Applying Ideas from Behavioral Economics to Increase Savings

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Under saving is a major problem in the U.S.

- Average U.S. savings rate recently hit a record low since the Great Depression
- Proportion of families that save is falling – only 56%
- Median net worth (excluding home equity; year 2002)
  - All U.S. households: $10,500
  - Households 65+: $20,950
- Only approximately 50% of families owns zero stocks, even in retirement plan
- Out of 122 million workers, only 42 million save through DC plans
- Saving problem is most severe among low paid workers
- Average household has $8,000 in credit card debt
- More payday loan establishments than McDonalds and Starbucks combined

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Behavioral Economics

- Descriptive vs. normative model
- Bounded
  - Rationality
  - Will power
  - Self-interest
- Traditional economics assumes that people…
  - know what's best for themselves
  - are able to act on that understanding

  →little or no need for intervention (beyond problem of externalities)

  →focus on prices and/or information as main tools for policy

  →welfare criterion is revealed preference

Behavioral economics allows for mistakes. People often…

- don't know what's best for themselves
  - bounded rationality → decision biases or heuristics; influenced by "irrelevant" situational factors
- do know, but can't implement
  - bounded will power → procrastination, inconsistent time preferences

→motivates intervention

→inspires new approach to policy:

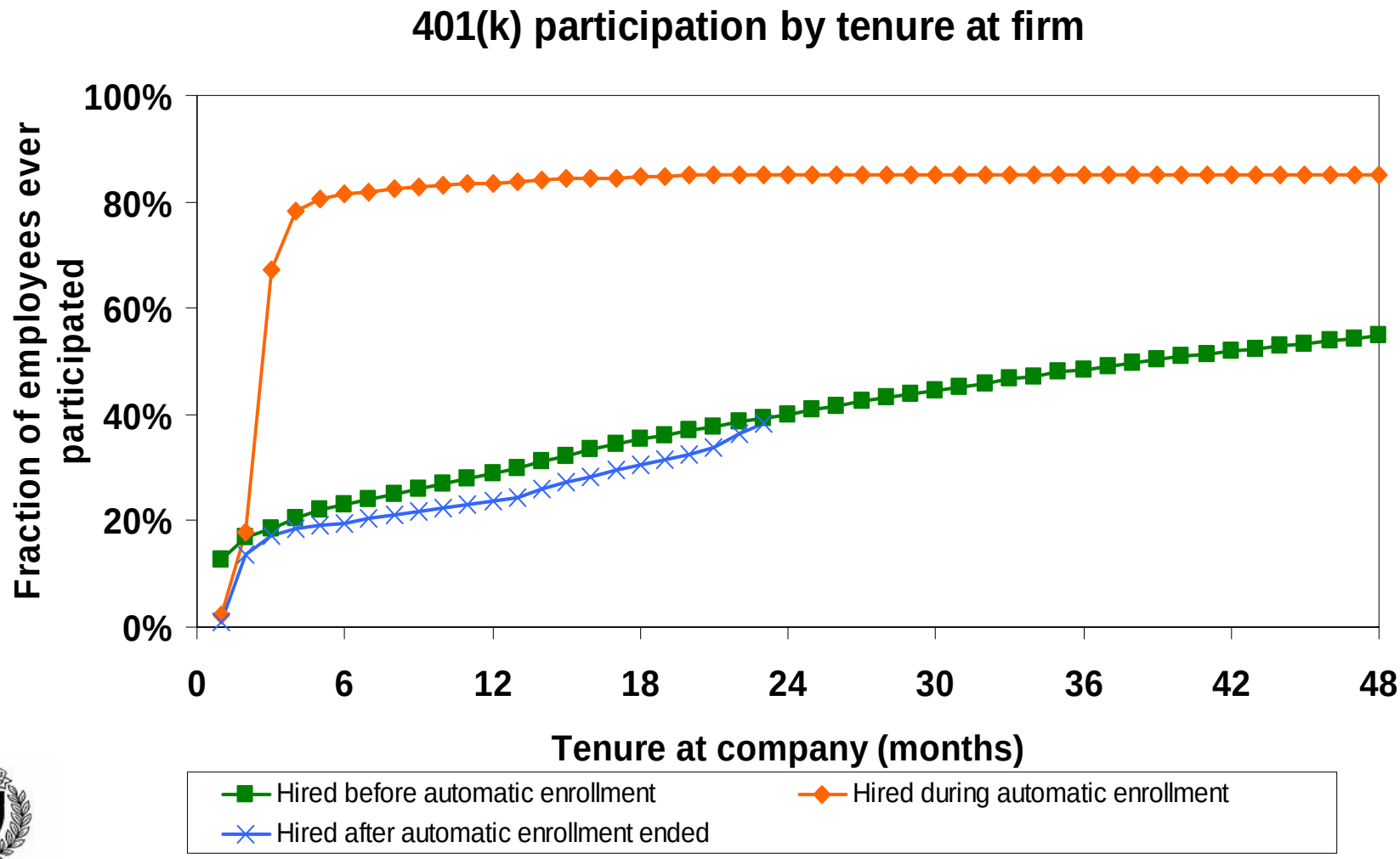
'asymmetric *paternalism*' (Camerer et al., 2003)

