

# The Age of Reason

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# Behavioral Economics aka Psychology and Economics

Analysis of the psychological factors that influence economic choices.

- Asset pricing: e.g., bubbles
- Corporate finance: e.g., C-suite psychology
- Household finance: e.g., return chasing

Today: the aging individual investor



Brooke Astor, Age 51, 1953

National Medal of Arts (1988) and Presidential Medal of Freedom (1998)  
Anthony Marshall, her son, found guilty of grand larceny 2 years after her death.

# Distribution of wealth

Survey of Consumer Finances (2007)

(Dollars in 1,000's)

Age	Average Net Worth
<35	\$ 106.0
35-44	\$ 325.6
45-54	\$ 661.2
55-64	\$ 935.8
65-74	\$ 1,015.2
75+	\$ 638.2

# Balance Sheet of U.S. Households

Federal Reserve Flow of Funds (2009)

(Dollars in Trillions)

Assets	\$ 67.2
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Tangible	\$ 24.8
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Financial	\$ 42.4
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Liabilities	\$ 14.1
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Net Worth	\$ 53.1
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# Net worth of older adults (65+)

34% of \$53.1 trillion

= \$18.1 trillion

# Outline

1. The \$18 trillion question
2. Cognitive performance over the lifecycle
3. Dementia
4. Elder Abuse
5. The selection problem
6. Economic consequences
7. Psychological barriers
8. Advice
9. Regulation

## 2. Cognitive performance over the lifecycle

Cognitive function comes in two key categories:

- Crystallized intelligence (skills, knowledge, experience)
- Fluid intelligence (ability to solve new problems)
  
- Crystallized intelligence rises until the 60's
- Fluid intelligence starts falling quickly at age 20



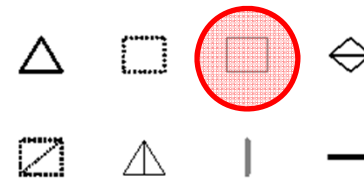
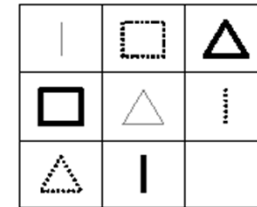
## Memory

