Temptation and Self Control

Behavioral Economics:
ECON 1820: Brown University
Mark Dean

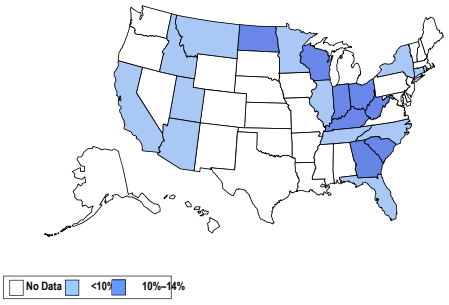
Temptation and Self Control

- One of the most important areas in behavioral economics
- Lots of work:
  - Theoretical: Gul, F. and W. Pesendorfer (2001) "Temptation and Self-Control." *Econometrica 69, 6 1403*-1435.
  - Empirical: Ashraf, N., D. Karlan, and W. Yin (2006). Tying odysseus to the mast: Evidence- from a commitment savings product in the philippines. Quarterly Journal of Economics 121 (2), 635.
  - Policy: Richard H. Thaler & Shlomo Benartzi, 2004. "Save More Tomorrow (TM): Using Behavioral Economics to Increase Employee Saving," Journal of Political Economy, University of Chicago Press, vol. 112(S1), pages S164-S187, February.
- Popular for 3 reasons

(1) Temptation and Self Control Problems Seem to Be Ubiquitous

- Americans are fat

Obesity Trends* Among U.S. Adults
BRFSS, 1985
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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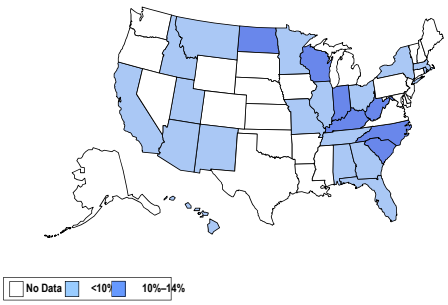

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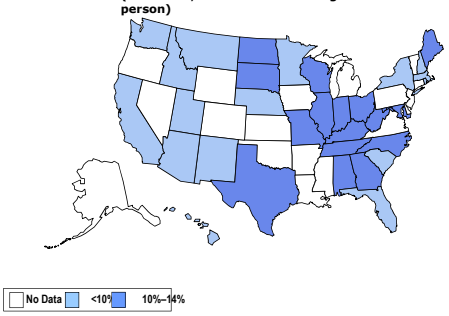

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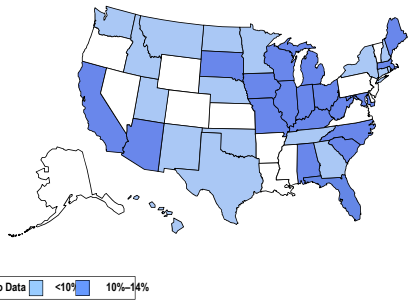

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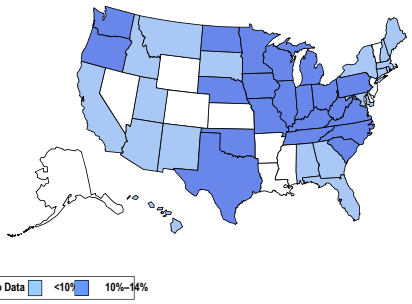

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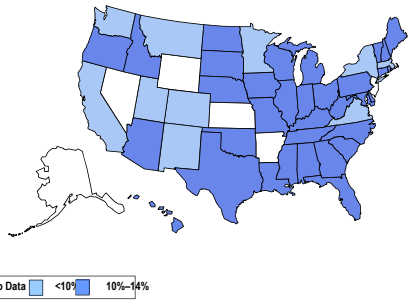