'libertarian paternalism' (Thaler & Sunstein, 2003)

Standard economics...

Retirement saving depends on projected income, projected rate of return, tax preferences, and the company's matching contribution.

Madrian and Shea (2001); Choi, Laibson, Madrian, Metrick (2004)



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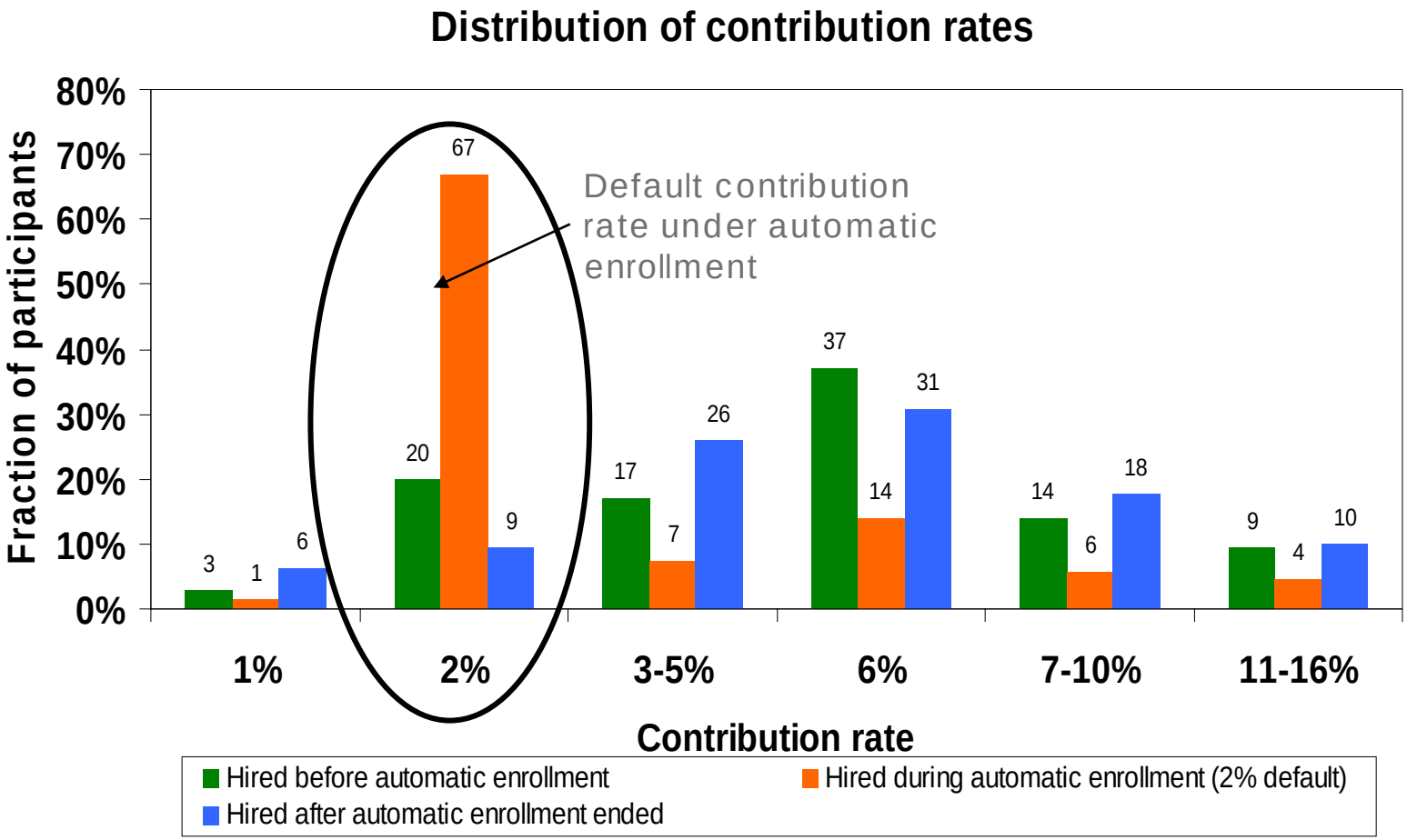
Employees enrolled under automatic enrollment cluster at the default contribution rate.



