Intertemporal Choice and Saving

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Outline: Psychology of Saving

1. Suggestive evidence for:

    i. Bounded rationality.

    ii. Bounded self-control.

    iii. Excessive (unbounded?) optimism.

2. Economically rigorous evidence for bounded self-control

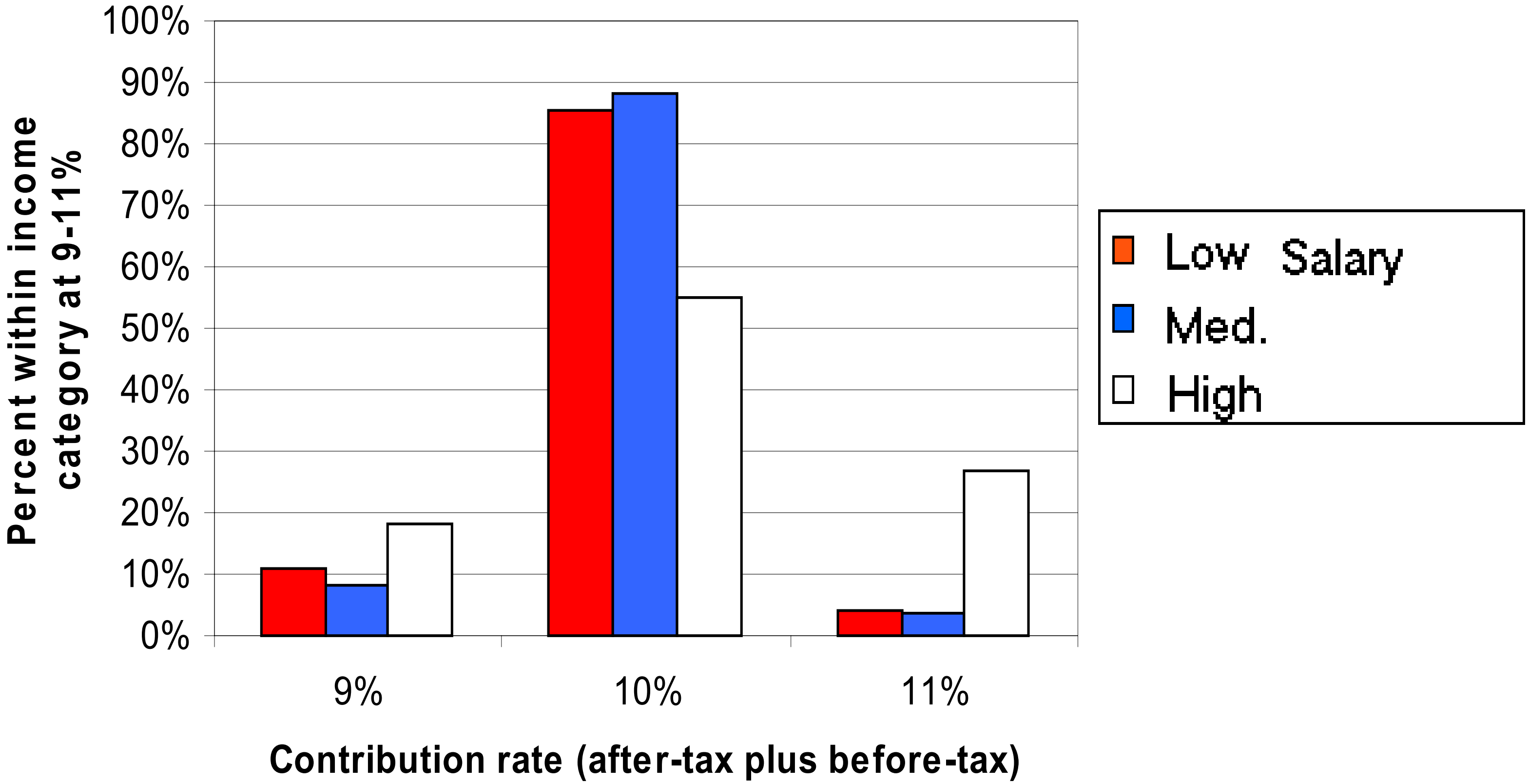
i. Bounded Rationality

- Only 32% of non-retired Americans over age 26 have "tried to figure out how much money [they] will need to have saved by the time [they] retire so that [they] can live comfortably in retirement" (EBRI).