Study the following words and then write as many as you can remember

Goat  
Door  
Fish  
Desk  
Rope  
Lake  
Boot  
Frog  
Soup  
Mule

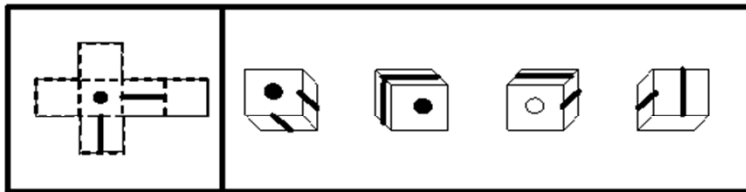
## Reasoning

Select the best completion of the missing cell in the matrix



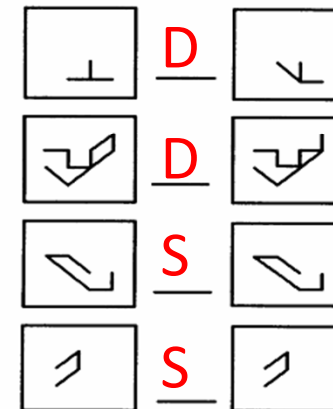
## Spatial Visualization

Select the object on the right that corresponds to the pattern on the left

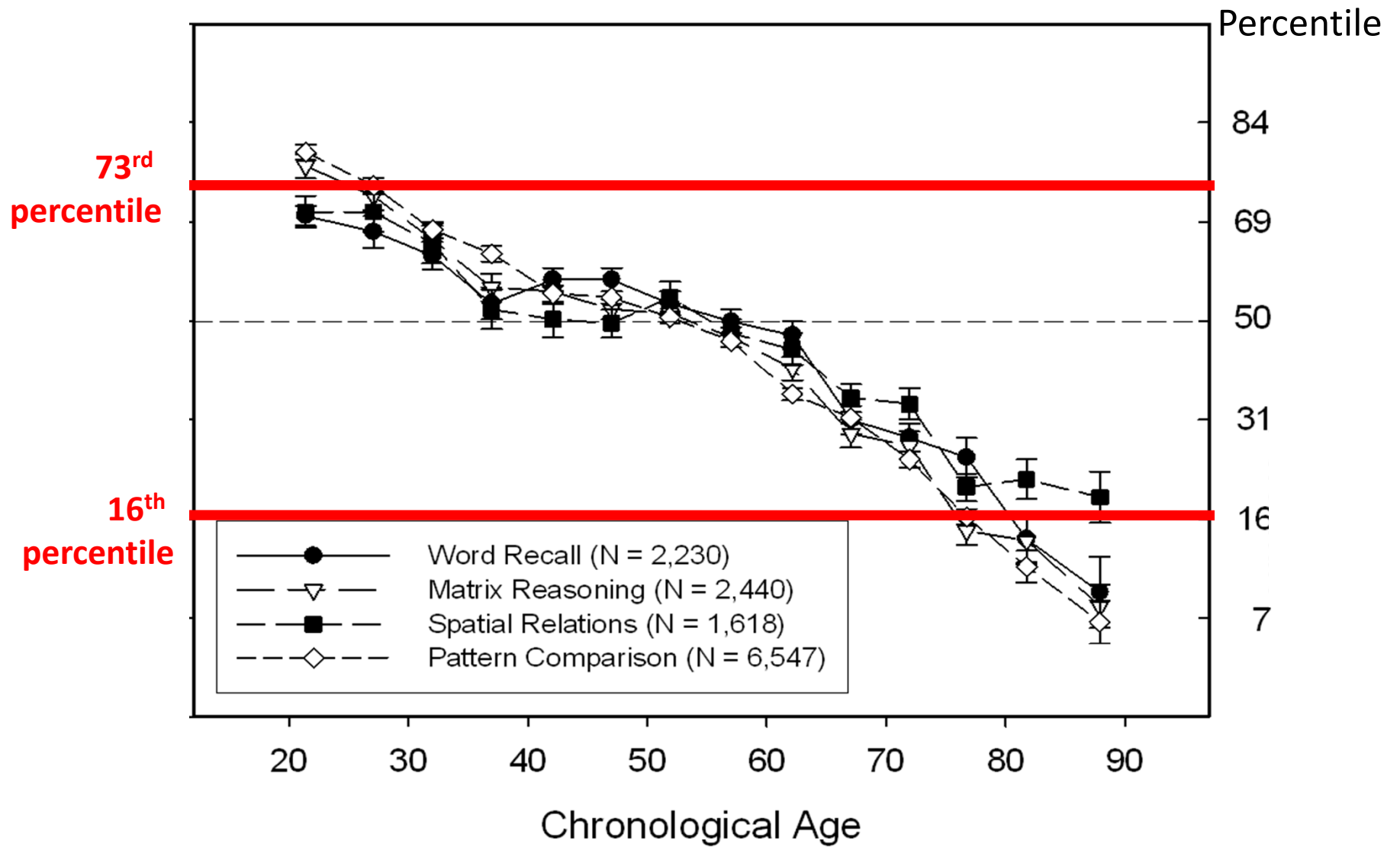


## Perceptual Speed

Classify the pairs as same (S) or different (D) as quickly as possible



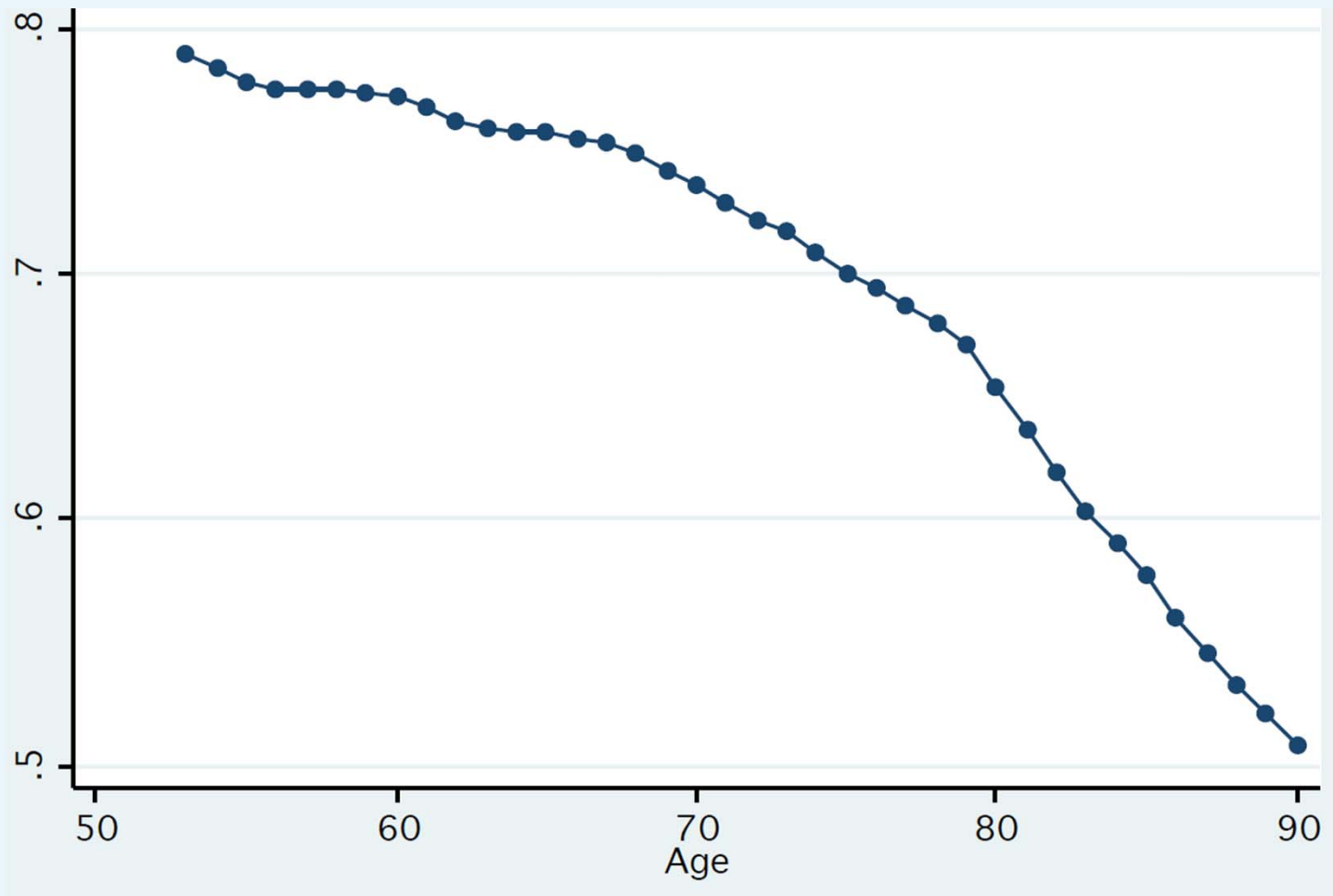
# Salthouse Studies – Memory and Analytic Tasks



Source: Salthouse forthcoming

“If the chance of getting a disease is 10 percent, how many people out of 1,000 would be expected to get the disease?”

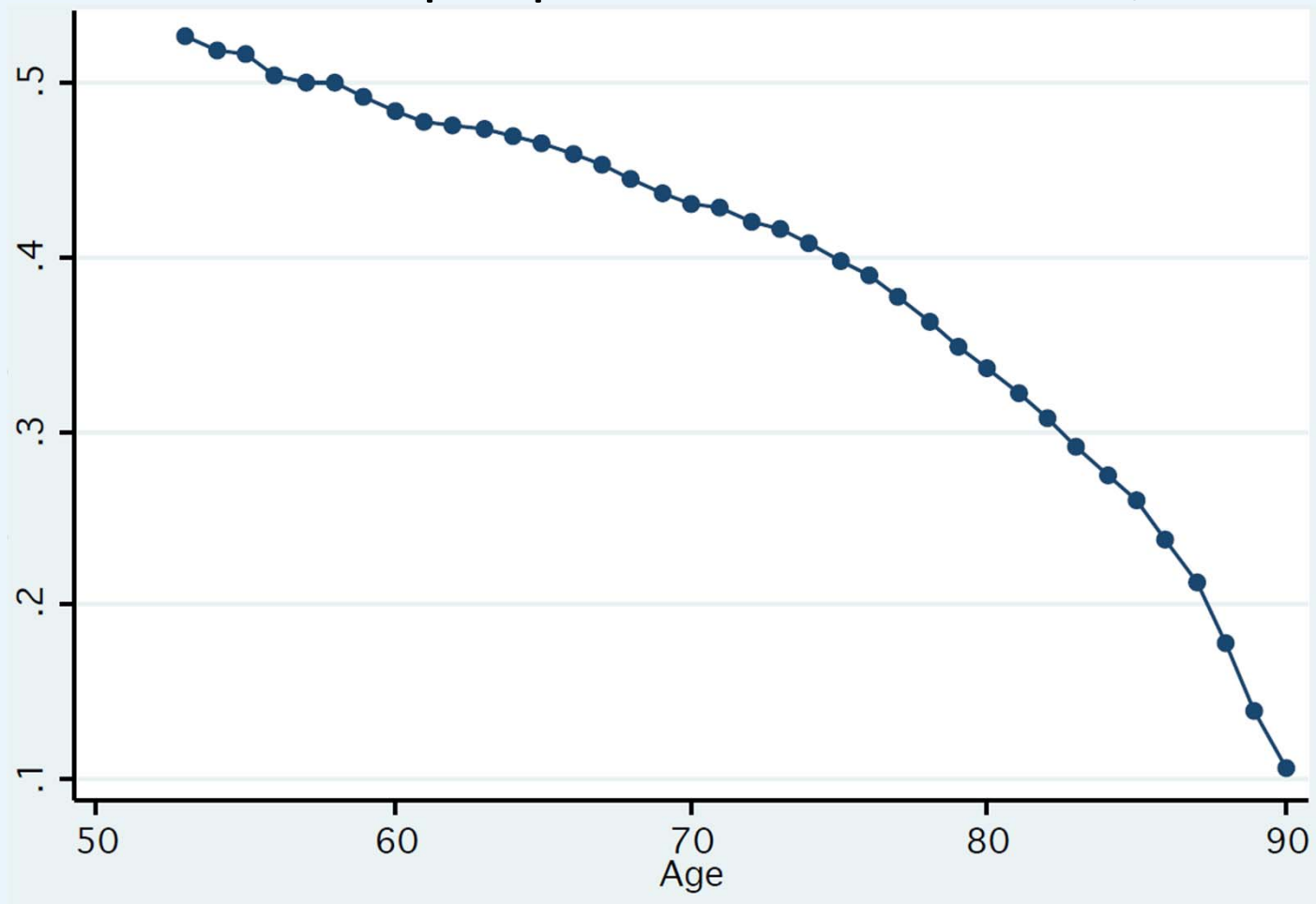
### Fraction of people who answer “100”



Source: HRS; Agarwal, Driscoll, Gabaix, Laibson (2009)

“If 5 people all have the winning numbers in the lottery and the prize is two million dollars, how much will each of them get?”

