230B: Public Economics

Tax Favored Retirement Accounts: IRAs and 401(k)s

Emmanuel Saez

Berkeley

RETIREMENT PROBLEM

Individuals ability to work declines with aging $\Rightarrow$ Individuals continue to live after they are unwilling/unable to work

Standard Model Prediction: Absent any government program, rational individual would save while working to consume savings while retired

Optimal saving problem is extremely complex: uncertainty in returns to saving, in life-span, in future ability/opportunities to work, in future tastes/health

In practice: When govt was small $\Rightarrow$ Many people worked till unable to (often till death) and then were taken care of by family members (paygo system not funded) [US elderly poverty rate very high before SS]

SOURCES OF RETIREMENT INCOME

1) Social Security retirement benefits: more than 50% of retirement income for 2/3 of US elderly families

2) Home Ownership: 75% of US elderly are homeowners

3) Employer pensions (tax favored): 40-45% of elderly US households have employer pensions. Two types:

a) Traditional: DB and mandatory: **employer** carries full risk [in sharp decline, many in default]

b) New: DC and elective: 401(k)s, **employee** carries full risk

4) Supplementary individual elective pensions (tax favored): IRAs and Keoghs (self-employed)

5) Extra savings through non-tax favored instruments: significant only for wealthy minority [=10% of retirees]

PRIVATE RETIREMENT PROGRAMS

Used to be traditional DB plans: mandatory, employer manages contributions and investment, benefits are annuitized and depend on retirement age, tenure, and past salaries: highly regulated, lots of risk for employers, risk for employees if employer goes bankrupt [govt provides minimal insurance]

Shift to DC plans called 401(k)s: individual chooses level of contributions (as % of salary), investment choices (through a mutual fund) $\Rightarrow$ All the decisions and risk is on the employee

DB coverage used to be 50% of workforce, 401(k) coverage is around 60% of workforce but only 40-45% of employees participate [CPS Contingent Work Supplements, CWS, 2005).

IRAs: Individual Retirement Arrangements, start in the 1970s, additional private contributions for workers with no employer pension or low incomes.

TAX ADVANTAGE

All private pensions (DB+DC) and IRAs have always been tax favored: contributions are not considered income, contributions grow tax free (no tax on annual return), benefits or withdrawals are taxed as ordinary income when received

Constant annual return r and flat tax on capital and labor income at rate τ: \$1 earned and invested has value V after T years

1) NO TAXES: $V_{NT} = (1 + r)^T$

2) TAXABLE ACCOUNT: $V_T = (1 - \tau)(1 + r(1 - \tau))^T$

3) 401(k) or deductible IRA (back-end, postpaid tax): contributions deducted from taxable income: $V_D = (1 + r)^T(1 - \tau)$

10% tax penalty on early withdrawals (before age 59.5)

BACK-END VS FRONT-END TAXES

4) Roth IRA (front-end, prepaid tax, introduced in 1998): $V_R = (1-\tau)(1+r)^T$

$V_T < V_D = V_R < V_{NT}$

Note: $V_D \neq V_R$ if tax rates are not constant over time (bracket change or tax reform)

Tax on dividends and capital gains is also less than labor income tax

Note that investments in tax favored accounts still pay the corporate income tax (but incidence is not clear)

Switch from Traditional to Roth IRA makes current federal budget look better at the expense of future budgets. Switch is a net looser for govt revenue if average return in IRAs is bigger than return of government debt

KEY QUESTIONS ABOUT IRAs and 401(k)s

1) Effects on Savings:

a) Do they increase household savings and financial security in retirement?

b) Do they increase national savings? National Savings = Household + Corporate + Govt savings

c) Identify the elasticity of savings or wealth with respect to rate of return.

2) Understanding Savings (behavioral economics):

a) Do households respond solely to financial incentives? (net-rate of return, match, etc.)

b) Do households respond to institutional features? (defaults, menu of investment choices, framing, etc.)

IRAs: Individual Retirement Arrangements

Started in 1974 for workers with no employer pension

Eligibility extended to all workers in 1981

TRA'86 restricted eligibility only for those with no pension or AGI below $50K [non-deductible contributions possible, but not as advantageous and not used much]

In 1998, Roth IRA introduced for AGI below $100K (front-end tax instead of back-end).

2001-08 contribution limits increase from $2K/year to $5K/year [low so bind in most cases], now indexed to inflation (limit is $5.5K/year in 2014)

Individuals choose contributions and investment through mutual funds [little regulation]

EMPLOYER BASED 401(k) PLANS

Start in 1978, Key differences with IRAs:

1) worker can contribute to 401(k) only if his employer sponsors such a plan. 60% of workers eligible, 40-45% participate

2) higher contribution limit: in 2014 $17.5K/year (indexed)

3) contributions deducted from paycheck automatically once enrolled in the plan

4) employers often offer matches to induce higher participation: typical match 50% up to contributions of 6% of salary.

5) 401(k)s organized around the workplace: spillovers across employees, financial education at the workplace

6) Opt-in vs. opt-out [employers can set default option]

IRAs and 401(k)s: Theoretical Effects on Savings

Key questions: Absent IRAs or 401(k)s, how much less would households save? How much less wealth would they have? Do contributions represent new savings or simply shifting of other saving?

Show graph: (c_1, c_2): Savings $s = w - c_1$ and retirement wealth $c_2 = s(1 + r)$ or $c_2 = s(1 + r(1 - \tau))$: Tax subsidy increases c_2 (income+substitution effects), ambiguous effect on c_1 (and hence savings s) [show also graph with IRA limit]

Controversial empirical question because no perfect identification source. Survey JEP 1996: Engen-Gale-Scholz argue no effects on savings, Poterba-Venti-Wise, argue strong effects on savings.

Bernheim Handbook chapter 2002 provides detailed survey of this older literature

EMPIRICAL FINDINGS: Big Picture

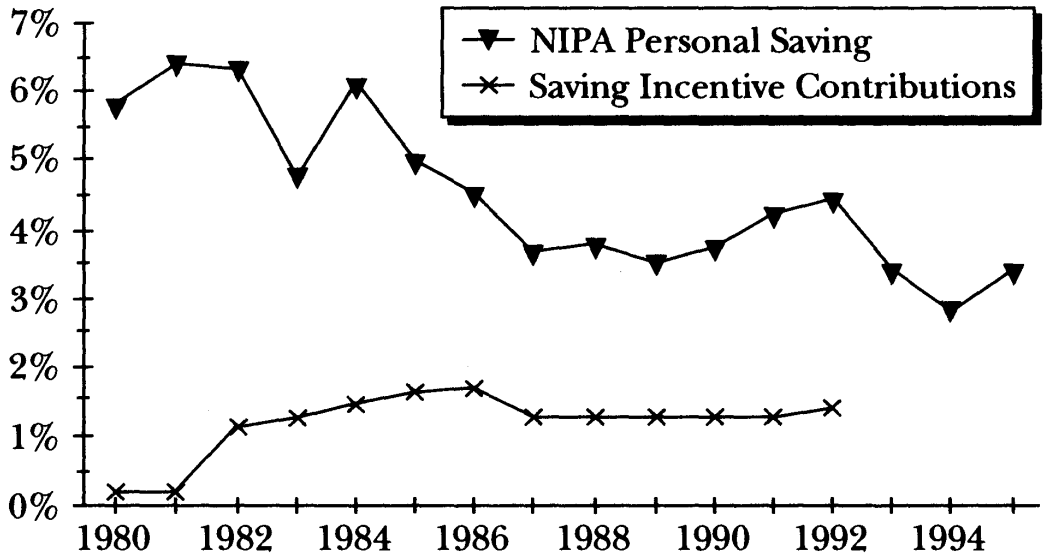
1) Engen-Gale-Scholz: Aggregate personal savings rate in the US has decreased from 10% in late 1970s to about 0% in the 2000s in spite of increase in 401(k)+IRA contributions

$\Rightarrow$ Suggests no effect on savings but not conclusive as savings could have fallen more absent 401k+IRAs.

2) Sum of total retirement savings to payroll have been stable

$\Rightarrow$ Suggests that increase in 401(k)s has just replaced disappearing DB plans with no overall increase in retirement savings.

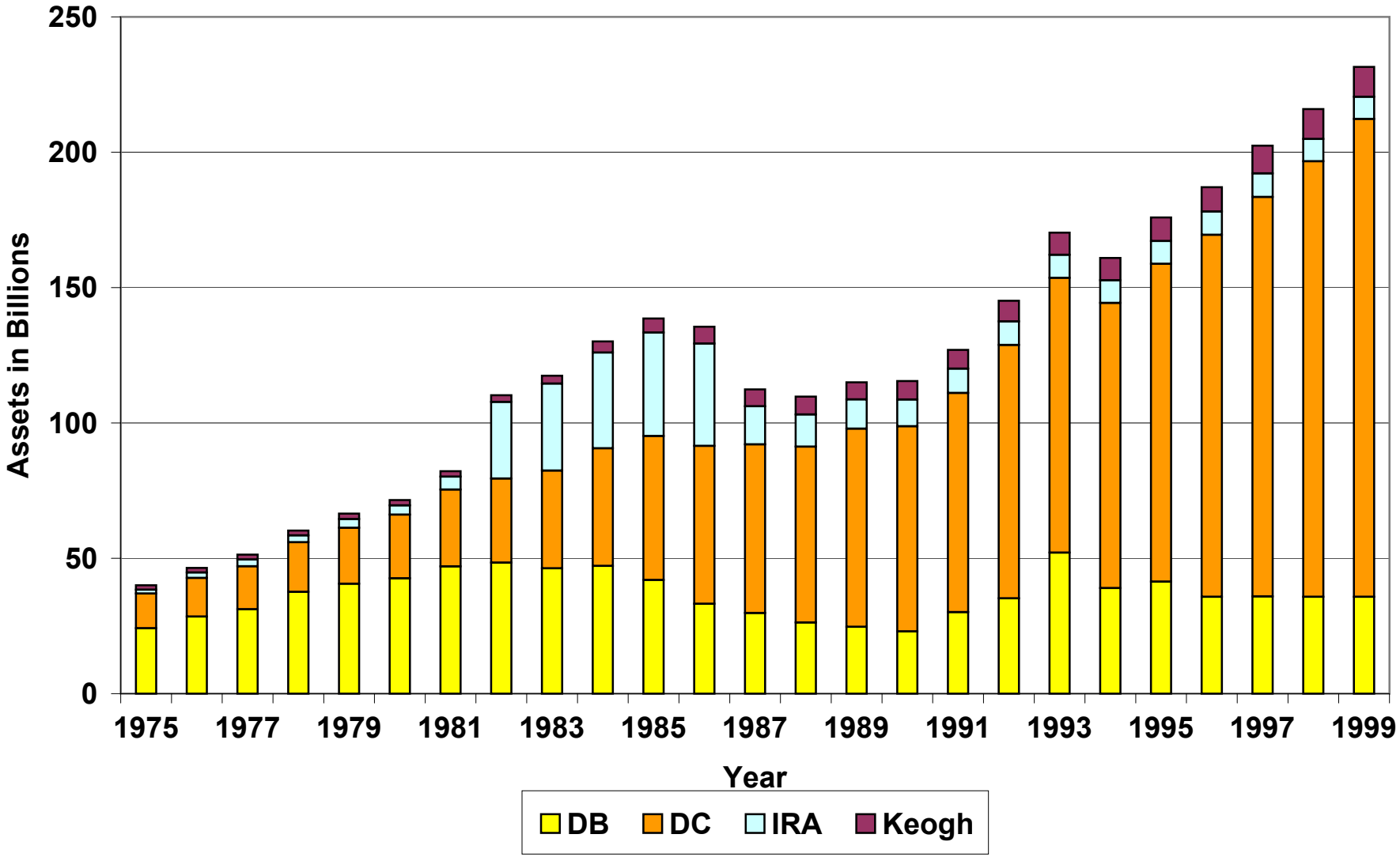
Figure 1
Personal Saving and Saving Incentive Contributions as a Percentage of GDP, 1980–1995



Sources: National Income and Product Accounts and the references in footnote 1.

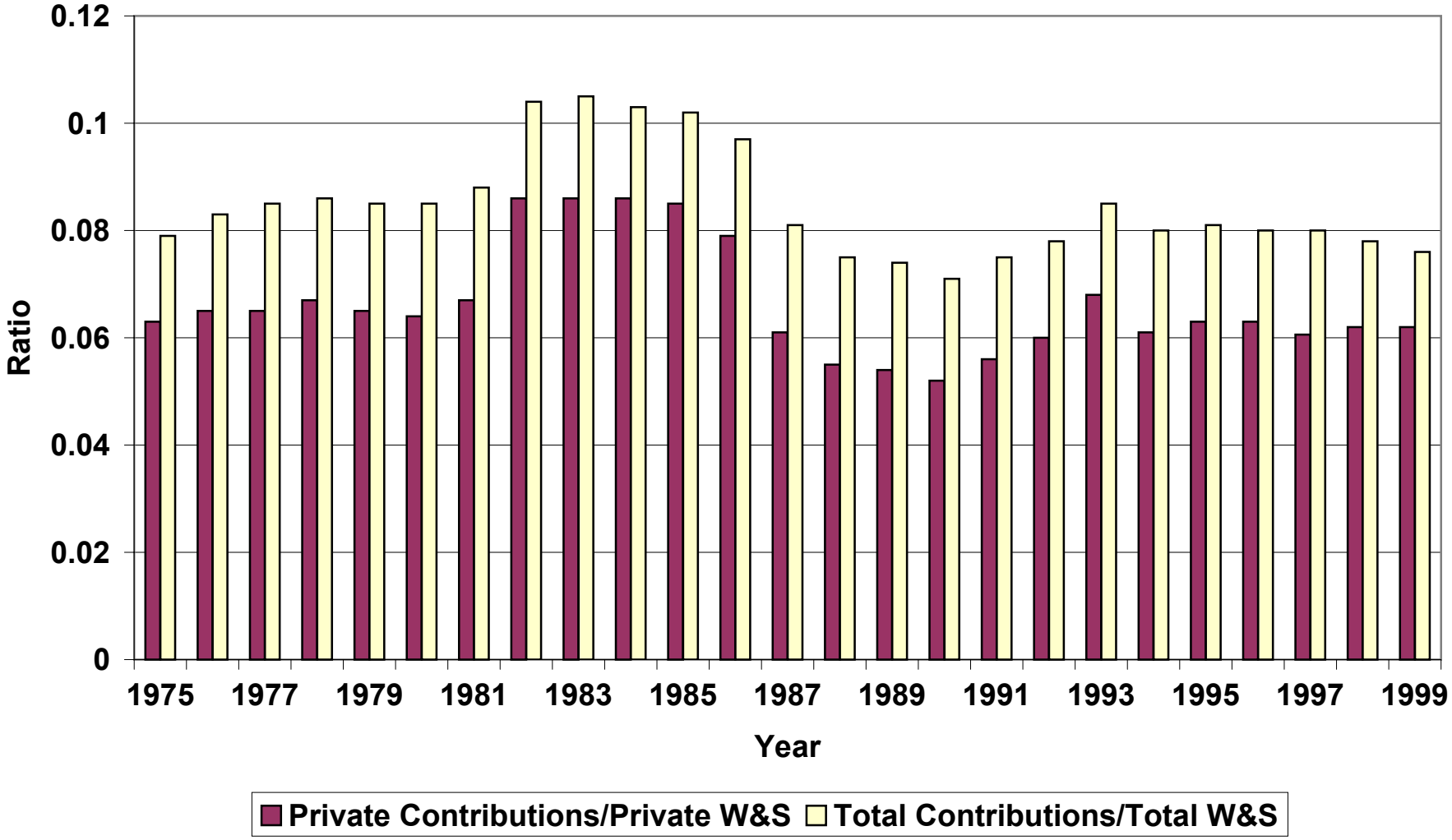
Source: Engen et al (1996), p. 116

Figure 5a. Private Pension Contributions



Source: statistics computed by the author(s)

Figure 6b. Ratio of Private and Total Pension Contributions to Wage and Salary Earnings



Source: statistics computed by the author(s)

IRA Effects

Ideal experiment: randomized variation in IRA eligibility and compare subsequent saving and wealth accumulation behavior.

