

Econ 211

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Motivation

- ▶ Motivating question: how can we use nudges (and behavioral economics concepts more generally) at large scale?
 - ▶ Eg, entire neighborhoods, cities, countries?
 - ▶ Cost-effectiveness is key at this size, hence why nudges are so popular
- ▶ Often interested in promoting pro-social activities
 - ▶ Energy conservation
 - ▶ Organ donation
 - ▶ Voting
 - ▶ Public service

Nudges in Public Policy

Social Norms and Energy Conservation

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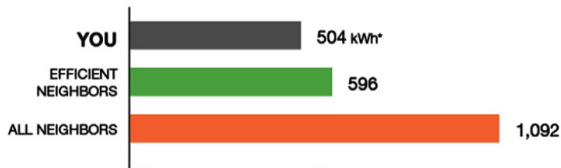
Social Norms and Energy Conservation

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- ▶ One solution: increase energy prices
- ▶ Problem with this approach?
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 - ▶ We really want to target just those people who are using a lot
- ▶ Alternate solution: social information nudges
 - ▶ OPOWER: company that tracks energy usage for many large utilities
 - ▶ Send home energy reports (HERs) to many households

Home Energy Reports

Last Month Neighborhood Comparison

Last month you used **15% LESS** electricity than your efficient neighbors.



* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

YOUR EFFICIENCY STANDING:



GREAT



GOOD 😊

BELOW AVERAGE

Study Details

- ▶ Paper by Allcott (2011)
- ▶ Data
 - ▶ Nearly 600,000 households
 - ▶ 12 different utility companies across United States
 - ▶ 24 different states

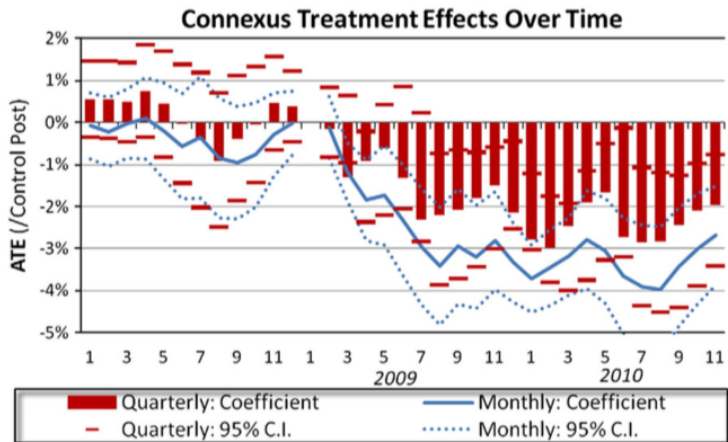
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- ▶ Predictions?

Typical Results from A Single Utility



Overall Results

- ▶ Overall average treatment effect: 2% less consumption relative to control group
 - ▶ Equivalent to turning off air conditioner for extra 30 minutes per day, or turning off 60W light bulb for additional 10 hours per day
 - ▶ Equivalent to 10-20% spike in short-term energy prices or 5% increase in long term energy prices

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 - ▶ Equivalent to 10-20% spike in short-term energy prices or 5% increase in long term energy prices
- ▶ Program is incredibly cost-effective
 - ▶ Define cost effectiveness as money spent (eg stamps and printing costs) per units of energy saved
 - ▶ Cost-effectiveness of HER interventions: 3 cents per kWh saved
 - ▶ At least twice as cost-effective as dynamic pricing programs

Background

- ▶ Demand for organ donors
 - ▶ Over 120,000 people in US are on organ waiting lists
 - ▶ About 10,000 added each year to list
 - ▶ About 6,000 die each year while on list
- ▶ Supply for organ donors
 - ▶ Organ donor share varies widely across states
 - ▶ Most donations come from deceased donors
 - ▶ Only about 1 in 100 donor deaths result in conditions for transplantation
 - ▶ Most donors sign up at state DMV while getting/renewing driver's license

Two Possible Dimensions to Nudge on

- ▶ Choice framing

- ▶ Opt-in choice: check a box if want to be a donor, leave blank if don't want to be a donor
- ▶ Mandated choice: must select “yes” or “no” option; leaving blank is not acceptable (also called active or forced choice)

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 - ▶ Mandated choice: must select "yes" or "no" option; leaving blank is not acceptable (also called active or forced choice)
- ▶ Information
 - ▶ How many lives can be saved
 - ▶ Which organs will be harvested
- ▶ Note that both dimensions are very low-cost: just change the text on a form that is already being produced

Why do an Experiment?