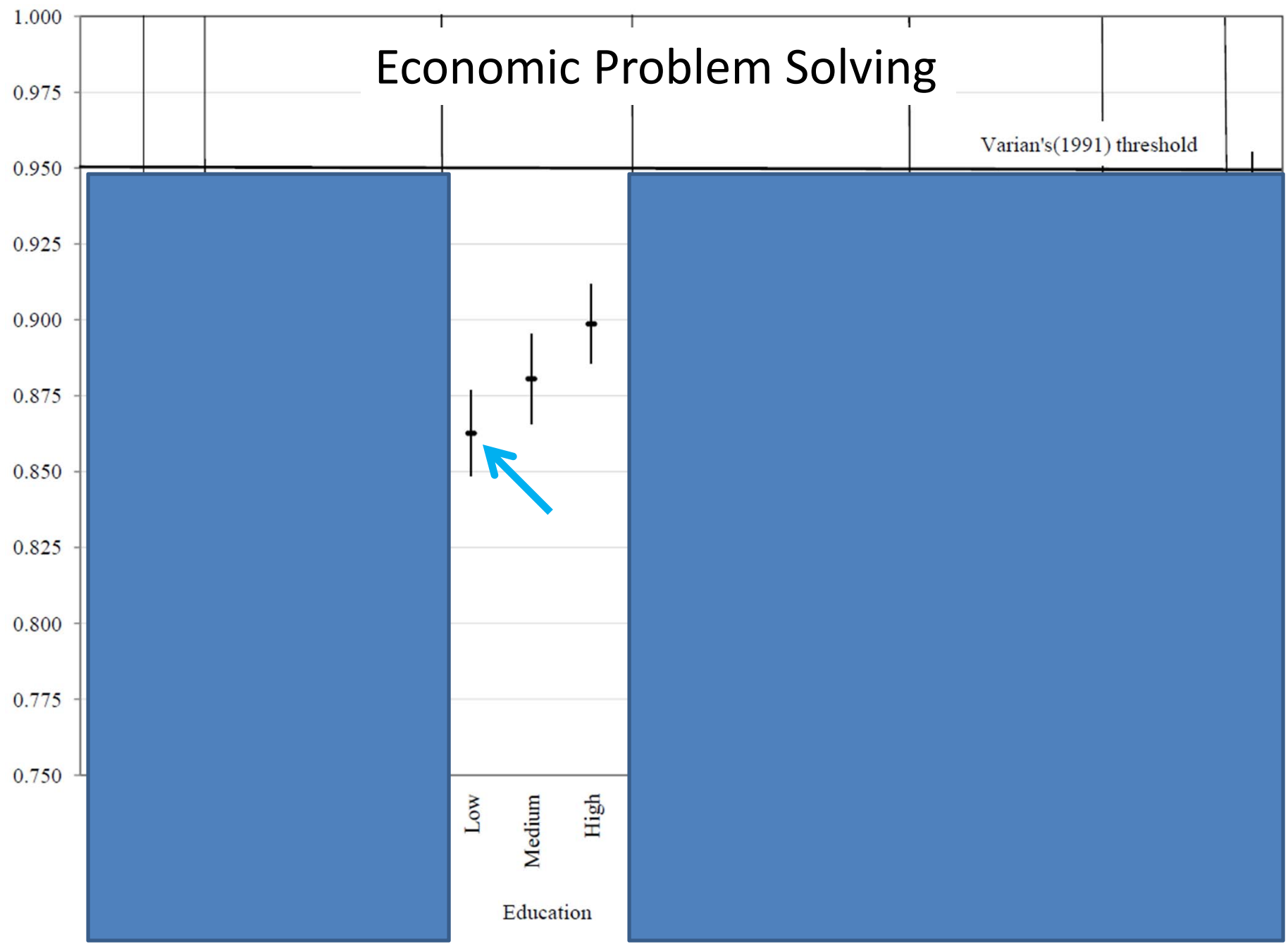
### Fraction of people who answer “400,000”



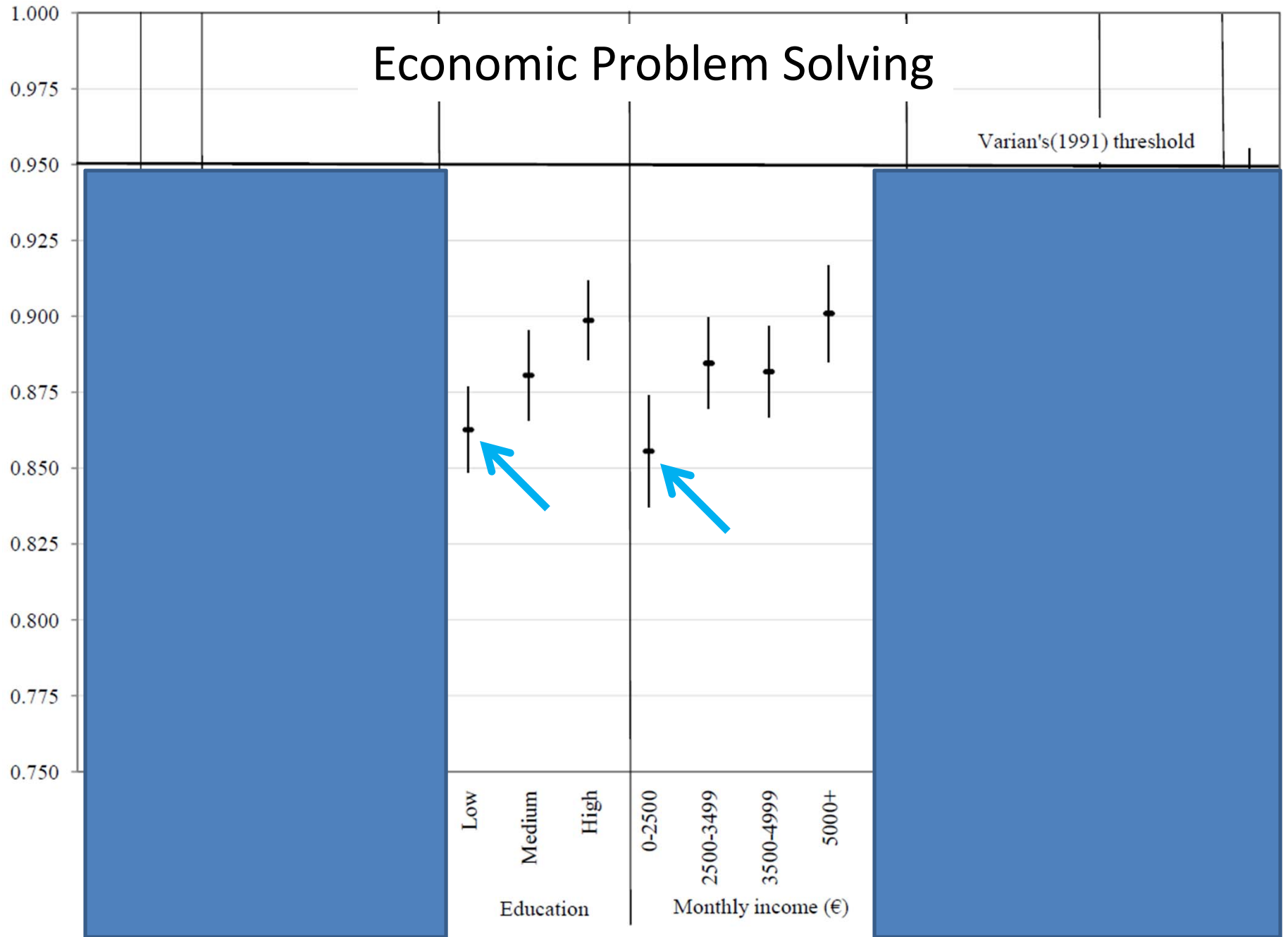
Source: HRS; Agarwal, Driscoll, Gabaix, Laibson (2009)