Pb: IRA eligibility is not randomized (depends on employer pension and AGI) and contribution decision is endogenous

1) Early literature: Compares wealth W_i of contributors vs. non contributors: OLS regression: $W_i = \alpha + \beta IRA_i + \varepsilon_i$. Pb: contributors may have higher taste for savings

Solution: Control for observables (income, initial wealth, fixed effects). Pb: omitted variable bias, results sensitive to controls (Gale-Scholz AER 94 vs. Venti-Wise papers).

2) Exogenous changes in eligibility: 1982 expansion for workers with employer pension (treatment) compared to workers with no employer pension (control). DD estimator, pb is that no good data are available

401(k) Effects on Savings

Identification strategy: compare workers eligible to workers non eligible [i.e. whether employer offers plan]

Data quality on saving+employer eligibility is poor: only SCF, SIPP, and Health Retirement Survey (HRS) have decent information on this

Poterba-Venti-Wise: financial wealth $W_i = \alpha + \beta Elig_i + X_i\gamma + \varepsilon_i$

They find large effects of eligibility on financial wealth even controlling for observables X

401(k) Effects on Savings

Issues:

1) 401(k) eligibility is not randomized. Better employers more likely to offer 401(k)s [even controlling for X] or employees self-select into employers offering 401(k)s

2) Gap in assets between eligible and not-eligible is larger than 401(k) balances [Bernheim and Garrett]

More recent study: Gelber AEJ:EP '11

Uses the fact that many firms have a 1 or 2 year waiting period for 401(k)s

Uses SIPP longitudinal data and finds both IRA and real savings crowd-out but results imprecise

401(k) margins of substitution

1) Housing wealth: Engen-Gale 1995 say that 401(k)s might crowd out housing equity wealth (bigger or longer mortgage).

2) DB substitution: Engelhardt 2000 vs Poterba-Venti-Wise '01 debate.

Engelhardt includes DB imputed wealth in W_i and 401(k) effects go away but data very noisy so result is sensitive

In principle, want to use total net wealth including DB pensions (not only financial wealth) in Poterba-Venti-Wise regression but no good data.

Question is still controversial and does not even tell apart wealth vs. saving outcomes, tax favored effects, match effects, etc.

$\Rightarrow$ Chetty et al. QJE14 study for Denmark makes huge progress

Behavioral Effects: Match rates

Match produces huge incentives to contribute [dwarfs the tax advantage]. In principle, great source of variation in incentives to measure savings effects

Problem is that no good data on match and savings $\Rightarrow$ Studies focus on contributions [using company administrative data], two results :

1) Matches increase participation substantially

2) Substantial bunching at the kink point where match stops [consistent with theory, could back-out an elasticity]

Such responses do not imply 401(k)s raise savings, could be all reshuffling, although match likely increases retirement wealth

Engelhardt-Kumar, JpubE'07 using HRS data find no effect of match on total savings (but results imprecise)

Why do Employers offer 401(k) matching?

Match creates a distortion in savings behavior $\Rightarrow$ inefficient in a rational model

Two hypotheses have been put forward to explain company matches:

1) **Equity regulations** put tight limits on how enrollment rates can differ between highly compensated vs. other employees. Match is a way to increase enrollment among non-highly compensated employees

2) **Sophisticated hyperbolic employees:** if employees know they will save too little because of self-control problems, they value ex-ante the match that gives them incentives to save and overcome self-control problems

Match rate Effects:
IRA Randomized H&R Block experiment

Duflo at al. QJE'06: provide matches for IRA at the time of tax preparation (funded out of tax refund). 3 key findings:

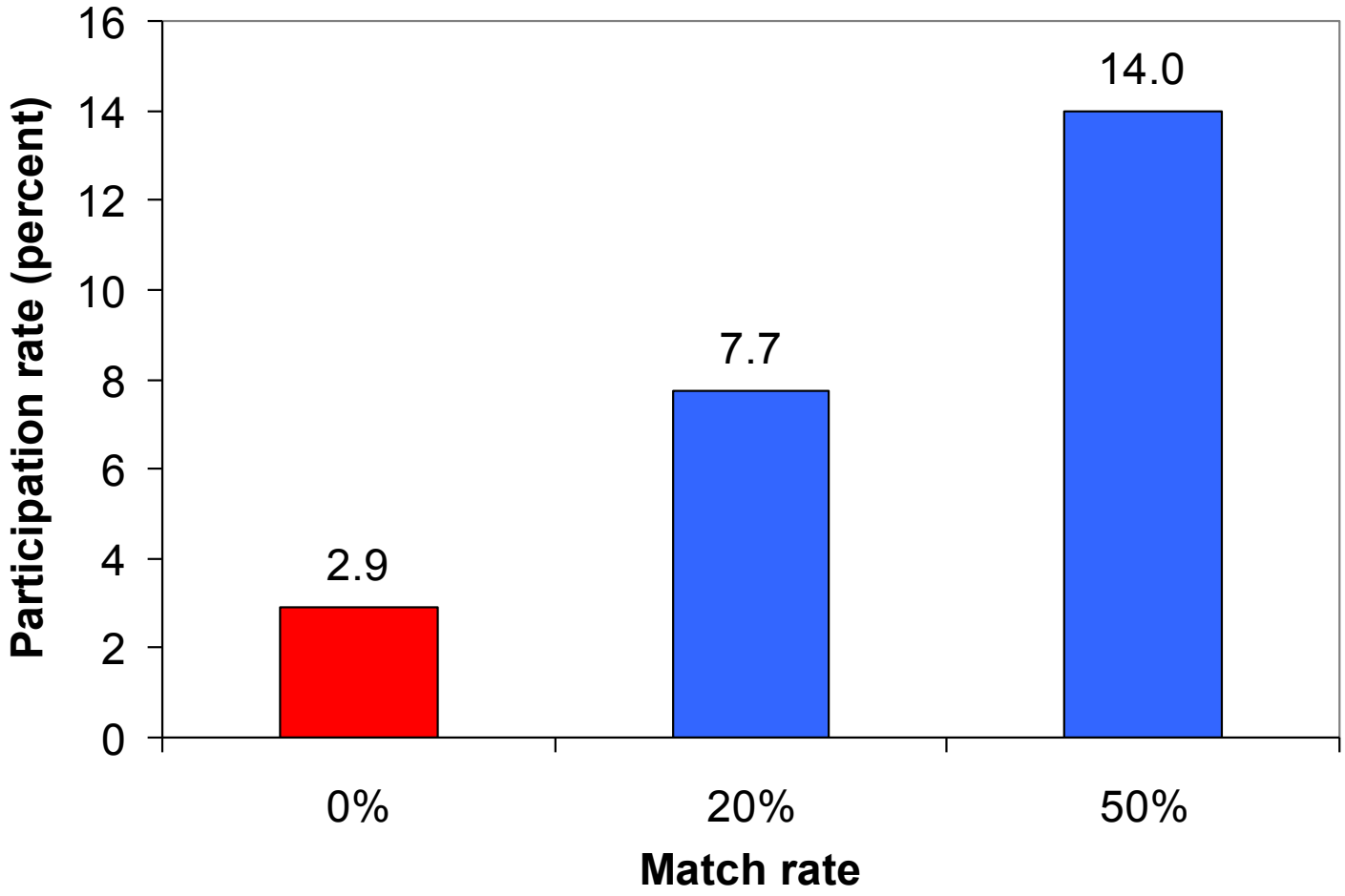
1) significant effect of matches on probability of contributing and contribution levels

2) people do not game the system (by contributing and withdrawing contributions with 10% penalty afterwards)

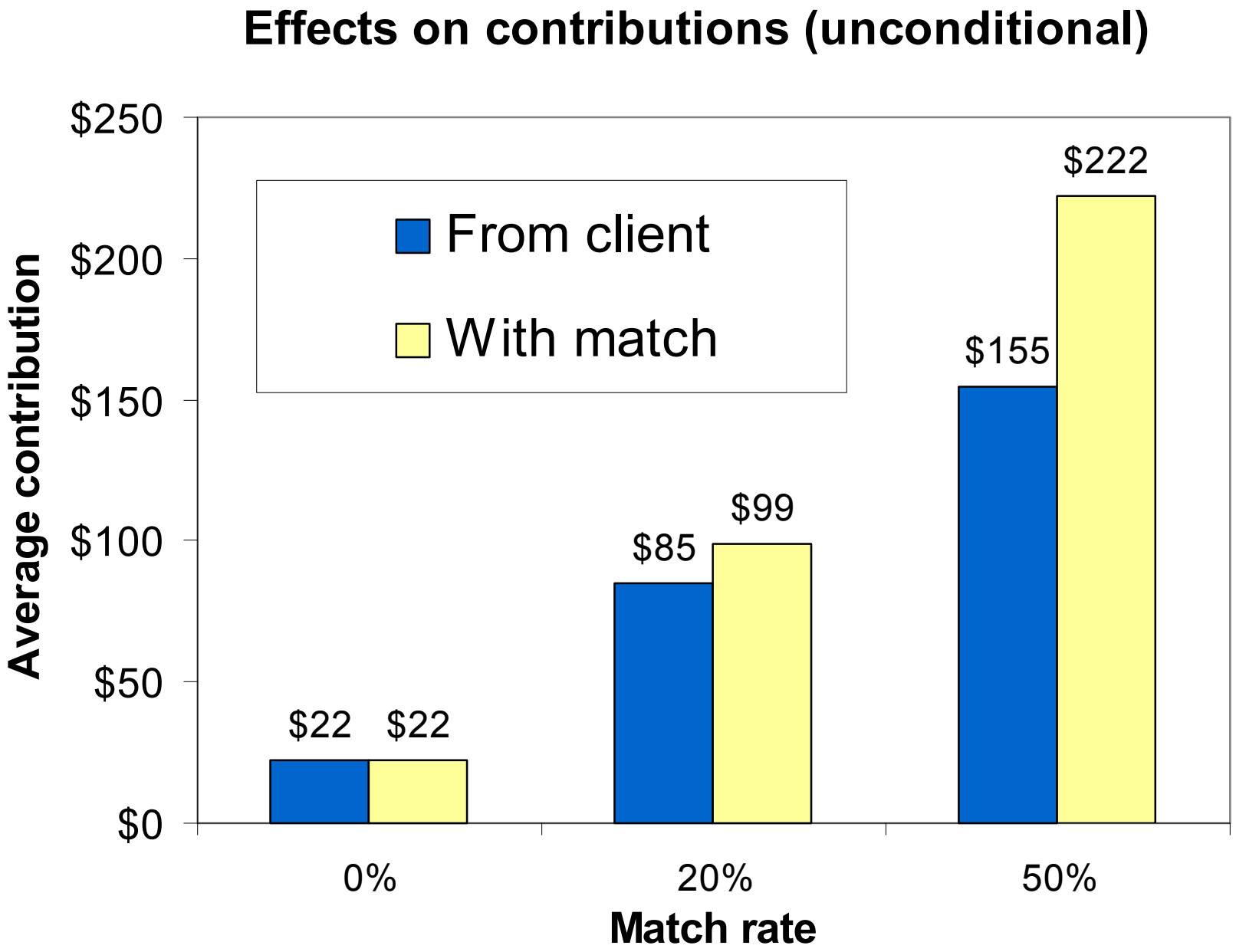
3) effects of randomized simple and salient matches much larger than the effect of the Saver's Credit which provides tax credit for IRA-401(k) contributions of low income earners

Saez AEJ-EP'09: compares the effects of matches to equivalent rebate: 50% match is equivalent to a 33% rebate but match generates much larger effect (behavioral effect)

Effects of match rates on X-IRA participation



Source: Duflo et al. QJE'06



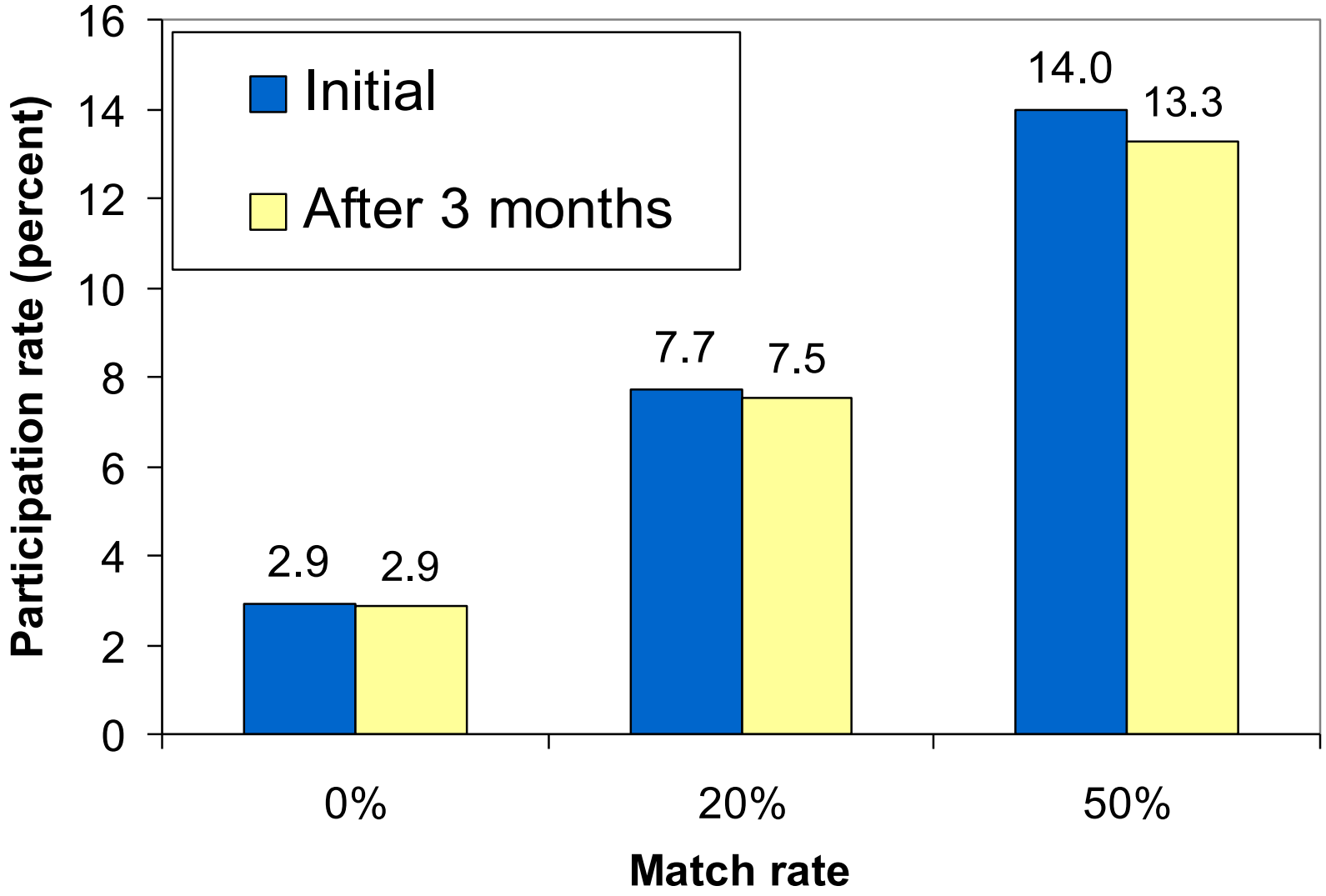
Source: Duflo et al. (2006)

