Earnings Adjustment Frictions:

Evidence from the Social Security Earnings Test

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Outline

Motivation

- We study effect of Social Security Annual Earnings Test (AET) on earnings decisions
- Document frictions in adjusting earnings to AET
  - Estimate size of frictions preventing people from adjusting
  - Examples of frictions: information, difficulty of finding job with desired earnings
- Methodology for assessing effect of policy and size of frictions applicable to many other policy contexts

Outline

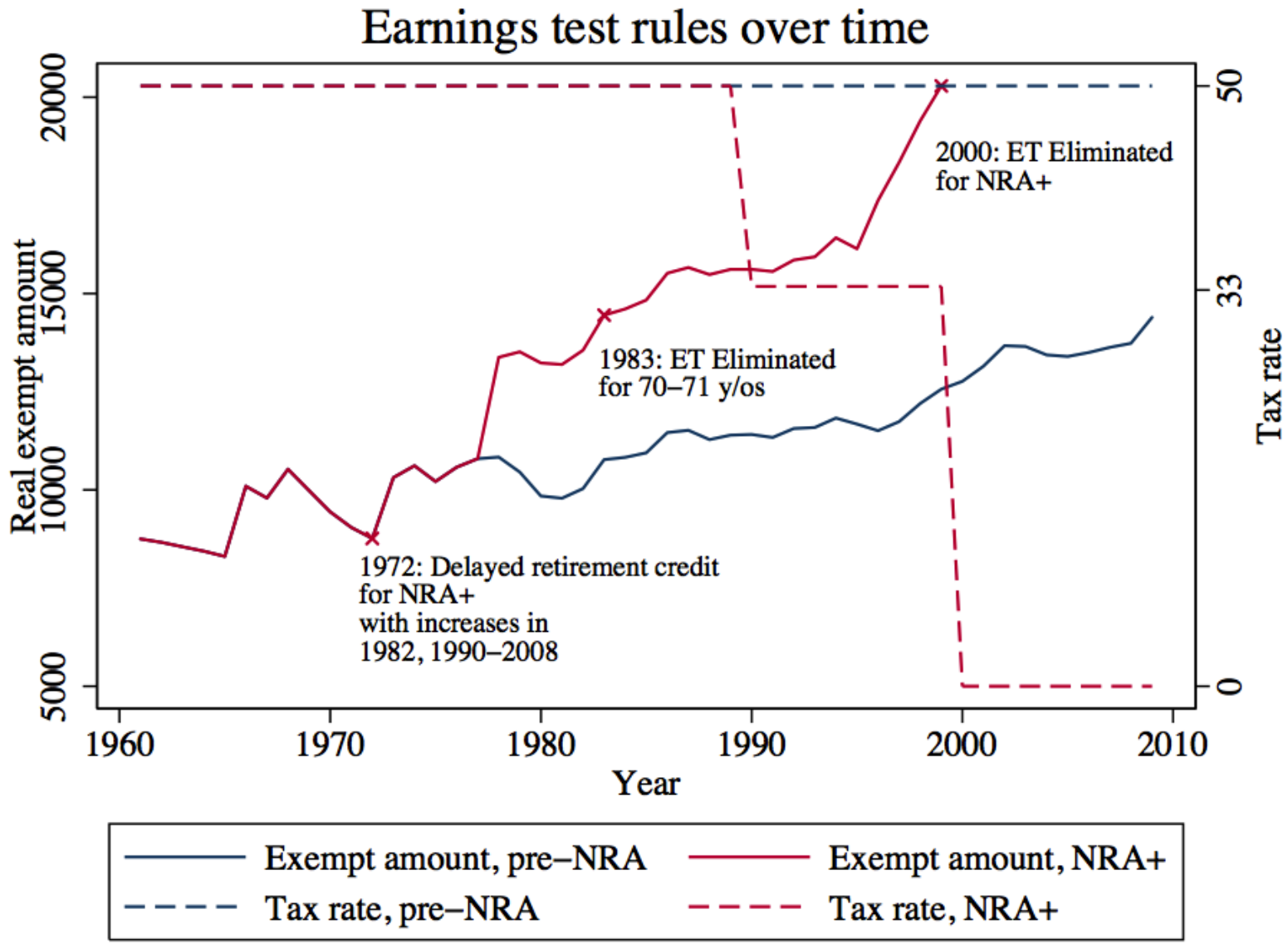
Annual Earnings Test

- For earnings above threshold, AET reduces Social Security benefits
  - Benefit reduction rate (BRR) and exempt amount vary by age and year
- Response widely studied (e.g. Burtless and Moffitt 1985; Friedberg 1998, 2000; Song and Manchester 2007)

