

Behavioral Science and Nudges:  
Environmental Protection and  
Sustainability

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# The Two Purposes of this Talk

- 1) General Outline of Nudging and Behavioral Science, With Special Reference to Environmental Protection
- 2) The Future of Climate Change Policy: From Obama to Trump

# The United States: A Revolution of Sorts

- Remarkable energy transition
- Greenhouse gas rules
- Fuel economy rules
- Energy efficiency rules (dozens)
- Behaviorally informed (as we shall see)
- Plenty of nudges too, from the government and the private sector

# A Glimpse



# First Background Finding

- Automatic enrollment in green energy **has large effects**
- New German study – tenfold increase!
- Green Party predictive? Yes – and then no
- A general finding, a **significant fact**: Automatic enrollment more effective than active choosing, which is more effective than opt in
- Both Americans and Germans LIKE automatic enrollment in green energy!
- Note: Could involve active choosing (my data)

# Five More Background Findings

- 1) Thermostat settings;
- 2) double-sided printing
- Why?
- Power of inertia
- Power of suggestion
- Loss aversion
- 3) golfers; 4) teachers; 5) DC bag experience
- What others do as a default (new findings on “social defaults”)

# Social Norms

- What happened to cigarette smoking?  
(not enough, but a lot)
- What happened to driving without seatbelts?  
(not enough, but a lot)
- What happened to sexual harassment?  
(not enough, but a lot)
- “Meaning” as a collective action problem

# Meaning and the Environment

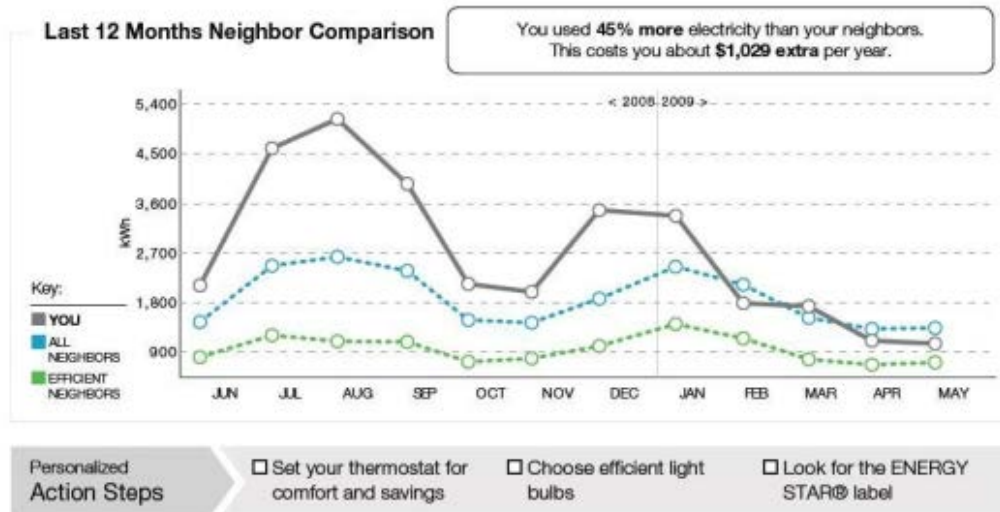


**Don't  
mess with  
Texas.**





# Social Norms and Energy



# Important Facts

- Covert et al., JEP 2016: “The story seems clear: we **should not expect the unfettered market to lead to rapid reductions in the supply of fossil fuels.**”
- “Technical progress in our ability to extract new sources of fossil fuels has marched upward steadily over time.”
- “If the advance of technology continues, there is a **nearly limitless amount of fossil fuel deposits**—at least over the time scale that matters for climate change—that, while they are not yet economical to extract at current prices, could become economical in the future.”

# So:

- “The historical record indicates that the supply of fossil fuels has consistently increased over time and that their relative price advantage over low-carbon energy sources has not declined substantially over time. Without robust efforts to correct the market failures around greenhouse gases, relying on supply and/or demand forces to limit greenhouse gas emissions is relying heavily on hope. . . .
- “The picture is alarming.”

# The Picture



# Happy Developments

- Behavioral Insights Team in UK (“test, test, test” and “make it easy”)
- US: White House Social and Behavioral Sciences Team
- New Team in Germany
- Activity in Canada, Mexico, Colombia, Italy, and many other nations
- **Behavioral Applications Without Dedicated Offices (IMPORTANT; a tale from Canada)**

# Executive Order 13563: “Mini-Constitution”

## **Flexible approaches:**

“Each agency shall identify and consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public. These approaches include warnings, appropriate default rules, and disclosure requirements as well as provision of information to the public in a form that is clear and intelligible.”

# Executive Order, Sept. 2015, from President Obama

- “A growing body of evidence demonstrates that behavioral science insights -- research findings from fields such as behavioral economics and psychology about how people make decisions and act on them -- can be used to design government policies to better serve the American people.”
- “The Federal Government should design its policies and programs to reflect our best understanding of how people engage with, participate in, use, and respond to those policies and programs.”

# Standard Views and Prescriptions, 1960-2000

A poem, a prayer:

- Human beings are rational
- They calculate probabilities and maximize “expected value”
- They respond to incentives
- Policy prescription: Improve incentives!