Table 2: Effects of the experiment on X-IRA behavior

	0% match	20% match	50% match	20% - 0%	50% - 20%	50% - 0%
Opened an X-IRA (%)	2.90	7.72	13.98	4.82	6.26	11.07
	(0.24)	(0.40)	(0.50)	(0.46)	(0.65)	(0.56)
Amount contributed ($) (unconditional)	$22	$85	$155	$63	$70	$133
	(3)	(6)	(7)	(7)	(10)	(8)
Amount contributed ($) (conditional)	$765	$1,102	$1,108	$337	$6	$343
	(84)	(55)	(34)	(102)	(62)	(85)
Amount contributed+match	$22	$99	$222	$77	$124	$200
(unconditional)	(3)	(7)	(10)	(7)	(12)	(11)
Amount contributed+match (conditional)	$765	$1,280	$1,591	$515	$310	$826
	(84)	(60)	(44)	(109)	(74)	(103)

Source: Duflo et al. QJE'06

Withdrawal activity: fraction contributors after 3 months



Source: Duflo et al. QJE'06

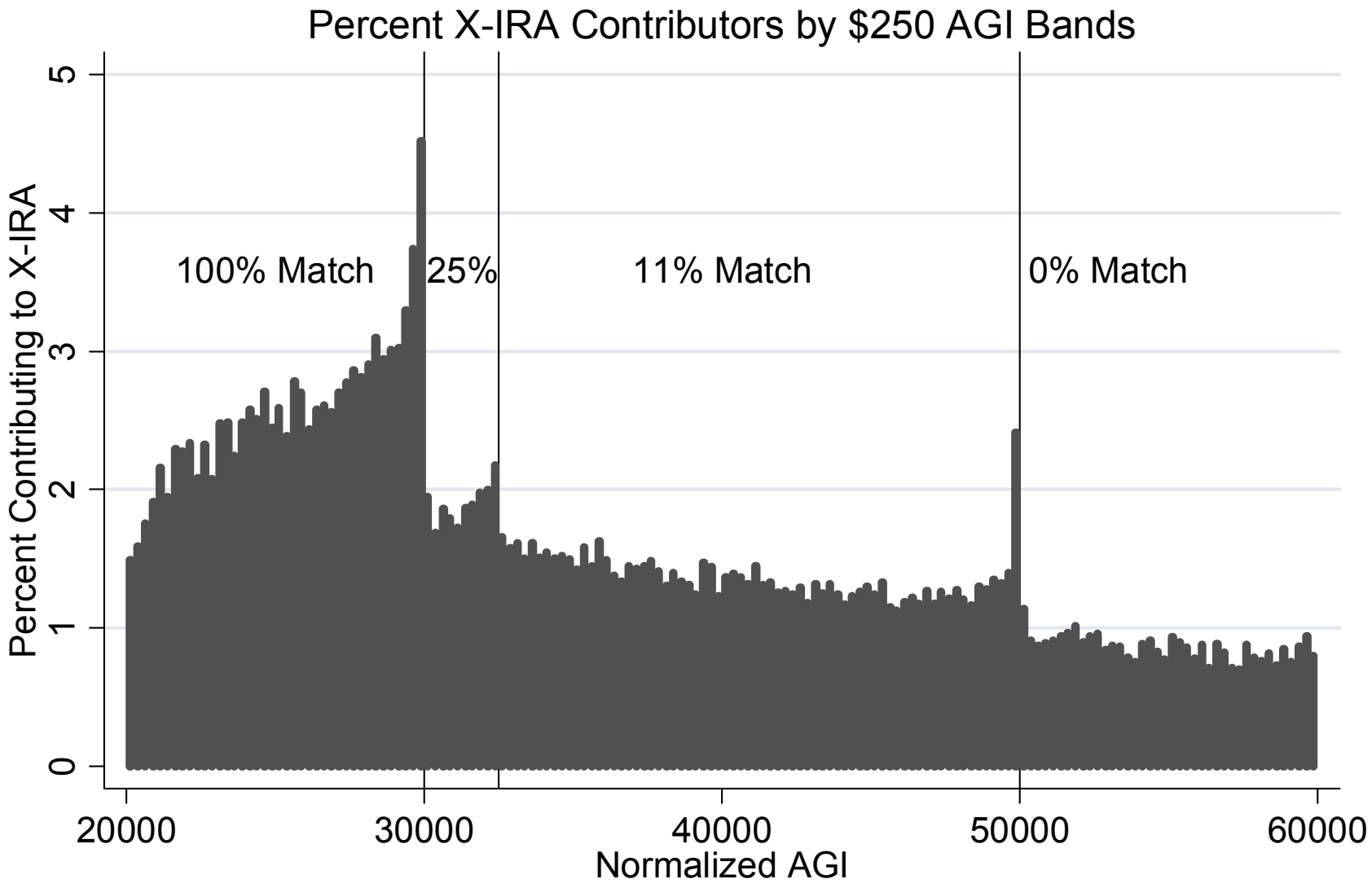
Table 8: Saver's Credit Parameters

Credit Rate t	Equivalent Match Rate t/(1-t)	Married Filing Jointly AGI range	Head of Household AGI range	Single and others AGI range
50%	100%	$0-$30,000	$0-$22,500	$0-$15,000
20%	25%	$30,001-$32,500	$22,501-$24,375	$15,001-$16,250
10%	11.1%	$32,501-$50,000	$24,376-$37,500	$16,251-$25,000
0%	0%	$50,001+	$37,501+	$25,001+

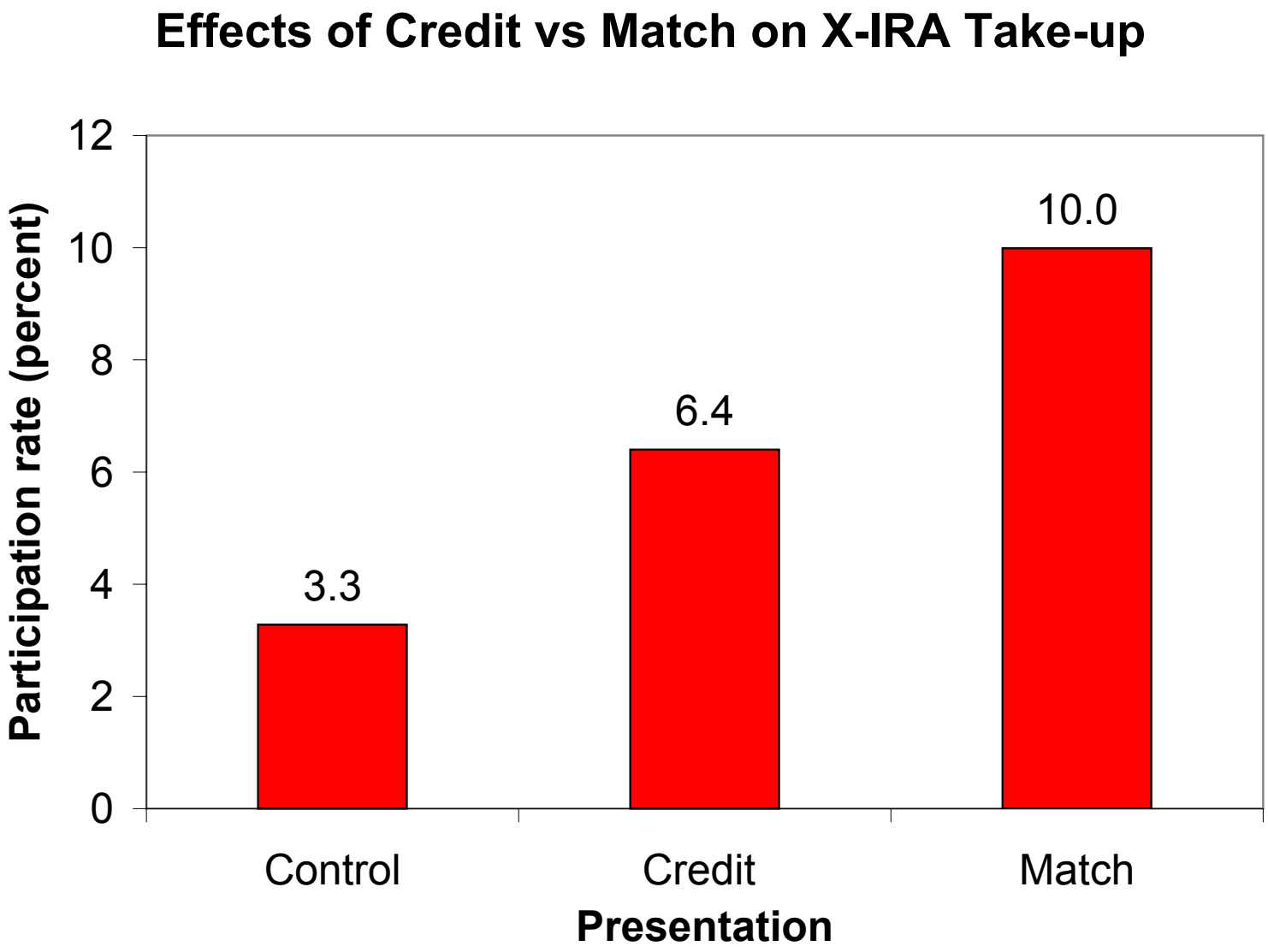
Saver's credit is a non-refundable federal income tax credit proportional to the sum of IRAs and 401(k)s contributions up to $2,000 of contributions (per spouse for married)
AGI = gross income - 401k - Traditional IRA

Source: Duflo et al. (2006)

Figure 4



Source: Duflo et al. (2006)



Source: Duflo et al. (2006)

Behavioral Effects: Default Effects in 401(k) decisions

Madrian-Shea QJE'01: tremendous impact in economics: effect of switching to automatic participation for new hires:

Before= [opt-in] new employees needed to voluntarily enroll

After = [opt-out] new employees are automatically enrolled by default at a given contribution/investment [3% salary, money market fund]

Strategy: compare 401(k) outcomes for hires before and after reform:

Behavioral Effects: Default Effects

Two key findings of Madrian and Shea (2001)

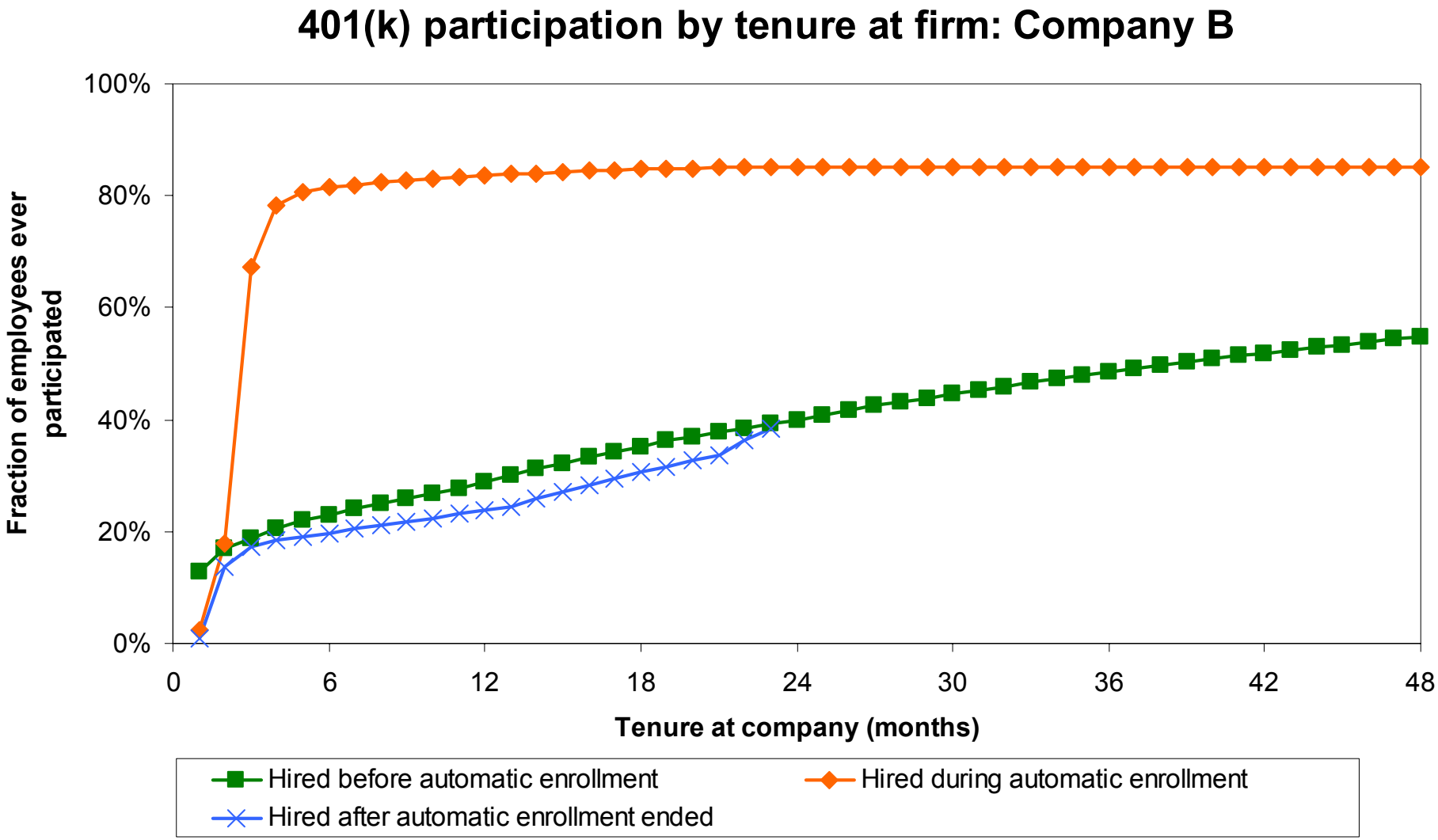
1) Auto-enrollment has enormous impact on enrollment in short-term (60 points) and substantial effect remains in long-run (30 points)