Annual Earnings Test

- For those NRA+ 1972-2000, Delayed Retirement Credit: losing benefits due to AET causes increase in benefits upon claiming
  - Future benefits only raised due to the DRC when earnings are sufficiently high that the individual receives no SS benefits in a given month
  - During the period we examine pre-1972, the AET was simpler and equivalent to a pure tax for those NRA+
- For claimants under Normal Retirement Age (NRA), actuarial adjustment: losing benefits due to AET causes increase in benefits upon claiming
  - If earn any amount above AET threshold, future benefits increased
- Many individuals may not understand the rules
  - We have only a bit of evidence in this paper on the reasons why people respond to the AET, but we investigate misperceptions of the AET in other work

Earnings Test Rules over Time

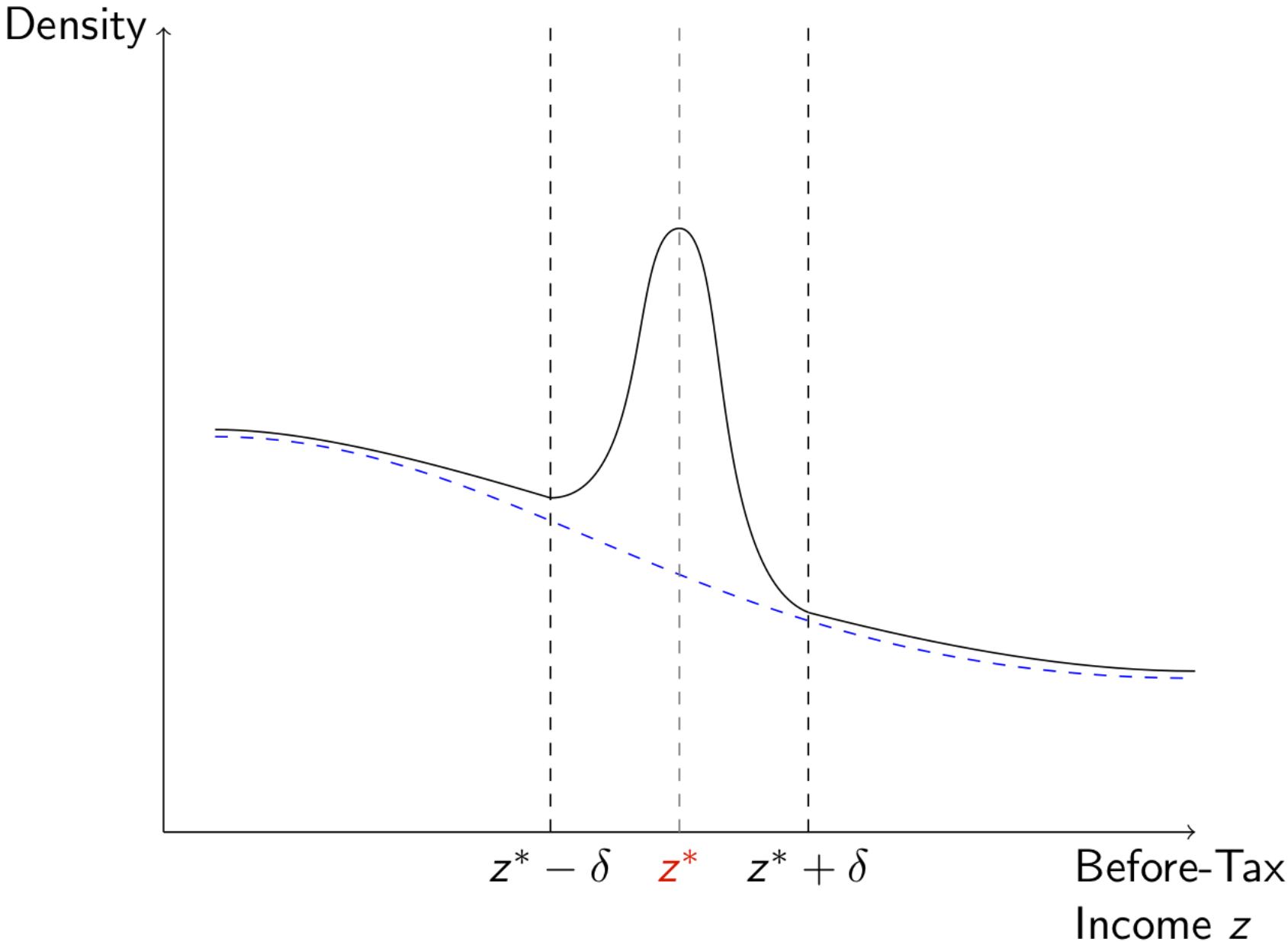


Outline

Basic Framework

- Individuals "bunch" (i.e. cluster) at the AET exempt amount
- Intuition:
  - BRR rises (from zero to a positive level) at exempt amount
  - For many people, worth it to earn more at the margin when benefit reduction rate is zero (below exempt amount) but not at BRR in the region above the exempt amount
  - This produces “bunching” in the earnings distribution at the exempt amount as people cluster near this earnings level
- Note: AET is not a tax
  - Not administered through tax system
  - Actuarial adjustment/DRC further distinguish AET from a tax
  - Borrow terminology from tax literature given applicability of methods for estimating elasticities and adjustment costs more broadly