- See Lusardi (2001) and Caplin and Leahy (2002) for correlation between planning and saving.

- About 3/4 of "non-match" 401(k) participants choose round number saving rates (Choi, Laibson, Madrian, Metrick).

Saving at Multiples of 5



Sample is drawn from a professional services company with over 15,000 employees and restricted to those with at least one year of tenure at the company and 1998 salary of at least $20,000. Contribution rate is as of December 31, 1998.

Source: Choi, Laibson, Madrian, Metrick.

Participants Use 1/N Heuristic

(Benartzi and Thaler, 2001)

- If a plan has 3 stock funds and 1 bond fund, participant investments are 60% equities.
- If a plan has 1 stock fund and 3 bond funds, participant investments are 40% equities.

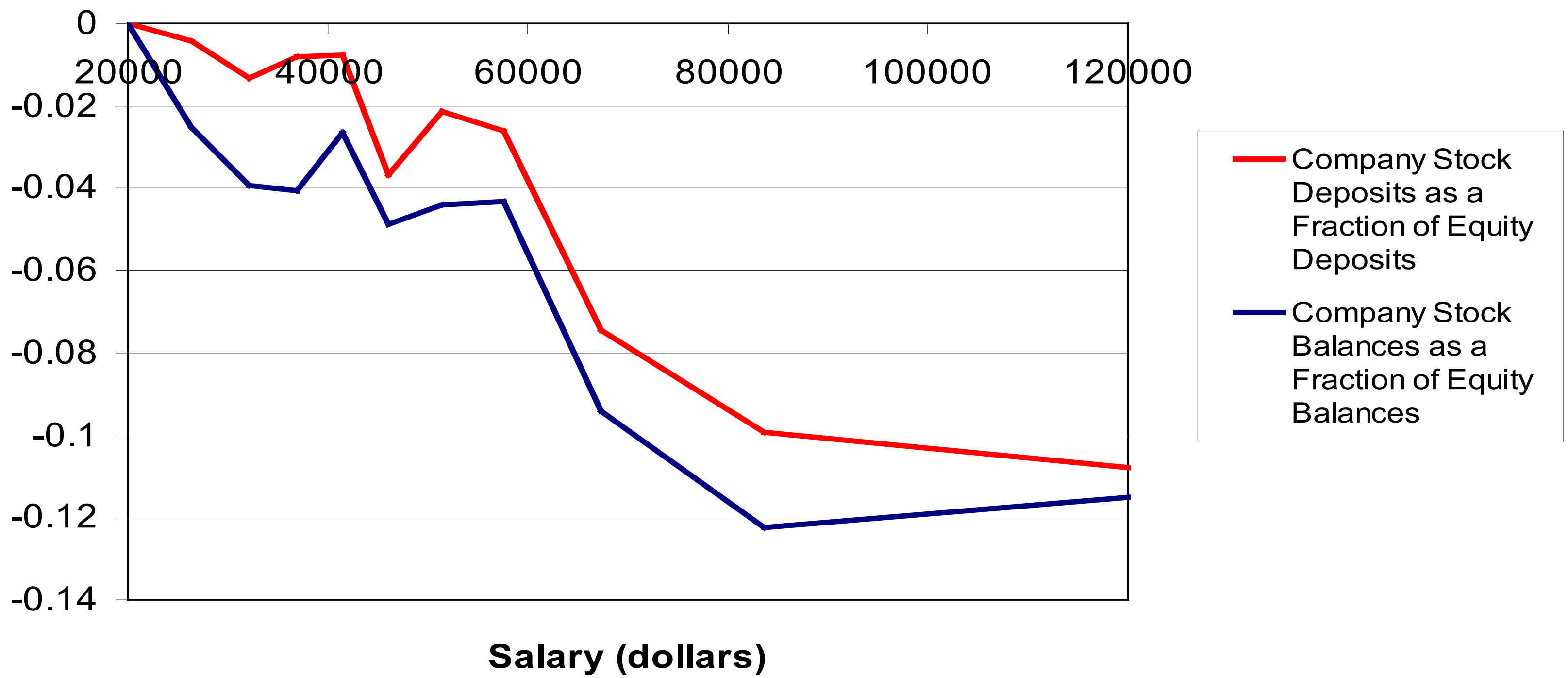
Plan Participant Survey Evidence

- 47% believe money market funds are comprised partially of stocks.
- 49% believe money markets funds are comprised partially of bonds.
- Only 9% know money market funds contain only short-term securities.
- Only 25% understand inverse relationship between interest rates and bond prices.
- Only 36% understand that they can lose money in government bonds.

Company Stock

- Plan participants hold far too much company stock.
- In a typical plan with a company stock option, over half of equity balances are held in company stock (Benartzi, 2002)
- These non-diversification problems are worse for participants with lower levels of income.

Effect of Salary on Company Stock Holdings/Deposits



•Sample companies offer company stock in fund menu but don't place employer match into company stock. (4 companies)