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Decision biases often contribute to suboptimal behavior

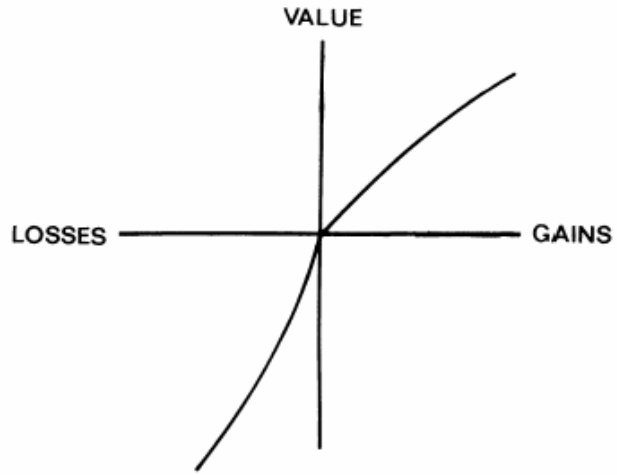
Status quo bias → reluctance to 'opt-in' to retirement savings plans

"Harness" biases to improve decision making

Status quo bias → set optimal defaults to encourage saving

- Asymmetric: helps those who's behavior is influenced by defaults without limiting the autonomy of those who are not
- Still influencing behavior if the default is 'opt out'
- Automatic enrollment incorporated in the Pension Protection Act

Loss aversion (Kahneman & Tversky, 1979)



- Losses loom larger than equivalent gains
  - Gain $10 or a 50% chance for $20?
  - Lose $10 or a 50% chance to lose $20?

- "Harnessing" the bias
  - Framing: "Stop losing money now" boosted enrollment in flexible spending accounts compared to "Start saving money now" (Shwartz et al., 2006)
  - Deposit contracts

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Time discounting

- Hyperbolic time discounting: steep discounting in the near present and relatively flat discounting over time
  - Overweighs the pleasures of current consumption over the pleasures of deferred consumption
  - Inconsistent time preference: plan today to be good tomorrow, but when tomorrow comes suffer the same "present-biased preference" and think "I can always plan to begin saving *tomorrow"*
  - Inadequate saving, overeating, procrastination, preventative healthcare.
- "Harnessing" the bias
  - *Immediate* rewards for behavior
  - Commitment devices, e.g. fees or inconveniences to discourage withdrawals
  - Deadlines

Putting it all together: Save More Tomorrow (Thaler & Benartzi, 2004)

Inadequate saving due in part to:

- Hyperbolic time discounting: leads to overweighting of current consumption
- Loss aversion: putting money into 401(k) plans is seen as a cut in take-home pay
- Status quo bias: most default on most 401(k) plans is un-enrolled

SMarT Plan:

- Increase 401(k) contributions *at the time of next salary raise*
- Increases at *every* future salary raise

Diversification bias

- Aka the 1/n heuristic:
  - When an employee is offered n funds to choose from in her retirement plan, she divides the money evenly among them (Benartzi and Thaler, 1998)

- "Harnessing" the bias
  - The asset allocation an investor chooses will depend strongly on the array of funds offered in the retirement plan, so must structure array to be well diversified