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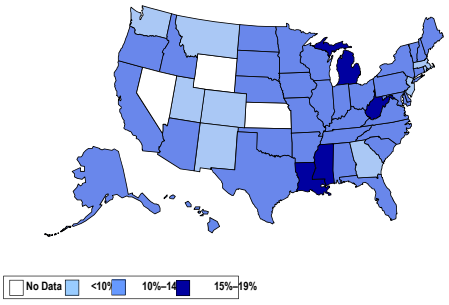

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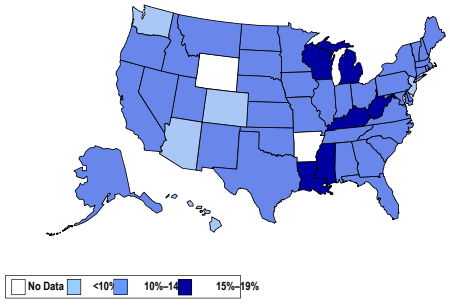

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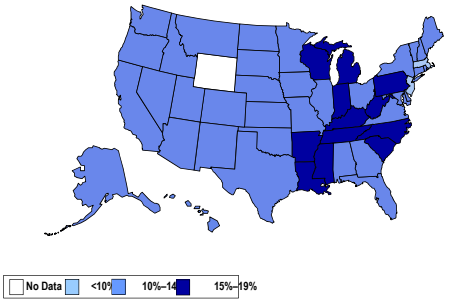

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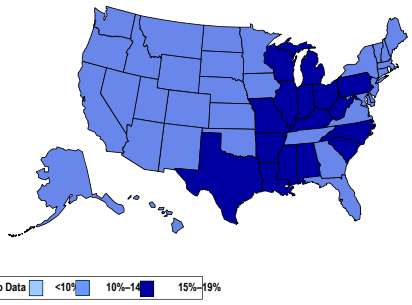

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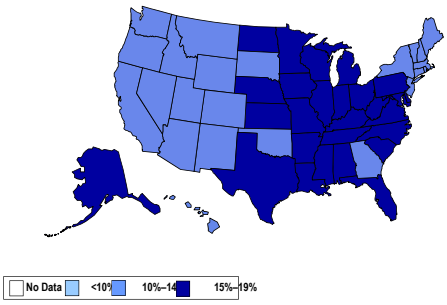

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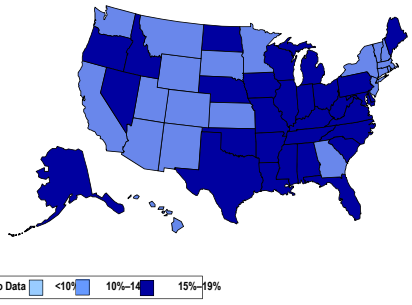

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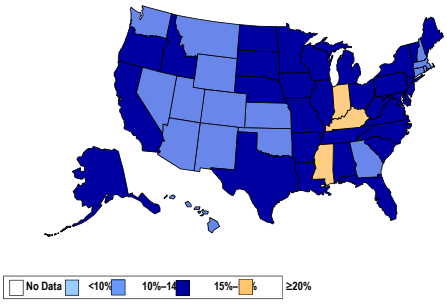

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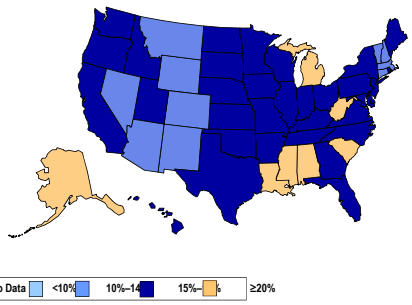

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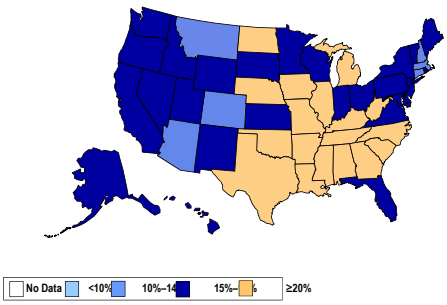