2) Most employees stick to default choice which could be bad for long-term investment [2% contribution default even though 50% match offered up to 6% of contributions]

$\Rightarrow$ Individuals do not behave as in standard model where defaults are irrelevant

Automatic enrollment effect

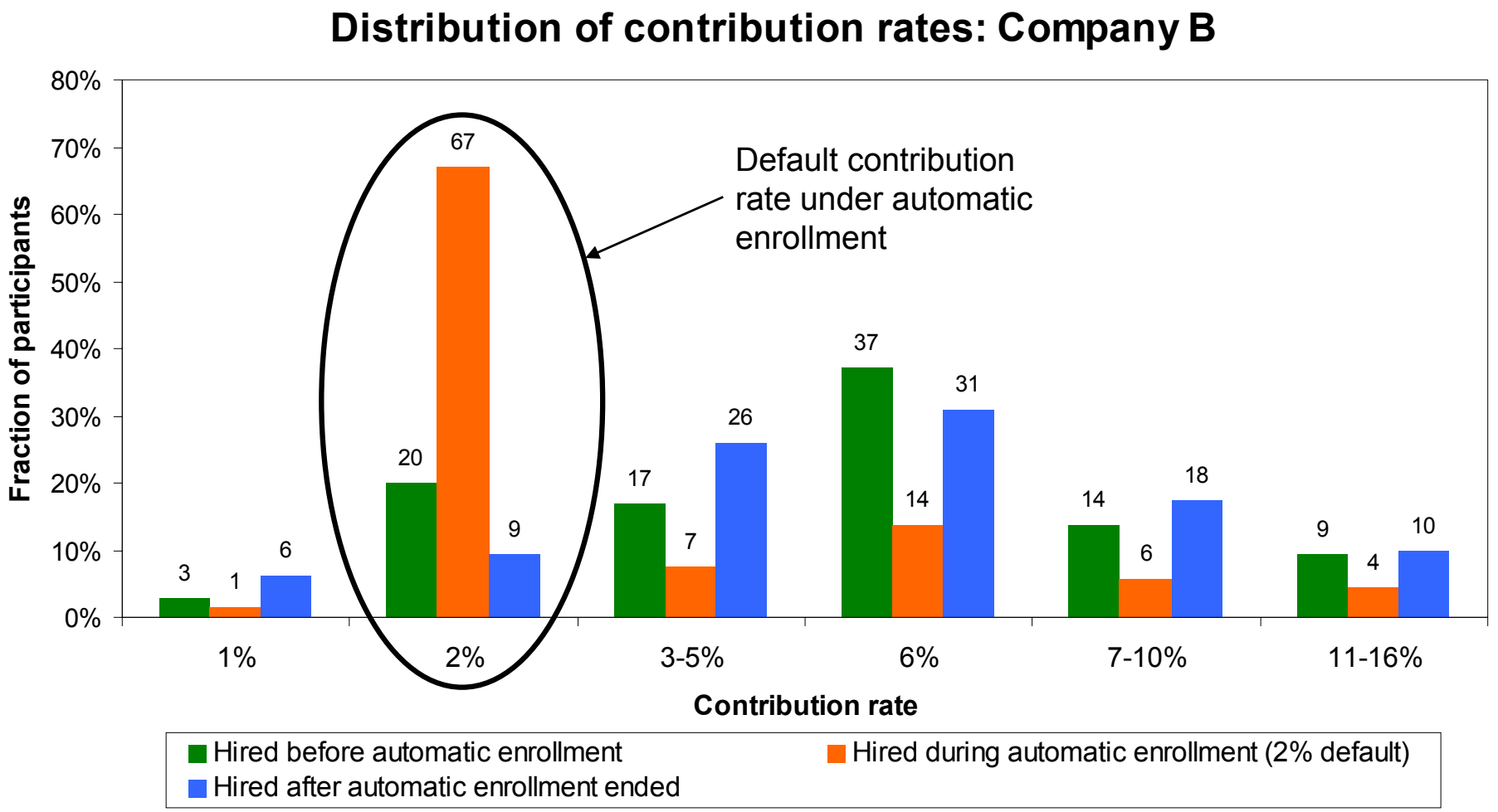
Automatic enrollment dramatically increases participation.



Source: Madrian and Shea (2001)

Automatic enrollment effect

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



Source: Madrian and Shea (2001)

Default Effects, Extensions

Series of papers by Choi-Laibson-Madrian-Metrick have confirmed and replicated those results.

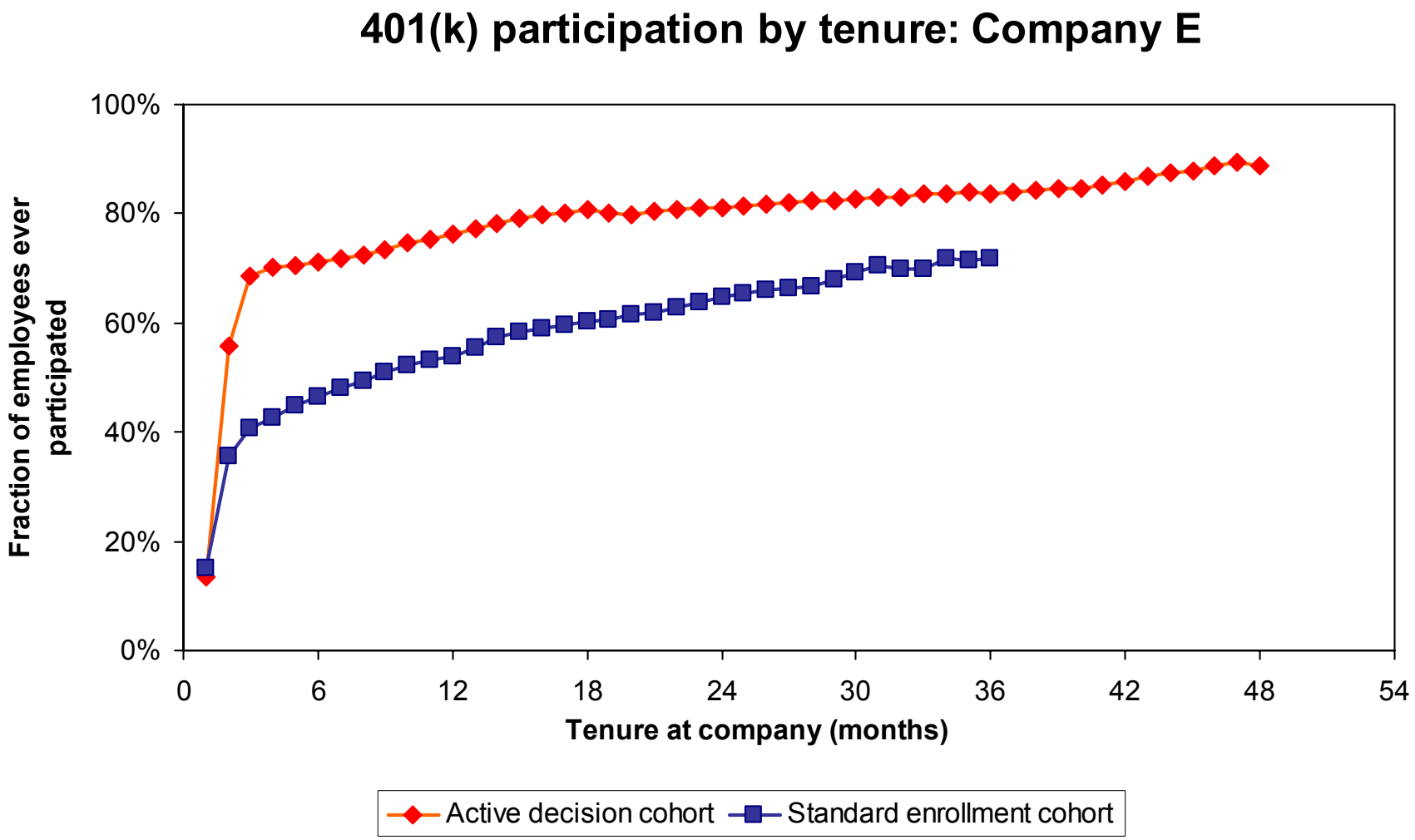
Quick enrollment (active choice required, need to choose) has also a positive impact but not as large

Effect on savings and retirement wealth unknown [very hard to get data on both 401(k) features and actual total savings and wealth] (see Chetty et al. QJE'14 study below)

Default effects also found in match allocation, cash distributions, and annuitization decisions

Active decision effect on participation

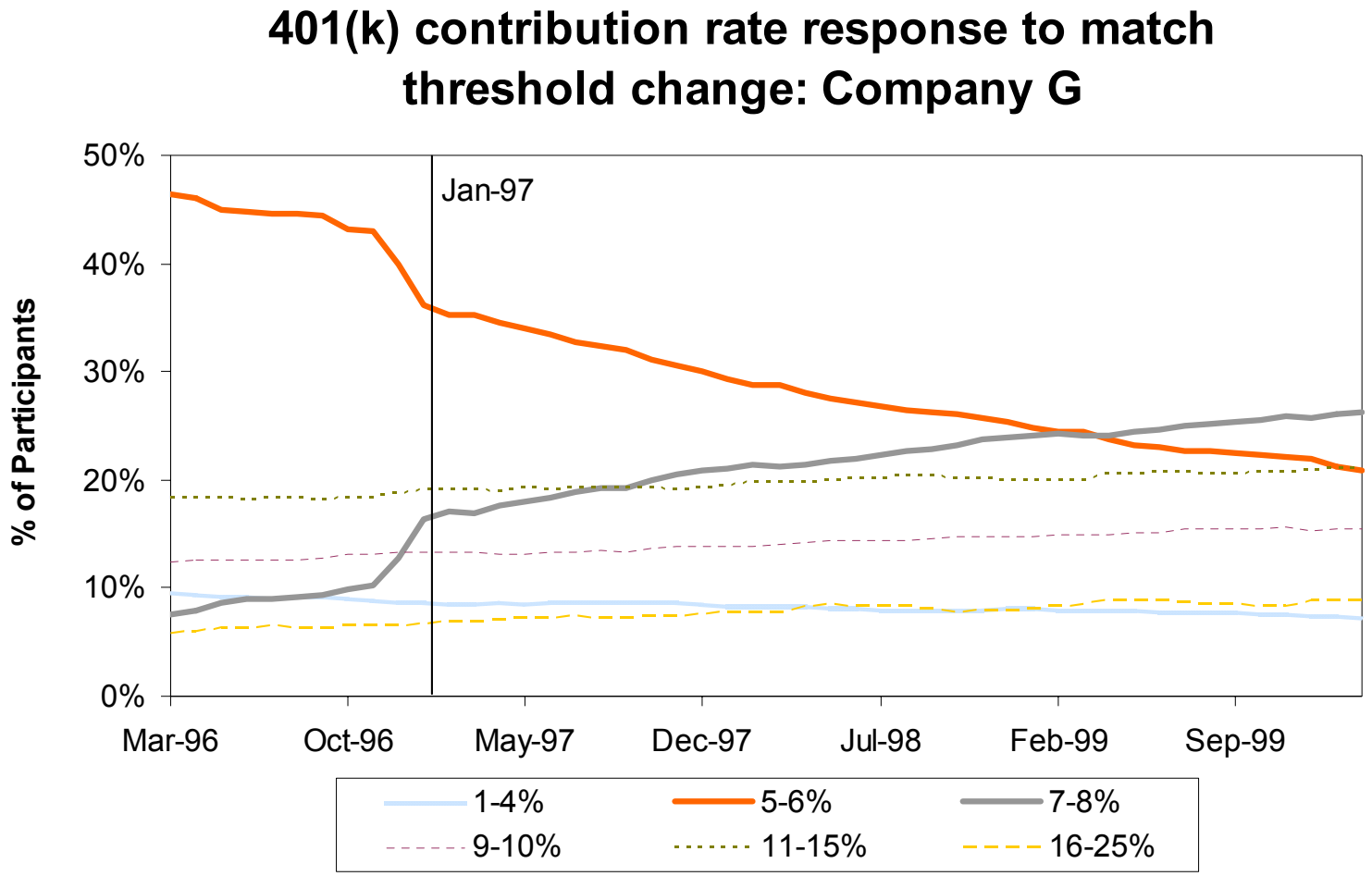
401(k) participation increases substantially when employees are not allowed to be passive about savings.



Source: courtesy of David Laibson

Employer match threshold and contribution rates

Changing the match threshold caused employees to slowly move from the old threshold to the new threshold.



Source: courtesy of David Laibson

Framing Effects in Retirement Savings Decisions

Many employers also provide mandatory employee or employer DC benefits: e.g., employer provides 5% of salary in DC pension, employer forces employees to contribute 3% of salary in DC pension.