# Economic Problem Solving

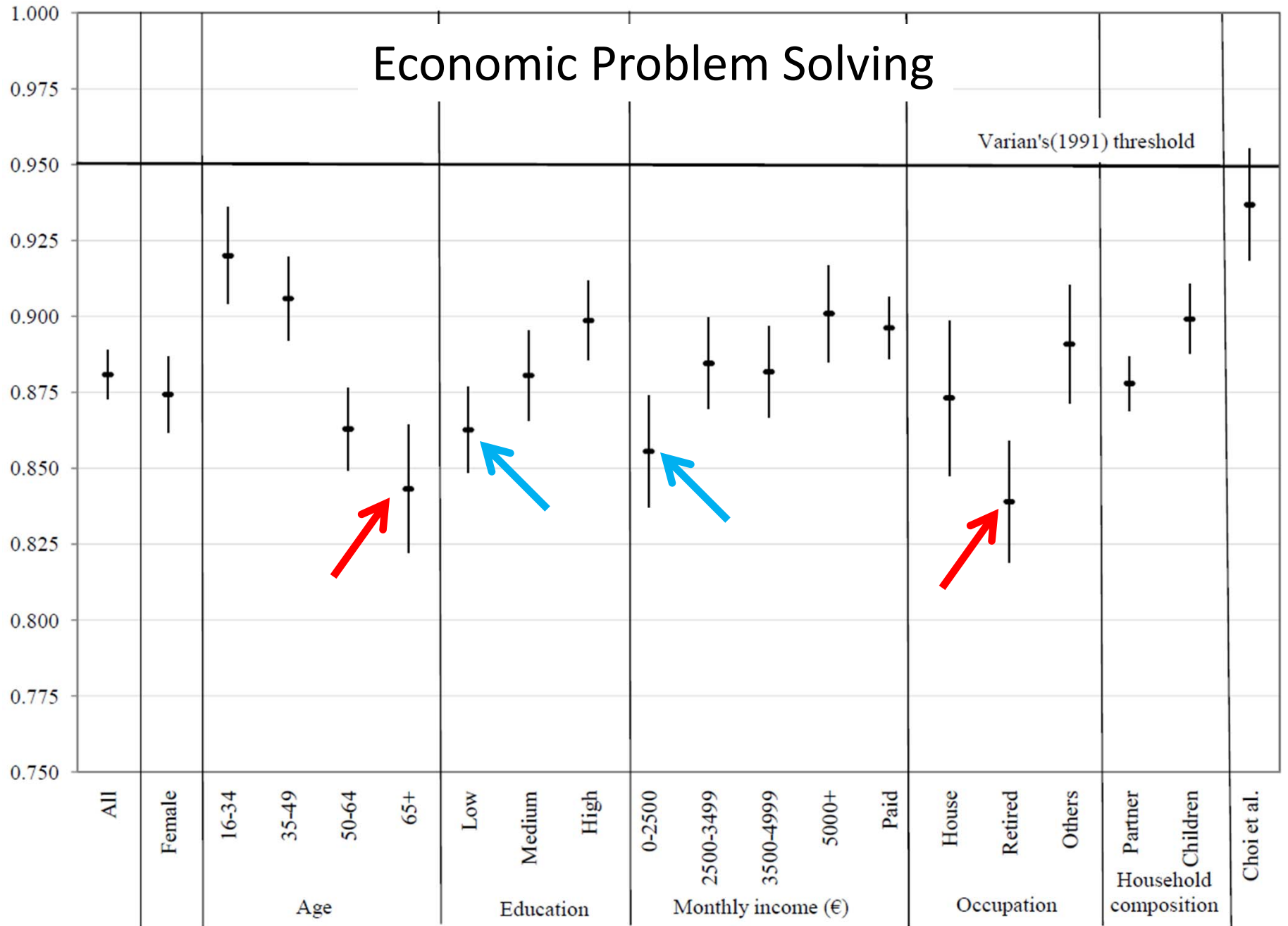
Varian's(1991) threshold



# Economic Problem Solving



# Economic Problem Solving



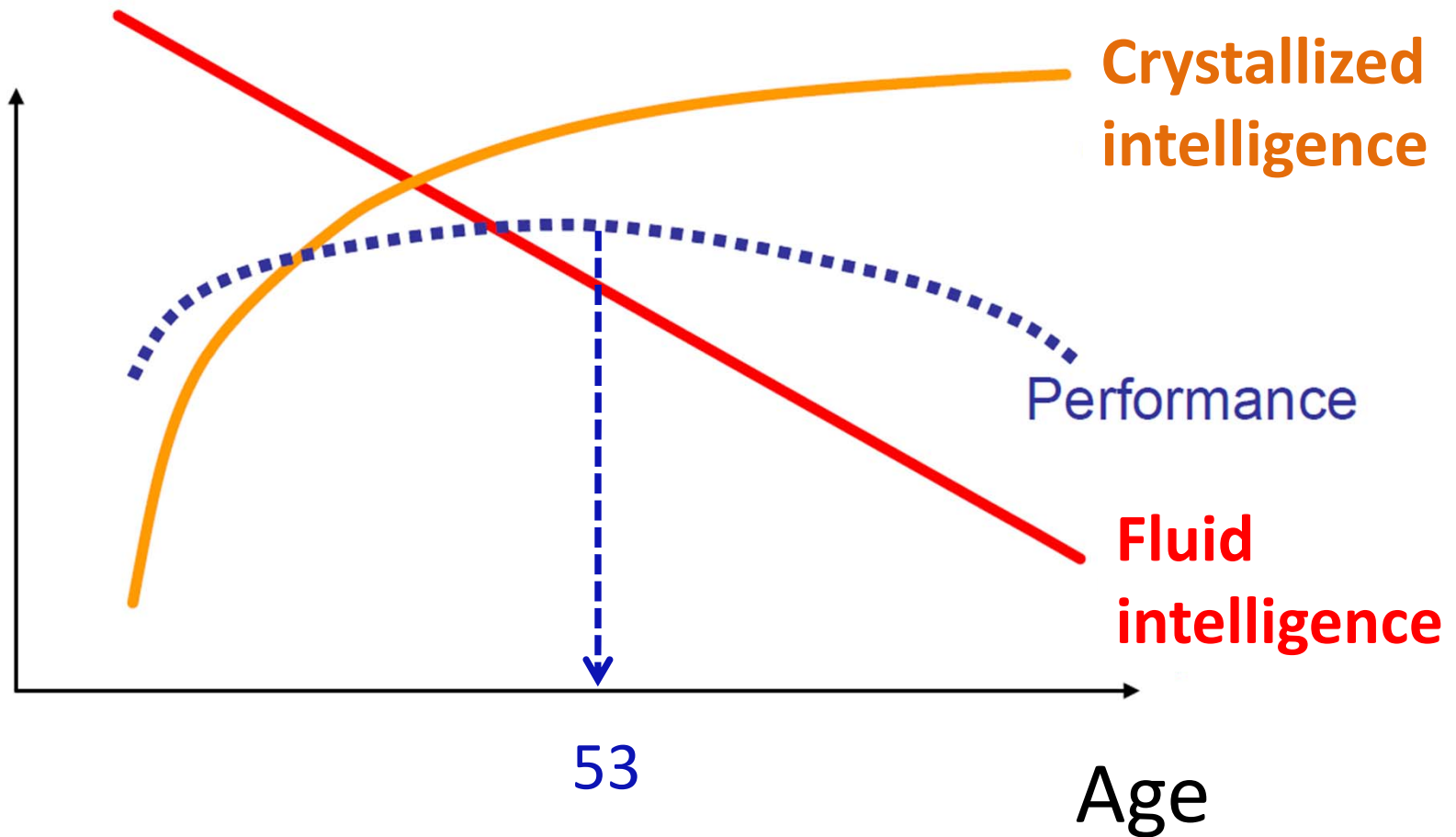
But I've only emphasized one kind of  
cognitive function...

