

The Short- and Long-Term Effects of Job Displacement on Employment at Older Ages

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Effects of Job Loss on Labor Supply and Claiming of Social Security Benefits

- **Effect of job loss & unemployment on OASI has received limited attention (compared, say, the effect on SSDI)**
 - Partly because due to actuarial adjustment of benefits, early retirement does not affect program finances as much
- **Several reasons why question of how OASI interacts with labor market conditions is important**
- **Short-run effect of job loss on retirement and claiming:**
 - Older workers use OASI as insurance against temporary shock
 - *Focus of existing literature*
 - See that job loss leads to earlier retirement (*e.g., Chan & Stevens '04*)
 - Recession raise incidence of early claiming (*e.g., Coile & Levine '06, '11*)
- **Long-run effect of job loss on retirement and claiming:**
 - Wealth effect; incentive to replace zeros in AIME calculation
 - Postponing retirement a margin allowing workers to recoup losses in long-term earnings from job loss
 - Provide additional evidence that financial incentives matter for retirement

Estimate Effect of a Job Displacement on Short- and Long-Term Labor Supply and Claiming of OASI

Merged Data: 1) **Firm-Level Employment Counts**

- generated from 100% worker file

2) **1% Annual Worker W2 Earnings Histories**

- cover entire U.S. labor market for 1974-2007

3) **1% OASI Claiming (Master Beneficiary Record)**

Step 1: Estimate short-run effect of job displacement during mass-layoffs in early 1980s recessions on earnings & employment

Step 2: Estimate long-run effect of job displacement on earnings & employment

Step 3: Estimate short-run & long-run effect of job displacement on Social Security claiming behavior

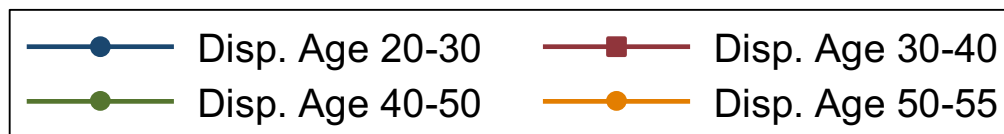
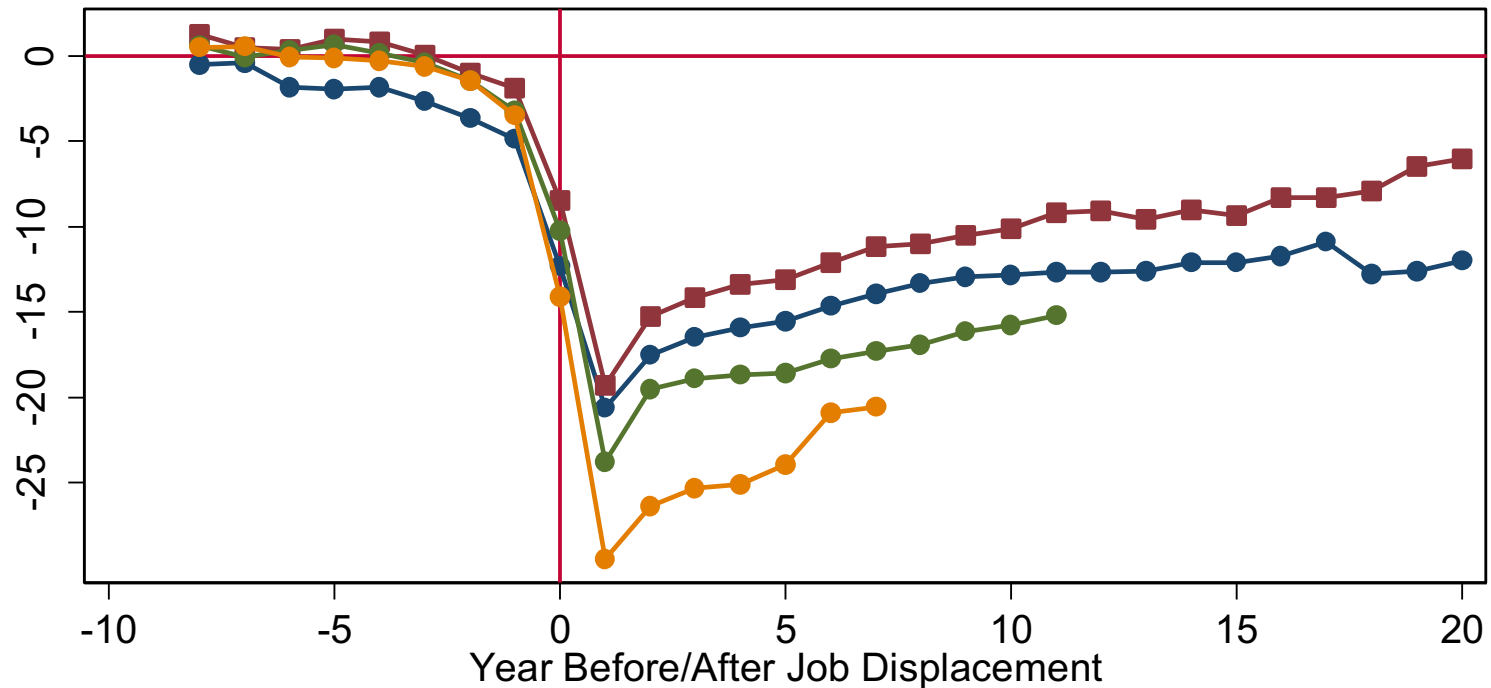
Identify Mass Layoffs at Firm Level

- Job Displacement:** Separate from main employer held in 1979 during a mass-layoff event
- Mass-Layoffs:** Lasting 30% employment drop over two years relative to level in 1979
- Firm Restrictions:** EIN Size in 1979 > 50
- Worker Restrictions:** Male workers born 1930-59 (early 40s job loss)
At least 6 Years of tenure in 1979
No restrictions on post-1979 employment
Only look at workers claiming on their own earnings history (no dependents)

→ Results robust to relaxing these restrictions

Benchmark: Job Displacement Leads to Large Long-Term Losses in Earnings at All Ages (*von Wachter et. al 2009*)