Empirical Method



Documenting Barriers to Adjustment

- We estimate excess bunching in each year after change in policy that individuals face
- Cleanest evidence probably from kinks disappearing, because we know that there should be no bunching and can measure the amount of time it takes to get to no bunching

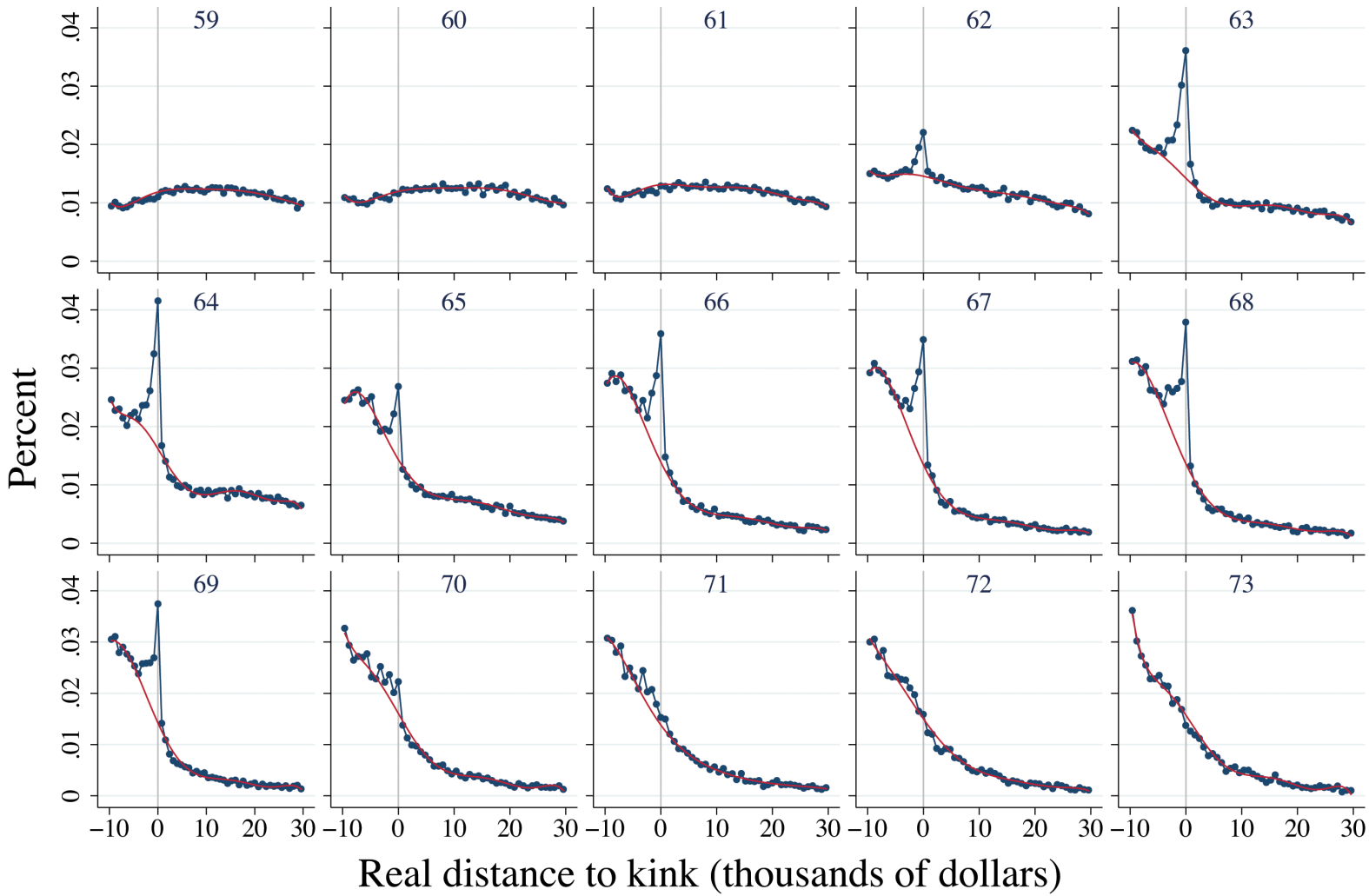
Outline

Main Data: Social Security Master Earnings File

- Social Security Administrative Data
- 1% extract of SS numbers
- Complete earnings history 1951-2006 of calendar year earnings for each SSN in sample
  - Not manipulable through deductions, credits, etc.
- Key covariates: earnings, date of birth, when claiming began, SS benefits
- Since 1978, ET has been assessed on earnings in each calendar year, which is the same time frame (i.e. calendar year) as earnings are observed in our data
- Many thanks to David Pattison!
- Also use Longitudinal Employer Household Dynamics (LEHD)