Familiarity

- People want to invest in things they are familiar with (unambiguous)
  - company stock gets disproportionate allocation

- "Harnessing" the bias
  - The opportunity to invest in company stock increase 401(k) contribution rates (Huberman, Iyengar, Jiang, 2007)
  - Offer company stock within the portfolio of a diversified fund

Mental accounting

- Contrary to standard assumptions about fungibility, people compartmentalize wealth into distinct budget categories
- Different marginal propensity to consume
  - Current income: high, Current assets: medium, Future income: low
- "Harnessing" the bias
  - Importance of banking the 10-20% who are "unbanked"
  - Create "virtual" accounts using online banking to help people organize their finances; label savings accounts
  - Encouraging multiple savings vehicles may increase savings.
    - Presence of a DB plan does not decrease participation in DC plans (Huberman, Iyengar, Jiang, 2007)

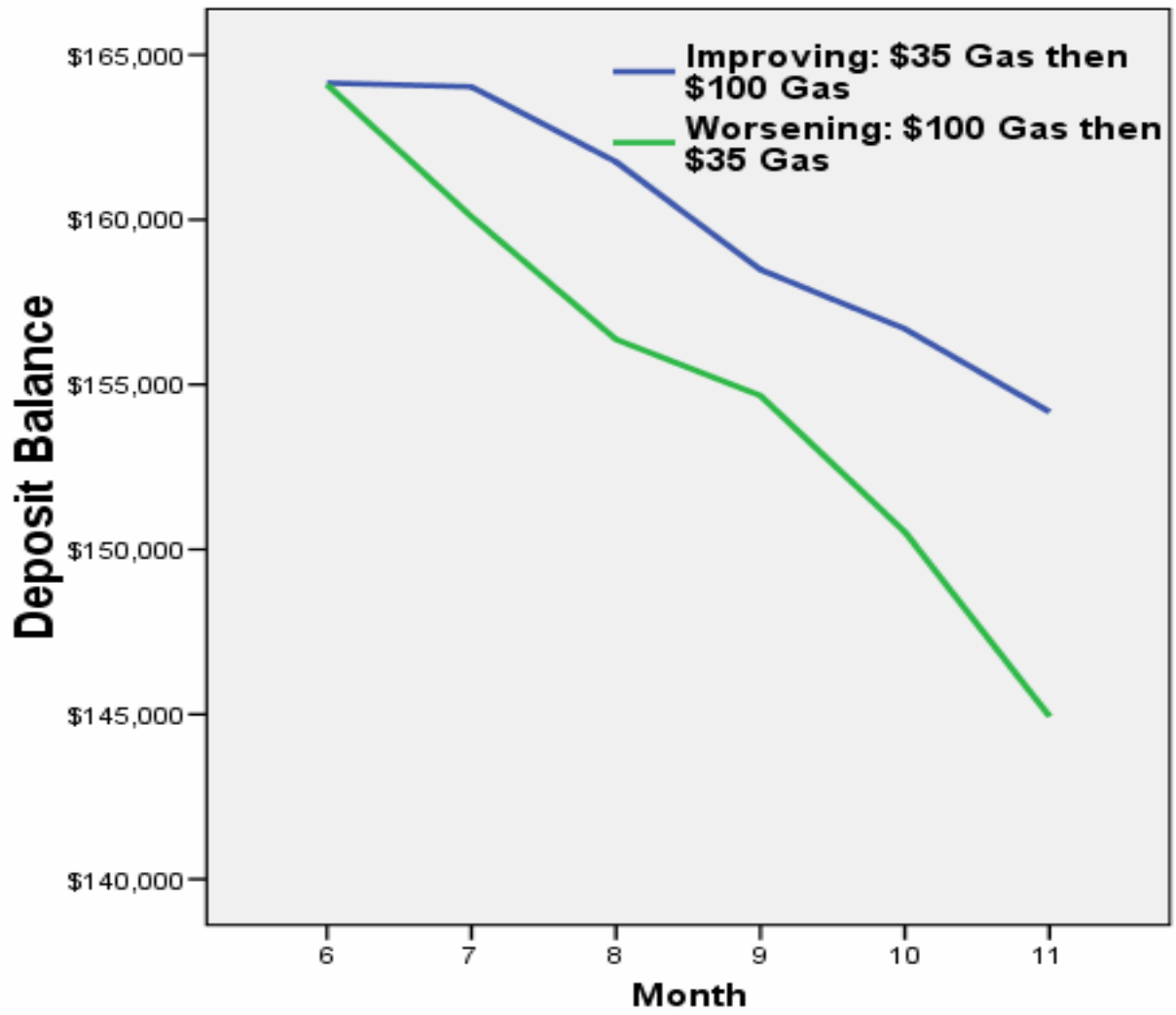
Social comparisons

- Relative income is as psychologically powerful as absolute income
- Many economists have theorized that people seek to compensate for a low relative income status by engaging in conspicuous consumption (e.g., Duesenberry, 1949; Frank, 1985).
  - People who perceive their financial situation to be below that of their reference group save significantly less (Schor, 1998)
- "Harnessing" the bias