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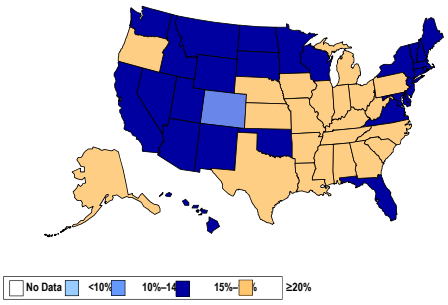

Obesity Trends* Among U.S. Adults
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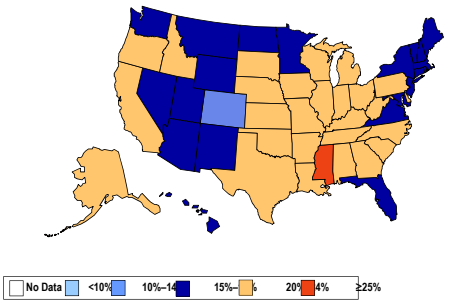

Obesity Trends* Among U.S. Adults
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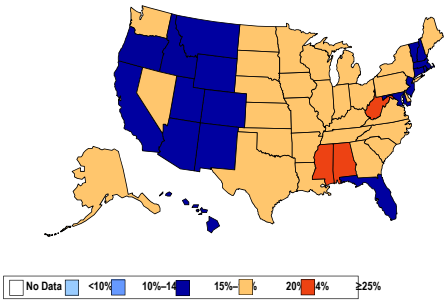

Obesity Trends* Among U.S. Adults
BRFSS, 2003
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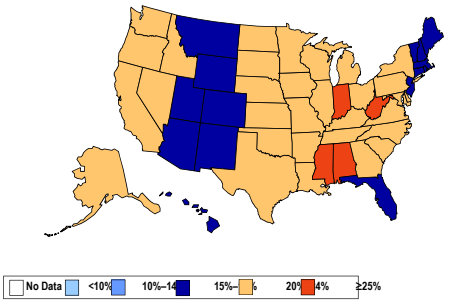

Obesity Trends* Among U.S. Adults
BRFSS, 2004
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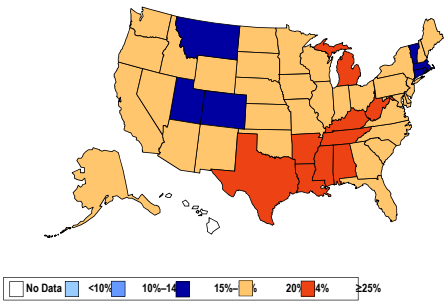

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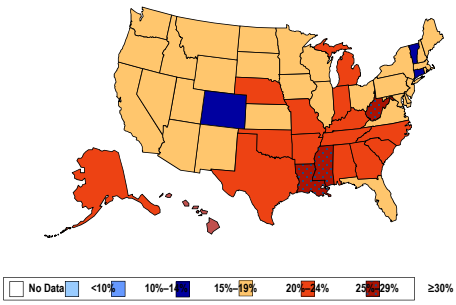

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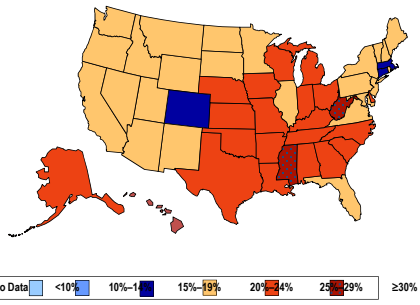

Obesity Trends* Among U.S. Adults
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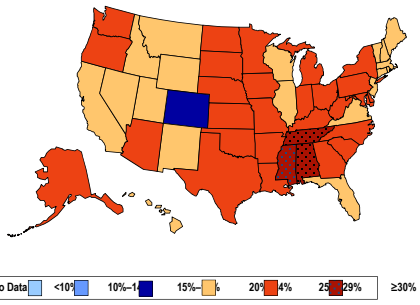