Card and Ransom Restat'11 analyze whether changes in employer or employee mandatory contributions have an impact on voluntary supplemental contributions (401k type)

In rational model, $1 extra of employer and employee contribution should lead to $1 less of voluntary 401k contribution (as they are perfect substitutes)

Framing Effects in Retirement Savings Decisions

Card and Ransom Restat'11 findings:

1) $1 extra of employee mandatory contribution reduces voluntary contribution by 70 cents

2) $1 extra of employer mandatory contribution reduces voluntary contribution by 30 cents

$\Rightarrow$ Two departures from standard model:

1) No one-to-one crowd out

2) Crowd-out rate is not the same for employer vs. employee mandatory contribution

Likely explanation: Employees do not pay attention. Employee mandatory contribution reduce wages and hence are more visible

Active vs. Passive Savings Decisions: Chetty et al. '14

They use admin data in Denmark on contributions and wealth to analyze savings responses to retirement contributions. Two policies are analyzed:

(a) Automatic contributions by firms (either voluntary or govt mandated) to workers retirement savings accounts

(b) Tax subsidies for retirement savings [similar to 401(k)]

Key results:

(a) Automatic contributions raise total savings much more than price subsidies because 85% of people are passive

(b) Only 15% exploit tax incentives and they do so with crowding out (not real savings)

Paper deals a devastating blow to 401(k) US policy agenda

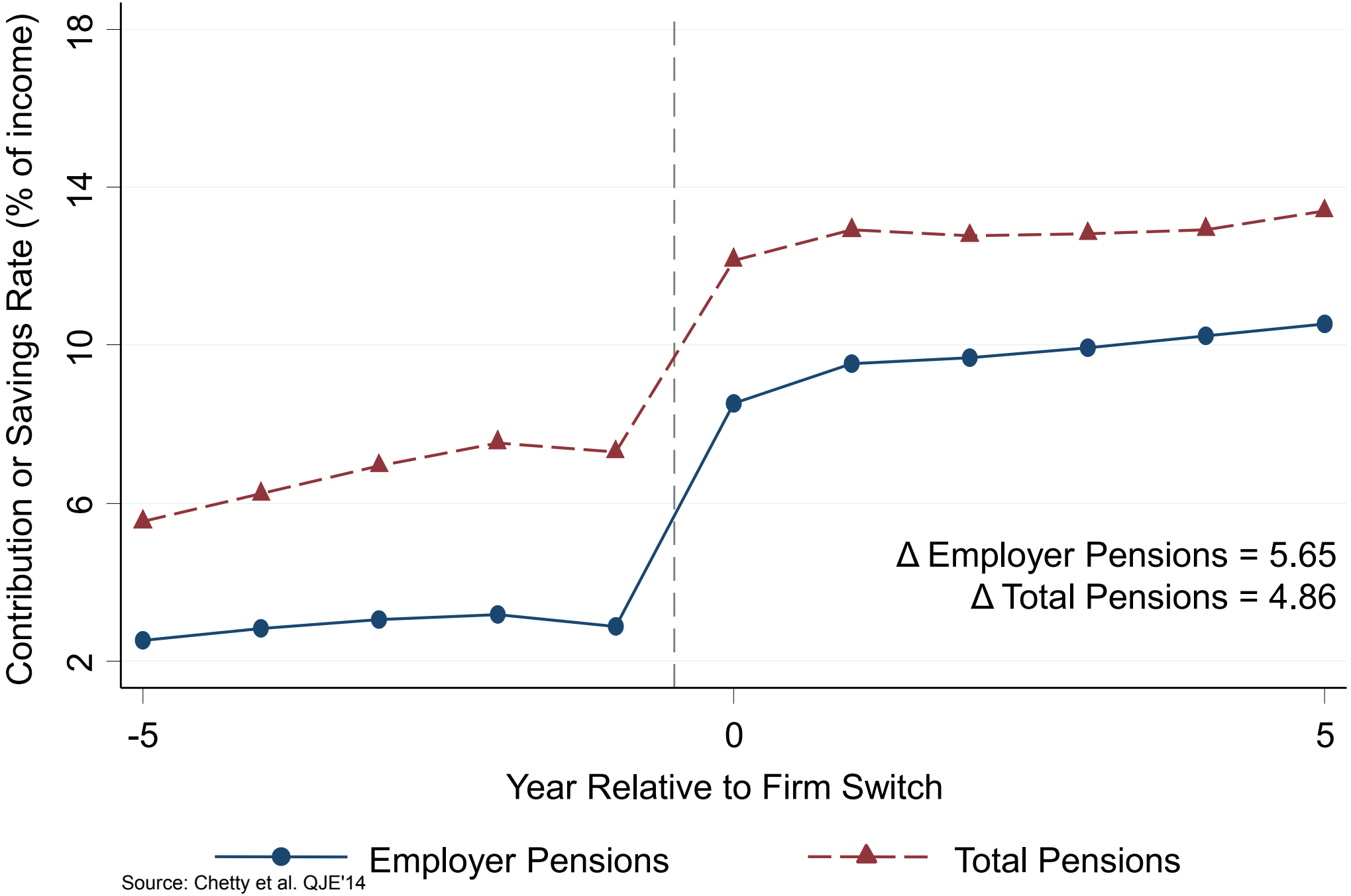
Impacts of Government Policies on Savings for Active vs. Passive Savers

	Automatic Contribution		Price Subsidy	
	Raises Pension Contribs. M+P?	Raises Total Savings M+P+S?	Raises Pension Contribs. M+P?	Raises Total Savings M+P+S?
Active Savers	No	No	Yes	Uncertain
Passive Savers	Yes	Uncertain	No	No
Data	**Yes**	**Yes**	**Yes**	**No**

Source: Chetty et al. QJE'14

Event Study around Switches to Firm with >3% Increase in Employer Pension Rate

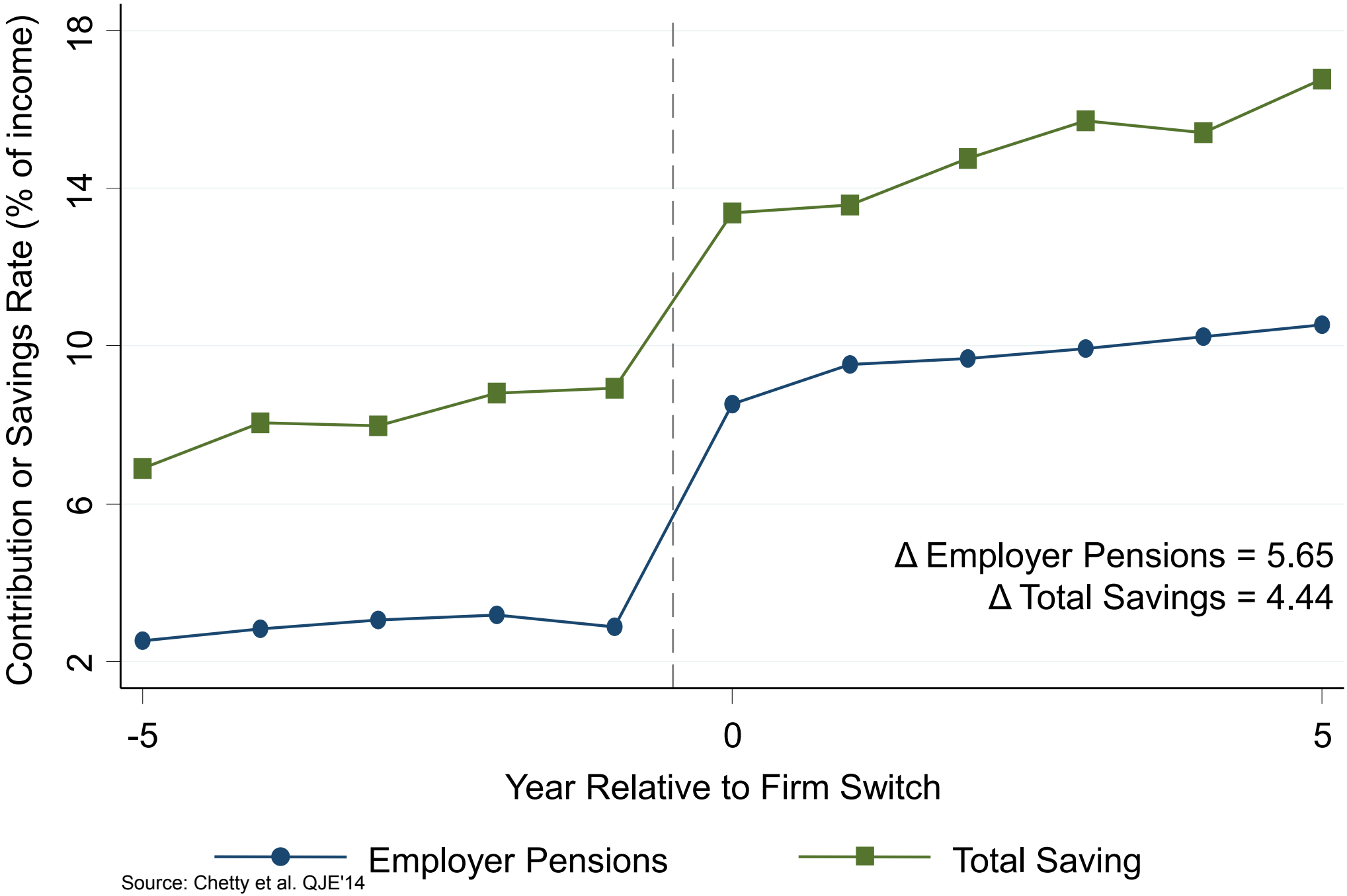
Individuals with Positive Pension Contributions or Savings Prior to Switch



Source: Chetty et al. QJE'14

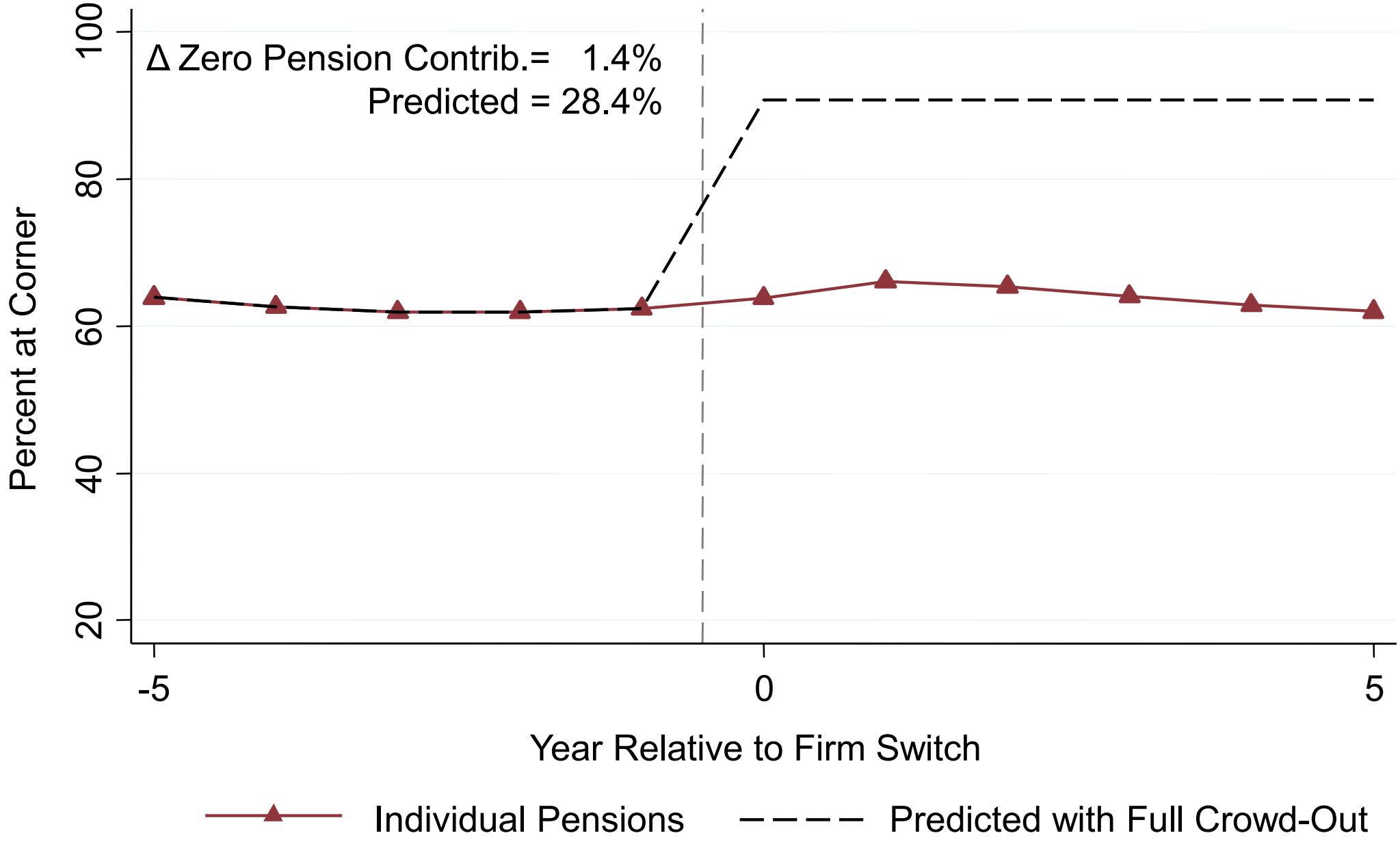
Event Study around Switches to Firm with >3% Increase in Employer Pension Rate

Individuals with Positive Pension Contributions or Savings Prior to Switch



Source: Chetty et al. QJE'14

Fraction at Corner around Switches to Firm with >3% Increase in Employer Pension Rate



Source: Chetty et al. QJE'14

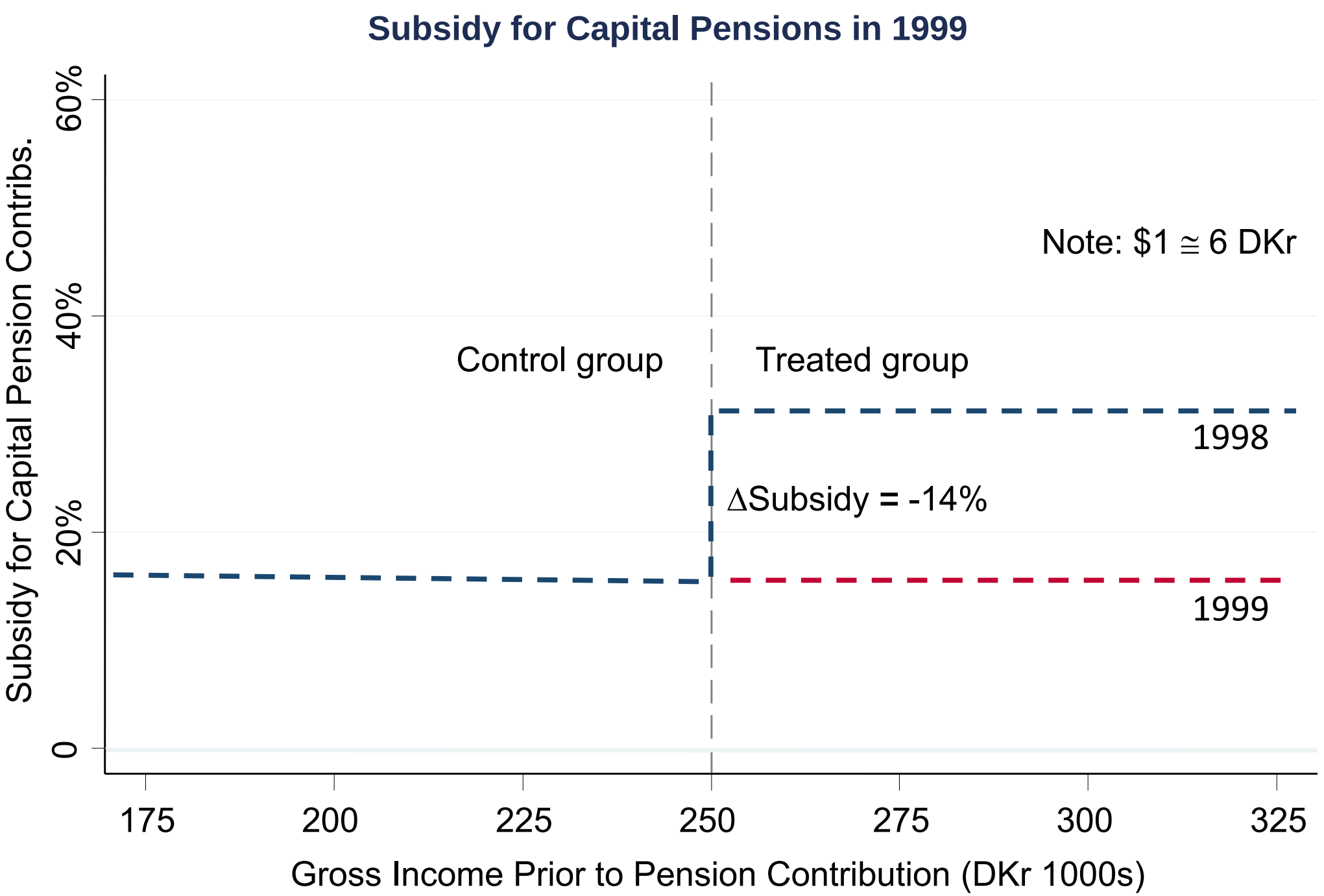
Active vs. Passive Savings Decisions: Chetty et al. '14

