BEHAVIORAL PUBLIC POLICY

BEHAVIORAL ECONOMICS

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Main questions

- **How can the findings from behavioral economics be applied in public policies?**
- Example – how to nudge people to save money?
- Example – how to nudge people to save energy?
- What do we learn from academic studies?

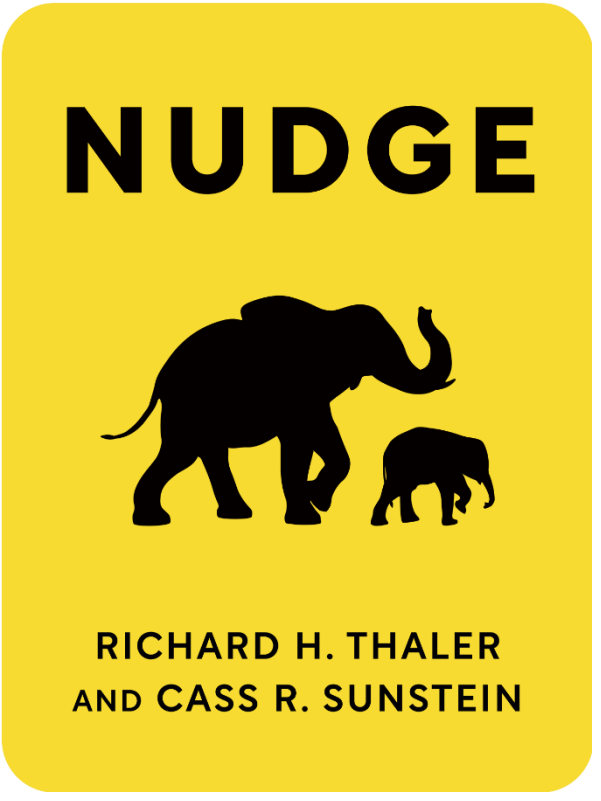
Introduction

Behavioral public policy

- Insights from behavioral economics used for designing policies to facilitate behavioral change.
- Range of policy problems: saving for pension, energy and environmental behavior, poverty reduction

Nudges

- Richard Thaler and Cass Sunstein
  - Thaler: economist, advised UK Prime Minister Cameron, Nobel Prize 2017
  - Sunstein: legal scholar, advised US President Obama
- *Nudge: Improving Decisions about Health, Wealth and Happiness* (2008)
- Key building block: choice architecture, design in which choices can be presented



What is a nudge?

- Cass Sunstein: *A nudge is a feature of the social environment that affects people's choices without imposing coercion or any kind of material incentive.*
- Low-cost, choice-preserving, behaviorally informed approaches
- Example
  - Goal: reduce the amount of soda drinks purchased by students in a school cafeteria
  - Nudge: place water bottles instead of soda cans near the register. (but sodas still available).
- Another example: reminder to switch off the light

What is a nudge?

- Making access/usage easier and convenient
- Information/disclosure
- Warnings
- Reminders
- Defaults
- Simplification
- Uses of social norms
- Framing of choices (benefits vs. losses)

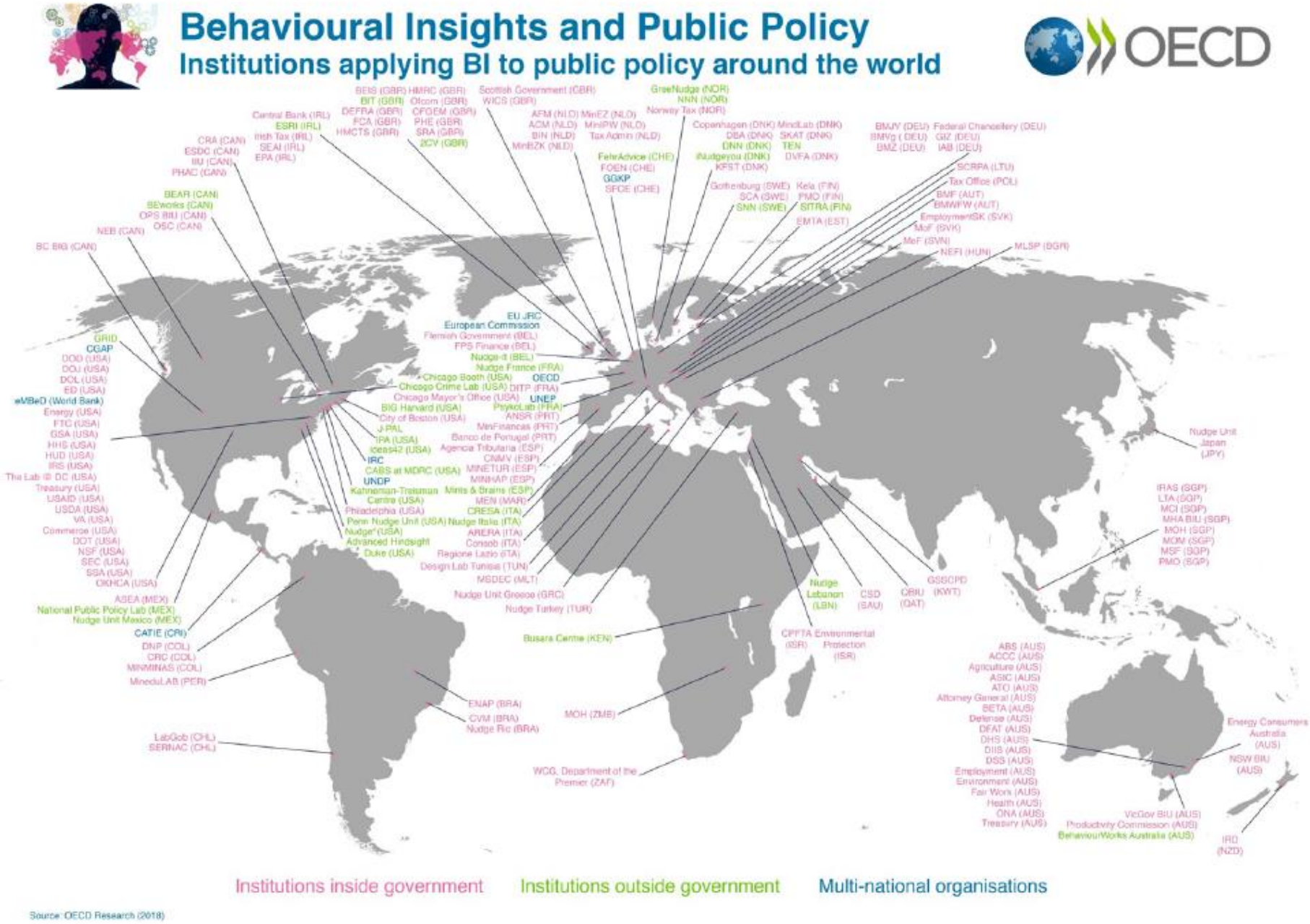
Image of a fly in the urinal.