Outline

Results 1: Responses by Age (1990-99)



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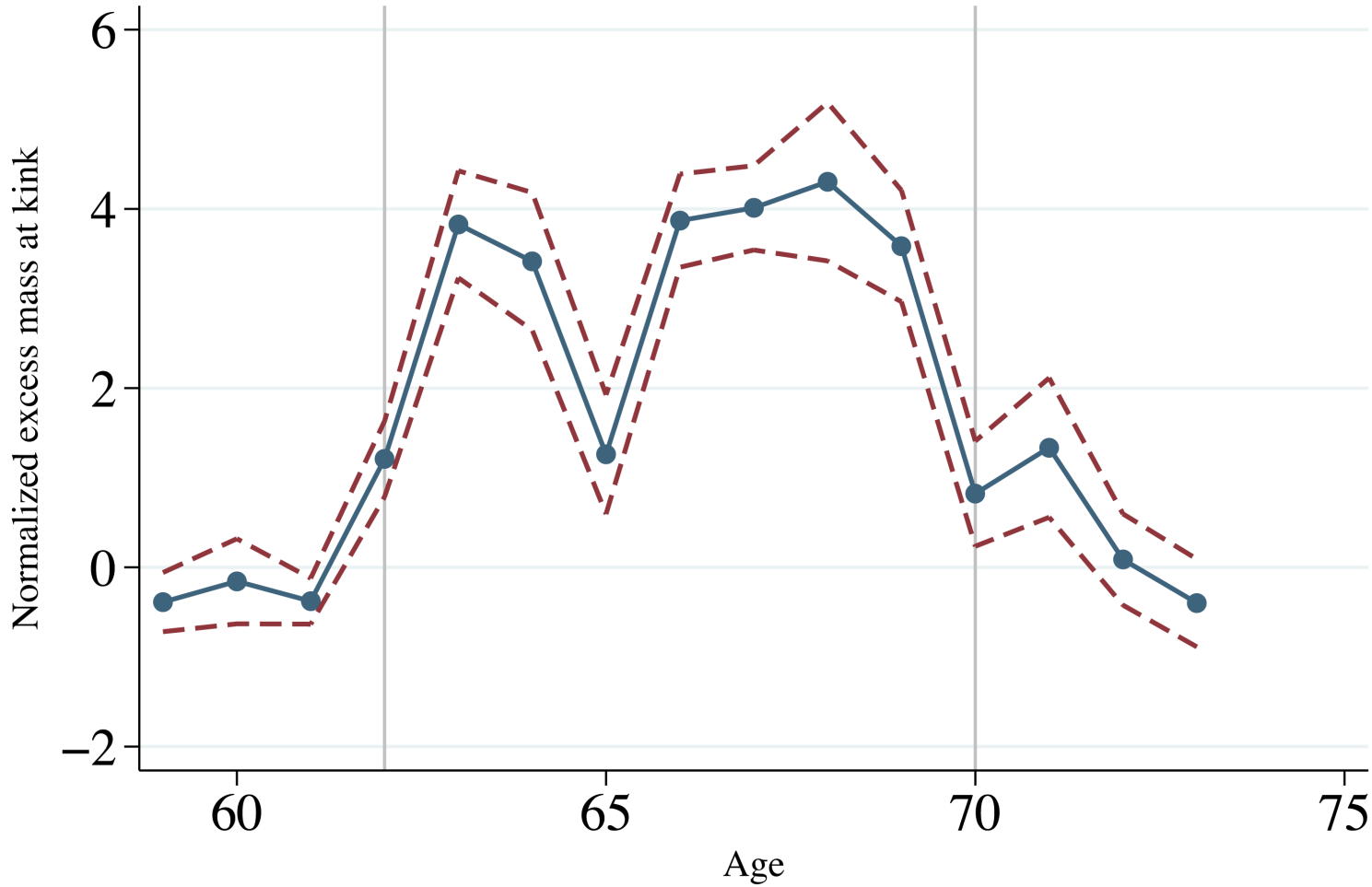
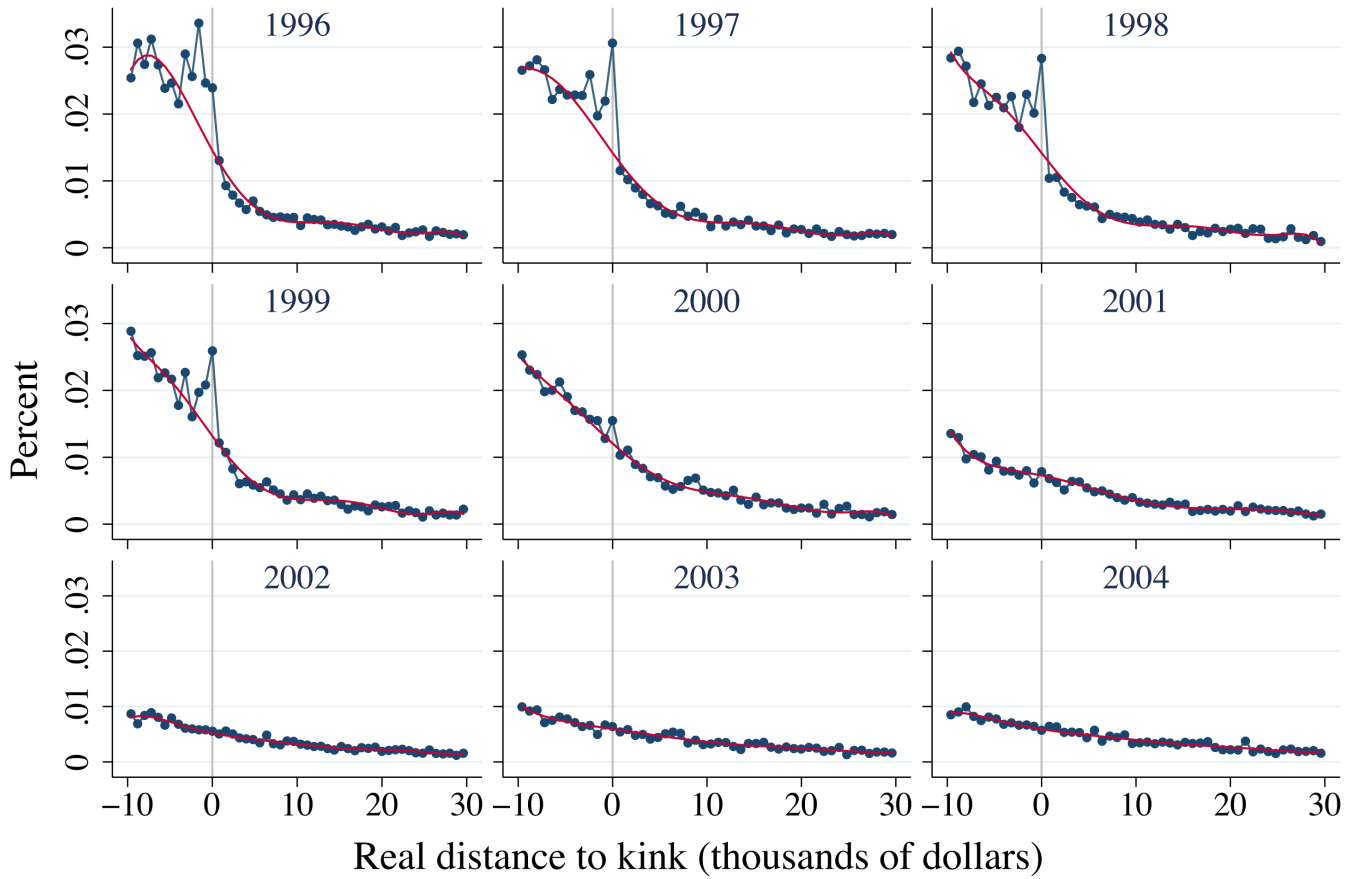