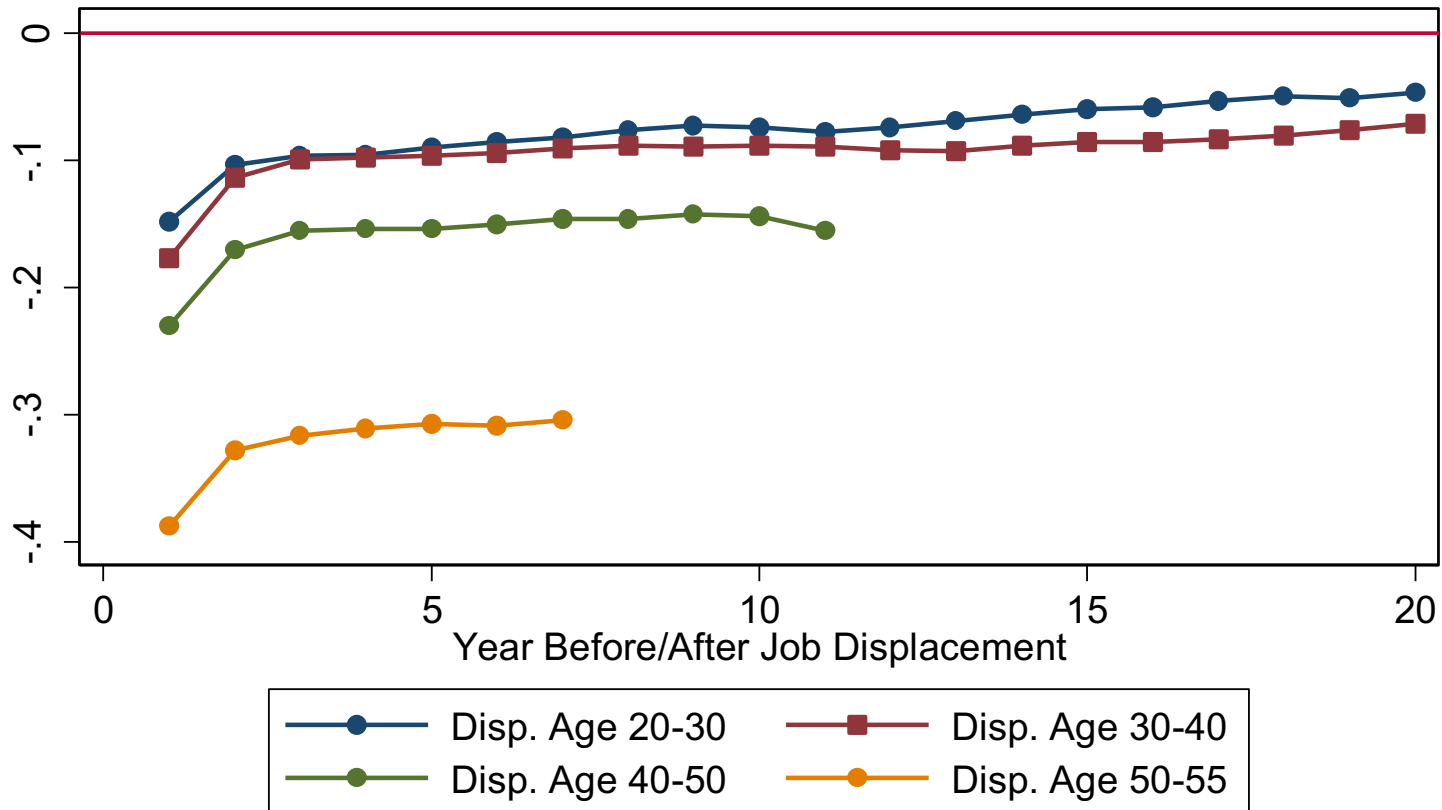
Earnings Losses at Job Separation By Age at Displacement
Earnings All Jobs Including Zeros, Men in Stable Job 1974-1979 (in \$1000)
Including Earnings at Ages up to 55 (62 for those Displaced Age 50+)



Source: 1% Files of Social Security administrative data (see text). Earnings in 2000 Dollars.

Result 1: Job Displacement Leads to Large and Persistent Losses in Employment for Workers of All Ages

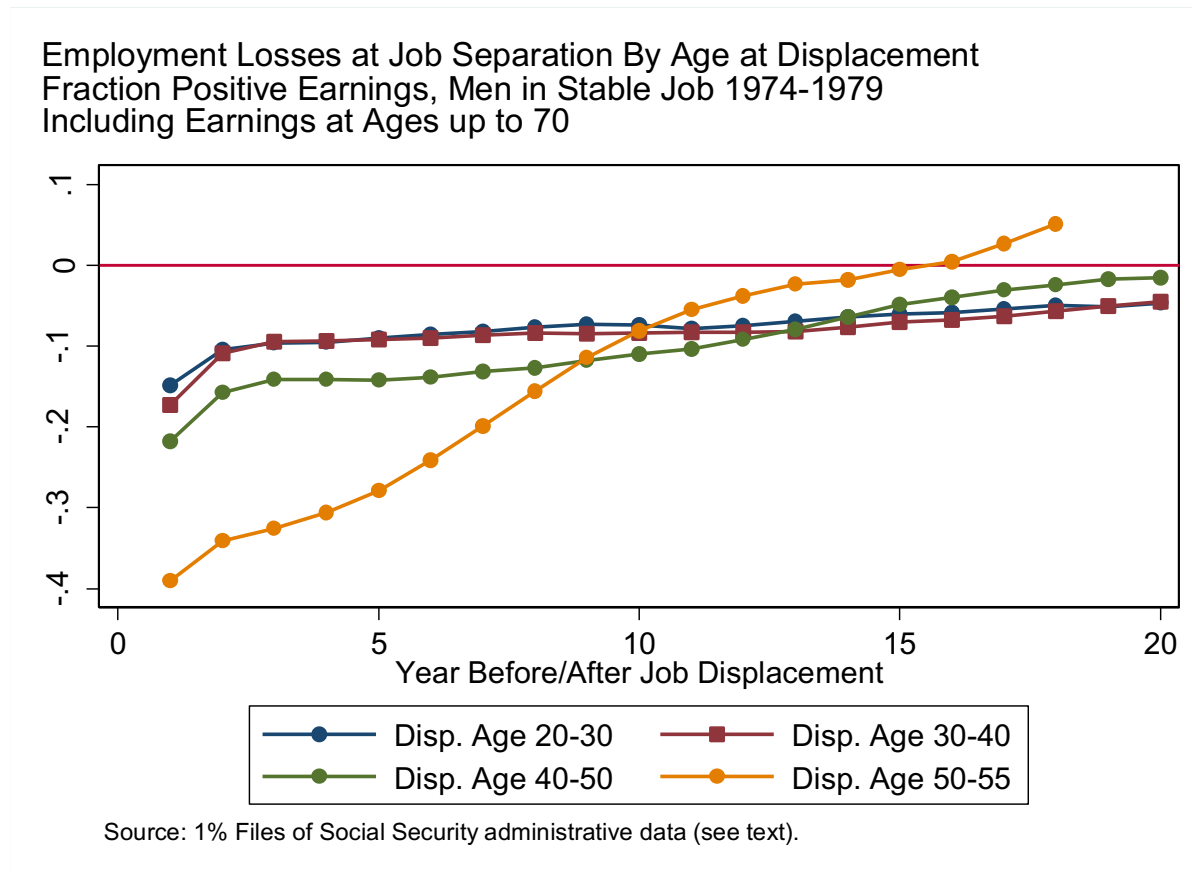
Employment Losses at Job Separation By Age at Displacement
Fraction Positive Earnings, Men in Stable Job 1974-1979
Including Earnings at Ages up to 55 (62 for those Displaced Age 50+)



Source: 1% Files of Social Security administrative data (see text).