  - Present accurate, but selective, social comparison information, e.g. about rates of saving or debt

Negative time discounting

- Overweight utility that occurs close in time when trading-off a *single* current or future benefit/cost
  - Demand a premium to delay a reward
- Reverse for streams of payment – overweight future utility
  - Prefer payments that increase over time, holing total value constant (Loewenstein & Prelec, 1993)
  - Violates present value maximization
  - Violates the independence of utility / duration neglect
  - Academic performance, stock performance, short-term health outcomes, pleasure, pain
- Adaptation: the perceptual tendency to adjust to current stimulus and to be highly sensitive to small magnitudes of change from the current level.

“Harnessing” the bias



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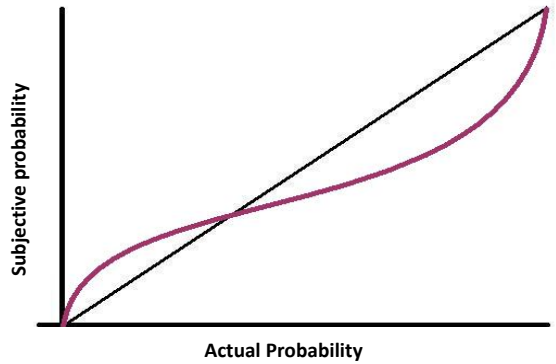
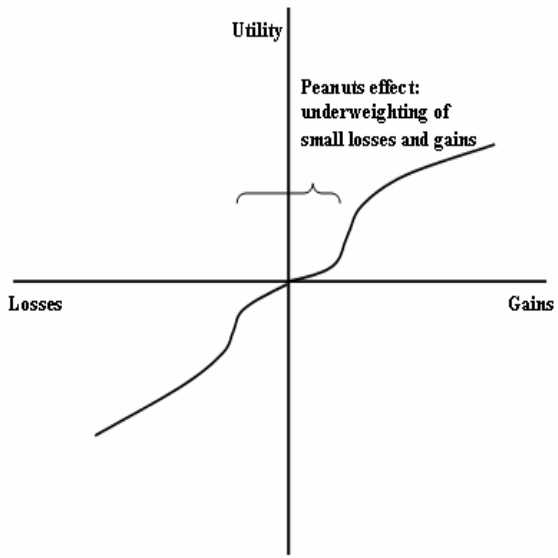
Lotteries as incentives harnesses many decision biases

- Probability weighting function (Kahneman & Tversky, 1979)
- Play on regret aversion (Zeelberg & Pieters, 2004)
- Variable ratio reinforcement schedule (Skinner, 1953)
  - highly effective, resistant to extinction and produces continuous rates of behavior
  - can be structured to give frequent rewards and hope of large payoff
- Lottery incentives may counteract the "peanuts effect" (Weber & Chapman, 2005) – the underweighting of small dollar values