- ▶ Data on organ donation rates for each state is available
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- ▶ Why not use this data to test which versions are better?
 - ▶ Main problem: *selection*
 - ▶ Form contents (choice framing and info content) are not randomly assigned, but chosen by states
 - ▶ States that choose opt-in framing may be systematically different than those that choose mandated choice framing
 - ▶ Thus simply comparing across states will not prove causality

Connecticut's Driver's License Application (detail)

		2. SEX <input type="checkbox"/> M <input type="checkbox"/> F		3. DATE OF BIRTH	4. HEIGHT ft. in.	5. CO
		7. RESIDENCE ADDRESS (If different)				
CONNECTICUT IDENT?	10. DO YOU WANT TO BE IN THE ORGAN/TISSUE DONOR REGISTRY?	If yes, you are agreeing to be a donor and the designation will be on your license.			DAYTIME PHONE NO	
es <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No				()	
HER NAMES EVER USED (Alias, Maiden, etc)						
YES (✓)	NO (✓)	FAILED <input type="checkbox"/> KNOWLEDGE <input type="checkbox"/> VISION <input type="checkbox"/> ROAD SKILLS				LOCATION/DA
		IF YES, IN WHAT YEAR(S)?				CONNECTICUT PERMIT, LICEN

Kessler and Roth (2013)

- ▶ Lab experiment with Massachusetts residents
- ▶ Task: make a *real* decision about whether to join (or stay on) MA organ donor registry
- ▶ 2-by-2 design:
 - ▶ Vary whether opt-in or mandated choice frame
 - ▶ Vary how much information about organ donation is provided
 - ▶ Control: "It is estimated that one donor can save or enhance the lives of as many as 50 people by donating organs and tissues."
 - ▶ List of Organs: "It is estimated that one donor can save or enhance the lives of as many as 50 people by donating the following organs and tissues: bone and connective tissue, corneas, eyes, heart (for valves), heart with connective tissue, kidneys, liver or iliac vessels, lungs, pancreas, skin, small intestine, veins."

Interface: Opt-in + Control Info

THE NEW TRANSPLANTABLE REGISTRY OF HUMAN TISSUES (Figure 12)

ON THIS WEBSITE YOU CAN CHOOSE TO BE AN ORGAN AND TISSUE DONOR IN THE EVENT OF YOUR DEATH.
IT IS ESTIMATED THAT ONE DONOR CAN SAVE OR ENHANCE THE LIVES OF AS MANY AS 50 PEOPLE BY DONATING ORGANS AND TISSUES.
THOSE WHO REGISTER AS ORGAN DONORS AGREE TO DONATE ALL THEIR ORGANS AND TISSUES.

IF YOU CONTINUE WITHOUT CHECKING THE BOX, YOU WILL NOT BE REGISTERED AS AN ORGAN AND
TISSUE DONOR.

☐ I WANT TO REGISTER AS AN ORGAN AND TISSUE DONOR.

CONTINUE

Interface: Mandated + List Info

ON THIS WEBSITE YOU CAN CHOOSE TO BE AN ORGAN AND TISSUE DONOR IN THE EVENT OF YOUR DEATH.

IT IS ESTIMATED THAT ONE DONOR CAN SAVE OR ENHANCE THE LIVES OF AS MANY AS 50 PEOPLE BY DONATING THE FOLLOWING ORGANS AND TISSUES:

- BONE AND CONNECTIVE TISSUE
- CORNEAS
- EYES
- HEART (FOR VALVES)
- HEART WITH CONNECTIVE TISSUE
- KIDNEYS
- LIVER OR ILLIAC VESSELS
- LUNGS
- PANCREAS
- SKIN
- SMALL INTESTINE
- VEINS

THOSE WHO REGISTER AS ORGAN DONORS AGREE TO DONATE ALL THEIR ORGANS AND TISSUES.

PLEASE SELECT ONE OF THE FOLLOWING OPTIONS.

- ☐ I WANT TO REGISTER AS AN ORGAN AND TISSUE DONOR.
- ☐ I DO NOT WANT TO REGISTER AS AN ORGAN AND TISSUE DONOR.

CONTINUE

Results from Kessler and Roth

Table 3: Registration Rates by Treatment

2 x 2 Design		Choice Frame	
		Opt-In	Mandated Choice
Information Provided	Control	14/55 (25.5%) joined registry 37/37 (100%) remained on registry	10/51 (19.6%) joined registry 30/31 (96.8%) remained on registry
	List of Organs	22/55 (40%) joined registry 39/40 (97.5%) remained on registry	15/51 (29.4%) joined registry 48/48 (100%) remained on registry

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- ▶ Summary of main results?
 - ▶ Mandated choice decreases sign-up
 - ▶ List information increases sign-up
- ▶ Open question: What explains the direction or magnitude of these results?