Summary

- Substantial bunching from 63-69
- Dip in bunching at age 65 (kink moves)
- No significant evidence of bunching starting at age 72
- These patterns are similar in 1983-1989 and 2000-2003
- These changes are anticipated (i.e. an individual who knew about the parameters of AET law would have anticipated the changes)

Results 2: AET Elimination in 2000 for 66-69 year olds



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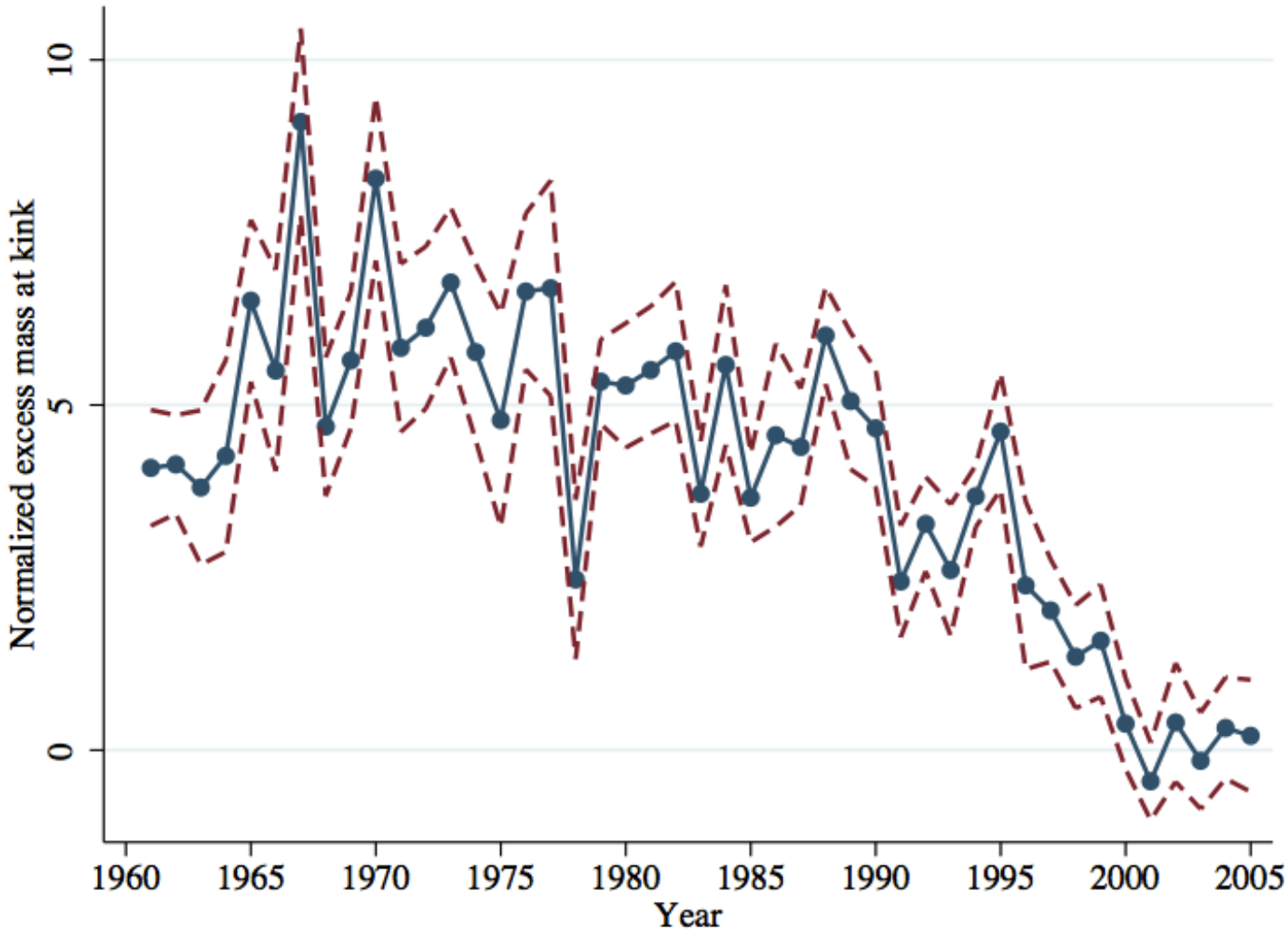