They exploit reduction in subsidy for capital pensions in 1999 for upper income earners (above 250K DKr)

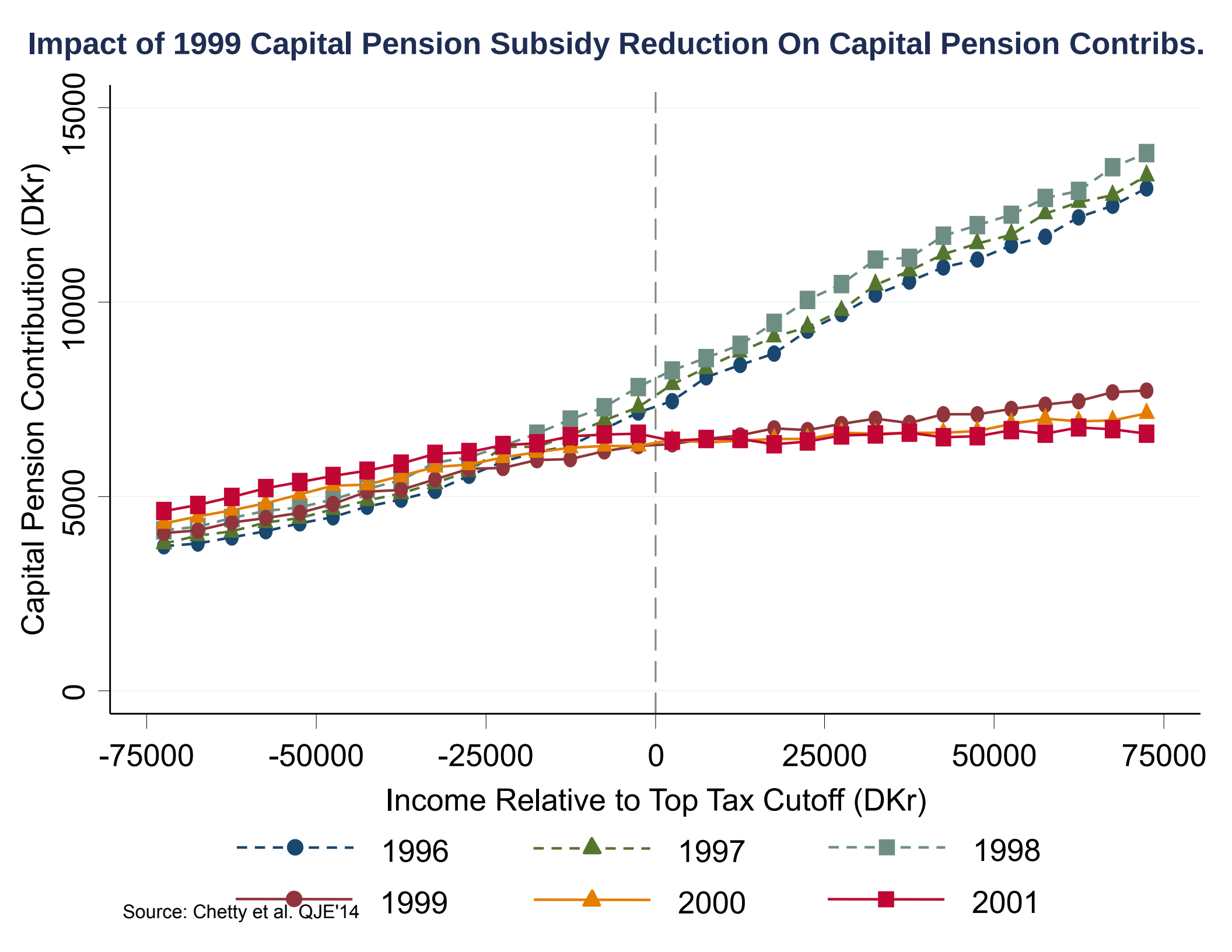
First stage: negative effect on capital pensions very clear: Does this come from reduced savings or by shifting into other forms of savings?

Second stage: Denmark has another form of tax favored pension savings called annuity pensions: positive effect on annuity pensions very clear (crowd-out is 56%)

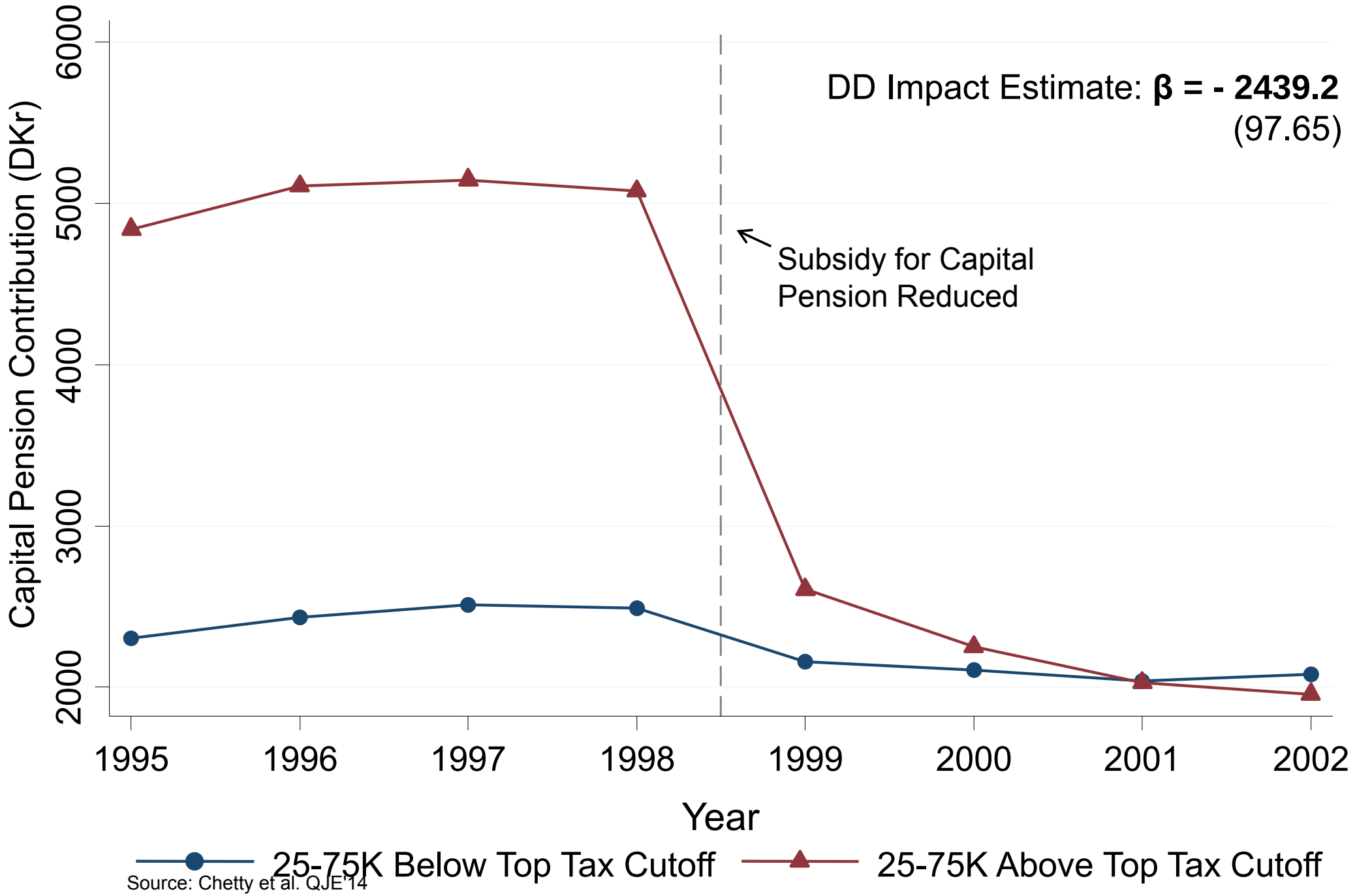
Third stage: Effect on taxable savings: positive effect on taxable savings so that in net, there is no reduction at all in total pension+regular savings: complete crowd-out



Source: Chetty et al. QJE'14


Impact of 1999 Capital Pension Subsidy Reduction On Capital Pension Contribs.
Capital Pension Contribution (DKr)
0
5000
10000
15000
-75000
-50000
-25000
0
25000
50000
75000
Income Relative to Top Tax Cutoff (DKr)
1996
1997
1998
1999
2000
2001
Source: Chetty et al. QJE'14

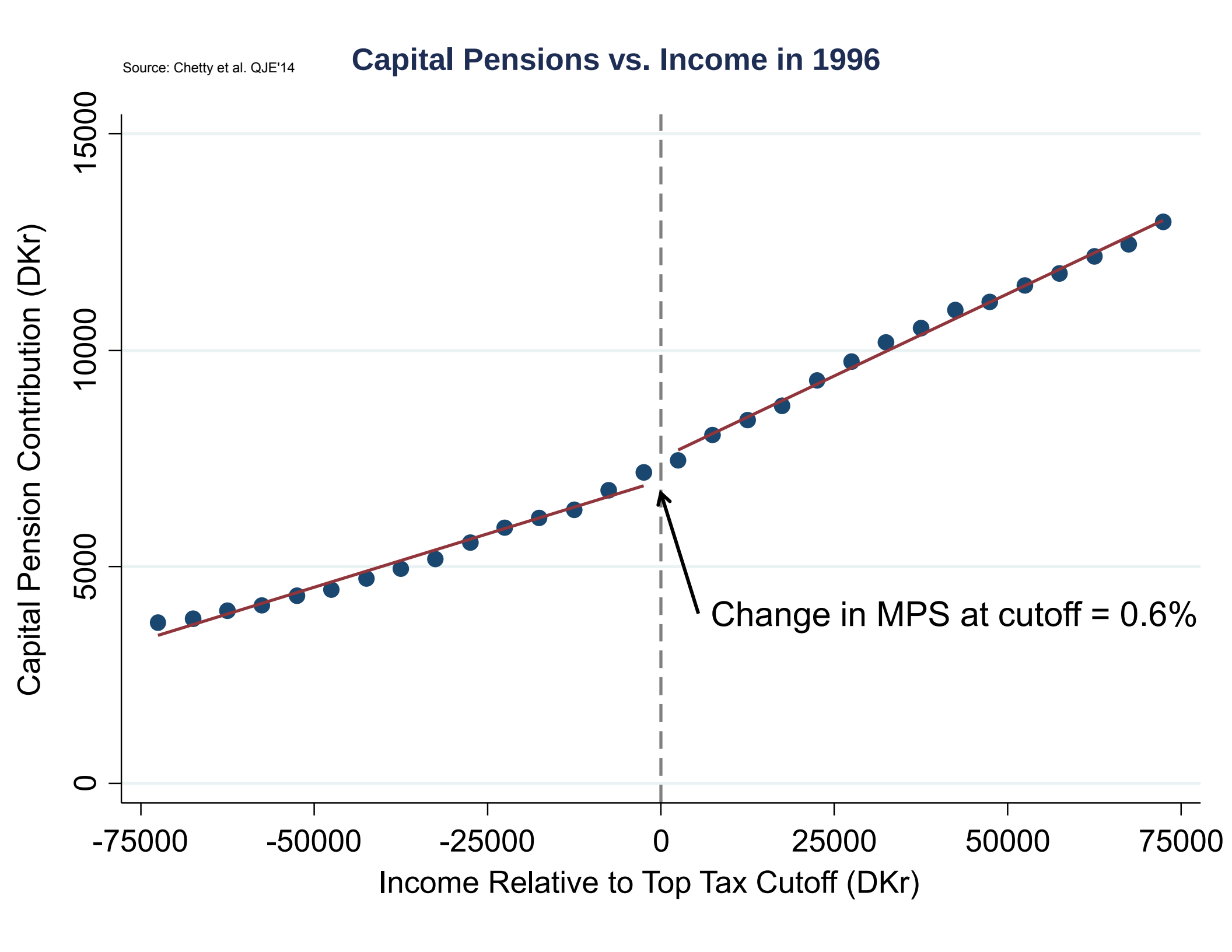
Impact of Subsidy Reduction On Individual Capital Pension Contribs.