Coffman, Featherstone and Kessler (2014)

- ▶ Field experiment with Teach for America (TFA)
 - ▶ Non-profit which trains high-achieving college grads to be teachers
 - ▶ Places them in underperforming schools
 - ▶ Applicants rank which schools they would like to teach at
- ▶ Accepted applicants to program are sent an offer letter indicating which school they were assigned to

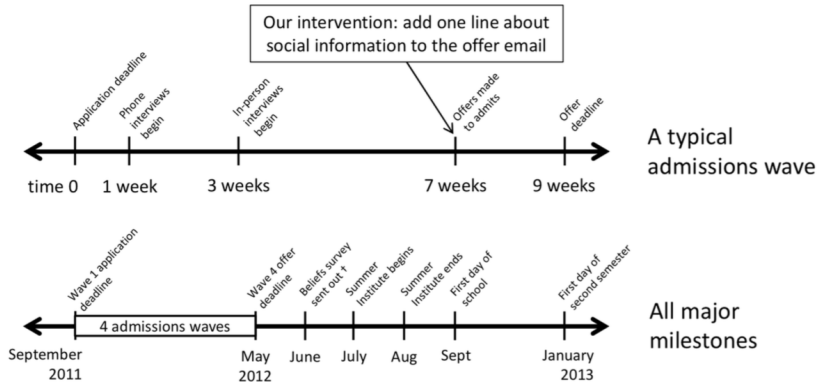
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- ▶ Experimental design
 - ▶ Control: standard welcome email (N = 3337)
 - ▶ Social information condition: One sentence added: “Last year more than 84% of admitted applicants made the decision to join the corps, and I sincerely hope you join them” (N=3348)
- ▶ Outcome of interest: how many applicants make it to various stages of process (accept offer, show up for training, show up for first day of teaching)

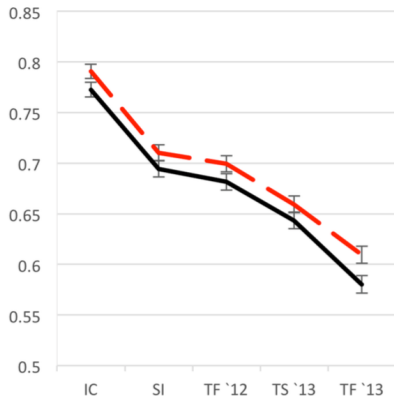
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- ▶ Predictions about outcome?

Timeline



Main Results



In all panels:

Social Information is dashed (- - -),
Control is solid (—).

Abbreviations:

IC: Initial Commitment
SI: Showed to Institute
TF '12: Teaching Fall 2011
TS '13: Teaching Spring 2013
TF '13: Teaching Fall 2013

- ▶ Social information treatment increases likelihood admitted applicants still in TFA at milestone by 1.5 to 3.1 percentage points

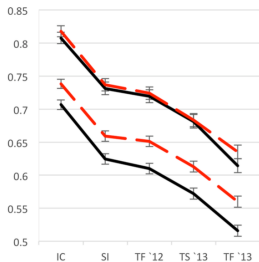
Subgroup Analysis

- ▶ Which applications do we expect to be particularly affected by social information nudge?

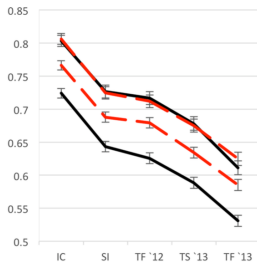
Subgroup Analysis

- ▶ Which applications do we expect to be particularly affected by social information nudge?
- ▶ Essentially, applicants that are on the margin of accepting and declining offer
 - ▶ Applicants who got a *disappointing assignment*
 - ▶ Applicants who have lower “fit” score assigned by TFA application committee (*moderately aligned* vs *highly aligned*)
 - ▶ Applicants who indicate they were *not certain to join* at the time of receiving offer letter

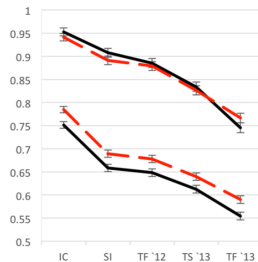
Results by Subgroup



Panel B: Disappointing assignment
(Top 2 are Pleasing Assignment; Bottom 2 are Disappointing Assignment)



Panel C: Moderately aligned
(Top 2 are Highly Aligned; Bottom 2 are Moderately Aligned)



Panel D: Not certain to join
(Top 2 are Certain to Join; Bottom 2 are Not Certain to Join)