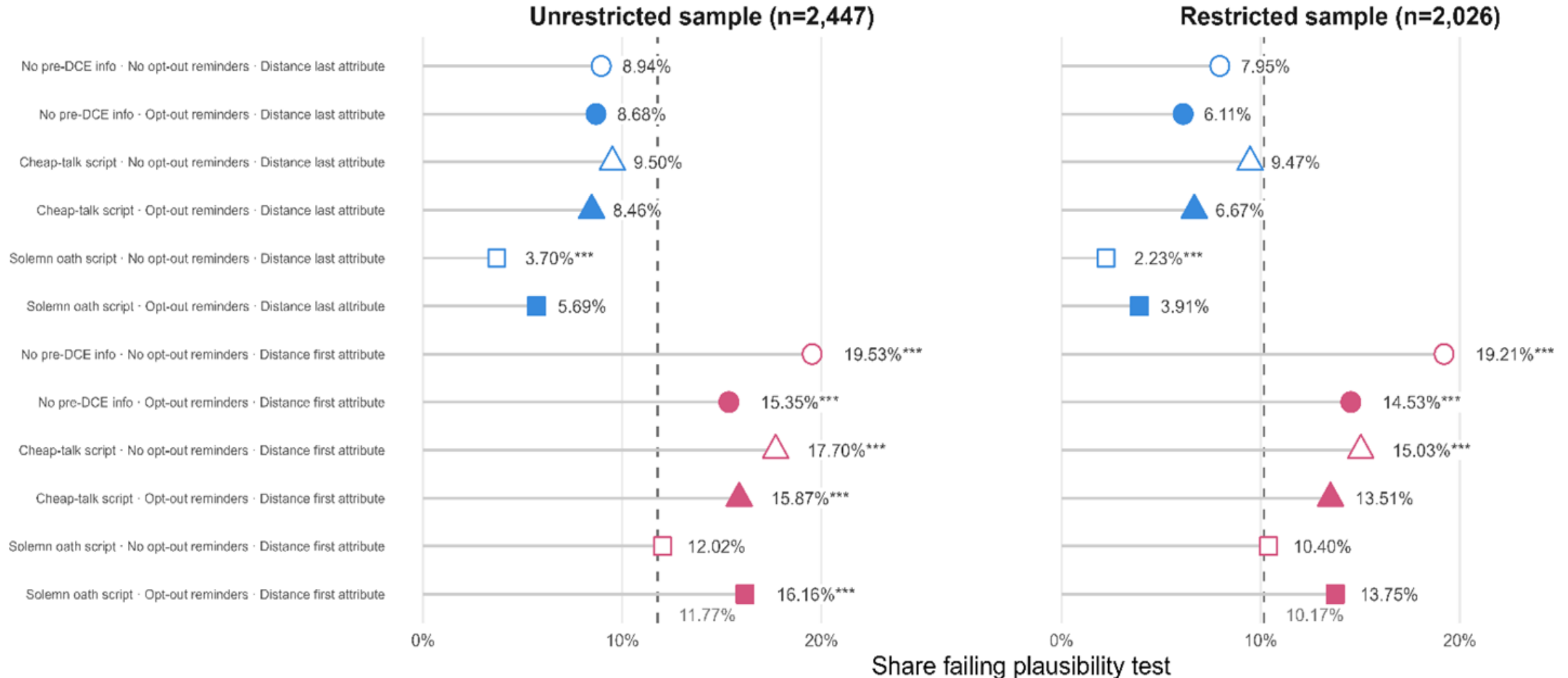
# Results: plausibility-test failure rates by treatment