→ *Employment patterns after job loss for workers in prime working age are explored further in Song and von Wachter (2014).*

Result 2: Substantial Employment Recovery from a Job Loss Occurring Prior to Age 55 During Ages 62-70

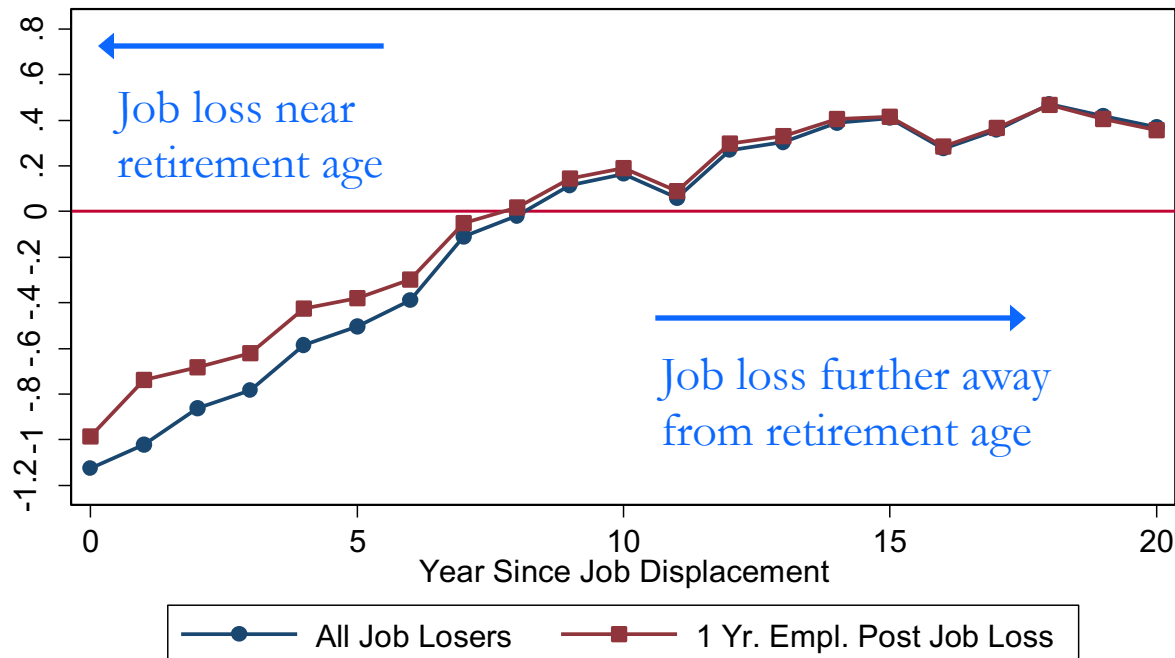


➔ The reason for the recovery is that job losers experience a slower reduction in employment with age compared to the control group of non-displaced workers

Effect of Job Displacement on Average Claiming Age by Year Since Displacement: **First Falls, then Rises**

→ In this figure, years since job displacement approximately measures the age of job loss. This is because workers can claim OASI only once and claiming OASI typically occurs from ages 62-65. (So for someone with ten years since a job loss who claims at age 62 was displaced at age 52.)

Change in Claiming Age Due to Job Displacement
Age of First Claim of OASI Benefits (Primary Beneficiary)
Men in Stable Job 1974-1979



Source: 1% Files of Social Security administrative data (see text).

Notes: Mean for non-displaced = 63.1

Magnitude of Effects is Substantial

1. Large Initial Decline and Slow Recovery in Employment

→ about 15-30% initial decline in employment

2. Substantial Percentage Drop In Earnings

→ about a 40-50% decline in post-displacement earnings

3. Large Initial Increase Probability of Early Claiming

→ about 25% relative to the mean in our sample!

→ even five year after displacement, rise close to 20% wrt mean

4. In The Long-Run, Effect Reverses

→ 10 years after job loss effect zero,

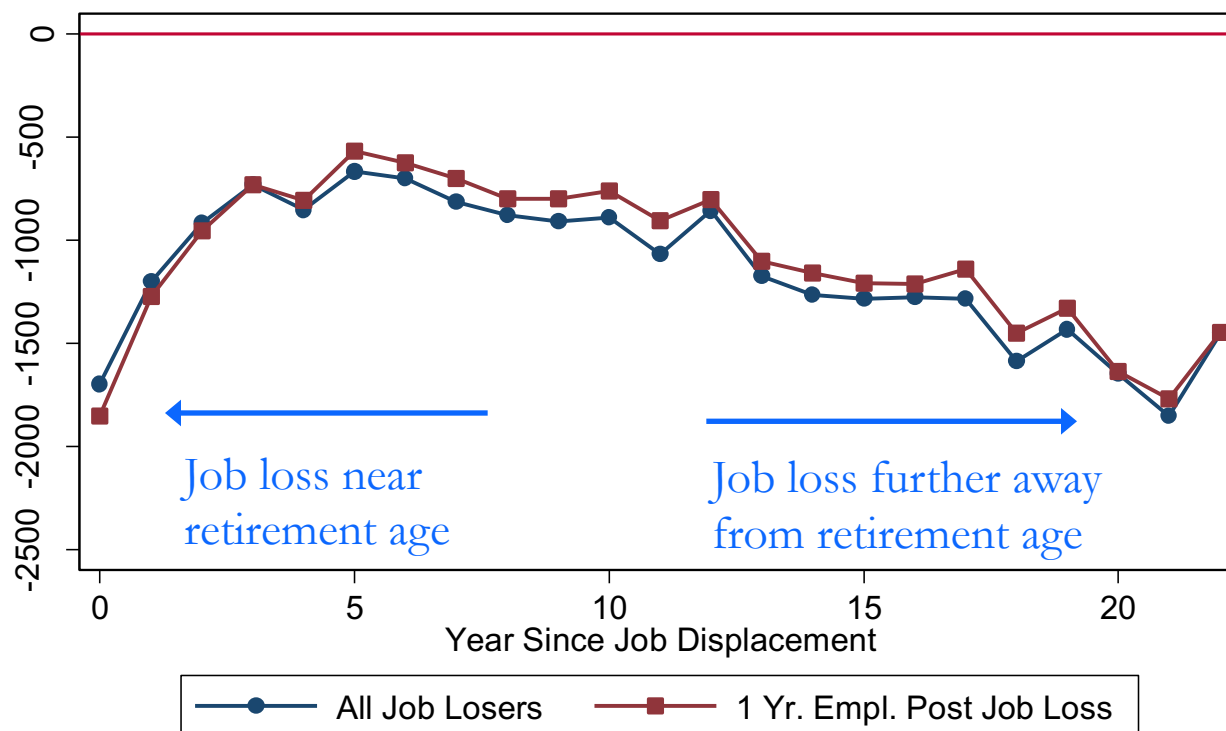
→ 15 years after probability of early claiming drops 10% wrt mean

5. Substantial SR and LR Changes in Claiming Ages

→ SR 0.5-1 year drop, LR 0.3-0.4 rise (relative to SD of 1.5)

Increasing Labor Supply & Later Claiming & Recovery in Earnings Does Not Lead to Recovery in PIA

Loss Primary Insurance Amount Due to Job Displacement
Men in Stable Job 1974-1979 (US\$)



Source: 1% Files of Social Security administrative data (see text).