One of Prof Thaler's early favourite examples of tweaking the environment in a way that makes us change how we behave.

First introduced at Schiphol airport in Amsterdam in 1999.

Nudge units

- 2010: UK, Prime Minister Cameron, Behavioral Insights Team
  - Goal: incorporate understanding of human behavior into policy initiatives.
  - Areas: smoking cessation, energy efficiency, organ donation, consumer protection, tax payments.
  - Example: sending a personalized text message to people owing court fines results in 33 percent response rate, compared with 5 percent for standard letters.
- 2013: USA, President Obama, Behavioral Insights Team, later on Executive Order directing the state agencies to incorporate behavioral insights into their work.
- 2015: Germany
- Many other countries followed….



Source: DellaVigna, Stefano, and Elizabeth Linos. "RCTs to scale: Comprehensive evidence from two nudge units." *Econometrica* 90.1 (2022): 81-116.

Libertarian paternalism

Paternalism

- Stanford Encyclopedia of Philosophy: *Paternalism is the interference of a state or an individual with another person, against their will, and defended or motivated by a claim that the person interfered with will be better off or protected from harm.*

Examples: social security, mandatory education, tobacco and alcohol "sin" taxes, seatbelt laws, gambling laws, mandating face masks,….

Arguments for:

- People make mistakes.
- People don't like to make choices for themselves.

Arguments against:

- People have better information than the government and optimize.
- Freedom of choice matters per se.

Libertarian paternalism

Libertarian paternalism

- Cass and Sunstein: *An approach that preserves freedom of choice but authorizes both private and public institutions to steer people in directions that will promote their welfare.*
- Combines freedom with government intervention.
- People are free to resist a nudge.

Key findings of behavioral research

Inertia

- People decline to change from the status quo, even if low cost and high benefit.
- Default rules – what happens when people make no affirmative choice.

Procrastination

- People procrastinate, neglect to take steps imposing small short-term costs and large long-term gains. Delaying saving for retirement, starting to exercise, stopping smoking,….
- Automatic enrollment in relevant programs.

Framing

- 90% of patients who have an operation are alive after 5 years vs. 10% are dead.

Social influences

- Perceptions of social norm in a community.

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Defaults and saving behavior

(Madrian and Shea 2001)

Motivation

- Discrepancy between predictions of economic theory and actual behavior.
- Contrary to lifecycle consumption models, many individuals do very little savings when young.

Setting

- US. 401(k) plan : retirement savings plan offered by many American employers that has tax advantages for the saver. The employee agrees to have a percentage of each paycheck paid directly into an investment account. The employer may match part or all of that contribution.
- 401(k) savings behavior of employees in a large US corporation.
- 50 percent matching contribution for first 6% (employee chooses 4%, company pays additional 2%,….)

Defaults and saving behavior

(Madrian and Shea 2001)

Focus of the study: change in the company 401(k) plan in 1998

- Before: employees required to affirmatively elect participation. Easy to do by filling a form or making a phone call, anytime (small direct transaction cost).
- After: employees automatically and immediately enrolled in 401(k) plan unless making a negative election to opt out of the plan.
- No change in economic features of the plan.

Results

- Participation significantly higher under automatic enrollment.
- Default contribution rate and default investment allocation chosen by the company for automatic enrollment has a strong influence on the savings behavior. (but few employees would have picked these before the change.)

