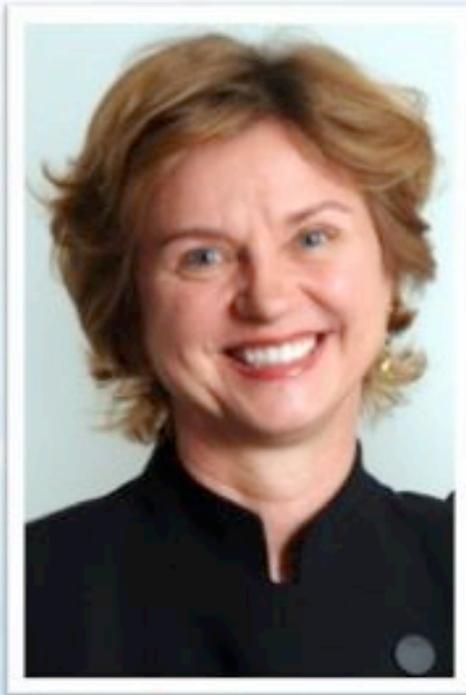




STATE OF THE ARCTIC

16 - 19 March 2010 • Hyatt Regency Miami



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Decisions Matter: Understanding How and Why We Make Decisions About the (Arctic) Environment

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State of the Arctic Conference

Miami, March 18, 2010



Center for Research on
Environmental Decisions



Crossing the Arctic Circle on Baffin Island, 9 August 1984

Human Behavior or Decisions

- As cause of many environmental problems
 - Loss in biodiversity, climate change
- As solutions
 - Adaptation or mitigation responses to local and global change
 - Emotional reaction (“worry” or “concern”) as a necessary condition for action
 - Handicapped by cognitive and emotional processing limitations
 - Often determined by recent personal experience

Adaptation and mitigation decisions made by individuals and groups

- Life style decisions
 - Heating, transportation choices
- Land use decisions
 - Deforestation, city planning
- Political decisions
 - Voting and lobbying

Limited attention and processing capacity

- Need to attend selectively
 - Guided by expectations and beliefs
 - Illinois farmers in early 1990s (Weber, 1997)
- Need to encode and evaluate locally
 - Thurber story: “Compared to what?”
 - Less concerned about climate change when other threats loom large (terrorism, economy)
- Need to use simple emotion-based processes over effortful analytic processes
 - Learning by getting hurt rather than by instruction

Arctic (and Florida)

- “Canaries” in the US’s climate change mine shaft
 - Early warning regions where physical and ecological consequences of global increases in CO₂ concentrations already evident to personal observation and experience (Broad & Leiserowitz, 2009)

Behavioral decision research provides...

good news

and bad news

on prospects for adaptation to and
mitigation of environmental change

No visceral reaction to environmental risks



□ No worry, no action

- Risk is a “feeling” (*Loewenstein, Weber, Hsee & Welch 2001*)
 - Analytic concern neither necessary nor sufficient

□ Most environmental risks not the type for which we are hard-wired to worry

- “Psychological” risk dimensions not invoked (*Slovic, 1987*)
 - Hostile acts of terrorism, catastrophic potential of unknown technologies invoke more fear
 - People in most parts of US do not wake up worrying about climate change

Analytic evaluations biased towards inaction



- Life style changes require immediate sacrifices for delayed and uncertain benefits
 - Steep discounting of future benefits when immediate consumption is an option (“impatience,” hyperbolic discounting)
 - Loss aversion (Prospect theory, Kahneman & Tversky, 1979)
 - politicians and people are resistant to change, willing to take their chances with climate change rather than locking in “sure-loss” scenarios

Good (Better) News

- Can “*tragedy of the commons*” (Hardin 1968) be safely be downgraded to a “*drama*” (Ostrom et al. 2002)?
- Maybe, since people blessed with cognitive abundance of three types
 - Multiple goals
 - Multiple ways to represent information (framing)
 - Multiple ways of making decisions