Notes: Mean for non-displaced=15,700

Summary

- Analyzed effect of mass-layoff and displacement on labor supply near retirement age and claiming of Social Security benefits using longitudinal administrative pension, firm, and earnings data
- **Three Main Findings:**
 1. **Displacement of older workers leads to a large decline in labor supply and a strong rise in early benefit claiming**
 2. **Workers displaced in middle age have similar employment at older age as non-displaced workers (complete recovery) & claim Social Security benefits later**
 3. **Delay in claiming & labor supply response does not offset large losses in earnings and pension levels**
- ➔ **Workers appear respond to decline in life-time earnings by working longer & claiming later, offsetting negative initial effects**

Bonus Slide – Interpretation: Wealth vs. Substitution Effects?

Short-Run Effect: *Substitution Effect* *Short-Run Elasticity* ≈ -0.4 to -0.5

- for workers nearing retirement age, a job loss leads to a large decline in earnings and moderate decline in PIA
- *Difficulty: not clear what actual offered wage really is*

Long-Run Effect: *Wealth Effect* *Long-Run Elast. wrt PDV* ≈ 0.45 - $.55$

- for workers displaced at younger ages lower life-time earnings reduces savings, private pension wealth & social security wealth, raising labor supply
- persistent decline in earnings affects PIA, such that relative generosity of OASI declines, reducing effect of decline in wage

Other Aspects: Older job losers may experience difficulties in the labor market, experience health problems

Appendix Slides

Econometric Model and Robustness

Dynamic Pattern of Annual Earnings Losses

Distributed Lag Model Jacobson, Lalonde, and Sullivan (1993)

$$e_{it} = \alpha_i + \gamma_t + \sum_{|k| \leq m} D_{it}^k \delta_k + f(\text{age}_{it}) + \varepsilon_{it}$$

k = years since job loss (to job loss)

Events

Leave 1979 Employer in 1980-1986
while Employer has MLF

Control Group

Any Worker Not Separating 1980-86
(Identify Year Effects) [*Stayers*]

Key Assumption

**Trend in Outcome of Control Group
of 'Stayers' is Valid Counterfactual**

Effect of Job Displacement on Claiming Social Security Benefits

Implement Comparable Model

$$C_{it} = \alpha + \gamma_t + \sum_{k>0} D_{it}^k \delta_k + \beta x_{i0} + u_{it} \quad \begin{array}{l} k = \text{years since job} \\ \text{loss} \end{array}$$

Outcome: Various measures of the age of claiming Social Security benefits

Time Since Job Loss: Closely related to the age of displacement

Key Assumption **Conditional on Control Variables, Outcome of Control Group of 'Stayers' is Valid Counterfactual**

Results Robust to Range of Controls for Selection:

1. Match on additional characteristics

- Industry, firm size, firm wage, etc.

2. Implement firm-level comparison

- Compare claiming pattern at level of firm experiencing mass-layoff instead of at the worker level
- Can compare firm-level claiming before and after job loss
- Match to non-mass layoff firms using firm-level characteristics

3. Vary definitions of job displacement and control group

- Include non-mass layoff separators in control group

Alternative Control Groups (1): Selection & Sorting

Stayers in Other Firms: Similar Worker & Firm Trends

$$e_{it} = \alpha_i + \gamma_t \lambda_j + \sum_{|k| \leq m} D_{it}^k \delta_k + f(\text{age}_{it}) + \varepsilon_{it} \quad \begin{array}{l} k = \text{years since job} \\ \text{loss (to job loss)} \end{array}$$

Worker Differences: Mean & Growth of Earnings 1974-1979

Firm Differences: Industry, Firm Size & Wage Bill in 1979

➔ Use trend of workers with similar mean/growth of pre-earnings, same firm size, same industry as counterfactual

➔ Can be also implemented in matching/re-weighting framework

Alternative Control Group (2): Firm-Level Analysis

Study MLF at Firm Level: Pool Movers & Stayers (ITT Model)

$$p_{gt} = \alpha_g + \gamma_t + \beta D_g^{MLF} + \sum_{k \geq -2}^{10} D_{gt}^k \delta_k + \varepsilon_{gt}$$

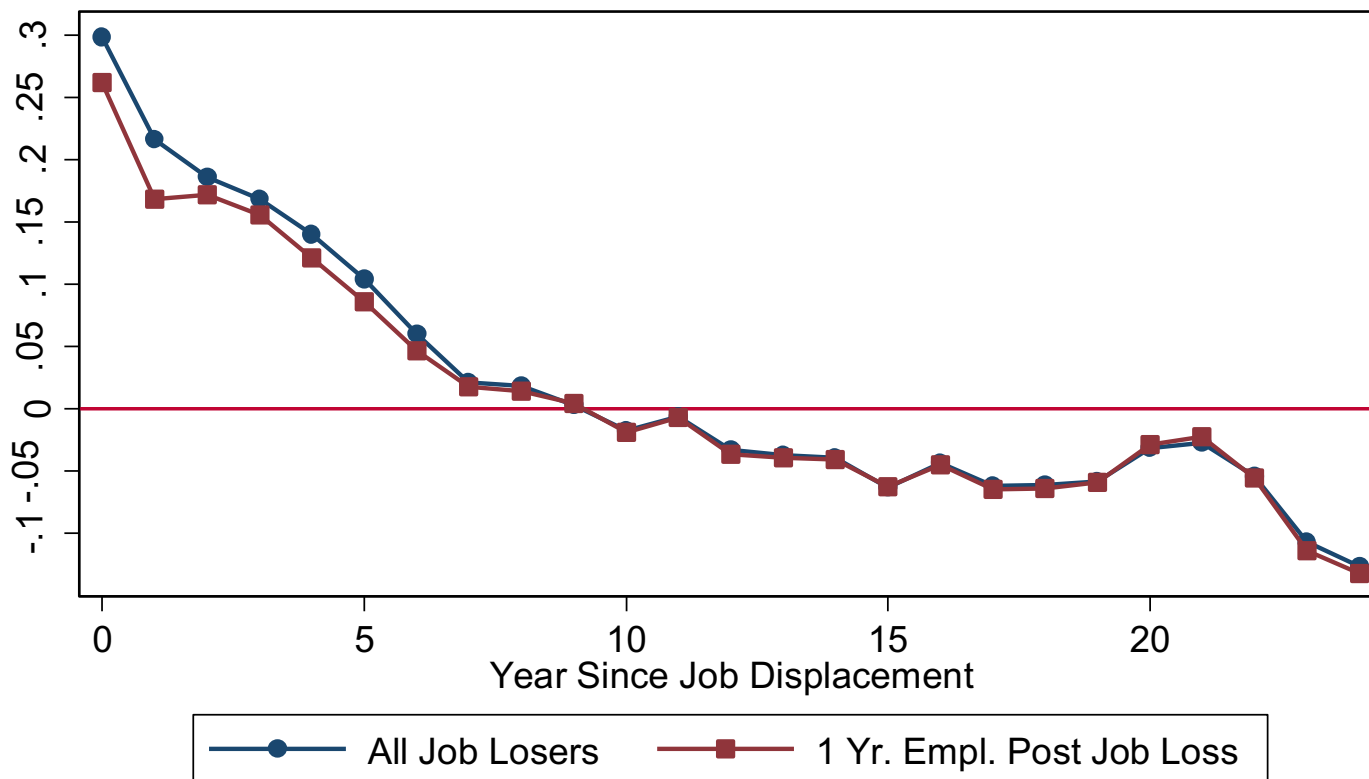
k = years before/after
MLF at employer

- Compare change in application rate of all workers at MLF firm with change of workers at similar non-MLF firms
- Intent-to-treat: - effectively use firm mass-layoff date as event
 - rescale by effect of mass-layoff on job mobility to make comparable to individual level estimate
- Cannot capture dynamics: - pool over different job loss dates at the individual level