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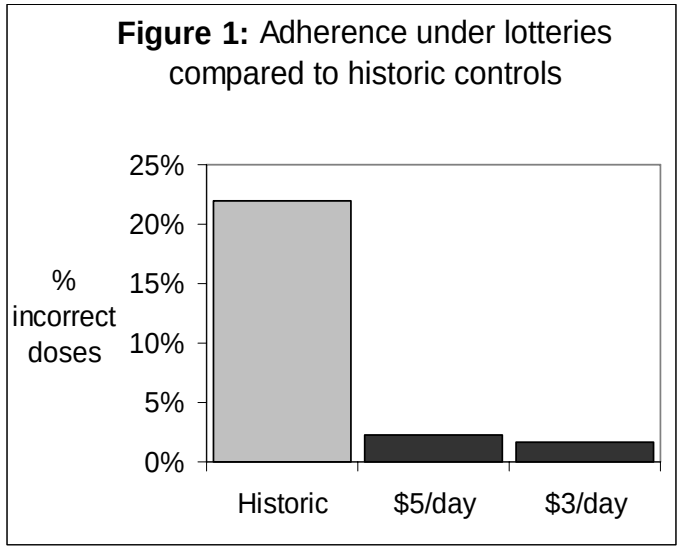
Lotteries as incentives

Preventative health care: Increased compliance with prescription medication and increased weight loss (Loewenstein, Volpp & colleagues)



Lottery-linked savings accounts:

- Get one ticket for every $X you have on deposit at the time of a drawing

Lottery-linked bonds or CDs (Tufano and colleagues)

- Prize bonds or premium bonds
- Keep principle, interest disbursed by lottery

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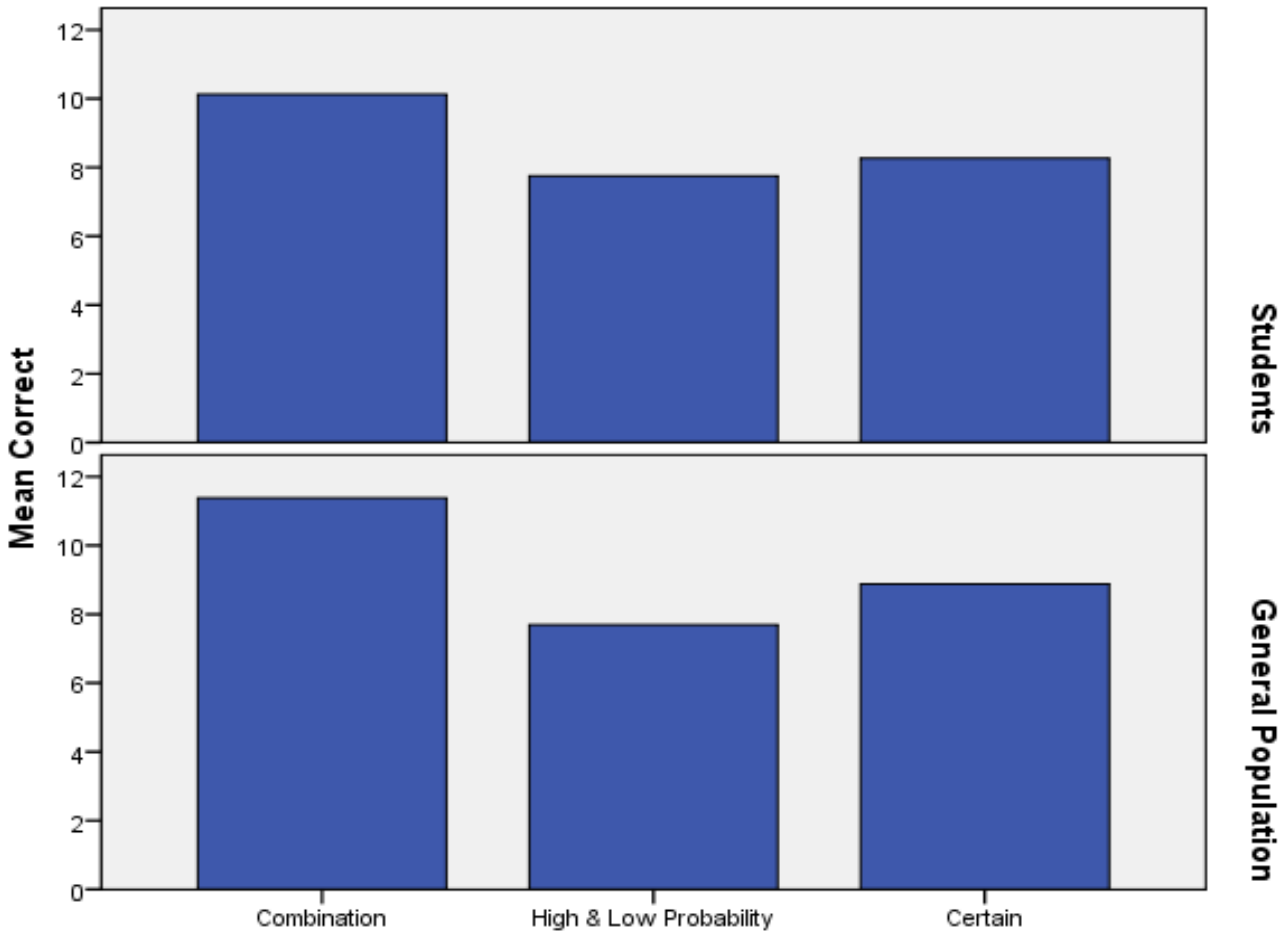
Are lotteries really more effective than their expected value?