# Five Behavioral Objections (starting in 1970s)

- People are “loss averse” – relevant to climate change
- People show “present bias” (inertia, procrastination) – relevant to climate change
- People may not deal well with probability
- People are unrealistically optimistic – relevant to climate change
- People have limited attention

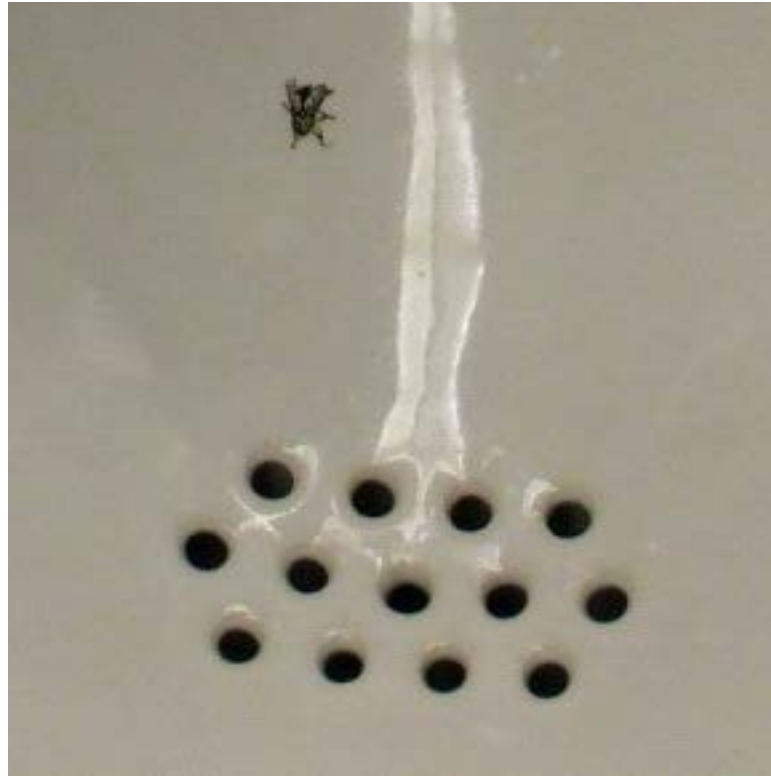
# Five Behavioral Policy claims (emphasized in 2000s)

- Default rules matter
- Incentives may not always matter (much)
- Choice architecture is exceedingly important and **is not avoidable**
- People can use a nudge
- Simplicity is VERY important (“simpler” as a mantra)

# What is a Nudge?



# What is a Nudge?



# A Nudge That Went Wrong



# What is a Nudge?



# What is a Nudge? (Without graphics)

- A feature of the social environment that affects people's choices without imposing coercion or any kind of material incentive.
- "Make it easy"
- Preserves freedom of choice
- Not the only tool of course!

# Orientation: Ten Nudges

- 1) Default rules  
(retirement, health, poverty, environment)
- 2) Simplification  
(forms easier to complete/understand)
- 3) Information/disclosure
- 4) Warnings
- 5) Reminders (education and parents)



# Ten Nudges, Continued

- 6) Increases in ease and convenience
- 7) Uses of social norms  
(consumer purchases; energy use)
- 8) Nonmonetary rewards  
(recognition of some kind)
- 9) Active choosing/prompted choice
- 10) Precommitment strategies  
(people voluntarily agree, in advance, to a certain course of conduct)

# Do Nudges Work? (YES)

- Chetty et al.: Automatic enrollment has a **much** bigger effect than significant tax incentives (Denmark) (US Gov has responded)
- Opower: Home energy report has a bigger effect on energy use than significant price increases
- FAFSA simplification – effect equivalent to a several thousand dollar education subsidy (US Ed Dept has responded; cf. new ACA application)

# Changing Climate Change, 2009-2016



# The Revolution

- 1) “The endangerment finding”\*
  - 2) The social cost of carbon\*
  - 3) Fuel economy rules for light-duty vehicles
  - 4) Fuel economy rules for heavy duty vehicles
  - 5) Emissions rules for new power plants
  - 6) Emissions rules for existing power plants
  - 7) Multiple nudges (fuel economy labels)
- PARIS
  - And: The social cost of carbon (SCC)

# The SCC

- The foundation
- Global
- 3 integrated assessment models
- Discount rate
- Why it matters

# A Quiet Revolution

- “The Obama administration has launched new efficiency standards covering more than 40 products since taking office, and the net amount of greenhouse gases that these standards will prevent is over 2 gigatons, or billion tons, by the year 2030”
- Dec. 2015: “Obama just released the biggest energy efficiency rule in U.S. history”
- Air conditioners and furnaces: “the new standard, . . . will translate into \$ 167 billion in saved costs for businesses over the life of the standard, as well as 885 million tons fewer carbon dioxide emissions. (That’s just shy of a giga ton, or a billion tons.)”

# The Future

- Endangerment finding – good prospects
- Social cost of carbon – troubled\*\*
- Fuel economy rules – good prospects (note on California)
- New power plants – good prospects
- Existing power plants – troubled\*\*
- Extreme scenario vs. tinker at the margins (and nothing new)

# Secrets

If nothing else happens at the national level, then . . .

- Federalism (California)
- Nudges everywhere
- Recall social cost of carbon



# Two Pressing Needs

- 1) Need for testing (randomized controlled trials)
- 2) Need for good cost-benefit analysis (eg, UK, US)

# Amos Tversky

- “When you are a pessimist and the bad thing happens, you live it twice. Once when you worry about it, and the second time when it happens.”
- Also there is some reality here
- See above

# A Promise