Additional Measures of OASI Claiming

Effect of Job Displacement on Claiming of Social Security (OASI) Benefits: Pr{Claiming Before FRA}

Change in Fraction Claiming Benefits Early Due to Job Displacement
 Early Claiming of OASI Benefits Relative to Federal Retirement Age
 Men in Stable Job 1974-1979

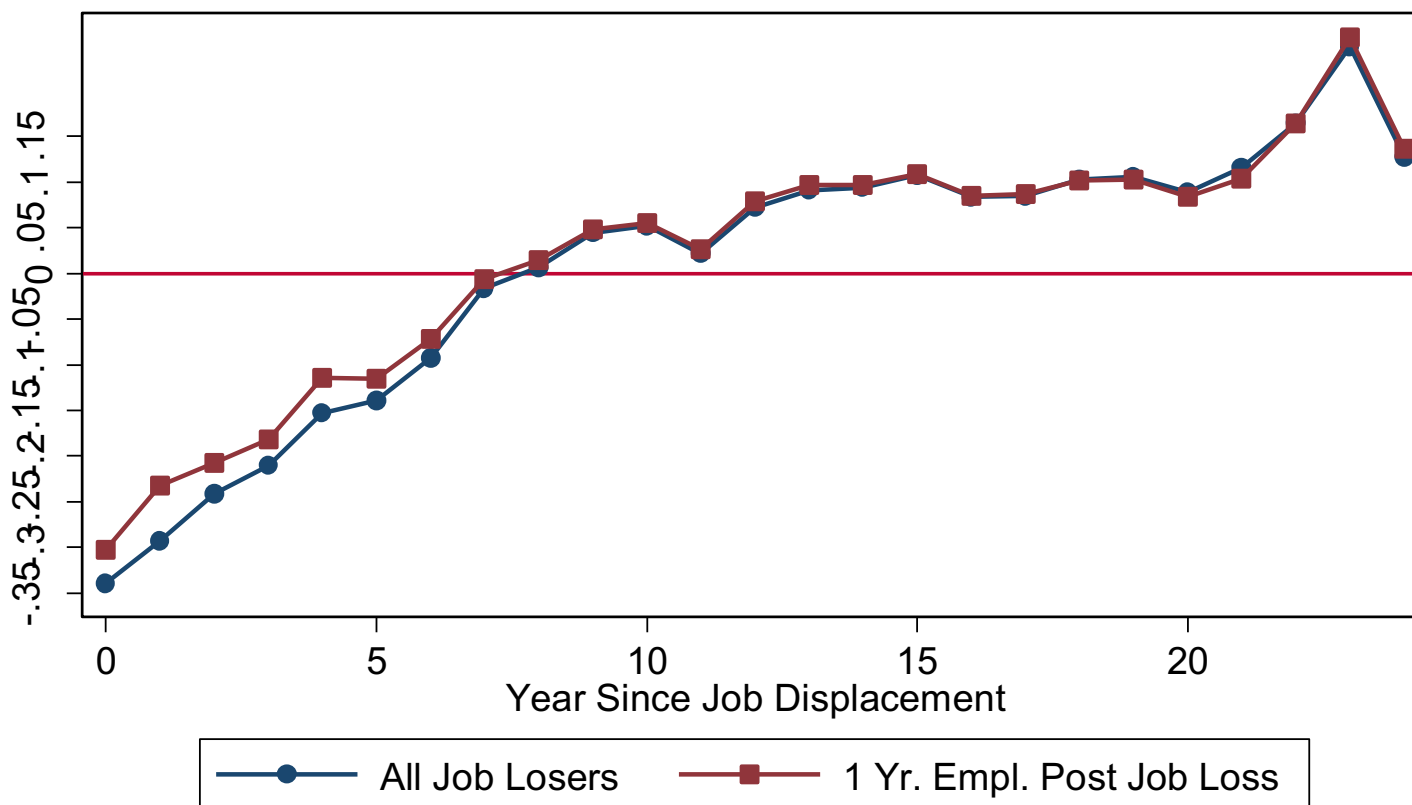


Source: 1% Files of Social Security administrative data (see text).

Notes: FRA=Federal Retirement Age. Mean for non-displaced=0.85

Effect of Job Displacement on PR{Claiming at Age 65} by Year Since Displacement: First Falls, then Rises

Change in Fraction Claiming Benefits at Age 65
Claiming of OASI Benefits (Primary Beneficiary)
Men in Stable Job 1974-1979



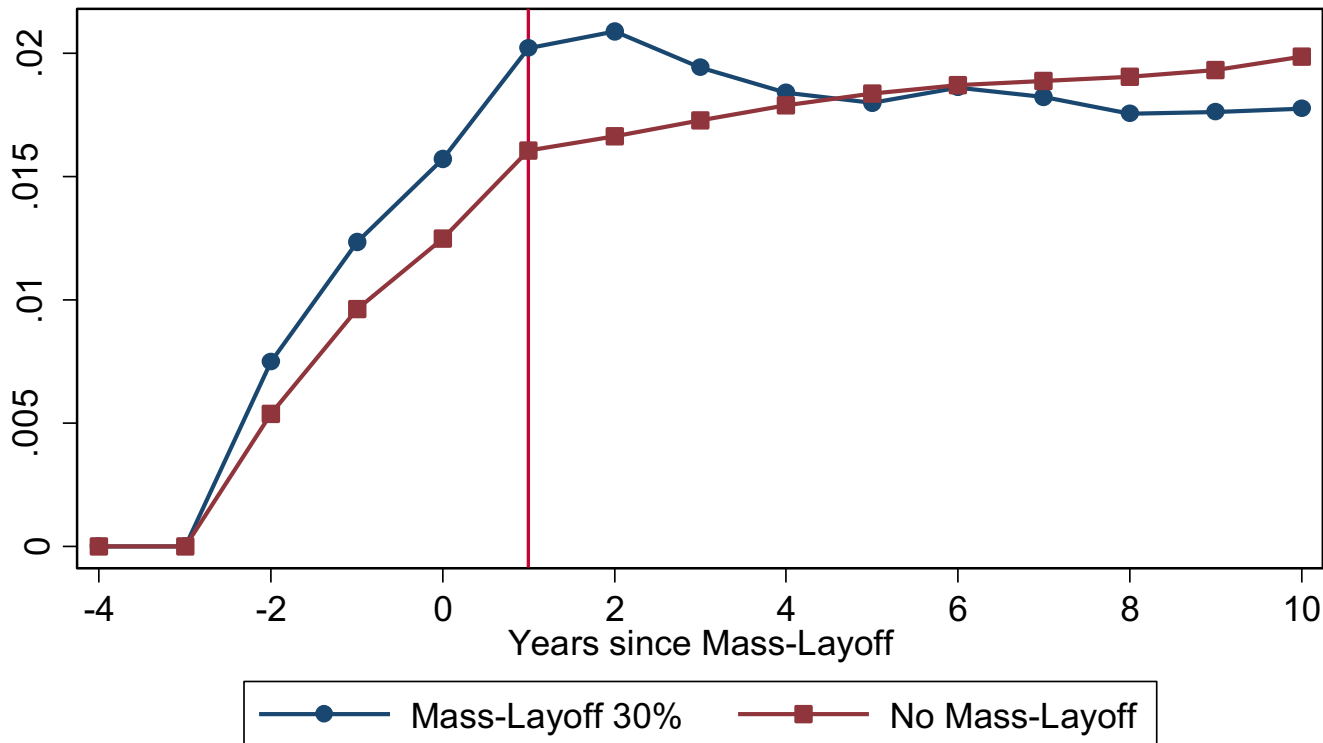
Source: 1% Files of Social Security administrative data (see text).