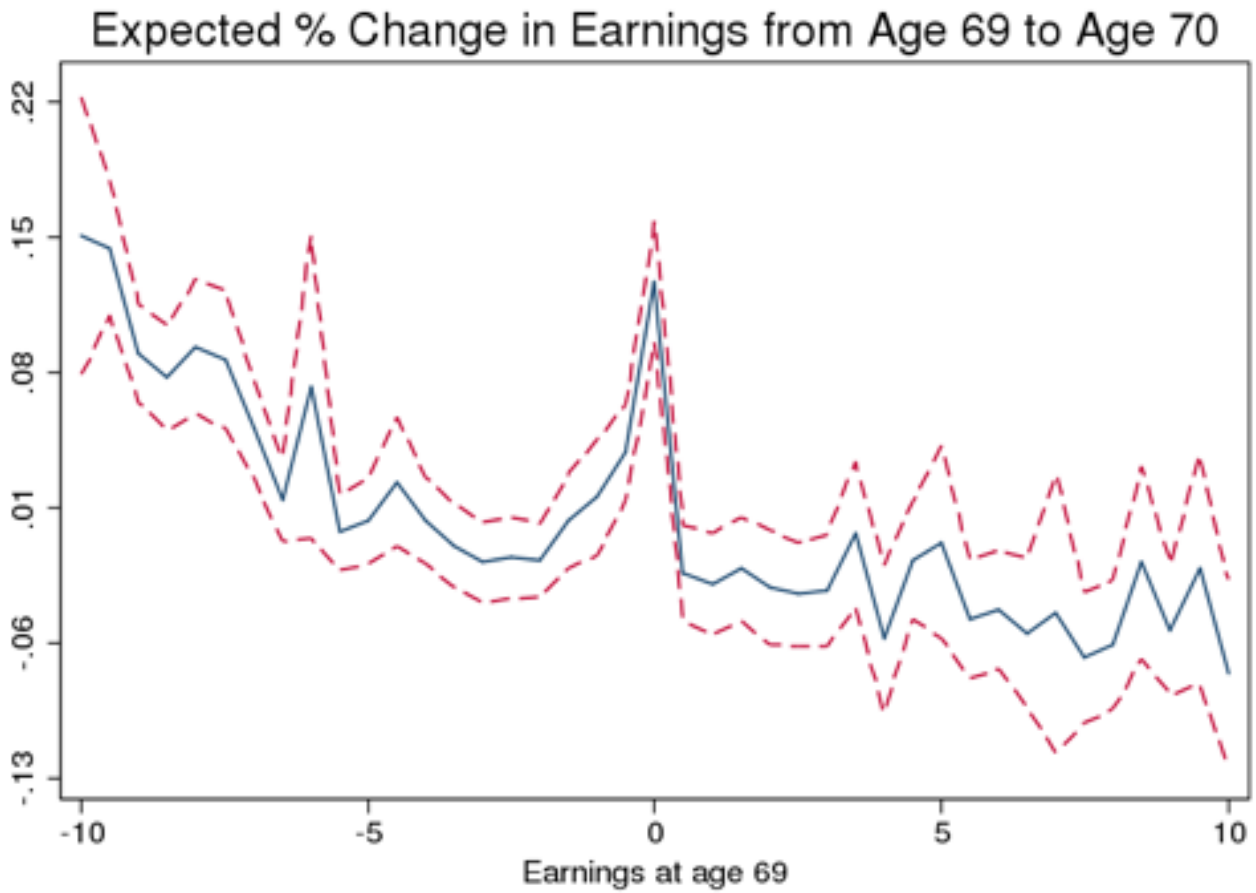
Results 2: AET Elimination in 2000 for 66-69 year olds

Summary

- After the 2000 elimination of the earnings test, 66-69 year olds show no bunching (react within at most one year; can rule out substantial subsequent bunching)
- This change was unanticipated prior to 2000
- Note: suggestive evidence of little systematic reaction to changes in DRC (1972, 1983, 1990-1999)