Defaults and saving behavior

(Madrian and Shea 2001)

Employee Cohorts for Comparative Analysis			
	OLD	WINDOW	NEW
Dates of hire	4/1/1996 to 4/1/1997	4/1/1997 to 3/31/1998	4/1/1998 to 3/31/1999
First eligible to participate in 401(k)	One year following date of hire	April 1, 1998	Date of hire
First eligible for company match	One year following date of hire	One year following date of hire	One year following date of hire
Automatically enrolled	No	No	Yes

By the time of change, April 1998:

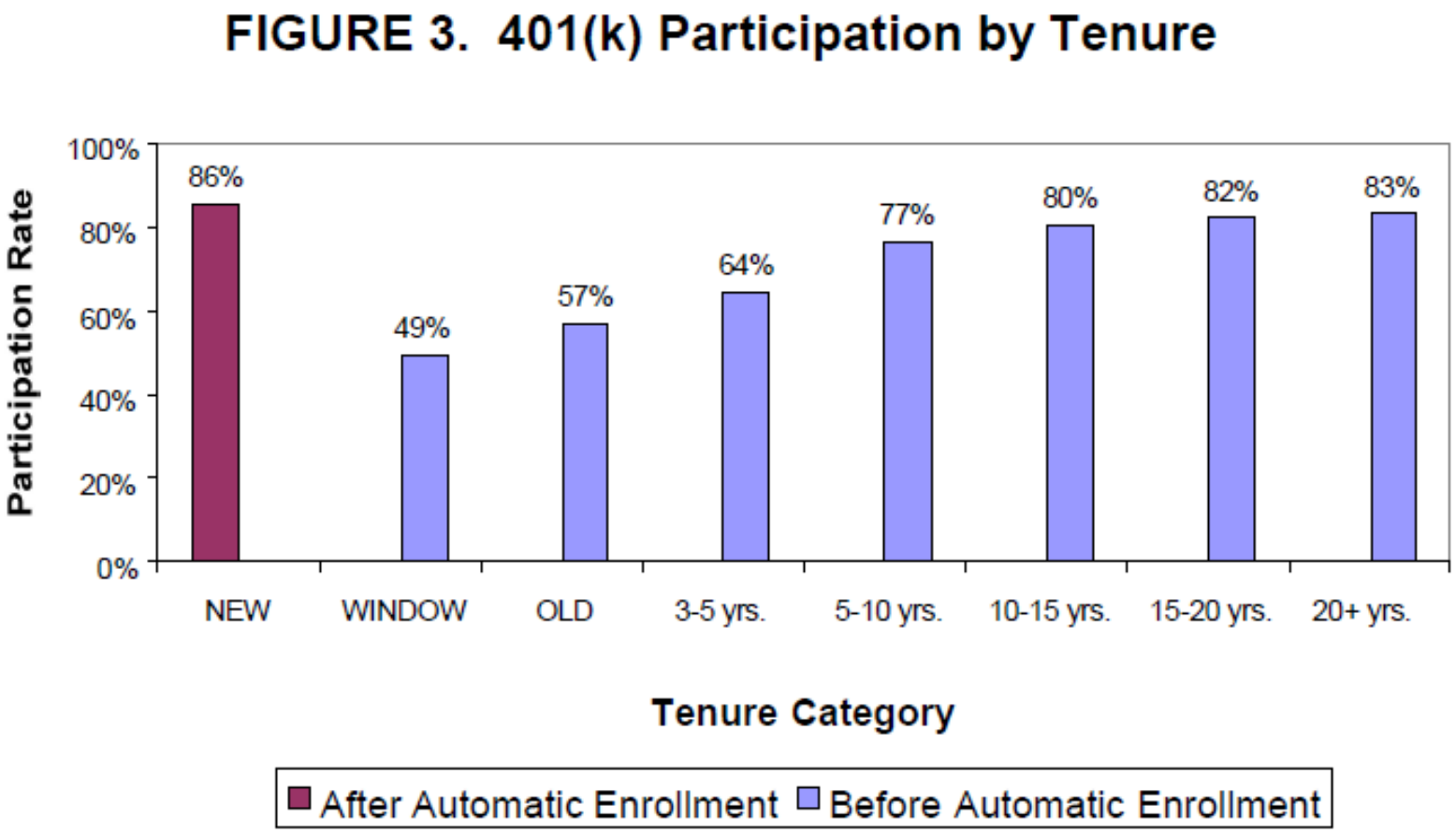
OLD: eligible to participate and for match already, not automatically enrolled

WINDOW: eligible to participate after the change, not automatically enrolled

NEW: eligible to participate, automatically enrolled

Defaults and saving behavior

(Madrian and Shea 2001)