We've talked about fluid intelligence  
(solving a new problem)

What about crystallized intelligence?  
(solving a familiar problem)



# Cognitive function



# Performance peaks

Late 20s: Baseball (James 2003)

Early 30s: Mathematicians, theoretical  
physicists, lyric poets: (Simonton 1988)

Mid-30s: Chess players (Charness and Bosnian 1990)







Early 40s: Autocratic rulers (Simonton 1988)

50: Novelists (Simonton 1988)

50s: Financial decisions

# 3. Dementia

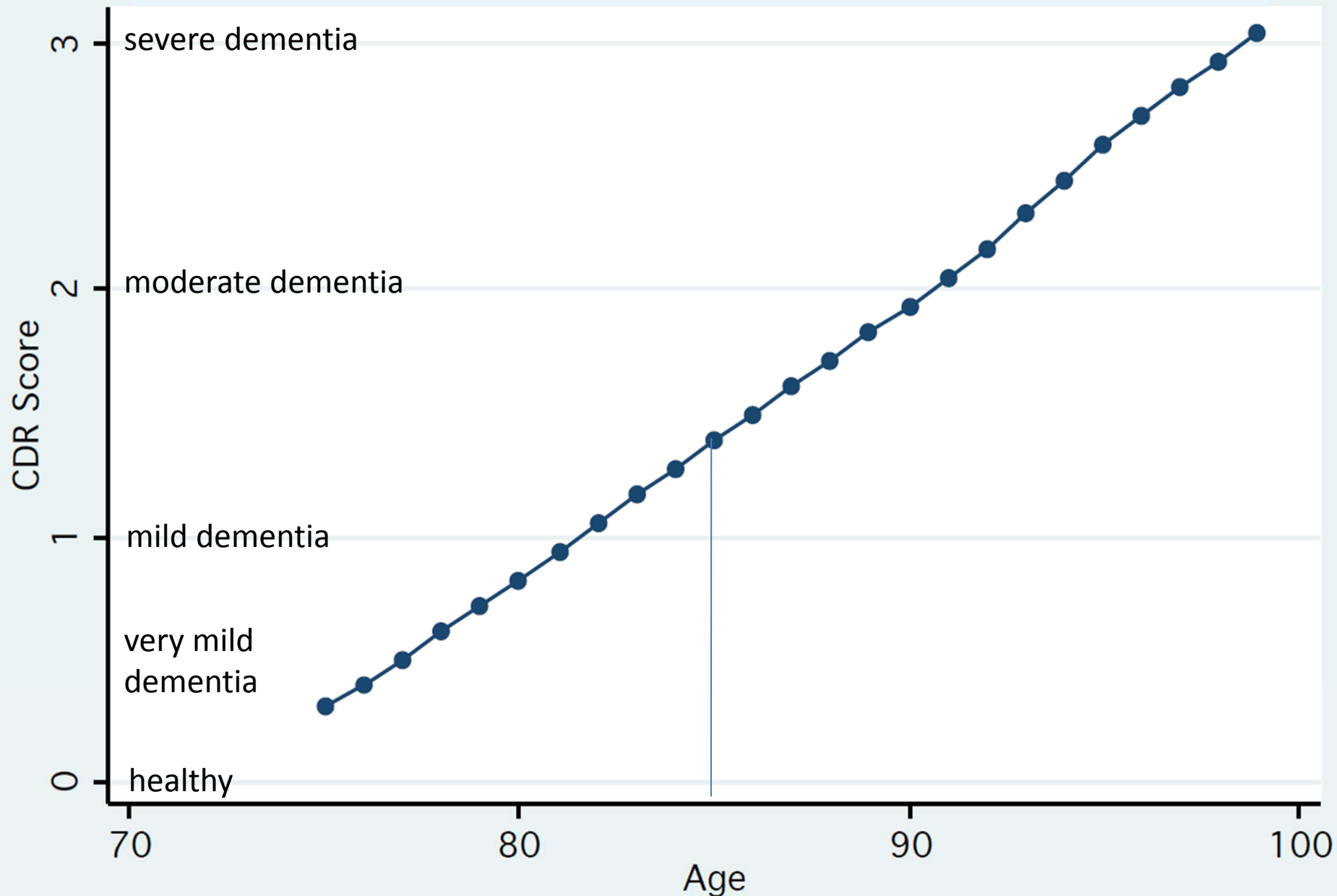
## Prevalence of Dementia in North America (%)

60-64	0.8 %		x 2.1
65-69	1.7 %		x 1.9
70-74	3.3 %		x 2.0
75-79	6.5 %		x 2.0
80-84	12.8 %		x 2.4
85+	30.1 %		

# Cognitive impairment without dementia

71-79	16.0 %
80-89	29.2 %
90+	38.8 %

# Average Clinical Dementia Rating (0-4 scale)



Source: HRS; Agarwal, Driscoll, Gabaix, Laibson (2009)

# Adding it up

- 10,000,000 American have CIND or Dementia
- 2,000,000 new American cases every year

## 4. Elder abuse

- 6% of older adults report significant abuse in the last month
- 25% of vulnerable adults report significant levels of psychological abuse
- 17% of professional care staff report committing psychological abuse and 10% physical abuse
- Over 80% of care staff report observing abuse

## 5. The selection problem

- People with cognitive decline tend to be less visible than other older adults
- It's an issue of both supply and demand.
- **Supply:** Who is in the supermarket, at the ball game, on the airplane?
- **Demand:** Would you rather watch a documentary about Killer Whales or Alzheimer's Disease?