Multiplicity and Mutability of Goals 😊

- ❑ Human needs and goals
 - *Material, psychological* (feeling in control), *social* (feeling connected, concern for future generations), *environmental* (stewardship of earth, existence value)

- ❑ Only active goals influence decision
 - Activation levels partly chronic (culture)
 - Partly situational (“priming”)

- ❑ Social and environmental goals can be primed by choice context
 - Voting locale (church vs. school)
 - Symbols embedded in wallpaper of website
 - Group vs. individual setting for decisions
 - ❑ Group context primes cooperation and longer time horizons

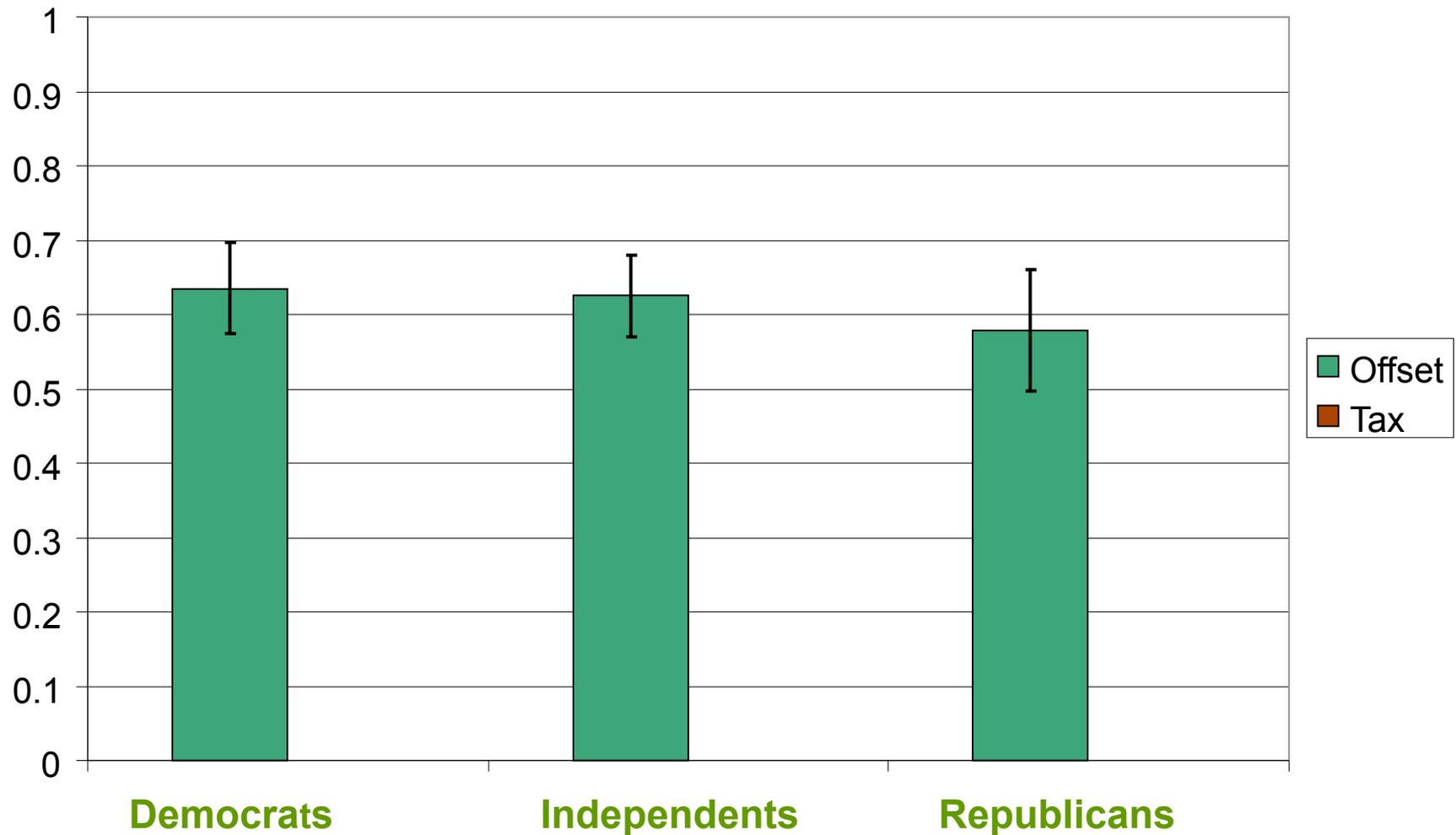
Multiple Representations ☺☺

- Labels trigger different reactions and choices
 - Carbon *offsets* more palatable than carbon *taxes*

“Dirty Word or Dirty World” study

(Hardisty, Johnson, Weber, *Psychological Science*, 2010)