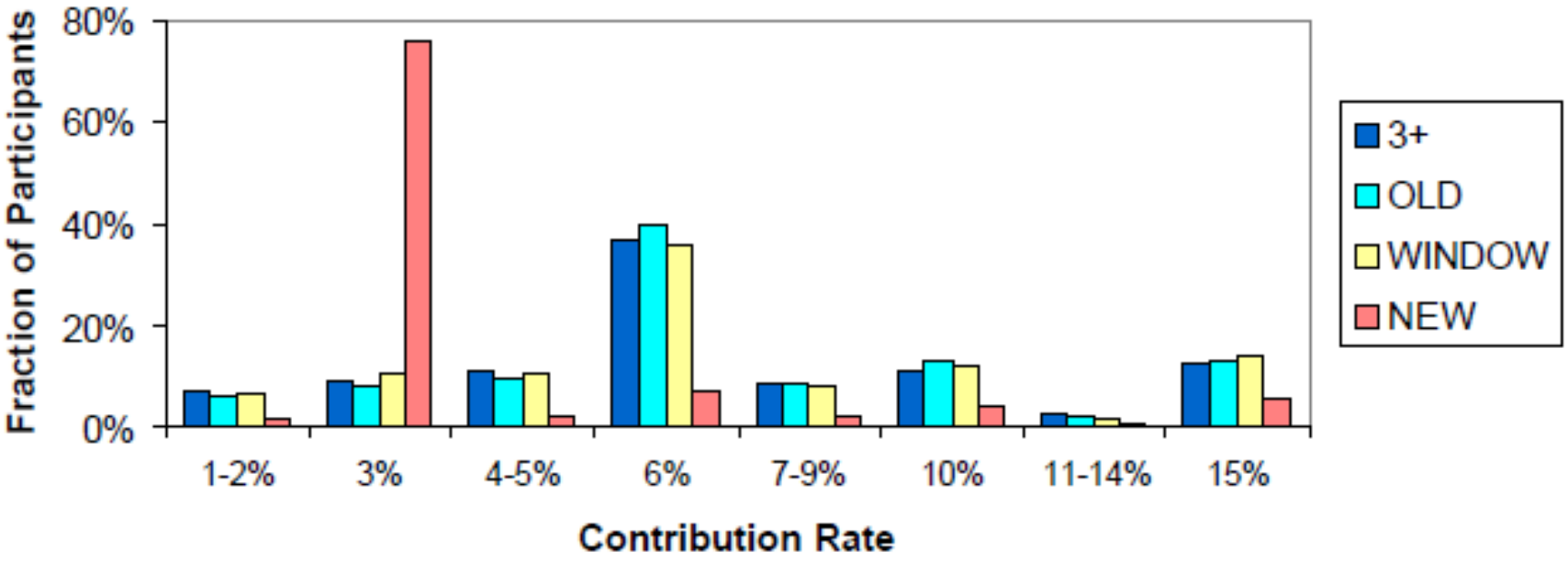
Participation in June 1999

Note differences across conditions. Participants in OLD: older, higher salary

Defaults and saving behavior

(Madrian and Shea 2001)

FIGURE 4A. Distribution of 401(K) Contribution Rates by Cohort for 401(K) Participants



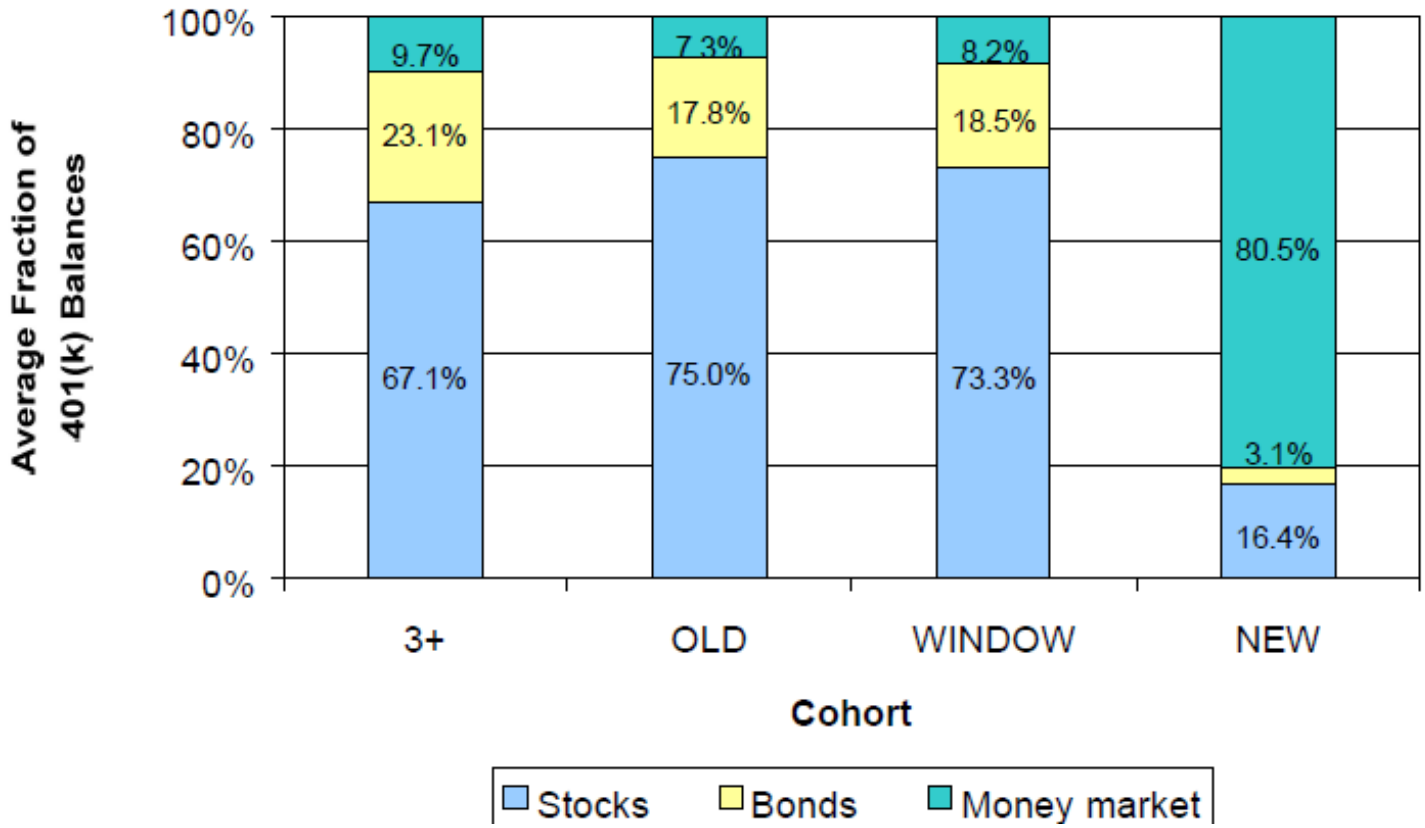
Majority of those enrolled automatically keep the default contribution rate.