•Sample restricted to active employees with tenure ≥ 1, 20000 ≤ salary ≤ 160000, and nonzero equity deposits and nonzero equity balances (71744, 80465 employees respectively).

•Control variables were age, tenure, and company fixed effect dummies.

Source: Choi, Laibson, Madrian, Metrick.

Effect of Salary on Probability that Equity = Company Stock

•Sample companies offer company stock in fund menu but don't place employer match into company stock. (4 companies)

•Sample restricted to active employees with tenure ≥ 1, 20000 ≤ salary ≤ 160000, and nonzero equity deposits and nonzero equity balances (71744, 80465 employees respectively).

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ii. Self-Control

- A 1997 survey by Public Agenda finds that 76 percent of respondents believe that they should be saving more for retirement.

- Of those who feel that they are at a point in their lives when they "should be seriously saving already," only 6% report being "ahead" in their saving, while 55% report being "behind”.

- 60% of respondents say it is better to keep, rather than loosen legal restrictions on retirement plans so that people don't use the money for other things.

- One third of 401(k) participants are currently borrowing against their 401(k) balance (Choi, Laibson, Madrian, and Metrick).

- Total U.S. credit card debt: $600 bil. Total U.S. credit card holders: 144 mil. Average credit card debt: $4,000 per card-holder. Average credit card interest rate: 16% (Laibson, Repetto, and Tobacman 2001).