Notes: Mean for non-displaced=0.36

Sensitivity: Firm-Level Estimation Strategy

Robustness: Pattern Also Holds For Estimates at the Firm Level That Are Robust to Selective Displacement

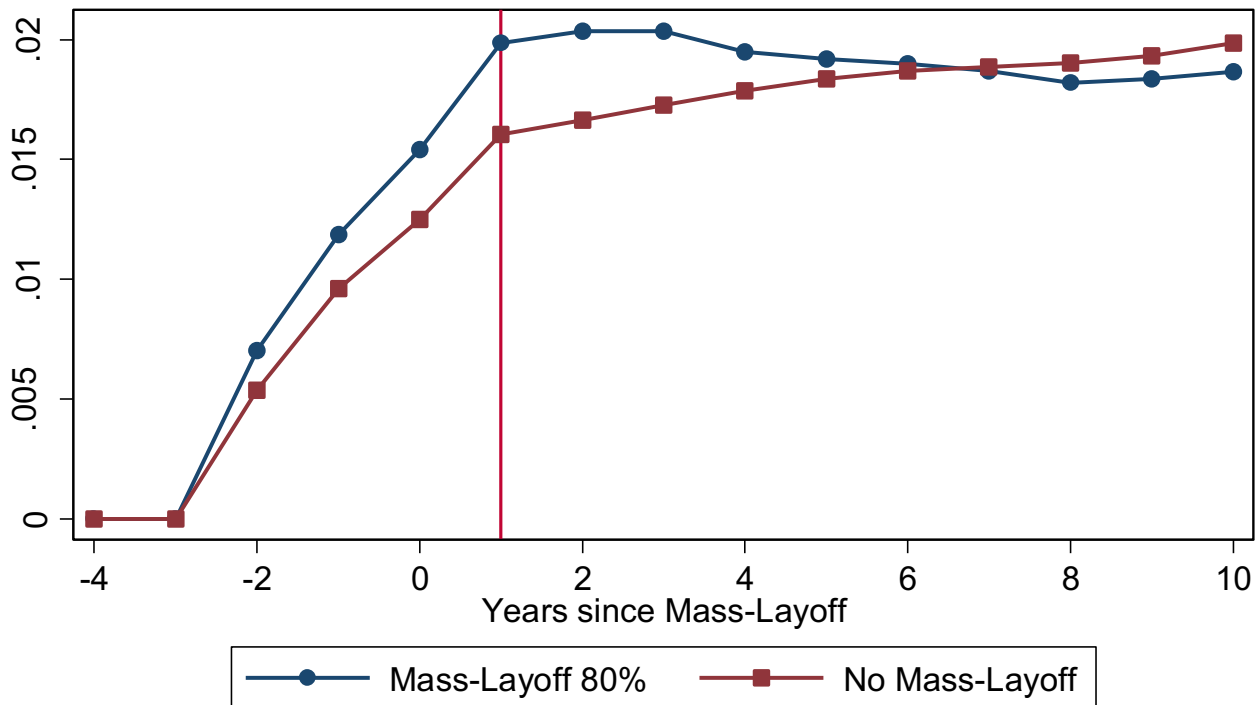
Effect of Mass-Layoff on Early Claiming of Employees of Affected Firm vs. Average Incidence of Early Claiming of Control Group in Stable Firms Men in Stable Job 19-1979 (US\$)



Source: 1% Files of Social Security administrative data (see text).

Robustness: Pattern Also Holds For Estimates Using “Plant Closings” Instead of 30% Mass-Layoffs

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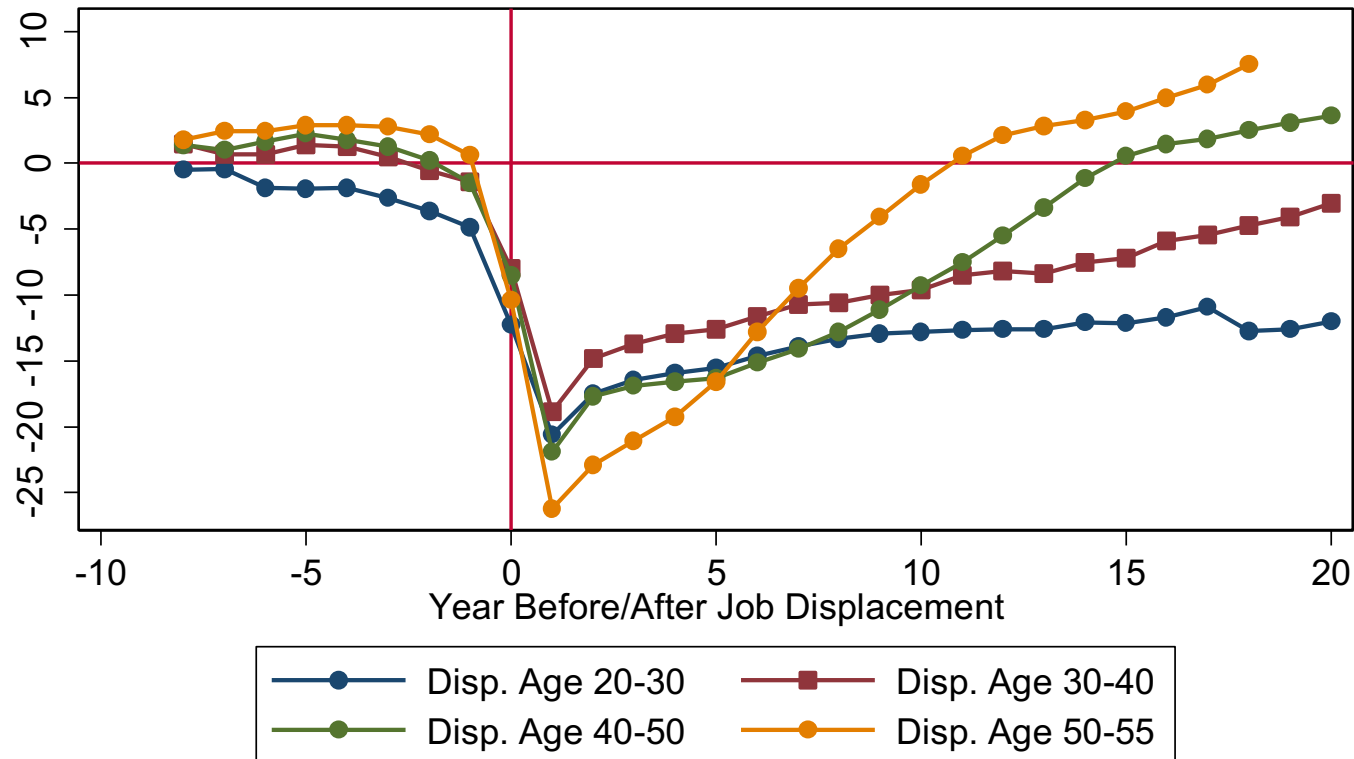