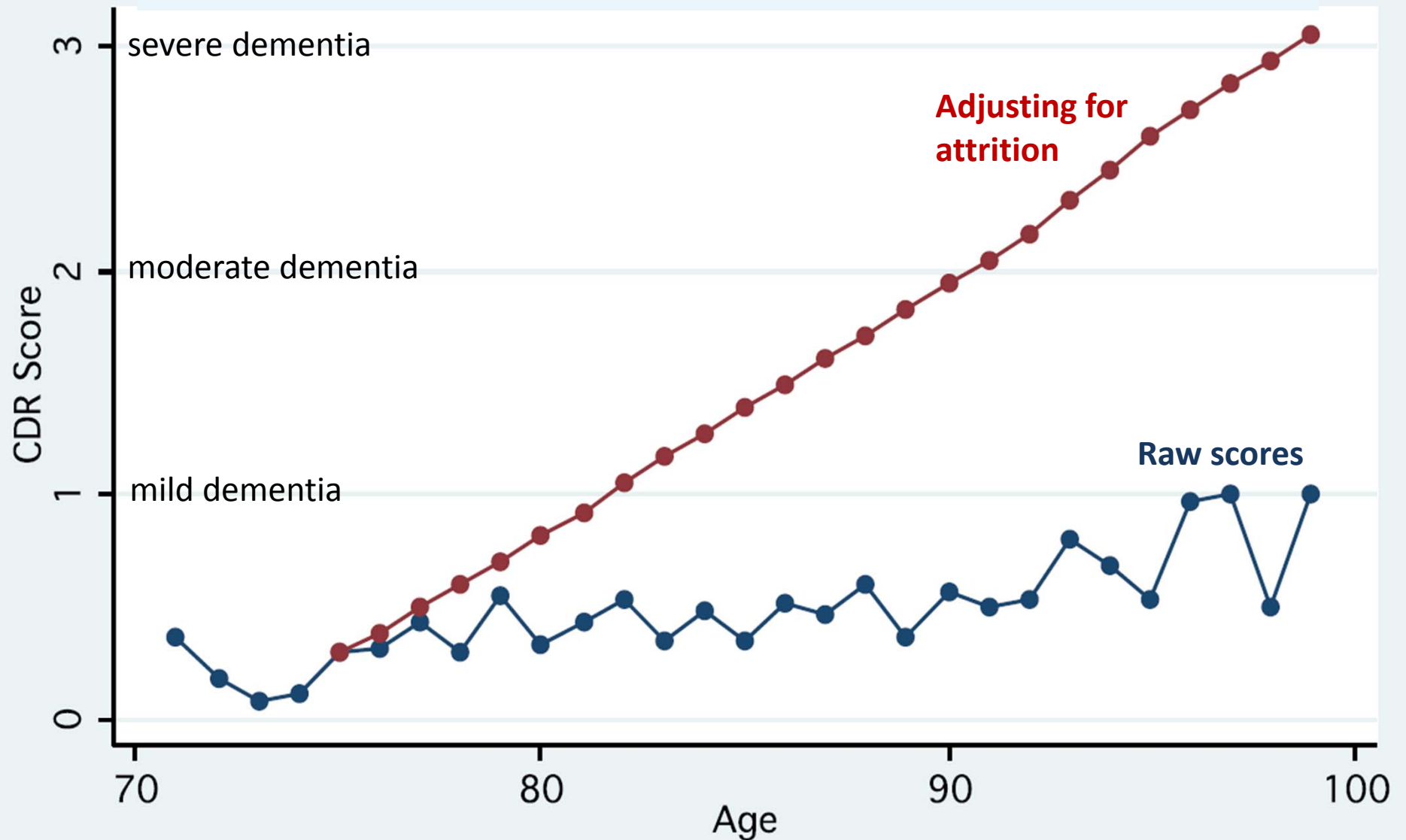
# Two faces of aging





The Notebook, starring James Garner and Gena Rowlands, 2004

# Average Clinical Dementia Rating (0-4 scale)



Source: HRS; Agarwal, Driscoll, Gabaix, Laibson (2009)

# Fraud

- Recent law enforcement action in Vermont, uncovered a criminal network that was defrauding older adults.
- The office of the Vermont Attorney General then checked to see what fraction of the victims had reported the fraud to law enforcement agencies.
- Answer: 1% of the cases.

# 6. Standard economic behavior

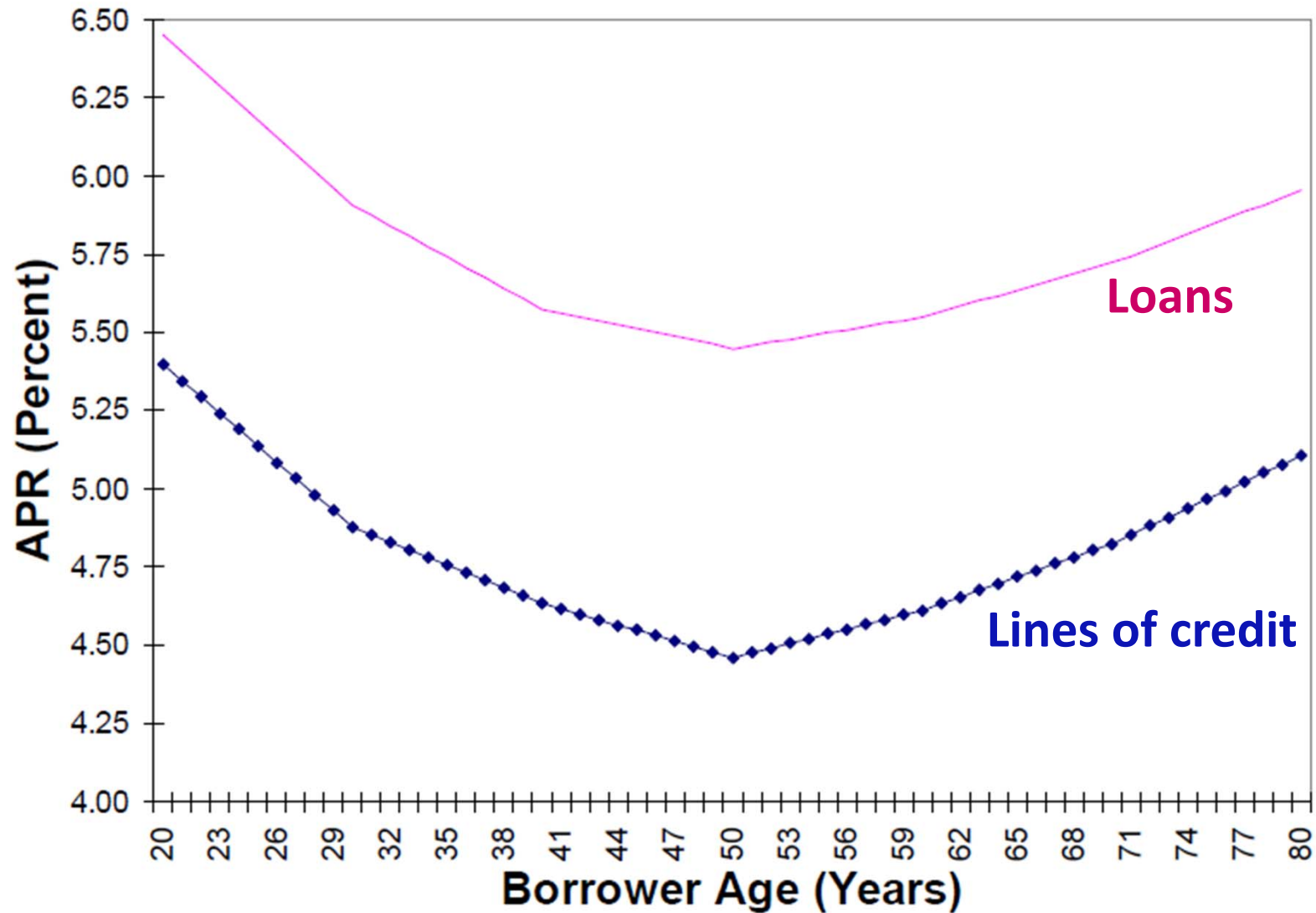
- Interest rates
- Credit cards
- Investing

# Survey evidence

Twenty percent of Americans aged 65 or older report that they have “been taken advantage of financially in terms of an inappropriate investment, unreasonably high fees for financial services, or outright fraud.”