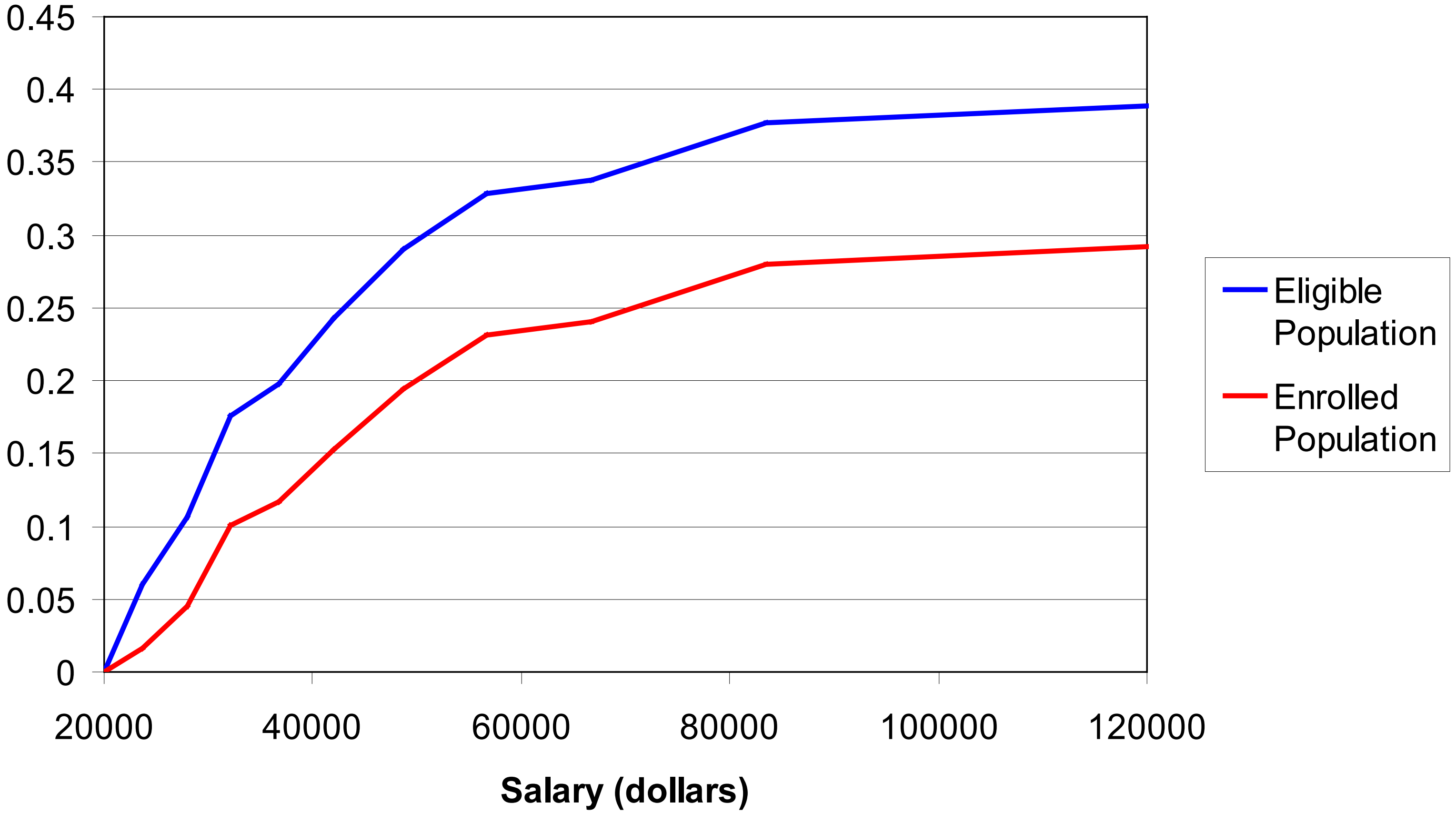
- The median U.S. household experiences a one quarter drop in per-capita consumption between age 50 and 80.

- Baby boomers report median target savings rate of 15% but the actual median savings rate is 5% (Bernheim 1993).

Taking Advantage of the Match

- Only 1/3 of employees take full advantage of the company match.
- This problem is worse for participants with lower levels of income.

Effect of Salary on Probability that Contribution Rate ≥ Fraction of Salary for which Employer Matches



•Sample companies provide a 50% or greater employer match. (13 companies)

•Sample restricted to active employees with tenure ≥ 1 and 20000 ≤ salary ≤ 160000. Eligible population includes 166099 employees. Active population includes 152340 employees.

•Control variables were age, tenure, and company fixed effect dummies.

Source: Choi, Laibson, Madrian, Metrick.

Survey of White Collar Workers

Choi, Laibson, Madrian, Metrick (2001)

- Out of every 100 workers 68 say that their savings rate is too low.
- 24 of those 68 plan to increase their savings rate in the next three months.
- Only 3 of the 68 actually do so.