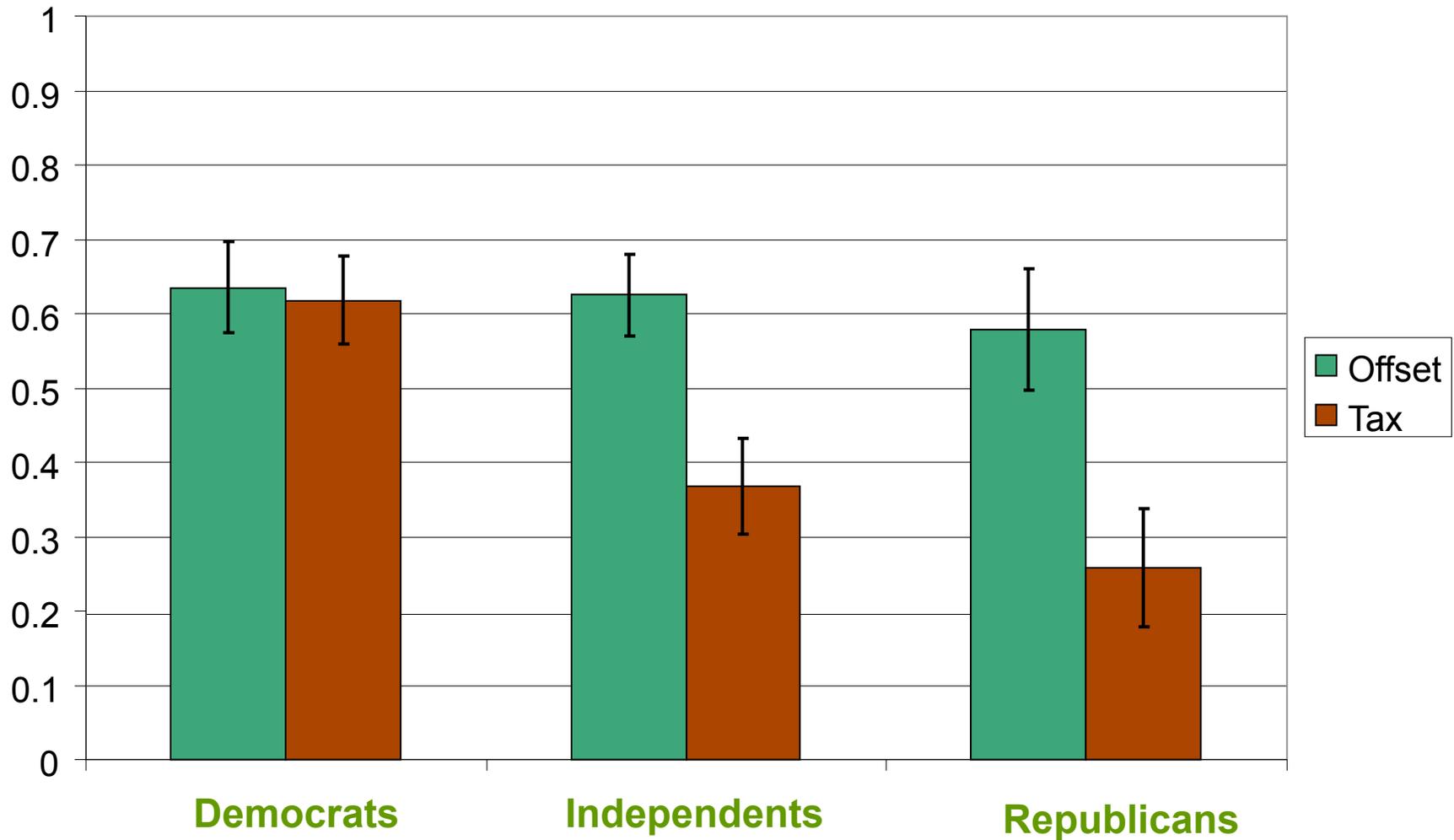
Proportion Choosing the Costlier Ticket



Dirty Word or Dirty World study

(Hardisty, Johnson, Weber, *Psychological Science*, 2010)

Proportion Choosing the Costlier Ticket



Query Theory (Johnson et al., 2007; Weber et al., 2007)

- ❑ Theory of *how* preferences are constructed
 - Process of “arguing” with yourself → queries
- ❑ Action alternatives evaluated sequentially
- ❑ Order of evaluation affects balance of evidence