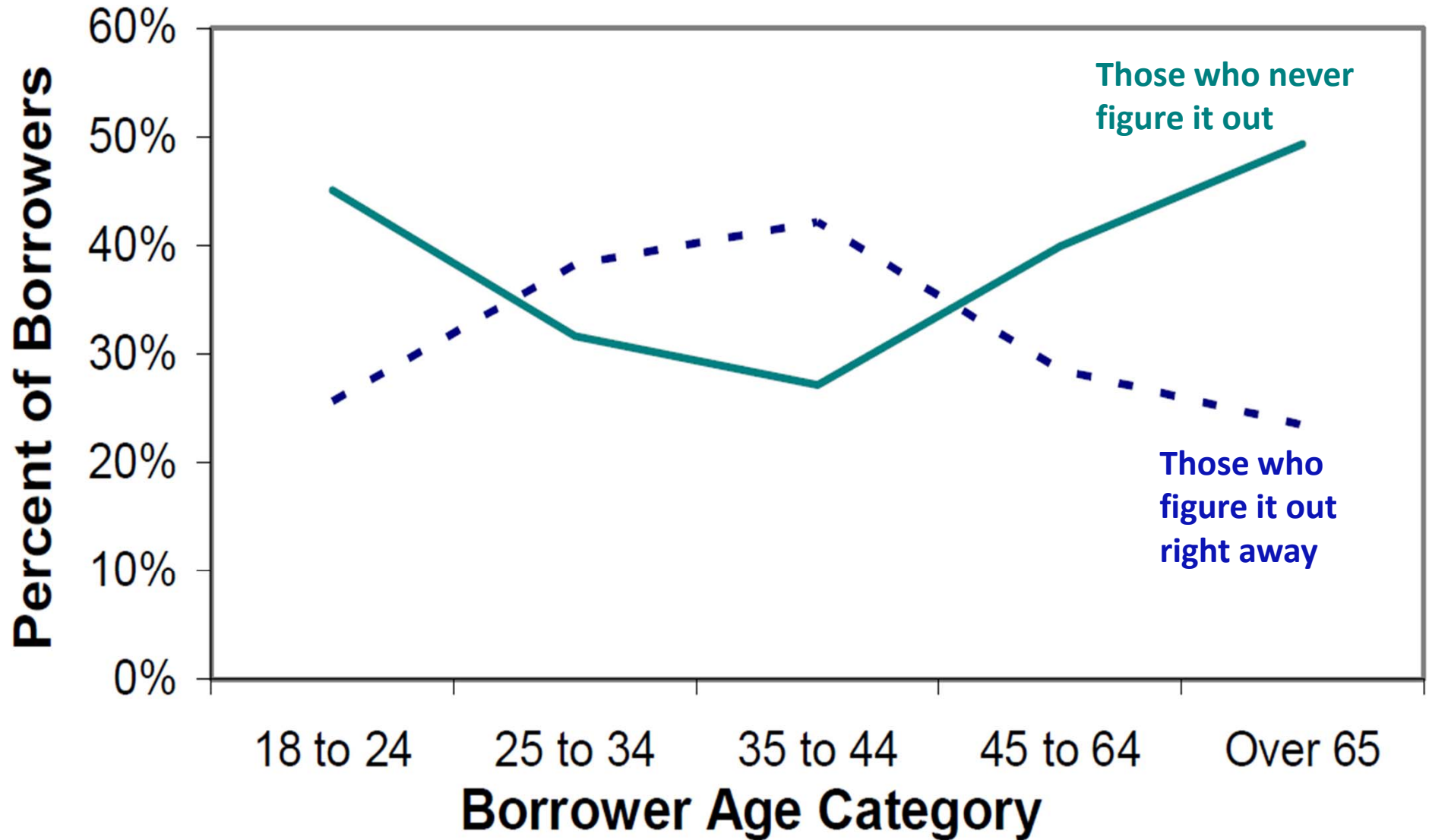
Source: Investor Protection Trust

# Home equity loan and line of credit APR by Borrower Age



Source: Agarwal, Driscoll, Gabaix, and Laibson 2009

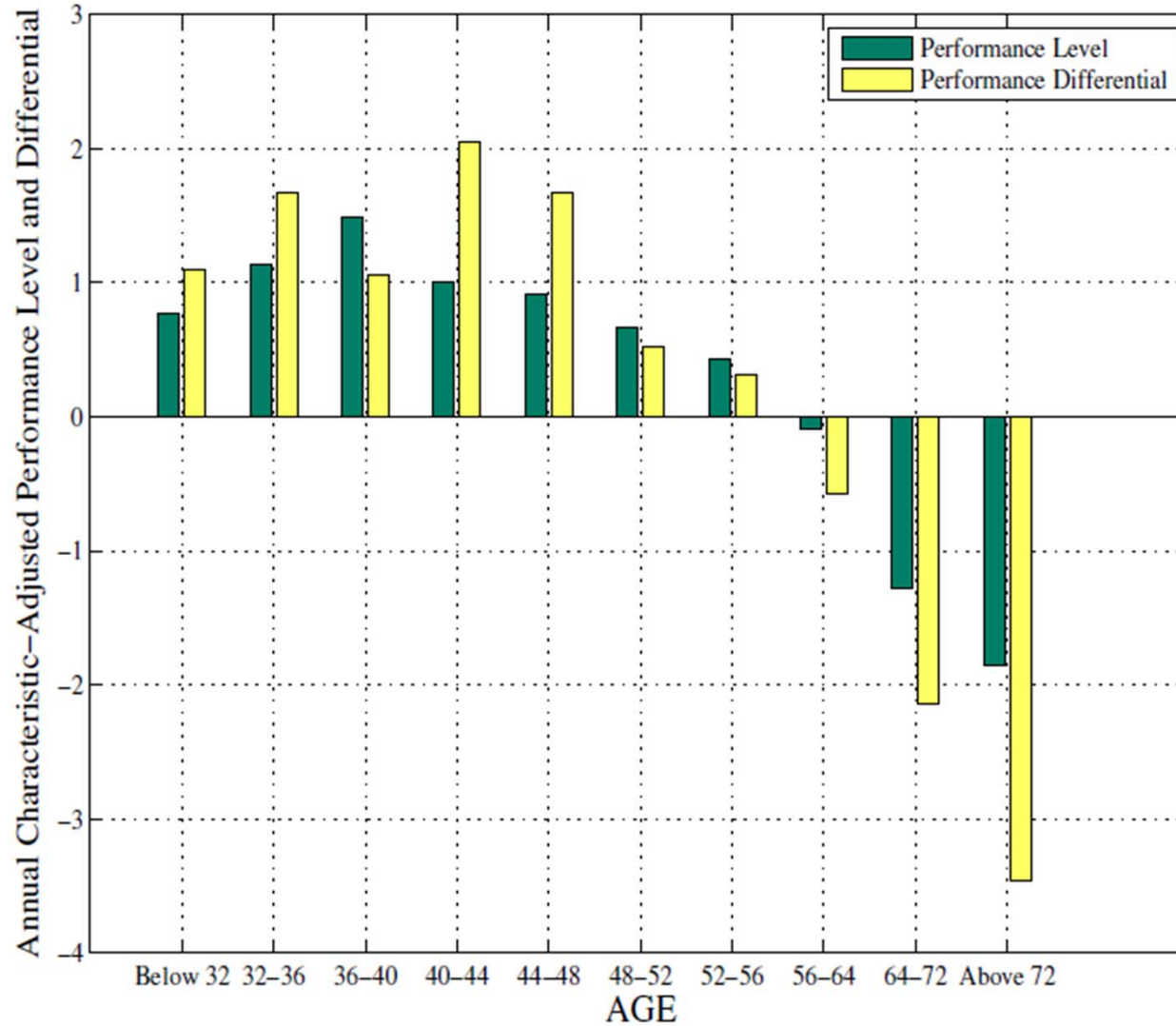
# Balance Transfer Ploy



Source: Agarwal, Driscoll, Gabaix, and Laibson (2009)