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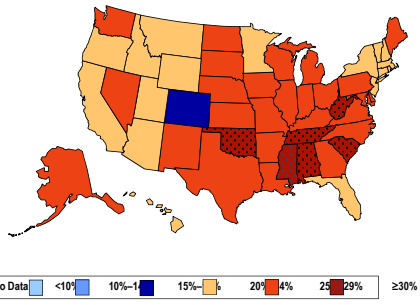

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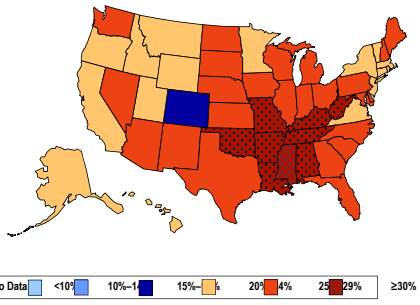

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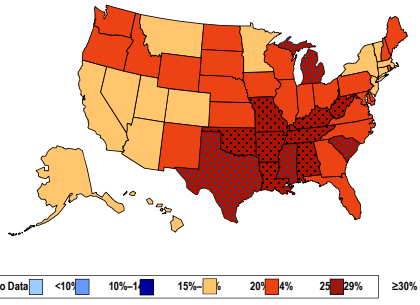

(1) Temptation and Self Control Problems Seem to Be Ubiquitous

- Americans are fat (and are getting fatter)
- Americans smoke

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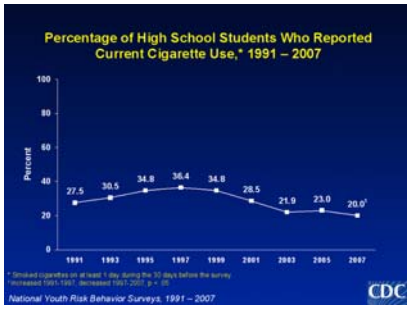

(1) Temptation and Self Control Problems Seem to Be Ubiquitous

- Americans are fat (and are getting fatter)
- Americans smoke (but less than they did)
- Americans take drugs

(1) Temptation and Self Control Problems Seem to Be Ubiquitous

Estimated U.S. Lifetime Substance Use Prevalence by 8th, 10th, and 12th Graders									
percentage who ever used									
Lifetime Use	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
ILLICIT DRUGS - ALL	39.5	37.5	36.4	35.7	34.0	32.7	32.6	33.2	34.4
Marijuana	34.0	32.4	31.4	30.8	28.9	27.9	27.9	29.0	30.4
Cocaine	5.7	5.3	5.5	5.5	5.3	5.2	4.8	4.2	3.8
Crack	3.2	2.9	2.9	2.8	2.6	2.5	2.2	2.0	1.9
Heroin	1.7	1.5	1.5	1.5	1.4	1.4	1.3	1.4	1.4
Hallucinogens	7.6	6.9	6.3	5.9	5.7	5.8	5.6	5.3	5.8
Ecstasy	6.9	5.4	4.7	4.0	4.3	4.5	4.1	4.6	5.5
Tranquilizers	7.9	7.3	7.1	6.8	7.0	6.7	6.3	6.5	6.6
Amphetamines	13.1	11.8	11.2	10.3	10.1	9.5	8.6	8.6	8.9
Methamphetamine	5.3	5.0	4.5	3.9	3.4	2.5	2.5	2.2	2.2
Illicit-other-than-marijuana	21.1	19.8	19.3	18.6	18.2	17.7	16.8	16.5	16.8
Alcohol	62.7	61.7	60.5	58.6	57.0	56.3	55.1	54.6	53.6
Tobacco	44.2	40.8	39.6	37.4	35.0	33.3	31.3	31.2	30.9