Solemn oath cuts failures – attribute order backfires



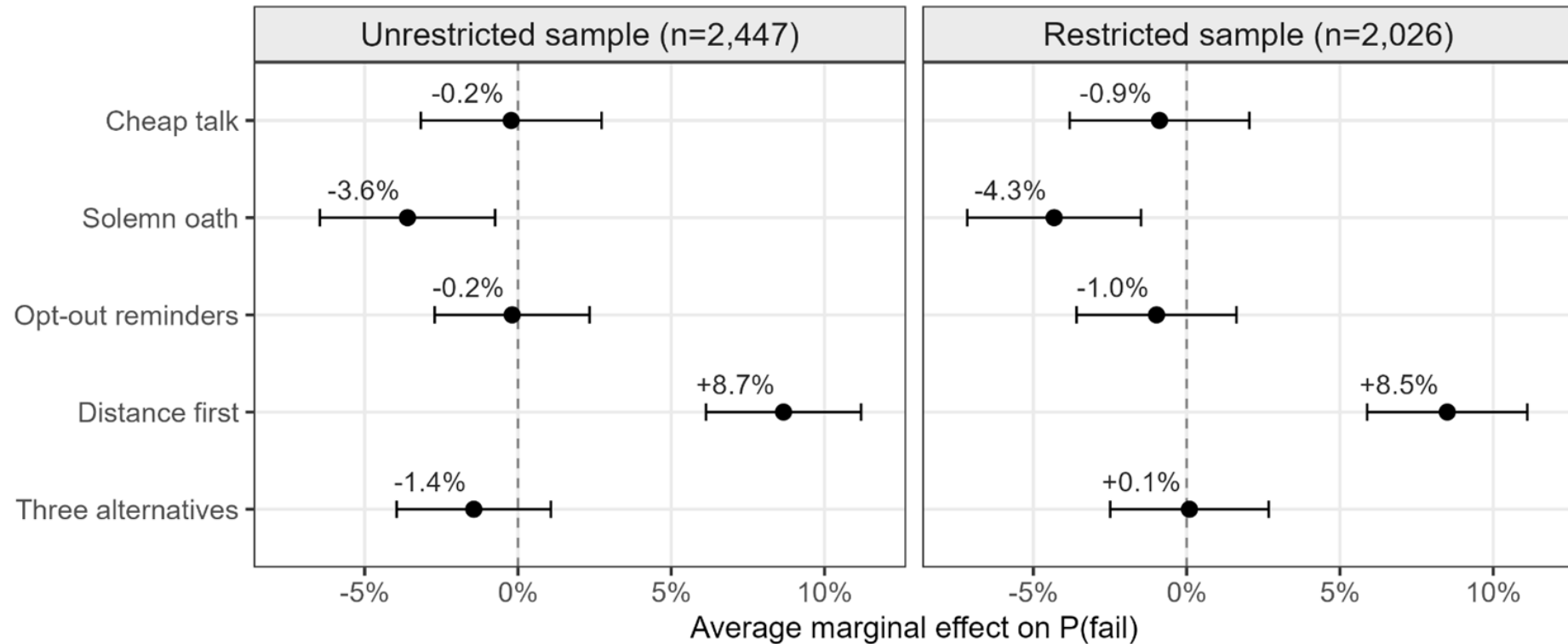
# Results: failure rates by treatment combination

Effects hold up across every treatment combination



# Results: robustness check

## Binary logit average marginal effects on P(fail), with controls



+ Countermeasures don't just cut plausibility-test failures – mixed logit model estimates show they also shift distance sensitivity and status quo choice (and resulting WTT)

+ There are some differences when DCE menu size is considered

# Discussion & conclusions

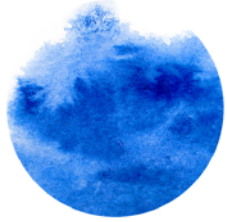
Benchmark countermeasures against behavioral diagnostics, not welfare estimates alone

## • Key findings

- Solemn oath is the most robust countermeasure; cheap talk & opt-out reminders are weaker and context-dependent
- Placing distance/cost first backfires – the conventional “cost last” practice is vindicated
- Countermeasures reshape stated preferences too – not just pass/fail rates
- *Open question: genuine preference revelation, or a design-induced artifact?*

## • Practical recommendations

- Keep the numéraire / cost attribute last on the choice card
- Consider a solemn oath script (but weigh its ethical, moral-commitment concerns)
- Don't judge countermeasures by lower stated WTP alone – pair with a behavioral diagnostic
- Plausibility test is imperfect but useful – what's next? external validation & monetary-DCE contexts



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# Thank You

Wojciech Zawadzki | [wm.zawadzki@uw.edu.pl](mailto:wm.zawadzki@uw.edu.pl)

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