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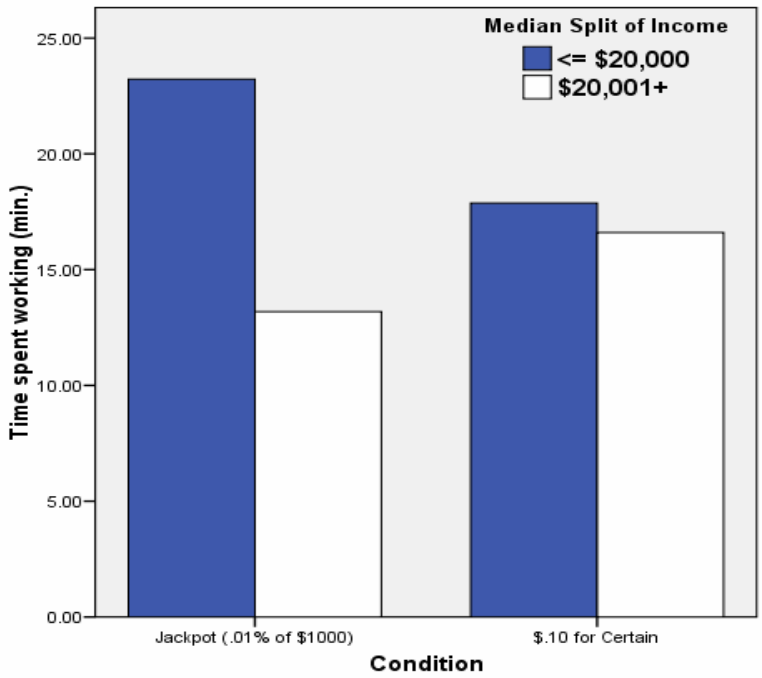
Lotteries & the poor

Lottery-linked savings accounts especially popular at lower end of income distribution

State lotteries especially popular among the poor

- Households with an income <$10,000 spend 3% of their income on the lottery (Clotfelter et al., 1999).

Experimental evidence



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The value of simplicity

- 6 jams (40% stop) **30%** bought
  vs.
  24 jams (60% stop) **3%** bought
  (Iyengar& Lepper, 2000)

- 401(k) options: For every 10-option increase, probability of participation declines by about 2% (Iyengar & Jiang, 2005)
- High take-up of loan offer with 1 example compared to 4. Willing to accept higher 2.3% higher interest rate (Betrand et al., 2008)
- Matches may be more powerful than economically equivalent tax rebates (Saver's Credit program) (Dufalo et al., 2005)

The inadequacy of education

- First Account Program: to "bank" low income individuals
  - 90% convinced of importance of opening an account and intended to, but only 50% did
  - Unless there was a bank representative present to begin filling out paperwork (Betrand et al., 2006)

- Financial education seminars convinced people to initiate or alter401(k) contributions, but small actual behavior change
  - Unless, given a simple post card to change contribution/ participation (Choi et al., 2004)

- Other "channel" factors (Lewin):
  - Make a verbal commitment, appointment
  - Planning: map out route
  - Reminders
  - First steps of an application

Need for alternative welfare criterion

Standard preference-based welfare criterion assumes that people naturally choose what's best for themselves; welfare measured by the degree to which individual preferences are satisfied

But premise of behavioral economics is that people can't be relied upon to choose what's best for themselves

Empirical evidence shows that preferences are highly malleable by superficial situational factors.