(1) Temptation and Self Control Problems Seem to Be Ubiquitous

- Americans are fat (and are getting fatter)
- Americans smoke (but less than they did)
- Americans take drugs (but slightly less than they used to)
- Americans have a lot of credit card debt

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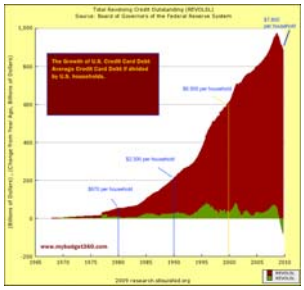

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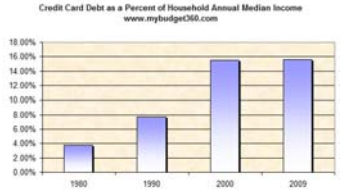

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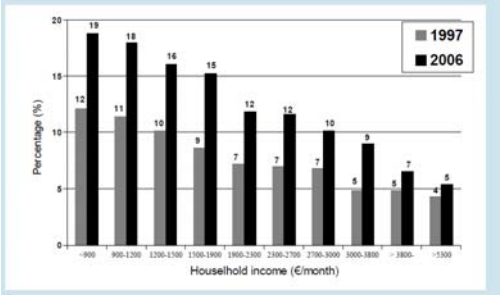
Age of family head and family income[1]	Percent having a general-purpose credit card	Percent having a balance after last month's bills	Median balance[2]
1992 total	62.4%	52.6%	$1,200
1995 total	66.5	52.6	1,700
1998 total	67.5	54.7	2,000
2001 total	72.7	53.7	1,800
2004 total	71.5	56.2	2,100

(1) Temptation and Self Control Problems Seem to Be Ubiquitous

- Americans are fat (and are getting fatter)
- Americans smoke (but less than they did)
- Americans take drugs (but slightly less than they used to)
- Americans have a lot of credit card debt (more than they used to AND have a balance at the end of the month)
- Americans wished they saved more
  - 76% of Americans wish that they

More of a Problem for Poorer Households - Obesity



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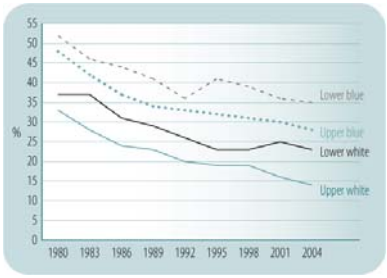

(2) Self Control Seems to be Linked to Late Life Outcomes

- "Delay of Gratification in Children" by Mischel et al. (Science 1989)
  - 'Self control' measured in 35 young (4 years old) children
  - Children shown a worse and better reward (e.g. 1 marshmallow or 2 marshmallows)
  - Told that they could wait until the experimenter comes back, and get the better reward
  - Or press the bell and get the worse reward
  - Temptation measured as length of time before bell is pressed

(2) Self Control Seems to be Linked to Late Life Outcomes

- Self Control at age of 4 correlated with later life outcomes
  - SAT verbal and quantitative
  - Parental ratings of coping ability as adolescents
- Only true for treatments in which rewards were exposed, not obscured

(2) Self Control Seems to be Linked to Late Life Outcomes

- "A gradient of Childhood self control predicts health, wealth and public safety" Moffitt et al [2011] PNAS
  - 1037 children in New Zealand
  - Self control measured via
    - Self reports
    - Observations by researchers
    - Reports by teachers and parents
  - Combined in a single factor

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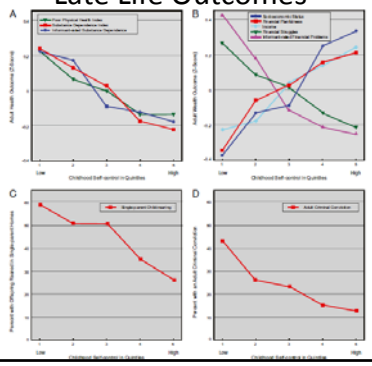