 - Because first query generates more arguments
- ❑ Order is a function of
 - How alternatives are labeled
 - ❑ Arguments for appealing options get processed first
 - ❑ Options with upsetting labels get considered later or not at all

Thought List (Subject 53)

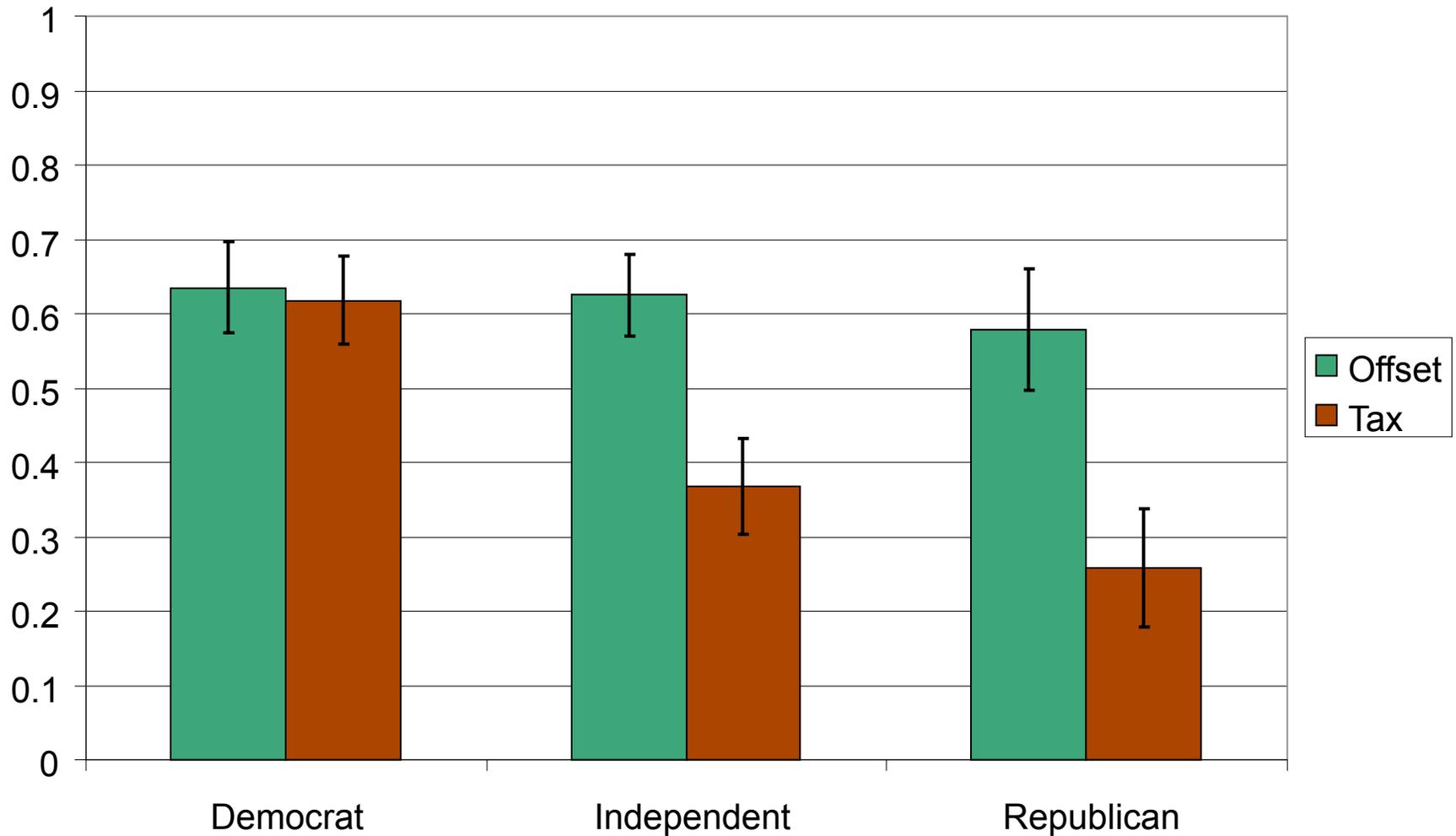
- ❑ good for the environment
- ❑ carbon offset is not that much more than regular ticket
- ❑ what does the extra money do to offset the carbon