Source: Chetty et al. QJE'14

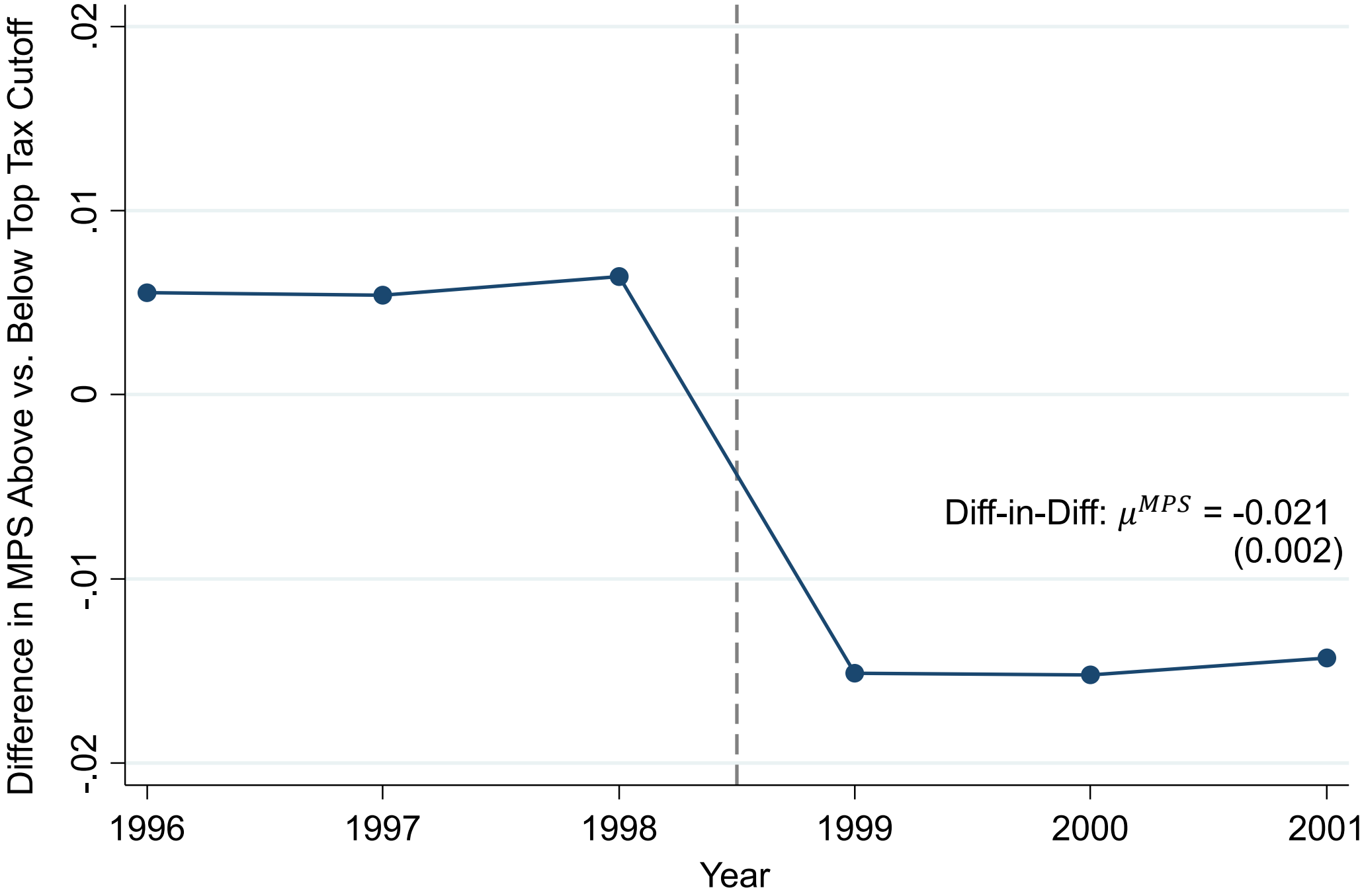
Impact of Capital Pension Subsidy Reduction On Annuity Pension Contributions

Source: Chetty et al. QJE'14


Source: Chetty et al. QJE'14
Capital Pensions vs. Income in 1996
Capital Pension Contribution (DKr)
0
5000
10000
15000
-75000
-50000
-25000
0
25000
50000
75000
Income Relative to Top Tax Cutoff (DKr)
Change in MPS at cutoff = 0.6%

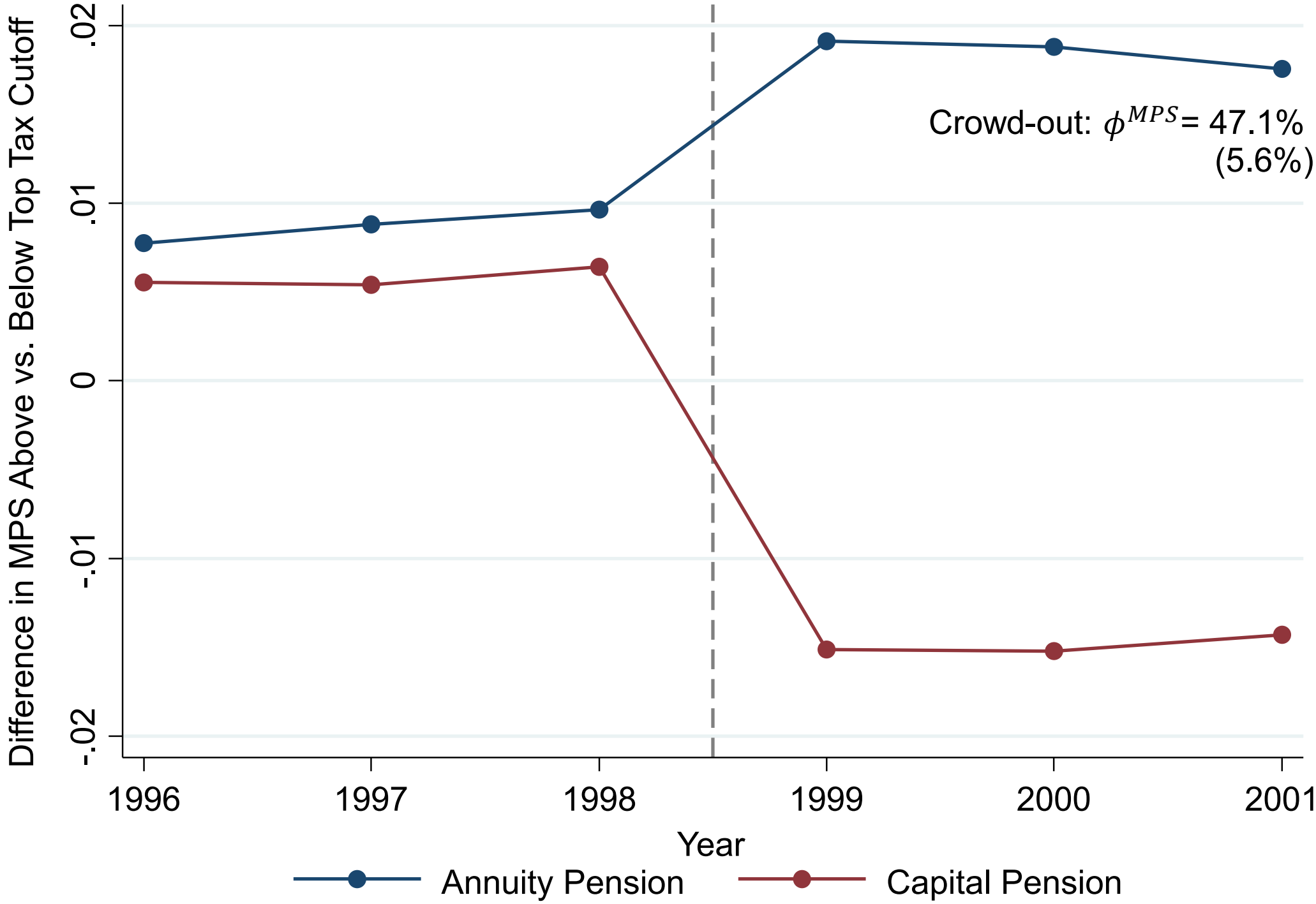
Change in Marginal Propensity to Save in Annuity vs. Capital Accounts at Top Tax Cutoff by Year

Source: Chetty et al. QJE'14



Change in Marginal Propensity to Save in Annuity vs. Capital Accounts at Top Tax Cutoff by Year

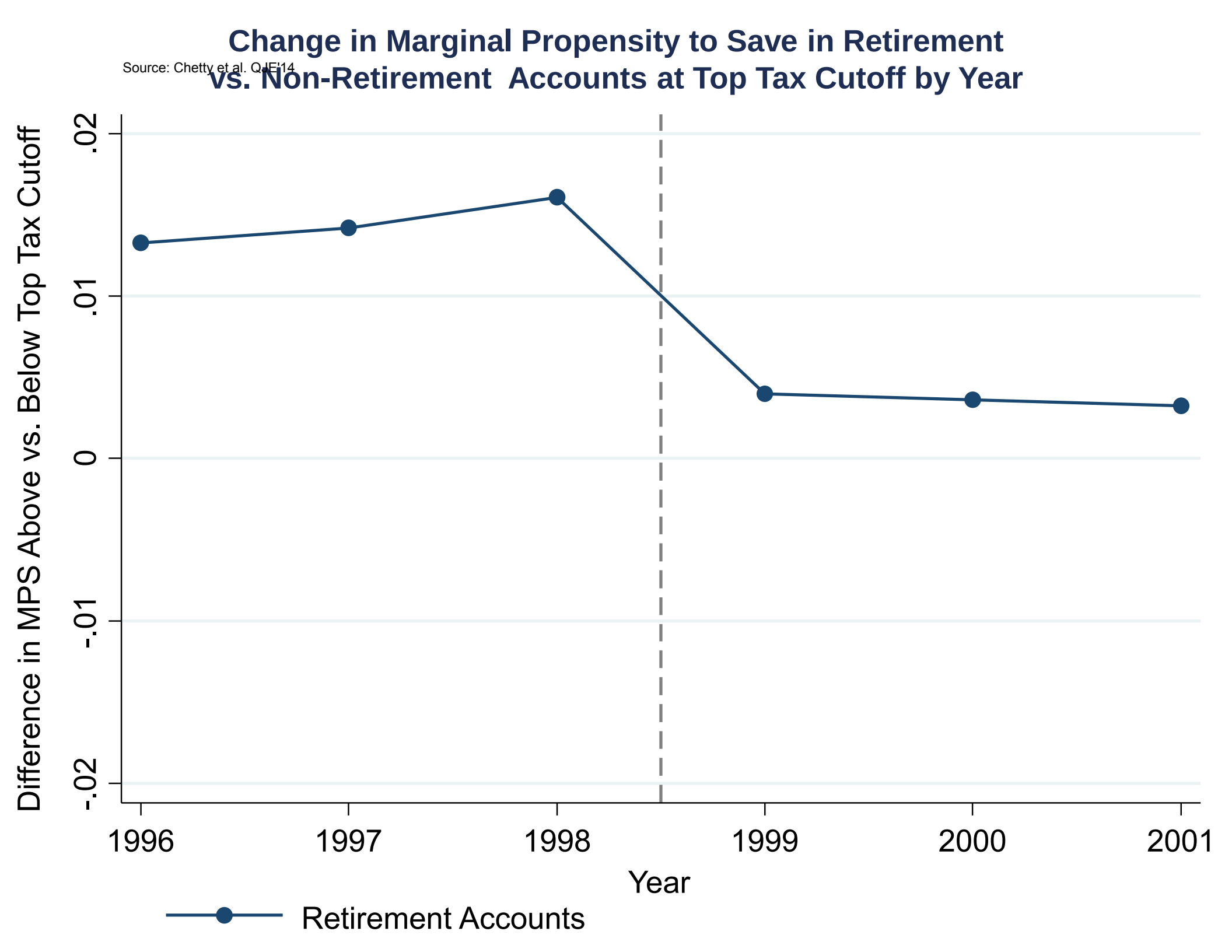
Source: Chetty et al. QJE'14

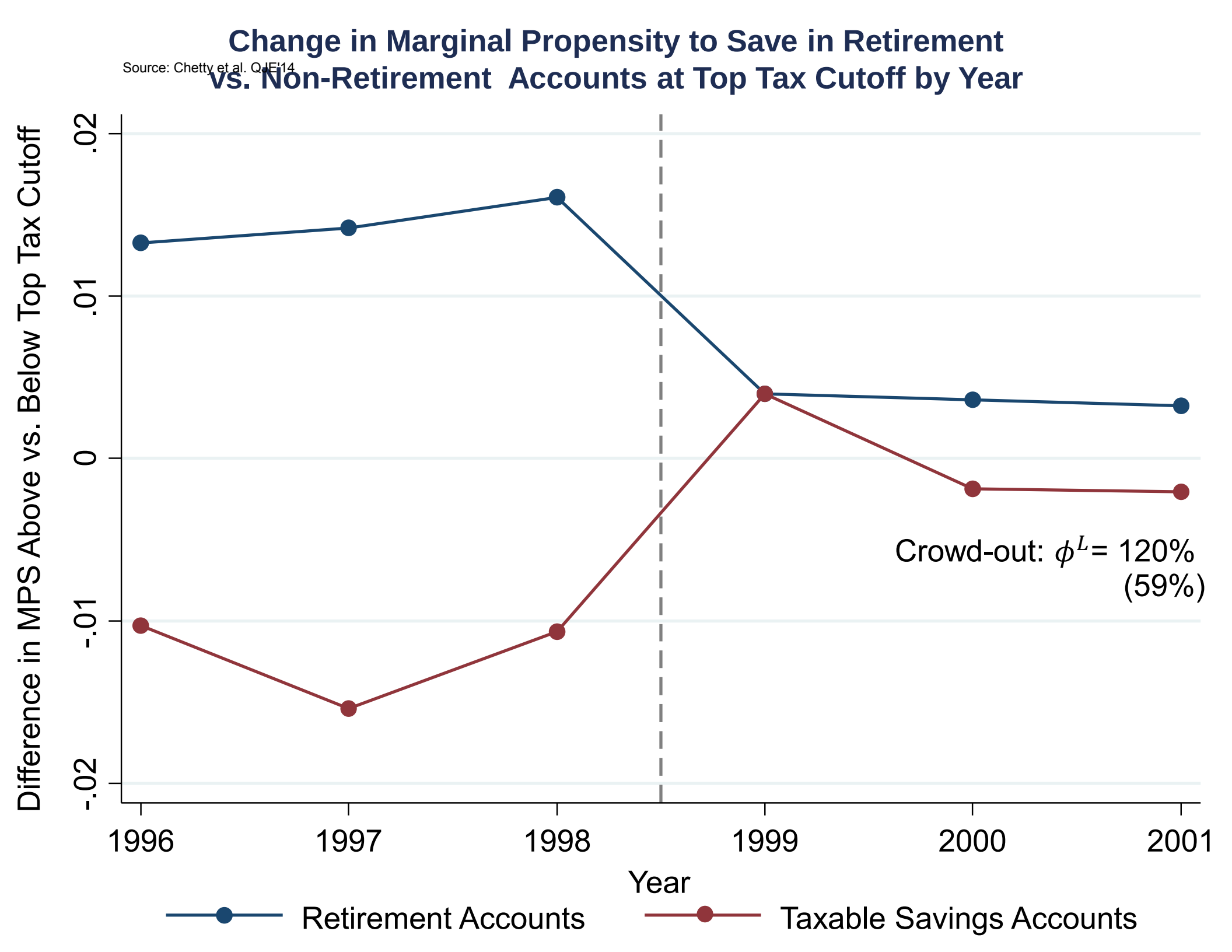


Shifting from Retirement to Taxable Savings

Source: Chetty et al. QJE'14

- Use change in capital pension subsidy as an instrument for *total* pension contributions
  - $1 reduction in capital pensions → 45 cent reduction in total pensions
  - Does this 45 cents go into consumption or saving in taxable accounts?