(2) Self Control Seems to be Linked to Late Life Outcomes

- Results remain when intelligence controlled for
- In sibling study, significant results for
  - Smoking as a 12 year old
  - School performance
  - Antisocial behavior
- Cohort born in 1994, so no adult outcomes yet
- Remember: correlation does not imply causation

(3) Something that the Standard Model Cannot Capture

- In the standard economic model of decision making, there is a single utility function that people maximize
- In choices over time, decision maker is assumed to be time consistent
  - Decisions maker at time t agrees with themselves at time t+1
  - Even if tastes change
- No room for concepts of temptation or self control

How Do We Spot Someone Having a Temptation/Self Control Problem?

- Loosely speaking "Doing something in the moment that is against your long run interests"

How Do We Spot Someone Having a Temptation/Self Control Problem?

1. We see them doing something naughty
   - i.e. we identify self control problems with activities certain activities
     - Smoking
     - Drug taking
     - Undersaving
   - There is no 'rational' reason to take drugs, so anyone who takes drugs must be in the grip of a self control problem
   - This goes against standard economic methodology
   - Very proscriptive – maybe benefit of cigarette smoking is higher than long term costs for some people

How Do We Spot Someone Having a Temptation/Self Control Problem?

2. They tell us that they want to do one thing, then do another
   - For example, tell us that they want to quit smoking, but then carry on smoking
   - Hard to interpret this data – why do we treat what they say as more important than what they do?
   - In general, economists feel that they know how to deal with 'self reports', but know how to deal with choice
   - If someone says they want to do a, but actually does b, we would generally consider this evidence that they prefer b over a
   - Talk is cheap

How Do We Spot Someone Having a Temptation/Self Control Problem?

3. They change their mind
   - For example:
     - People repeatedly quit smoking, then restart
     - People take drugs when they are younger but not when they are older
     - People smoke when drunk, but not when sober
   - Hard to distinguish between temptation and changing tastes
   - Maybe drinking and cigarette smoking are compliments?

Two Approaches to Spotting Temptation and Self Control Problems

1. Preference for Commitment

2. Time Inconsistency in Discounting

Preference For Commitment

- Imagine we saw the following behaviors:
  - A gambler asks to be banned from a casino
  - A drinker asks to be given a drug that makes them violently ill if they drink
  - A diner pays to have a smaller portion of fries with their meal
- In other words, choosing to reduce their choice set in the future
- (all of these happen in real life)

Preference For Commitment

- I would argue that these are signs of temptation/self control problems
  - Time t self is worried that time t+1 self will do something that they do not like
  - Therefore restricts options available to their t+1 self
  - At time t, removes the option to drink at time t+1
- Such behavior would not be exhibited by someone who
  - Was perfectly happy with the amount they drank
  - Had changing preferences over drinking, but were happy to make a game-time decision
- Stops talk being cheap

Time Inconsistency

- Imagine we saw the following behaviors:
  - A (very thirsty) decision maker chooses juice now over twice the amount of juice in 5 mins
  - Also chooses juice in 20 minutes over twice the amount of juice in 25 minutes.
- This is a 'preference reversal'
- Arguably, this is also an example of a self control problem
  - Presumably, in 20 minutes, you would choose juice today over 2 times juice in 5 minutes
  - So your preferences now disagree with preferences in 20 minutes time
  - Assumes that now is the same as 20 minutes time in all other respects

Is Time Inconsistency the Same as Preference for Commitment?

- Augenblick, Niederle and Sprenger [2015]
- Measured time preferences in a real effort task
  - Have a certain number of tasks to do (greek translation)
  - Allocate these tasks between two date d1 and d2
  - Compare allocation chosen at d0 (before d1) and at d1
- Find evidence of present bias (on average allocate 9% more tasks to d1 at d0 than at d1
- Offered same subjects a commitment device
  - Made it more likely that d0 choices would be used that d1 choices
- 59% of subjects make use of commitment
- Present bias predictive of demand for commitment