But this choice not very attractive unless default.

Defaults and saving behavior

(Madrian and Shea 2001)

Figure 6. 401(k) Asset Allocation by Cohort



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But this choice not very attractive unless default.

Save More Tomorrow (SMarT)

(Thaler and Bernatzi 2004)

Motivation: many people under-save for retirement

- Miscalculating the correct savings rate
- Self-control problems

Save More Tomorrow program

- Designed for employees who would like to save more, but do not due to self-control problems.
- Commitment to increase savings rate later.
- Prediction of standard economic approach: no interest in joining.
- Prediction of behavioral economics: program attractive, increases savings rate.

Save More Tomorrow (SMarT)

(Thaler and Bernatzi 2004)

Cooperation with a midsize manufacturing company in US.

- Effort to increase savings rate of employees.
- Hired an investment consultant and offered his services to employees eligible for the retirement savings plan.
- The consultant recommended a desired savings rate.
- Some (79 out of 286) agreed to implement this.

Thaler and Bernatzi: sample of those unwilling to accept the savings rate proposed by the consultant.

Save More Tomorrow (SMarT)

(Thaler and Bernatzi 2004)

- Employees approached about increasing their contribution rates a considerable time before their scheduled pay increase.
  - Hyperbolic discounting: the lag as long as feasible.
- Employees join voluntarily. If they do, their contribution is increased beginning with the first paycheck after a raise (by an amount less than the raise).
  - Mitigates the perceived loss aversion of a cut in take-home pay.
- The contribution rate continues to increase on each scheduled raise until it reaches a preset maximum.
  - Inertia and status quo bias help keep people in the plan.
- The employee can opt-out of the plan at any time.

Libertarian paternalism, entirely voluntary, increasing people's options.

Save More Tomorrow (SMarT)

(Thaler and Bernatzi 2004)

AVERAGE SAVING RATES (%) FOR THE FIRST IMPLEMENTATION OF SMART

	Participants Who Did Not Contact the Financial Consultant	Participants Who Accepted the Consultant's Recommended Saving Rate	Participants Who Joined the SMarT Plan	Participants Who Declined the SMarT Plan	All
Participants initially choosing each option*	29	79	162	45	315
Pre-advice	6.6	4.4	3.5	6.1	4.4
First pay raise	6.5	9.1	6.5	6.3	7.1
Second pay raise	6.8	8.9	9.4	6.2	8.6
Third pay raise	6.6	8.7	11.6	6.1	9.8
Fourth pay raise	6.2	8.8	13.6	5.9	10.6

* There is attrition from each group over time. The number of employees who remain by the time of the fourth pay raise is 229.