Save More Tomorrow: SMarT
A commitment Study
(Benartzi and Thaler, 2000)

- Financial planner gave advice to employees at a firm.
- 79 employees were judged "receptive to saving" and they were advised to raise their saving rate now.
- 207 employees were judged "unreceptive to saving" and they were asked if they wanted to sign up for the SMarT plan which would automatically raise their saving rate 3% at each future pay raise.

- Of the 207, 162 chose to enroll, and 129 stayed with the SMarT program through three pay raises.

- The 79 "receptive savers" raised their savings rate from 4.4% to 8.7% over three years.

- The 162 "unreceptive savers" who enrolled in the SMarT plan raised their savings rate from 3.5% to 11.6% over three years.

- People will do the right thing if they can commit today to do the right thing tomorrow.

- Good intentions (Choi, Laibson, Madrian, and Metrick) and financial education (Madrian and Shea) aren't enough.

iii. Over-Optimism

- How much retirement savings do you expect to have when you turn 70?

- How much retirement savings do you expect the median person at this conference to have when that person turns 70?

Household Beliefs Are Not Realistic.

- In 1998 the average investor expected stocks to continue to return 20% per year for the next ten years.

- The typical boomer expects to be able to maintain or almost maintain his/her standard of living after retirement (Bernheim 1994, Caplin and Leahy 2002)

- But the typical boomer isn't saving enough to achieve this (Bernheim 1994, Warshawsky 2001)