→ need for alternative welfare criterion to evaluate success of paternalistic interventions

Possible welfare criteria

Experience utility (happiness)

Problems:

- Adaptation
- Measurement

"Informed" decision utility

Problems:

- Informing often difficult
- Information often not the issue
- Manner in which information is presented influences choice

Preponderance of preferences

- People WANT to save more – 68% of employees with 401(k)s

Need for expanded field research

Efficacy and process

Paternalistic interventions often have unintended consequences

Different biases come into play

- "Move to Opportunity"
- Attempts to mobilize action against a problem by describing it as regrettably frequent

People may have had good reasons for their behavior

Social/economic interactions produce unexpected consequences

- Interventions may be construed as insulting or stigmatizing

Individual Development Accounts

IDAs are matched savings accounts

- purchase a home, finance higher education

Typical savings plan:

- $2,000 goal over 2 years ($80/month or $250/quarter)
- 2:1 match rate – deposit $1, get $2

A growing program with bipartisan support:

- Since inception: 44,500 accounts, 1,200 non-profit organizations
- In 2007 federal funding reached $25 million

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Room for improvement?

Despite the 200% return, motivation is a problem

- Average saving of only $200
- Drop-out rate of 50%
- (American Dream Demonstration data)

Simply increasing the match rate doesn't solve this

- Matches can range as high as 7:1
- Higher match rates associated with high p of saving *something*, but decreases *overall* saving (Schreiner, 2004)
- Similarly, in 401(k)s presence of a match increases chance of participation, but does not increase contribution rates (Huberman, Iyengar, & Jiang, 2007)

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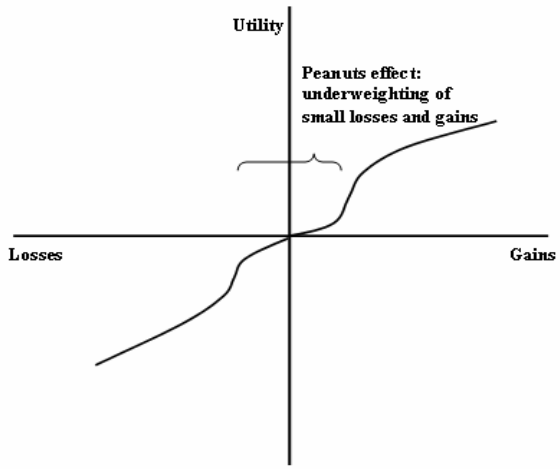
Exp 1: Increase the frequency of deposits

Move savers from a monthly to a biweekly deposit schedule

Rationale:

- "Peanuts effect": tendency to underweight small dollar amounts (Markowitz, 1952; Prelec & Loewenstein, 1991; Weber & Chapman, 2005).



- Deposits will be viewed as less of a loss to current consumption when they are smaller and more frequent.
- Imposes more deadlines to save.

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Exp 2: Increasing accountability

Phone system automatically calls savers and asks them to report deposits & excuses for missed deposits

Rationale:

Increases perceived accountability the dimensions outlined in the psychology literature (see Lerner & Tetlock 1999 for review):

1. the expectation of being observed
2. identifiability
3. the expectation that performance will be assessed by another
4. the expectation that one will have to give reasons for actions

Exp 3: Everything + Lottery Incentive

Portion of the match is guaranteed (1:1) and a portion is given in the form of a lottery

- Saver gets 2 digit number (e.g., 27)
- Every 2 weeks we observe the first 2 decimal places of the DJIA
- If first two digits match (e.g., 25) or second two digits match (e.g., 57), they get a 3:1 match
- If both digits match (27), they get 15:1

But..... ONLY IF THEY MADE THEIR DEPOSIT

Provides:

- frequent positive feedback
- hope of big payout
- plays on regret aversion

Conclusion

Public policy is currently the most important application of behavioral economics

Possible to design 'light paternalistic' policies that promote saving without reducing their autonomy

Many of the most successful interventions use the same biases that typically hurt people to, instead, help them

Controlled field experiments are an important step to test efficacy of interventions and to guard against unintended consequences