Outline

Who Adjusts? LEHD 20% sample, 1990-98



Summary

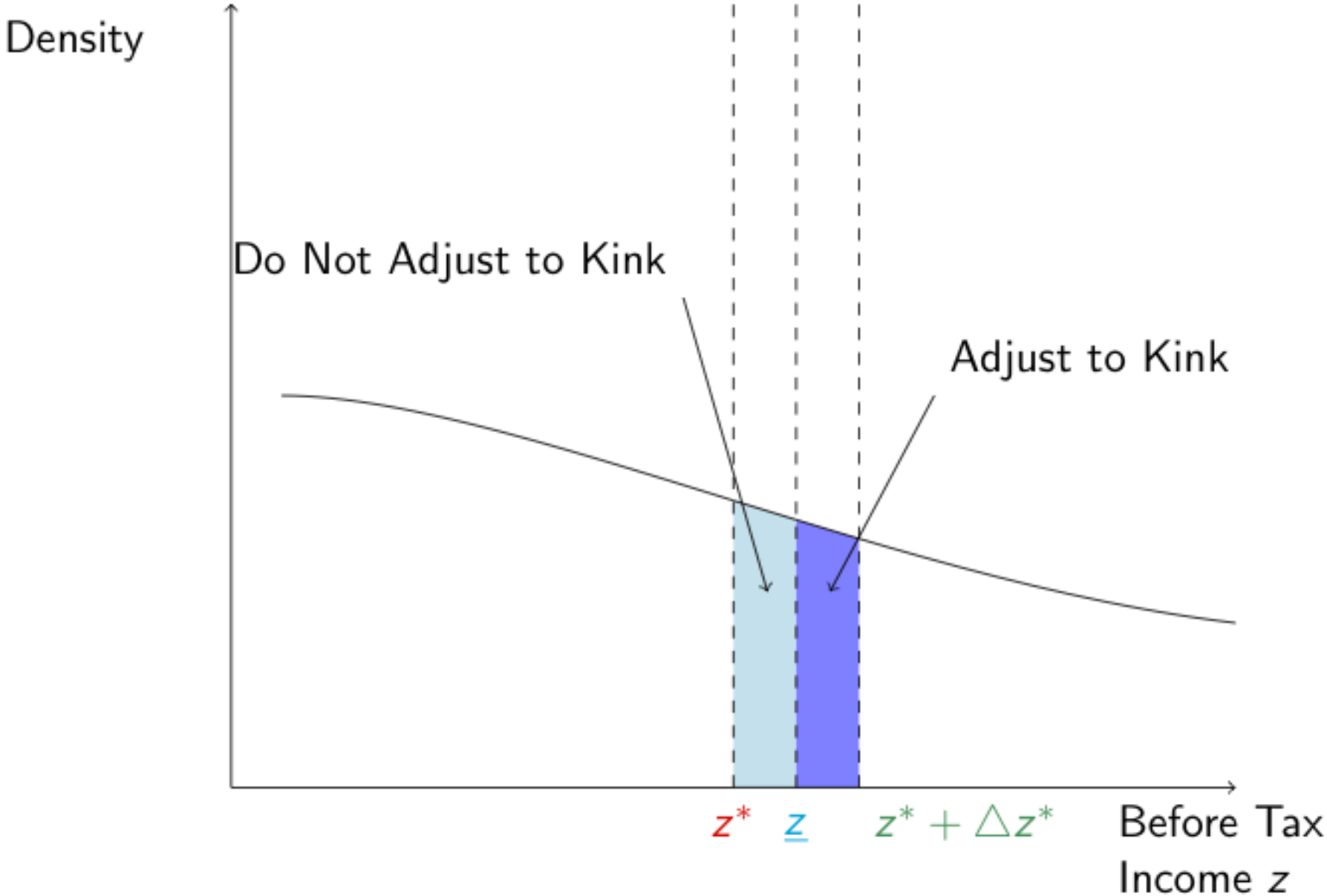
- When AET is eliminated from age 69 to age 70, those at the kink increase their earnings substantially more than those just above kink, even though both groups are subject to decrease in BRR
- Despite income effect, those substantially above the kink do not decrease their earnings
  - Relevant to calculating score of AET elimination
  - Suggestive evidence of small income effect: income effect rises when moving further to the right of the kink; substitution effect is constant above the kink; increase in earnings roughly constant when moving further to the right of the kink

Outline

Estimating Elasticity and Adjustment Cost

- Previous literature has documented that adjustment costs are an important driver of elasticity estimates
  - Raises question of how to estimate the elasticity in the presence of adjustment costs
- Individuals must incur a fixed cost in order to change earnings
  - We focus on fixed cost because it is a natural starting point and because of importance in previous literature

Estimating Elasticity and Adjustment Cost: Methodology



Estimating Elasticity and Adjustment Cost: Intuition

- Under heterogeneity in elasticities and adjustment costs our formula returns the mean population elasticity $\bar{e}$ and population adjustment cost $\bar{\phi}$:

$$b = z^* \frac{dt}{1-t}\bar{e} - \frac{1}{dt}\bar{\phi}$$

- b is scaled bunching at kink point z^*, t is tax rate to left of kink, and dt is tax rate jump at kink
- With two kinks, we have two variables to estimate (elasticity and adjustment cost) and at least two equations (one for each kink)
- Identification intuitively arises from two sources:
  - The amount of bunching in a single cross-section
  - The change in the amount of bunching from one cross-section to another (which is attenuated by adjustment cost)

Estimating Elasticity and Adjustment Cost: Identification

Estimating Elasticity and Adjustment Cost

- Use data on 66-69-year-olds from 1989 and 1991
  - In 1990, AET went from removing 50% of marginal earnings above threshold to removing 33%
  - Elasticity $= 0.35$
  - Adjustment cost $=$ \$114 in 2010 dollars
  - If constrain adjustment cost to be zero: elasticity $= 0.32$
- Results are similar with alternative policy changes, years, and methods

Outline

Findings

- Vast majority of adjustment occurs within around three years or less, but delays may occur
- Baseline: Elasticity = 0.35 and adjustment cost = \$114
  - Results can be used as an input into calculating score of eliminating AET
  - Two of the parameters in a welfare analysis of the AET
  - If assumed no adjustment cost: elasticity = 0.32
- Suggests that while frictions exist, many individuals pay attention to and react to AET
- Suggestive evidence of little bunching reaction to changes in actuarial adjustment and DRC

Application of Methodology

- Methodology for calculating elasticity and adjustment cost more broadly applicable to many policies
- AET is particularly fruitful policy to study
  - Administrative panel data on earnings from Social Security Administration are accurate and have large sample size
  - Large changes in AET policy across groups and over time
- Hard to find variation in taxes in U.S. that allows for credible estimation of elasticities
- Future work should estimate elasticities and adjustment costs in tax and other policy contexts in U.S. and other countries
- Other future work: misperceptions of AET