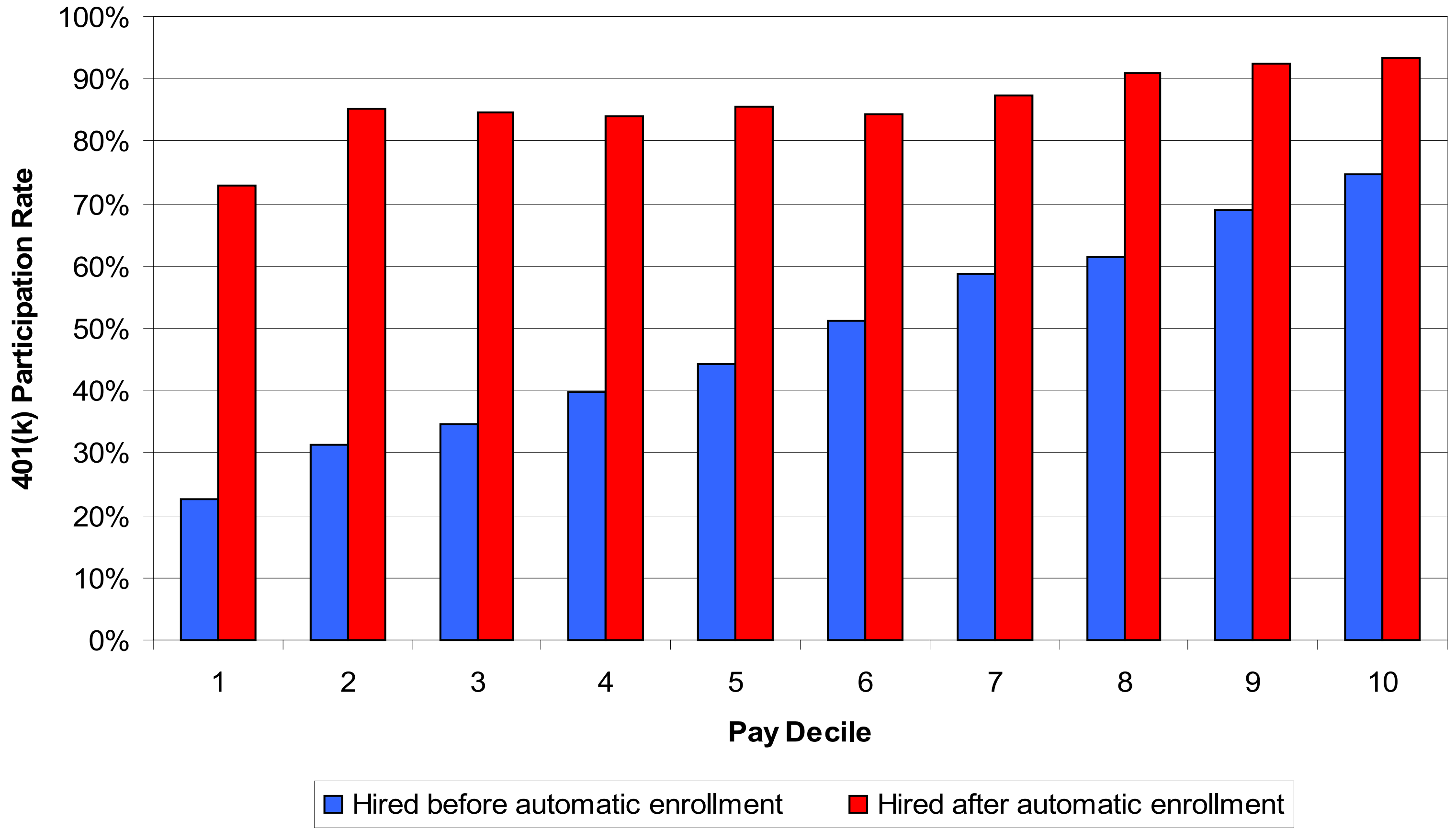
Case Study: Automatic Enrollment

- Madrian and Shea (2001), and Choi, Laibson, Madrian and Metrick (2001, 2002).
- Automatic enrollment (AE) raises participation rates by 60% (from 30% to 90%).
- Under AE, about 2/3 of participants adopt default contribution rate.
- Under AE, about 2/3 of participants adopt default asset allocation.