# Investment performance



# 7. Planning for cognitive decline

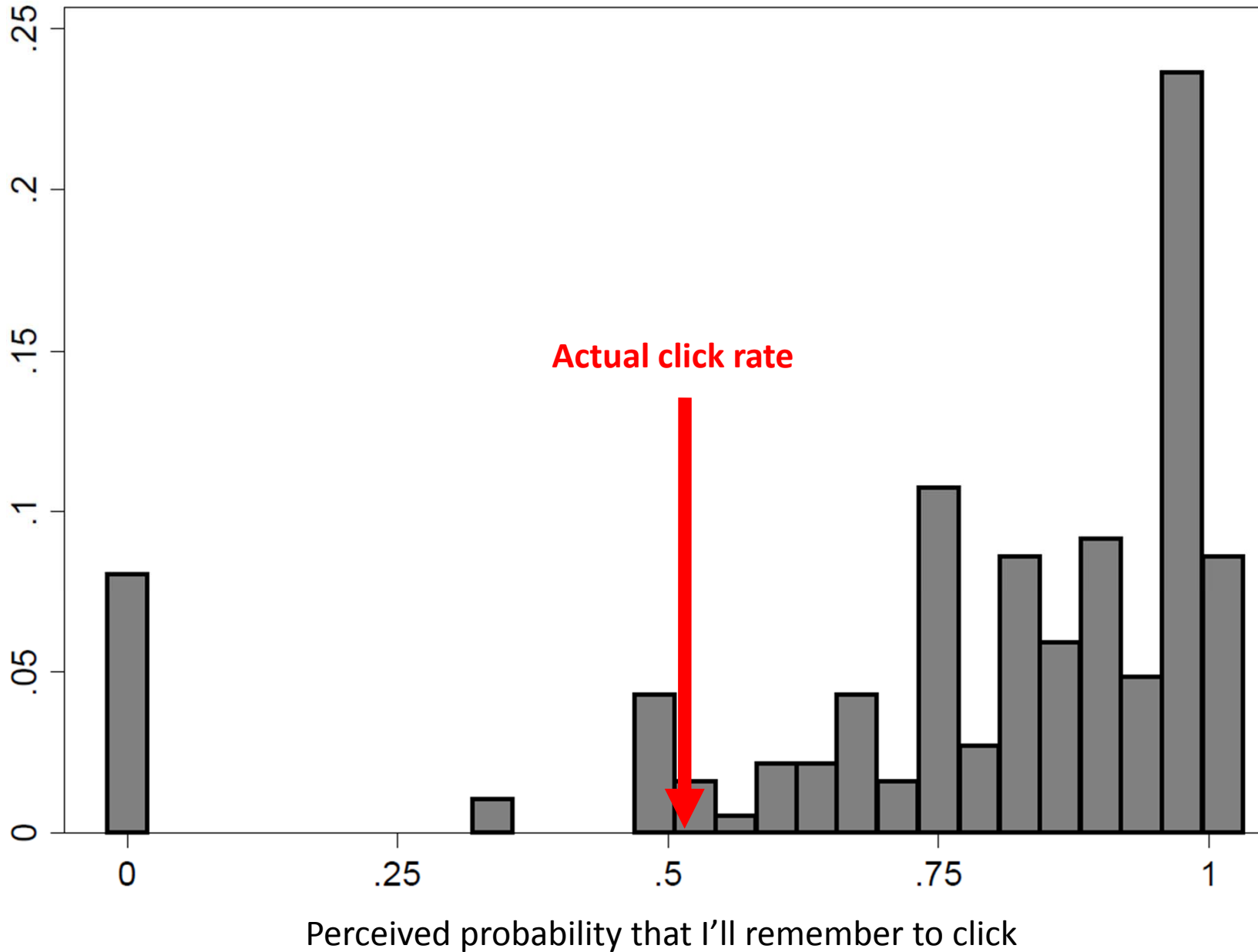
- Durable power of attorney (springing?)
- Living revocable trust
- Advanced medical directives
  - Health care power of attorney (health care proxy)
  - Living will
- And, of course, a Will

## 7. Psychological resistance to planning for cognitive decline

- Lack of meta-cognition: **My memory is fine.**
- Need for control: **I want to keep driving.**
- Over-optimism: **I won't have dementia.**
- Procrastination: **I'll do it next month.**
- Aversion to complexity: **A living revocable trust?**
- Aversion to annuitization: **All of the above.**

In addition, planning for cognitive decline is costly.

In six months, would you like **\$10 for sure**, or **\$13.33 if you remember to click?**



Ericson (2009)

# Resistance to annuities

Warner and Pleeter (2001)

- The US government offered retiring armed forces service members a choice between a term annuity and a lump sum
- Here's a typical example for officers:
  - Lump sum of \$46,219 (52%)
  - Annuity with NPV of \$82,908 (48%)
- Here's a typical example for enlisted soldiers:
  - Lump sum of \$22,283 (95%)
  - Annuity with NPV of \$39,972 ( 5%)
- Lump-sums have much lower NPV's but nevertheless are chosen more often

# Resistance to annuities

- Approximately 75% of defined benefit pensions are now elected to be received as lump-sum payments.
- Less than 5% of defined contribution pensions are transformed into annuities.

# Planning for cognitive decline

- Durable power of attorney (or springing)
  - Living revocable trust
  - Living will
  - Healthcare proxy
  - (and, of course, a Will)
- 
- Discuss long-term strategies when the client is still cognitively healthy

# Nudges

1. Estate planning is the **default** for every 65 year old
  - “It’s not about you.”
2. Regular check-ups (e.g., update trustee list, verify that beneficiaries have been appropriately designated)
3. Each check-up ends with an **“appointment”** for the next check-up (“June 2013”)
  - This legitimates future nudges
4. Family involvement is encouraged (but not required)



# Older adults

- Novel problems may be hard
- Memory may be failing
- Client and their family may be in denial
- Emotions and trust will matter more as analytic cognitive functions decline
- Passivity is common (unopened mail)
- Take action on the spot (be ready to do this)
- Keep it simple (one-dimensional choice)
- Build fail-safe systems (market-timing is not OK)
- But still give clients a sense of control

# Regulatory Proposals

After age 65, require durable power of attorney or springing power of attorney.

- Provide an inexpensive option (regulated and offered by the private market) for those who don't want a family member, friend, or attorney to take this role.
- Increase oversight and criminal penalties for attorneys-in-fact

# Regulatory Proposals

Establish a **fiduciary duty** for IRA advisers and asset management companies

- Use 401(k)/DC regulations as model
- Retirees should be as least as well protected as middle-aged adults
- Alternatively, encourage/require assets to remain in DC plans instead of rolling over to IRA's.

# Regulatory Proposals

Create a class of **safe harbor** financial products.

1. Diversified low-fee funds with an automatic monthly drawn-down mechanism after age 70.
2. Low-fee annuities and deferred annuities.
3. Other retirement products approved by regulator
  - Analogous to QDIA's in DC plans.
  - Safe harbor for fiduciaries (advisers and asset managers).
  - DC Rollovers would be defaulted into this safe harbor.
  - Large withdrawals/transfers from safe harbor would require notarized signature of asset owner, physician, spouse, and relevant fiduciaries.
  - In the event of mental incompetence, signature of attorney-in-fact would also be required.

# Business opportunity

Solve the decumulation challenge

- Protect assets from mischief
- Convert wealth into consumption
- Insure against longevity risk
- Insure against inflation risk
- Give aging investors a sense of control

The market is \$10+ trillion in AUM

## Three facts to remember:

- About half of the population in their 80's suffers from significant cognitive impairment, effectively rendering them incapable of making important financial choices.
- Nevertheless, our existing fiduciary protections are far greater for 50 year olds than 90 year olds.
- There is \$18 trillion at stake.

# Estate planning

- Estate planning is not just tax planning or bequest planning
- Planning for cognitive decline is just as important
- The principal may be incapacitated for decades
- Who can manage their affairs when they can't?
- Need a committee of trustees that is trustworthy, knowledgeable, and competent. A committee is often a good solution when there are conflicts of interest.

# Communication strategy:

- “I’ve noticed that you are having some memory problems and that made me think that we should have a conversation about a living revocable trust.” (wrong)
- “I ask every client I advise to set up a living revocable trust before age 65, which is long before cognitive decline is an issue.” (right)
- The conversation should be triggered by age-based rules, far in advance of the 70’s.



# Application to estate planning

- We should make estate planning easy
- Switch to an opt-out philosophy (e.g. everyone should be required to have durable power of attorney, unless individual opts out)
- Start early (40+)

# Application to Estate Planning

- Create automatic mechanisms that determine when control is passed to trustees/attorney-in-fact (pre-scheduled annual family/physician meeting)
- Set up these transition mechanisms no later than the 60's (pre-commitment)
- Pre-commit investment strategy of trustees so principal retains indirect control (so transfer of control is less psychologically difficult)
- Give principal as much control as possible, even with diminished capacity

# Conclusion

1. The \$18 trillion question
2. Cognitive performance over the lifecycle
3. Dementia
4. Elder Abuse
5. The selection problem
6. Economic consequences
7. Planning for cognitive decline
  - Durable power of attorney
  - Living revocable trust
8. Psychological resistance

# Opportunities

- Current institutions are unsatisfactory
- Transitions are problematic
- Little or no middle ground
- Little psychological sophistication
- Little traction beyond high net worth

# Notes:

- Durable power of attorney (appoint two and two replacements)
- Exploit checks and balances: attorney-in-fact should have reporting obligations
- Select young trustees (and young replacements)