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Recovery in Earnings at Ages 62 and above

Late-Life Employment Recovery Leads to Recovery in Earnings (Partly Mechanical Effect)

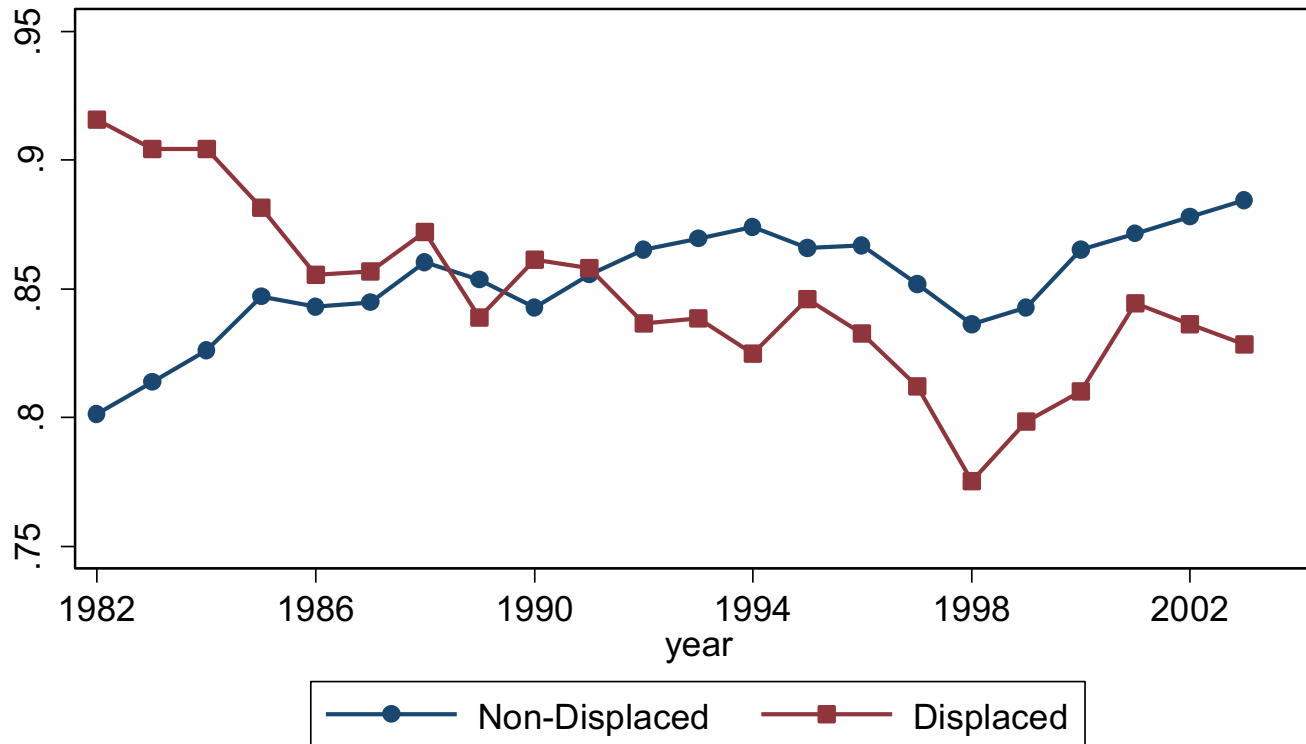
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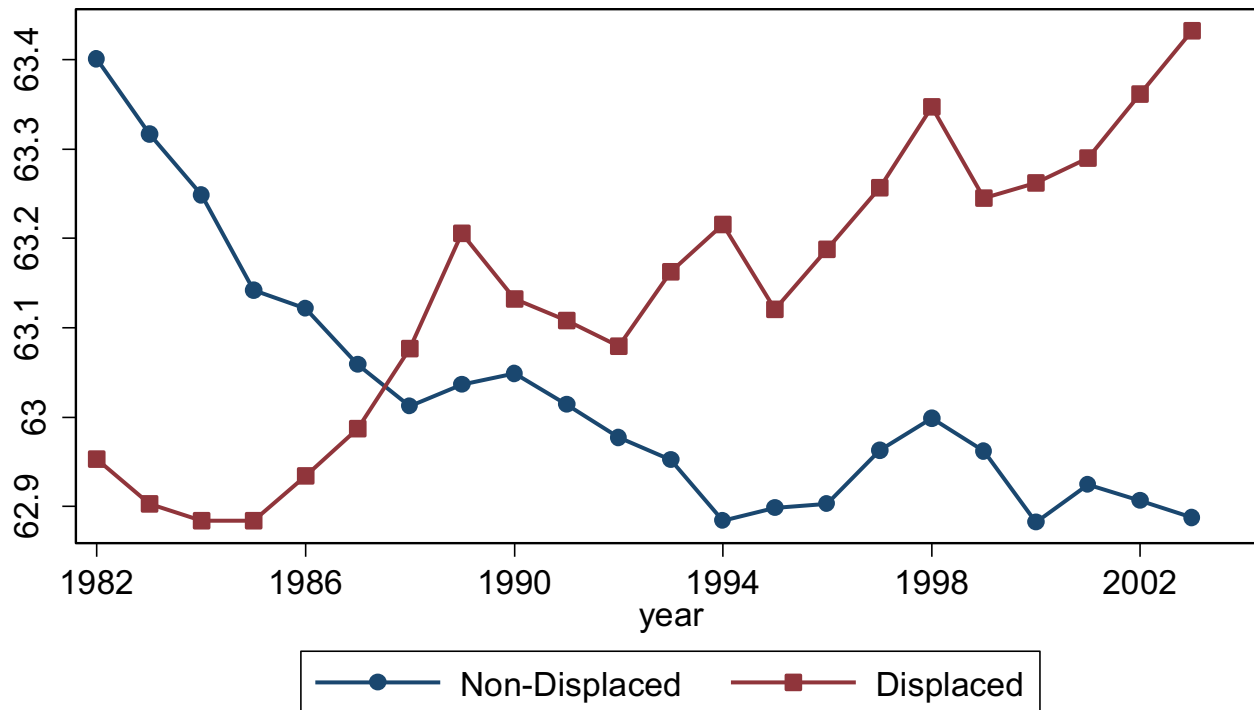
Patterns Visible in Raw Data