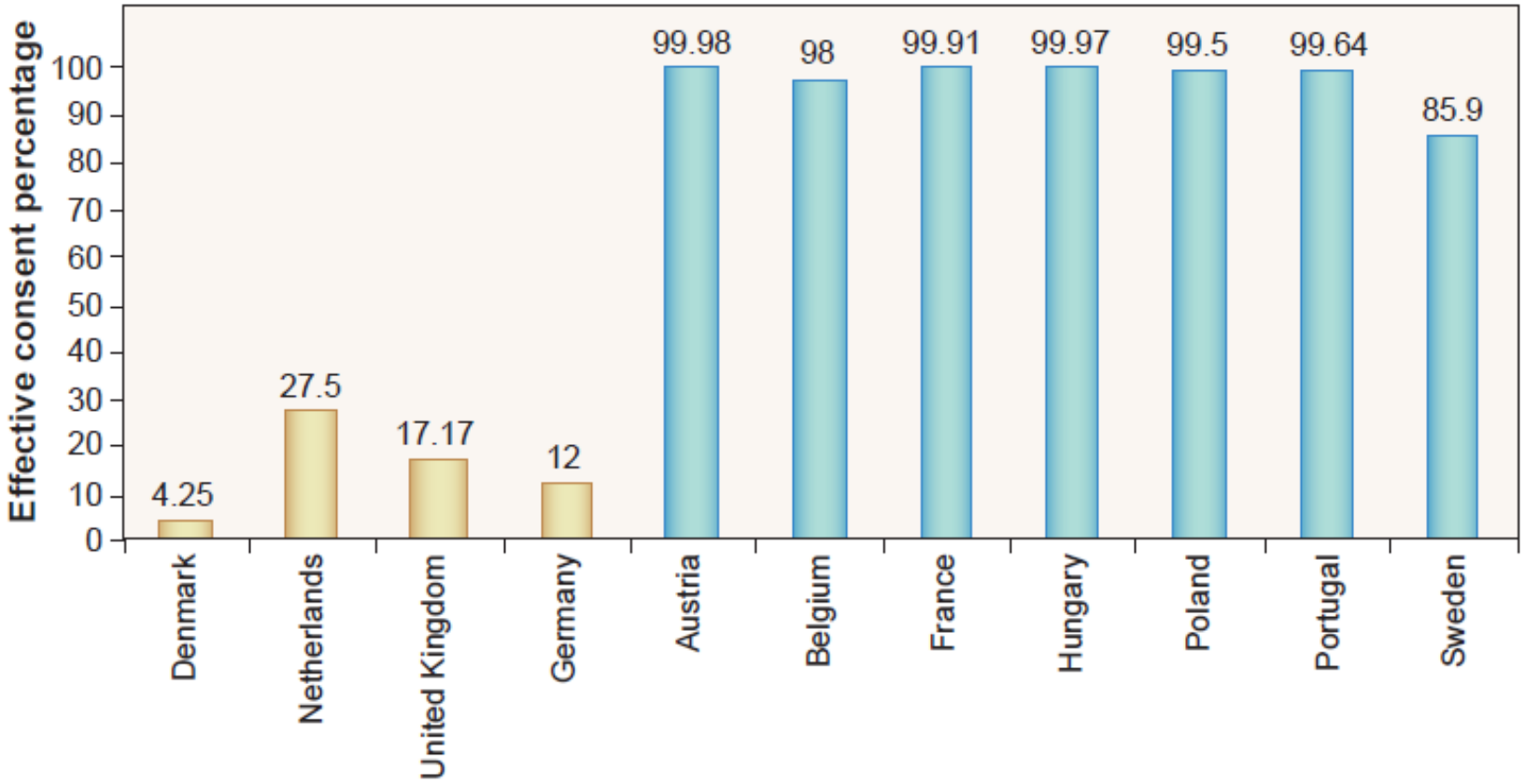
Defaults and organ donations

(Johnson and Goldstein 2003)

- Dramatic differences in organ donation rates across countries.
- Do not disappear when controlling for transplant infrastructure, economic and educational status, religion,….
- Two default policies
  - Presumed consent: people are organ donors unless they register not to be.
  - Explicit consent: people are not organ donors unless they register to be.
- Potential effects of default on choices
  - Perceptions of default as suggestion from the policy makers, recommended action.
  - Making a decision involves effort (mental – unpleasant, stressful; physical – filling a form). Accepting the default is effortless.

Defaults and organ donations

(Johnson and Goldstein 2003)



Effective consent rates, by country. Explicit consent (opt-in, gold) and presumed consent (opt-out, blue).

Main questions

- How can the findings from behavioral economics be applied in public policies?
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- **Example – how to nudge people to save energy?**
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Social norms and energy savings

(Schultz et al. 2007)

- Research using "social norms marketing" campaigns: delivering normative information for changing behavior such as alcohol consumption, drug use, disordered eating, gambling, recycling,…
  - Majority of individuals overestimate the prevalence of many undesirable behaviors (alcohol use among peers).
  - People use their perceptions of peer norms as a standard against which to compare their own behavior.
  - Social norms marketing campaigns aim to correct misperceptions.
  - Many studies report positive effects, but some report negative effects.

Social norms and energy savings

(Schultz et al. 2007)

- Potential explanation
  - *Descriptive norm*: perceptions of what is commonly done, standard from which people do not want to deviate in either direction.
  - Majority overestimate the prevalence of behavior (e.g. college students and alcohol consumption), but some underestimate it.
  - Campaign targeting alcohol consumption may motivate students who previously consumed less alcohol to consume more.
  - Unintended and undesirable *boomerang effect*.
- Hypothesis
  - *Injunctive norm*: perceptions of what is commonly approved or disapproved.
  - Adding injunctive message may prevent the boomerang effect.

Social norms and energy savings

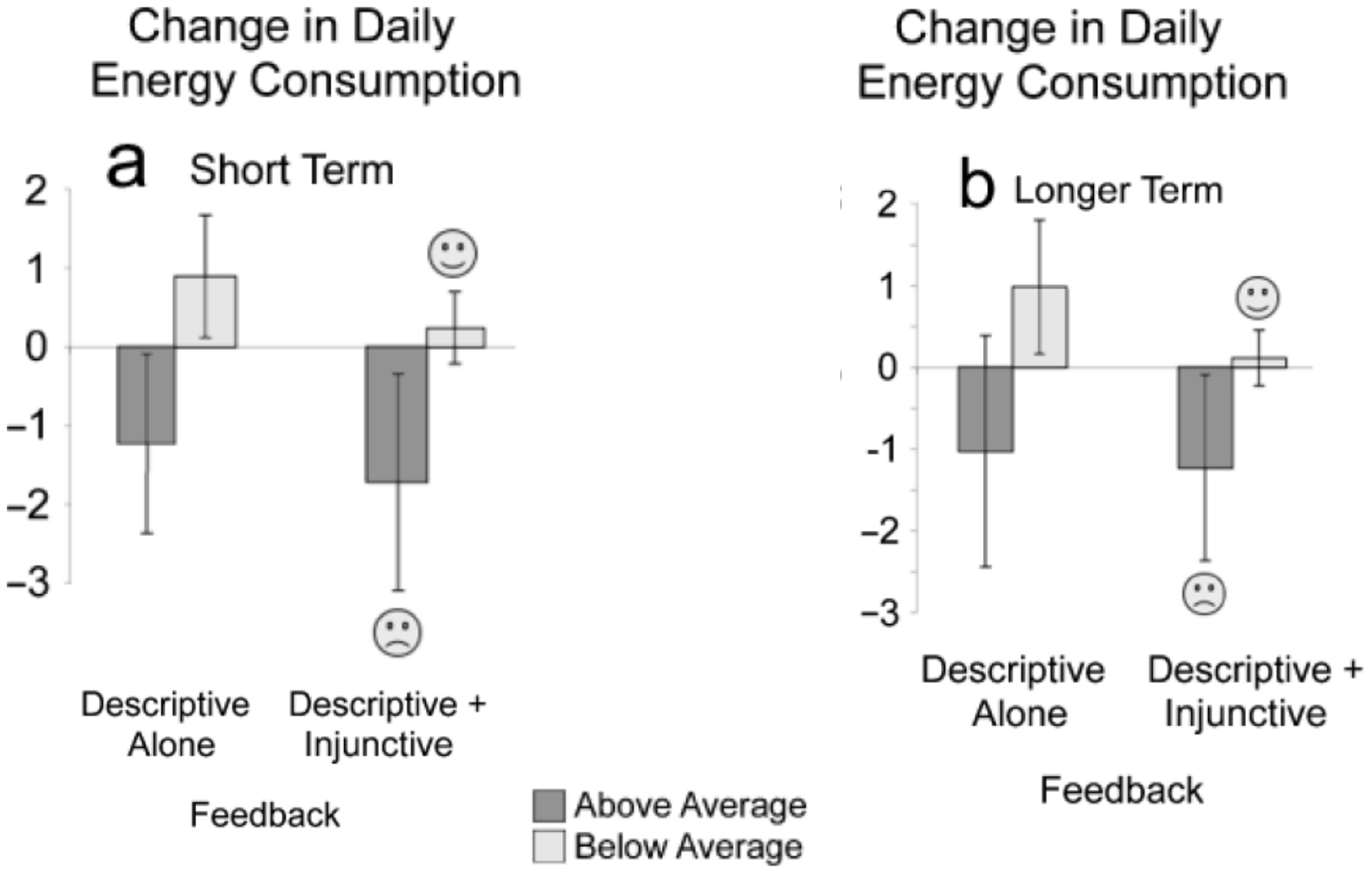
(Schultz et al. 2007)