Thought List (Subject 286)

- ❑ Why would I ever pay extra for this?
- ❑ I really don't care about a 'carbon tax'
- ❑ if it's the same thing, get rid of the tax.
- ❑ the government needs to stop taxing us randomly
- ❑ I will be old or dead by the time this world has an energy crisis
- ❑ and by that i mean a huge one where we are all fucked
- ❑ this is a ridiculous thought to have

Choices explained by order and frequency of arguments → Recipe for Interventions?

Proportion Choosing the Costlier Ticket



Multiple Representations ☺☺

- Labels trigger different reactions and choices
 - Carbon *offsets* more palatable than carbon *taxes*
- New “mental accounts” provide new goals
 - Online fuel-efficiency displays (Toyota Prius)
 - Turn behavior change into a “video game”
 - Personal carbon footprint accounts



"Sorry, Harold, but I'm reducing our carbon footprint."

Multiple Ways of Making Decisions



-
- Decisions get made in qualitatively different ways (Weber & Lindemann, 2007)
 - “by the head” → calculation-based decisions
 - “by the heart” → emotion-based decisions
 - “by the book” → rule-based decisions

Behavior change with *calculation-based* decisions

- Uphill battle
 - *many* decision biases will work against you
 - Discounting, loss aversion, status-quo biases

- Make environmentally-responsible options the default (*Johnson & Goldstein, 2003; Thaler & Sunstein, 2008*)
 - E.g., in building codes, energy choices

- Prime social goals
 - Apollo-8 image of planet earth
 - Use of group settings to communicate information

Behavior change with *emotion-based* decisions

- Tempting to scare people into “right” behavior

- Problematic for at least two reasons
 - Finite pool of worry
 - Increase in worry about one hazard decreases worry about other hazards (*Weber, 1997*)
 - Single action bias
 - Tendency to engage in single corrective action (*Weber, 2006*)
 - Yet, most environmental problems require multiple and sustained responses

Behavior change with *rule-based* decisions

- Much behavior driven by habits
 - based on past calculations or internalized rules

- Create new habits, by following new rules
 - Respected authority to issue new rule
 - *"What would Jesus do?"*
 - Behavior prescriptions need to be concrete
 - *"What would Jesus drive?"*
 - Capitalize on social observation and imitation by having celebrities model desired behaviors
 - *"What does Angelina drive?"*