Fraction Claiming Benefits Early by Year, Displacements 1981-1983
Early Claiming of OASI Benefits Relative to Federal Retirement Age
Men in Stable Job 1974-1979



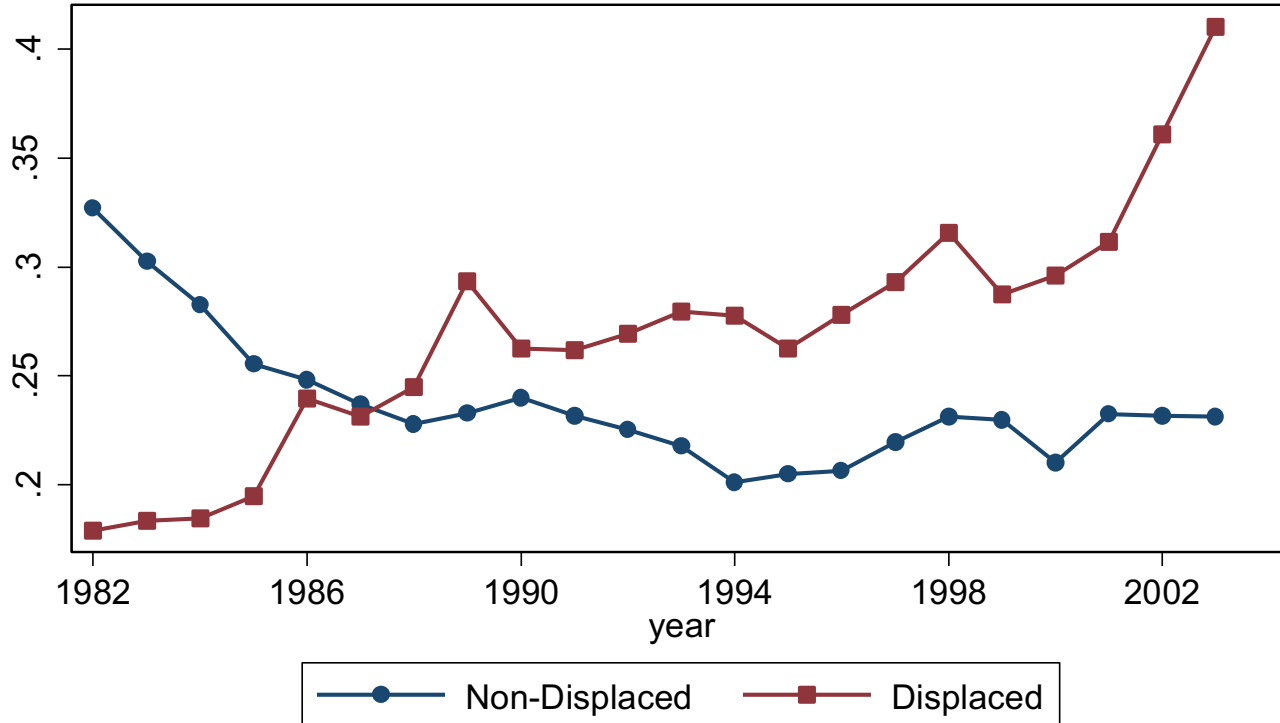
Source: 1% Files of Social Security administrative data (see text).

Average Claiming Age by Year, Displacements 1981-1983
Age of First Claim of OASI Benefits (Primary Beneficiary)
Men in Stable Job 1974-1979



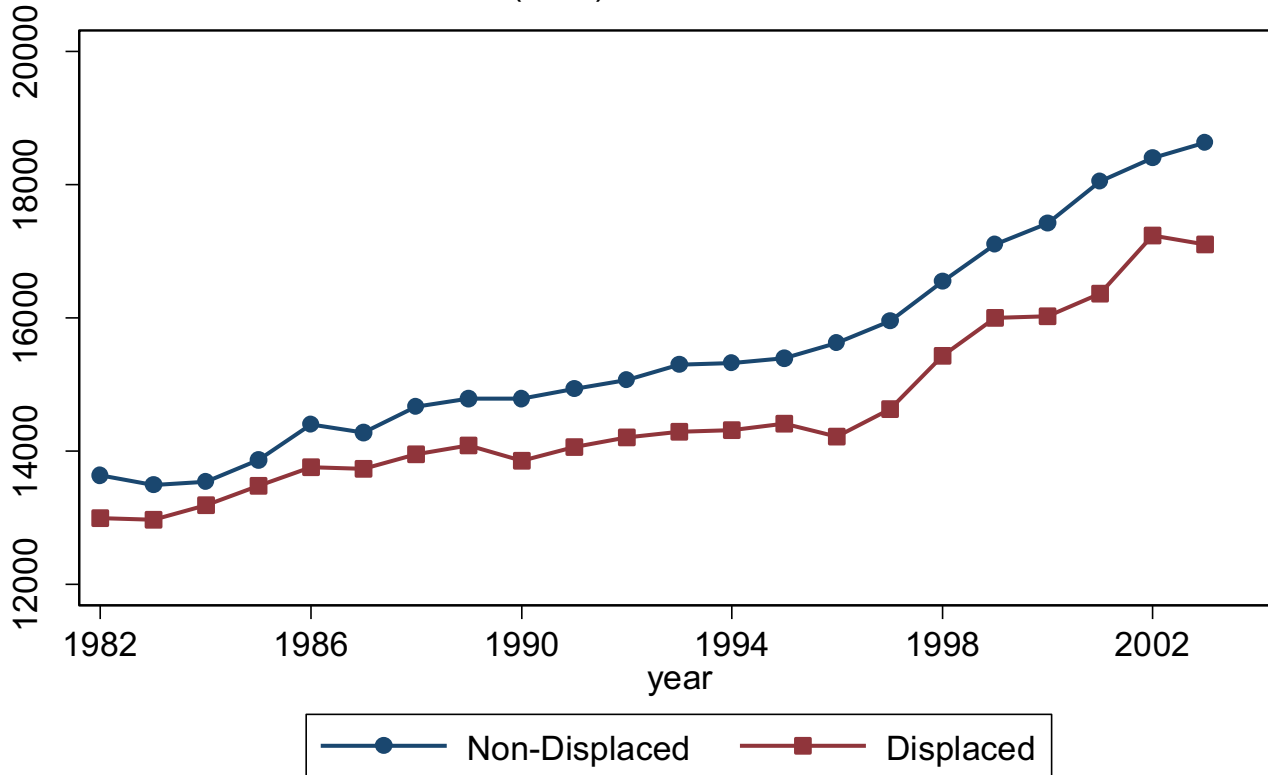
Source: 1% Files of Social Security administrative data (see text).

Fraction Claiming Benefits at Age 65 by Year, Displacements 1981-1983
Claiming of OASI Benefits (Primary Beneficiary)
Men in Stable Job 1974-1979



Source: 1% Files of Social Security administrative data (see text).

Average Primary Insurance Amount, Displacements 1981-1983
Men in Stable Job 1974-1979 (US\$)



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