Experimental design

- Sample: 290 households in California, USA.
- Feedback about how much energy they have consumed in previous weeks. Descriptive normative information about the average consumption of other households in their neighborhood.
- Control group: descriptive normative information
- Treatment group: descriptive normative information + injunctive message conveying that their energy consumption was either approved or disapproved.
  - Less than average consumption: positive emoticon
  - More than average consumption: negative emoticon
- Variable of interest: subsequent household energy consumption.

Social norms and energy savings

(Schultz et al. 2007)



Social norms and energy savings

(Allcott 2011)

Large scale study with 600,000 households in USA.

- Company OPOWER mails home energy report letters that compare household's energy use to neighbors.
- Directly influenced by Schultz et al. 2007
- Several variants of the treatment.

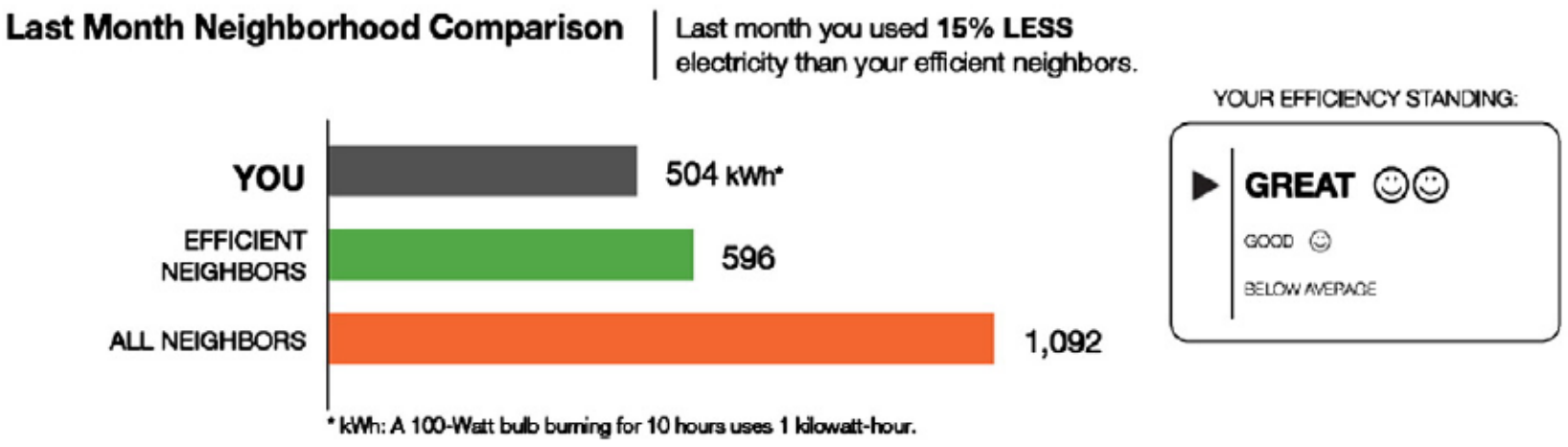


Fig. 1. Home energy reports: social comparison module.

Social norms and energy savings

(Allcott 2011)

Results

- On average, the program reduces energy consumption by 2%.
- The effect is equivalent to that of a short-run electricity price increase of 11-20%.
- Effects are heterogenous: highest decile of pre-treatment consumption -6.3%; lowest decile -0.3%.
- Injunctive norms played an insignificant role.

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Interventions in research studies vs. at scale

(DellaVigna and Linos 2022)

Comparison of the impact of interventions implemented by researchers to larger roll-out of similar interventions at scale.

Cooperation with two Nudge Units in US.

Inclusion criteria

- Randomized control trials (not natural experiments or diff-in-diff)
- A clear control group
- No financial incentives
- Binary outcome as a dependent variable (to be able to measure impact with a common metric, the percentage point difference in outcome, relative to the control group).