Conclusions

- Adaptation to and mitigation of environmental change requires broad-based behavior changes

- Such changes discouraged for multiple reasons
 - Egocentric biases and shortsighted time horizons
 - Rational incentives to defect in “commons” dilemmas
 - Existing behaviors largely automatic
 - Hard to change with economic incentives
 - Fear appeals problematic

Recommendations

- Introduce new mental accounts and metrics
 - to focus attention on environmental goals and to measure progress

- Provide information about risks in experiential ways
 - direct or in form of simulations

- Shape decision environment
 - Use of environmentally responsible defaults
 - Get people to evaluate environmentally responsible choice options first
 - Use group decision settings to prime social and collective goals
 - Social learning and imitation to modify undesired automatic behavior

Implications of Query Theory for Policy

- People underestimate their adaptation to changes in status quo
 - Winning lottery or becoming paralyzed
 - Observed changes in preference well described by *Query Theory*

- Should increase politicians' willingness to assist longer-term social goals by regulation
 - "If you change it, they will like it"
 - NYC Mayor Bloomberg's smoking ban in bars in 2005
 - British Columbia Premier got reelected after imposing a highly controversial state carbon tax

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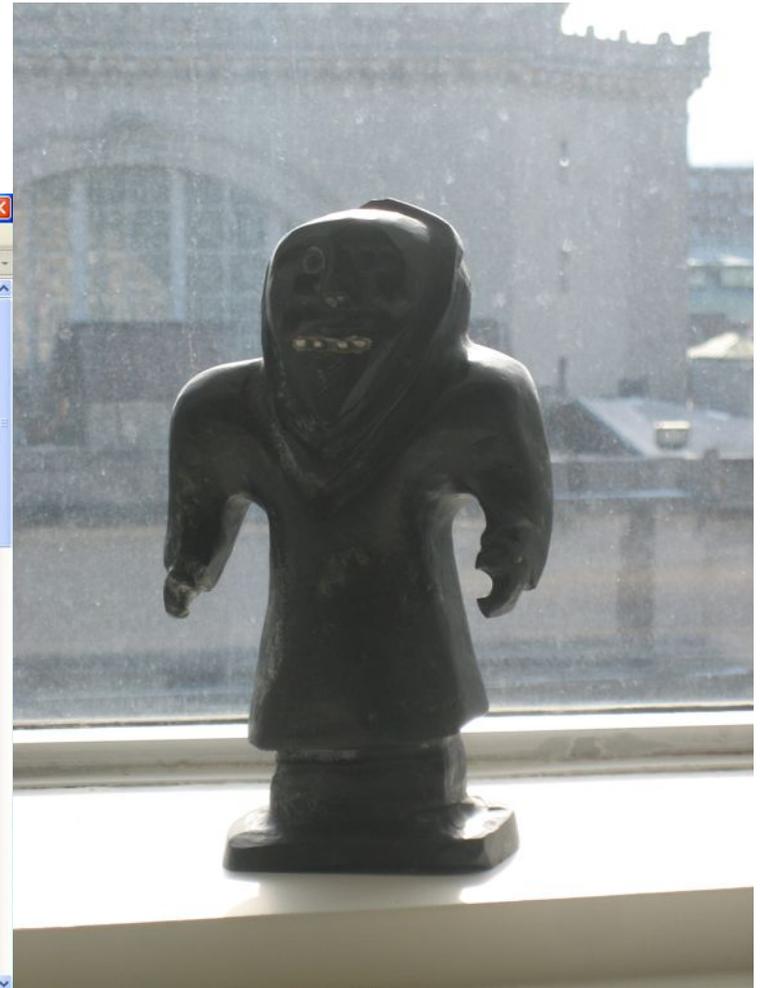
The Psychology of Climate Change Communication

A Guide for Scientists, Journalists, Educators, Political Aides, and the Interested Public

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