Automatic Enrollment Company Description

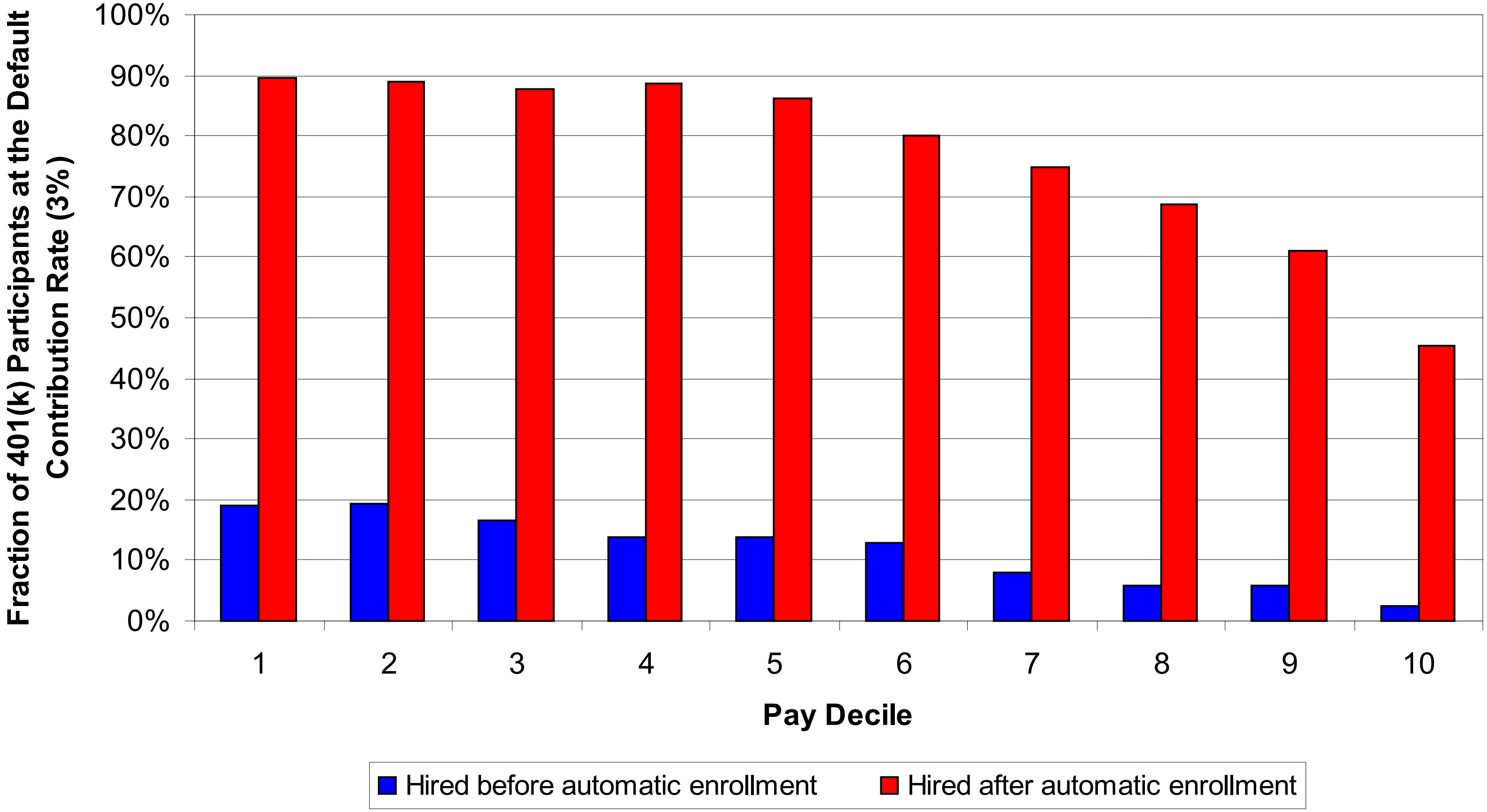
Industry	Health Services
Number of 401(k) eligible employees	30,000
Date automatic enrollment implemented	April 1, 1998
Employees affected	Hired on/after April 1, 1998
Opt-out period	30 days
Default contribution rate	3%
Default fund	Money market

Automatic Enrollment and 401(k) Participation by Pay Decile



Source: Choi, Laibson, Madrian, Metrick (2002)

Inertia at the Default Contribution Rate



Source: Choi, Laibson, Madrian, Metrick (2002)

Case study: “Active Decision”

- "Active decision" leads to a 20% increase in participation rates (from 45% to 65%).
- Default effects also evident in cash-distributions for terminated employees.

Policy Proposals

- Encourage automatic enrollment plans
- Encourage "active decision" plans (provide legal cover).
- Cap savings flows into company stock at 20% of total savings flows (and do not allow trades into company stock if balances are comprised of more than 20% company stock).

More Policy Proposals

- Cap management fees at 100 basis points.

- Legislate a default IRA rollover for all terminated employees with balances greater than $1000.

Controversial Policy Proposals

- Cap management fees at 50 basis points.
- Require that all investment vehicles are index funds in broad asset classes (plus company stock).

Policy Proposals that will Prevent Me from Serving in any Administration

(And May Not Even Be Good Ideas)

- Cap management fees at 25 basis points.
- Require that employers adopt automatic enrollment or active decision and a 5% (or higher) default savings rate.

Problematic Evidence

- Ambiguous survey language (“ahead”; “behind”; “target savings”; “should be saving”)
- Surveys are not incentivized
- Financial literacy may not be necessary for good decision-making
- Need a new model to beat the old model

Wealth, Credit Cards, and Consumption
Laibson, Repetto and Tobacman (2002)

- Write down a model of lifecycle consumption
- Incorporate all economic factors previously analyzed in the literature
- Add one additional parameter to capture self-control problems
- Estimate model using household data and the Method of Simulated Moments
- See pdf slides for continuation of presentation...