Nudges typically: simplification, personalization, reminders, social norm comparisons,…

Interventions in research studies vs. at scale

(DellaVigna and Linos 2022)

Sample

Nudge Units

- 126 trials
- 241 nudges
- 23 million participants

Published research studies

- 26 trials
- 74 nudges
- 0.5 million participants

Interventions in research studies vs. at scale

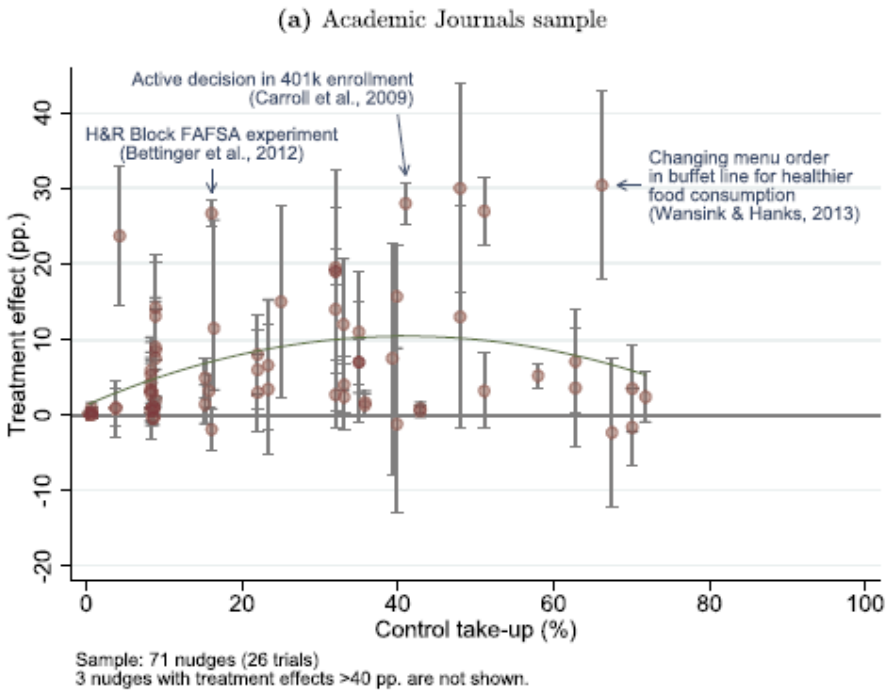
(DellaVigna and Linos 2022)

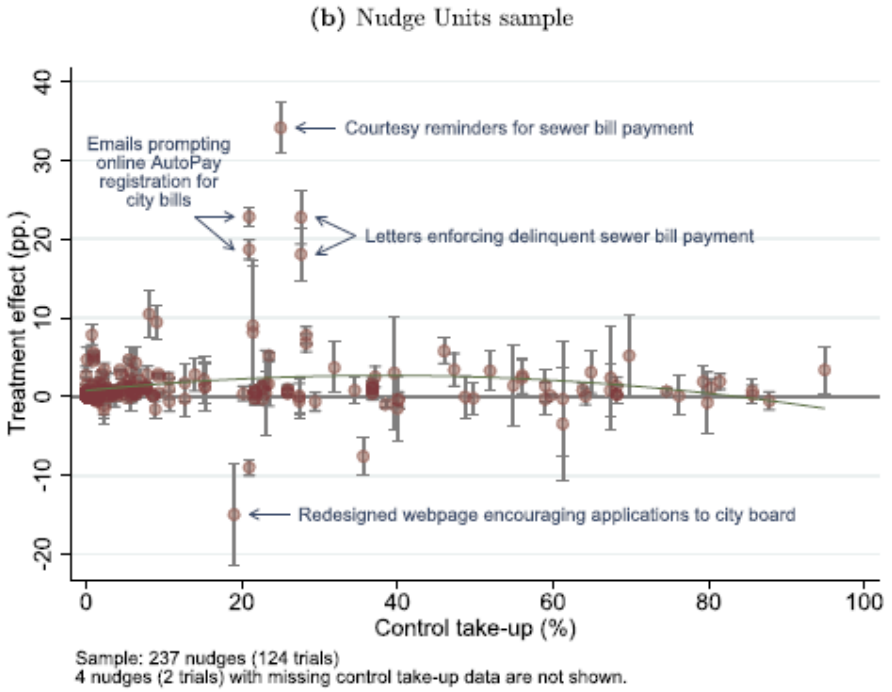
Results

- Published research studies: on average, a nudge intervention increases take-up by 8.7 percentage points (33.4% increase over the average control group take-up of 26 percent).
- Nudge Units: 1.4 percentage point (8.0%) increase.
- Both impacts highly statistically significantly different from 0 and sizable. The first one about six time larger than the second one.

Interventions in research studies vs. at scale

(DellaVigna and Linos 2022)





Interventions in research studies vs. at scale

(DellaVigna and Linos 2022)

What accounts for these differences?

- Selective publication, publication bias
  - Estimate: trials with no significant results are ten times less likely to be written up and published than trials with a significant result.
  - If there were no publication bias: average effect of a nudge in academic studies would be 3.9 percentage points.
  - Publication bias explains 60-70% of the differences.
- Different features of the nudge interventions
  - Explains most of the remaining difference.
- Statistical power of the trials
  - Average number of observations: 484 in academic studies, 10,006 in Nudge Units.

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