Change in Marginal Propensity to Save in Retirement
vs. Non-Retirement Accounts at Top Tax Cutoff by Year
Source: Chetty et al. QJE'14
Difference in MPS Above vs. Below Top Tax Cutoff
.02
.01
0
-.01
-.02
1996
1997
1998
1999
2000
2001
Year
Retirement Accounts

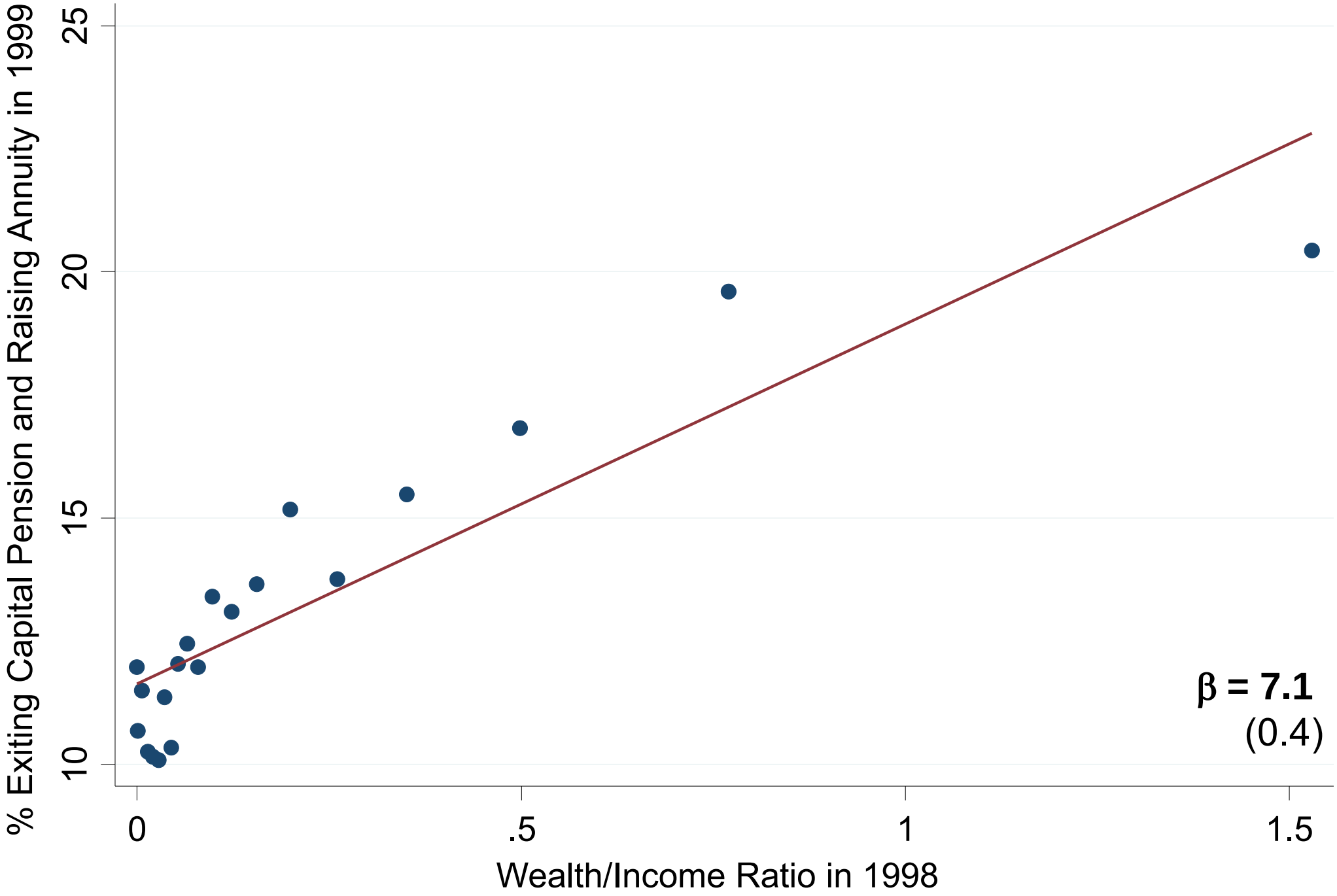

Change in Marginal Propensity to Save in Retirement
vs. Non-Retirement Accounts at Top Tax Cutoff by Year
Source: Chetty et al. QJE'14
Difference in MPS Above vs. Below Top Tax Cutoff
.02
.01
0
-.01
-.02
1996
1997
1998
1999
2000
2001
Year
Crowd-out: ϕ^L= 120%
(59%)
Retirement Accounts
Taxable Savings Accounts

Source: Chetty et al. QJE'14

Estimates of Crowd-out Induced by Subsidy Change Based on Changes in Marginal Propensity to Save

	Annuity Contrib.	Total Pension Contrib.	Taxable Saving	Trimmed Taxable Saving	Taxable Saving Threshold
	(1)	(2)	(3)	(4)	(5)
Capital Pension Contrib.	-0.471 (0.056)	0.529 (0.056)			
Total Pension Contrib.			-1.200 (0.588)	-0.984 (0.267)	-0.994 (0.215)
No. of Obs.	7,026,187	7,026,187	7,026,187	7,026,187	7,026,187

Heterogeneity in Response to Capital Pension Subsidy by Wealth/Income Ratio



Source: Chetty et al. QJE'14

Default Effects in Asset Allocation

Choi, Laibson, Madrian '07 study a firm that used two match systems in their 401(k) plan

1) Default Case: Match allocated to employer stock and workers can reallocate (default is employer stock)

1) No Default Case: Match allocated to an asset actively chosen by workers; workers required to make an active designation.

Economically, these two systems are identical. They both allow workers to do whatever the worker wants.

Consequences of the two regimes

	Balances in employer stock	
	Default ES	No Default
Own Balance in Employer Stock	24%	20%
Matching Balance in Employer Stock	94%	27%
Total Balance in Employer Stock	56%	22%

Source: courtesy of David Laibson

Cash Distributions for Employees who Move

What happens to savings plan balances when employees leave their jobs?

1) Employees can request a cash distribution or roll balances over into another account

a) Balances $>$ \$5000: default leaves balances with former employer

b) Balances $<$ \$5000: default distributes balances as cash transfer

2) Vast majority of employees accept default (Choi et al. 2002, 2004a and 2004b)

3) When employees receive small cash distributions, balances typically consumed (Poterba, Venti and Wise 1998)

Post-Retirement Distributions

1) Social Security:

a) Joint and survivor annuity (reduced benefits)

2) Defined benefit pension:

a) Annuity

b) Lump sum payout if offered

3) Defined contribution savings plan:

a) Lump sum payout

b) Annuity if offered

Defined Benefit Pension Annuitization

1) Annuity income and economic welfare of the elderly

a) Social Security replacement rate relatively low on average

b) 17% of women fall into poverty after the death of their spouse (Holden and Zick 2000)

2) For married individuals, three distinct annuitization regimes

a) Pre-1974: no regulation

b) ERISA I (1974): default joint-and-survivor annuity with option to opt-out: joint-and-survivor annuitization increases 25 percentage points (Holden and Nicholson 1998)

c) ERISA II (1984 amendment): opting out required notarized permission of spouse: joint-and-survivor annuitization increases 5 to 10 percentage points (Aura 2005)

Saving More Tomorrow

Thaler and Benartzi JPE '04: experiment in a medium sized firm with 300 employees:

Program has a consultant talk to employees and run them through an savings software to determine required 401(k) saving rate.

Individuals can decide to commit to invest a fixed percentage of their future pay raises to 401(k) (like 50% of all future pay rises).

Results: individuals who commit obtain much higher contribution rates than those who did not.

Looks like a non-binding commitment can have a huge effect on savings.

Financial Education and Peer Effects

Various studies on the effects of financial educations: pamphlets, seminars, etc.

Two studies have shown that there are strong peer effects at the workplace about 401(k) decisions:

1) observational study (Duflo and Saez, JpubE '03)

2) randomized experiment (Duflo and Saez, QJE '03)

Effects of financial education and peer effects are very small relative to default effects

Financial Education: Duflo and Saez QJE'03

Randomized experiment within one university to induce individuals to attend the benefits fair (providing information on benefits including 401k).

Offer a $20 reward for attending fair for a random group of employees within a random sample of departments

1st stage: Attendance rate: 28% for treated individuals in treated depts, 15% for untreated individuals in treated depts, 5% in untreated depts $\Rightarrow$ Strong peer effects in decision to attend benefits fair

2nd stage: Use 401k enrollment: Enrollment rates in treated departments significantly higher (2 percentage points) than in control departments with same positive effect on treated and untreated individuals within treated departments

Bottom line on Behavioral Effects

Financial education, peer effects, framing effects, and **especially enrollment procedures** can have a large effect on participation.

Based on Chetty et al. QJE'14 (for Denmark), they likely have large effects on total personal savings [hard to believe people are swayed by small things in 401(k) decisions but then offset it all rationally along other dimensions].

This psychological or behavioral evidence suggests that 401(k) have strong effects and that it is much cheaper to affect savings through other channels than pure economic incentives

Libertarian paternalism (Thaler and Sunstein 2005, 2008): changing the default imposes minimal costs on rational individuals and can **nudge** non-rational agents in a desirable direction.

REFERENCES

Aura, S. "Does the Balance of Power Within a Family Matter? The Case of the Retirement Equity Act", Journal of Public Economics, Vol. 89, 2005, 1699-1717. (web)

Bernheim, D. "Taxation and Saving", in A. Auerbach and M. Feldstein, Handbook of Public Economics, Volume 3, Chapter 18, Amsterdam: North Holland, 2002, Section 4. (web)

Bernheim, B.D. and D.M. Garrett "The Determinants and Consequences of Financial Education in the Workplace: Evidence from a Survey of Households", NBER Working Paper No. 5667, 1996. (web)

Card, David and Michael Ransom (2011) "Pension Plan Characteristics and Framing Effects in Employee Savings Behavior", Review of Economics and Statistics, 93(1), 228-243, NBER Working Paper No. 13275, July 2007 (web)

Chetty, Raj, John Friedman, Soren Leth-Petersen, Torben Nielsen, and Tore Olsen "Active vs. Passive Decisions and Crowd-out in Retirement Savings Accounts: Evidence from Denmark." NBER Working Paper No. 18565, 2012, Quarterly Journal of Economics, 2014(web)

Choi, J., D. Laibson and B. Madrian "Reducing the Complexity Costs of 401(k) Participation Through Quick Enrollment", NBER Working Paper No. 11979, 2006. (web)

Choi, J., D. Laibson and B. Madrian "$100 Bills on the Sidewalk: Suboptimal Saving in 401(k) Plans", NBER Working Paper No. 11554, 2005. (web)

Choi, J., D. Laibson, B. Madrian. and A. Metrick "For Better or For Worse: Default Effects and 401(k) Savings Behavior". In David Wise, editor, Perspectives on the Economics of Aging, pp. 81-121. Chicago: University of Chicago Press, 2004, also NBER Working Paper No. 8651, 2001. (web)

Choi, J., D. Laibson, B. Madrian. and A. Metrick "Optimal Defaults", American Economic Review, Vol. 93, 2003, 180-185. (web)

Choi, J., D. Laibson, B. Madrian. and A. Metrick "Defined Contribution Pensions: Plan Rules, Participant Decisions, and the Path of Least Resistance" In James Poterba, editor, Tax Policy and the Economy 16, 2002, pp. 67-114, also NBER Working Paper No. 8655, 2001. (web)

Choi, J., D. Laibson, B. Madrian. and A. Metrick "Passive Decisions and Potent Defaults", NBER Working Paper No. 9917, 2003. (web)

Duflo, E. and E. Saez "Participation and Investment Decisions in a Retirement Plan: The Influence of Colleagues' Choices", Journal of Public Economics, Vol. 85, 2002, 121-148. (web)

Duflo, E. and E.Saez "The Role of Information and Social Interactions in Retirement Plan Decisions: Evidence from a Randomized Experiment", Quarterly Journal of Economics, Vol. 118, 2003, 815-842. (web)

Duflo, E., W. Gale, J. Liebman, P. Orszag and E. Saez "Saving Incentives for Low- and Middle-Income Families: Evidence from a Field Experiment with H&R Block", Quarterly Journal of Economics, Vol. 121, 2006, 1311-1346. (web)

Engen, E., and W. Gale, "Debt,Taxes and the Effects of 401 (k) Plans on Household Wealth Accumulation," mimeo, October 1995. (web)

Engen, E., W. Gale and J. Scholz "The Illusory Effects of Saving Incentives", Journal of Economic Perspectives, Vol. 10, 1996, 113-138. (web)

Engelhardt, G. "Have 401(k)s Raised Household Saving? Evidence from the Health and Retirement Study", Syracuse Center for Policy Research Working Paper, 2000. (web)

Engelhardt, G. and A. Kumar (2007) "Employer Matching and 401(k) Saving: Evidence from the Health and Retirement Study", Journal of Public Economics, 91(10), 1920-43. (web)

Gale, W. and J. Scholz "IRAs and Household Saving", American Economic Review, Vol. 84, 1994, 1233-1260. (web)

Gelber, Alexander (2011) "How do 401(k)s Affect Saving? Evidence from Changes in 401(k) Eligibility," American Economic Journal: Economic Policy, 3:4, 103-122 (web)

Holden, K., Nicholson, S., 1998. "Selection of a joint-and-survivor pension." Institute for Research on Poverty Discussion Paper No. 117598. (web)

Holden, K., and K. Zick "Distributional changes in income and wealth upon widowhood: Implications for private insurance and public policy" In: Retirement needs framework, 69C79. SOA Monograph M-RS00-1. Schaumburg, IL: Society of Actuaries, 2000. (web)

Madrian, B. and D. Shea "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior", Quarterly Journal of Economics, Vol.116, 2001, 1149-1188. (web)

Poterba, J., S. Venti and D. Wise "Do 401(k) Contributions Crowd Out Other Personal Saving?", Journal of Public Economics, Vol. 58, 1995, 1-32. (web)

Poterba, J., S. Venti and D. Wise "How Retirement Saving Programs Increase Saving", Journal of Economic Perspectives, Vol. 10, 1996, 91-112. (web)

Poterba, J., S. Venti and D. Wise "401 (k) Plans and Future Patterns of Retirement Saving", The American Economic Review, Vol. 88, No. 2, Papers and Proceedings of the Hundred and Tenth Annual Meeting of the American Economic Association (May, 1998), 179-184. (web)

Poterba, J., S. Venti and D. Wise "The Transition to Personal Accounts and Increasing Retirement Wealth: Macro and Micro Evidence", NBER Working Paper No. 8610, 2001. (web)

Saez, E. "Details Matter: The impact of Presentation and Information in the Take-up of Financial Incentives for Retirement Savings", American Economic Journal: Economic Policy, Vol. 1, 2009, 204-228. (web)

Thaler, R. and S. Benartzi "Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving", Journal of Political Economy, Vol. 112, 2004, 164-187. (web)

Thaler, Richard H. and Cass R. Sunstein "Libertarian Paternalism" American Economic Review, Vol. 93, No. 2, 2003, 175-179. (web)

Thaler, Richard H. and Cass R. Sunstein *Nudge: Improving Decisions About Health, Wealth, and Happiness*, 2008.

Venti, S. and D. Wise "Have IRAs Increased U.S. Saving? Evidence from Consumer Expenditure Surveys", Quarterly Journal of Economics, Vol. 105, 1990, 661-698. (web)