Health Shocks and Disability Transitions among Near-Elderly Workers

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Motivation

- Fiscal outlook $\Rightarrow$ need for reform

- Enormous heterogeneity in response to a major health shock among near-elderly workers
  - 12% apply for DI within 4 years, 60% continue FT work
  - 27% of high school drop-outs apply, 21% of blacks

- *How do individuals respond to health shocks?*
- *Why do some take SSDI, others don't?*

Two Broad Theories

- Health capital
  - In a perfect world, you only receive DI benefits if health is too poor to work
  - Fewer papers emphasize health: Bound et al. (2010), Meara and Skinner (2011), Cutler, Meara, R-S (2011)
- Labor supply
  - Repl. rates (Parsons 1991)
  - Recessions, demand for low-skill workers (Autor and Duggan 2003, 2006)
  - Health benefits (A & D)
  - Allowance rates (Burkhauser et al. 2001; Maestas et al. 2011; French and Song 2011)

Our Contribution

- Focus on dynamic response to well measured, exogenous health shocks
- *Preliminary analysis* – How important are these rapid health declines in transition to DI among near-elderly workers?
- *Main analysis* – How and why the response to health shocks differs across groups?
  - Draw on health capital and labor supply theories
  - Strongest evidence is for effect of high earnings

Health & Retirement Study sample:

- All waves from 1992-2008
- Age 50-64 (censored at age ≥65)
- Full-time workers prior to health shock
- Have ~14,500 male, ~12,500 female person-wave observations on ~10,500 individuals
- Use rich data on health conditions, functional limitations, work, earnings and other income, health insurance, household members

Defining Health Shocks

- Follow Jim Smith (1999)
  - HRS asks about a series of health conditions:
    "Has a doctor ever told you that you have _____?"
  - New diagnoses define shocks
  - Major shocks: cancer, lung disease, heart disease, stroke, or psychiatric condition
  - Minor shocks: hypertension, diabetes, or arthritis

- More objective than self-reported health status or "a condition that limits ability to work," less objective than physical exam (e.g., NHANES)

Health shocks among full-time workers (age 50-62 in year t):

New diagnosis between year t and t+2	Males	Females
Major health shock	**0.069**	**0.068**
Cancer	0.018	0.013
Lung disease	0.009	0.013
Heart disease	0.025	0.020
Stroke	0.007	0.004
Psychiatric condition	0.016	0.023
Minor health shock	**0.121**	**0.125**
Hypertension	0.051	0.051
Diabetes	0.025	0.020
Arthritis	0.052	0.062

Preliminary Analysis: Health Shocks in DI Transition Prob's

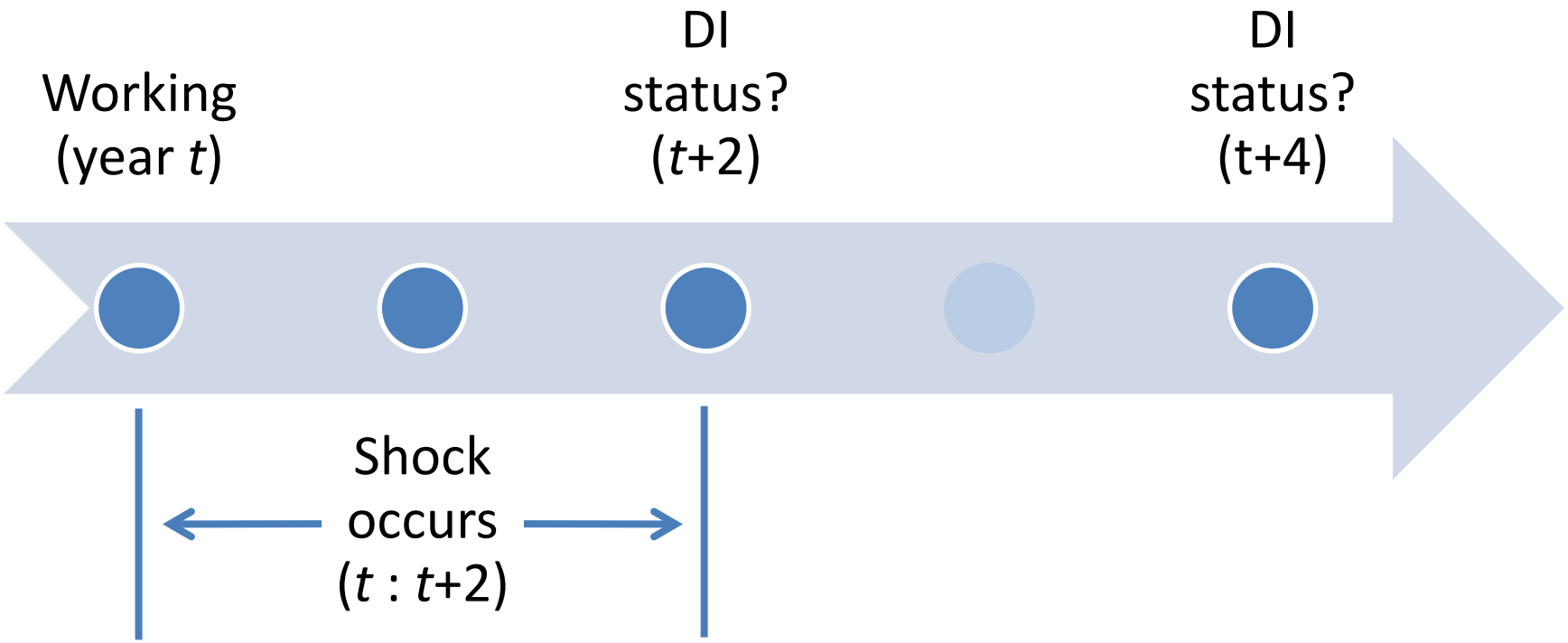
- Estimate regressions for future SSDI (or SSI) application/receipt among full-time workers
  - Just as a function of demographics:

$$\Pr(DI_{t+k} \mid FT_t) = \pi_1 demog_t + \pi_t$$

  - Then add health and economic variables:

$$\Pr(DI_{t+k} \mid FT_t) = \beta_1 Hshock_{t+2} + \beta_2 Hstock_t + \beta_3 hhold_t + \beta_4 econ_t + \beta_5 demog_t + \beta_t$$

Timing in models



Effect of health shocks is large:

Control variables: new diagnosis t to t+2	Males		Females	
	DI in t+2	t+4	DI in t+2	t+4
Major health shock	0.0538***	0.0638***	0.0611***	0.0864***
	[0.0086]	[0.0118]	[0.0105]	[0.0159]
Minor health shock	0.0045	0.0171***	0.0058	0.0165**
	[0.0039]	[0.0066]	[0.0039]	[0.0075]
Mean of dep. var. (DI_{t+k})	0.015	0.034	0.015	0.035

Models include age, year, census division, occupation and industry dummies; race and Hispanic ethnicity, marital status, # of hh members; existing and new health diagnoses, # of ADLs & IADLs; earnings and income quintiles, health insurance, and health requirements for job. SEs in [ ]'s.

Change in demographic variables when health & econ factors are added:

Control variables	Males (t+4) Basic model	Males (t+4) Full model	Females (t+4) Basic model	Females (t+4) Full model
Education				
< 12 years	0.0248**	0.0195*	0.0410***	0.0299***
	[0.0098]	[0.0100]	[0.0108]	[0.0110]
13-15 years	-0.0156***	-0.0093	-0.0015	0.0026
	[0.0060]	[0.0063]	[0.0068]	[0.0067]
16 + years	-0.0281***	-0.0090	-0.0191***	-0.0072
	[0.0054]	[0.0073]	[0.0052]	[0.0060]
Black	0.0126	0.0141	0.0299***	0.0290***
	[0.0091]	[0.0093]	[0.0101]	[0.0098]
Hispanic	-0.0281***	-0.0262***	-0.0032	0.0001
	[0.0078]	[.0080]	[0.0098]	[0.0112]

Models include age, year, census division, occupation and industry dummies; race and Hispanic ethnicity, marital status, # of hh members; existing and new health diagnoses, # of ADLs & IADLs; earnings and income quintiles, health insurance, and health requirements for job. SEs in [ ]'s.

Main Analysis: Differential Response to Health Shocks

- Health capital – more likely to apply for DI if
  - Low initial health stock
  - Bigger health decline (worse shock)
  - Greater health requirements at available jobs

- Labor supply – application depends on
  - Prices (wages, health insurance)
  - Non-labor income (spouse, retiree benefits)
  - Preferences for work vs. leisure

Regressions for SSDI (or SSI) application/receipt <u>after health shock</u>

- We estimate the following regressions, separately for men and women:

$$\Pr(DI_{t+k} \mid FT_t, Hshock_{t+2}) = \beta_1 Hdiag_{d,t+2} + \beta_2 Hstock_t + \beta_3 Hreqs_t + \beta_4 prices_t + \beta_5 income_t + \beta_6 demog_t$$

  - Same variables as before, organized in terms of the two theories
  - Restricting to workers with health shocks is like interacting major shock with all variables

Results

- Fraction applying/receiving after 4 years: 12.4% males, 13.1% females
- Health stock – no consistent effects of existing conditions, but maybe ADLs (+5 to 10%)
- Type of shock – strokes are relatively severe (+15% vs. heart disease)
- No clear effects of health requirements at job
- High earners less likely to apply (-3 to -10% in top 2 quintiles), low earning males more likely
- Some evidence for high unearned income

What have we learned?

- Major health shocks are strong predictors of transition to DI among full-time workers
  - Health differences appear to account for differential between college and high school grads
  - Not so for high school drop-outs or race differential
  - Our economic variables do not strongly predict transition to DI among near-elderly workers (but not exactly a fair comparison, need economic shocks)
- In terms of differential response to health shocks among near-elderly workers
  - Some support for price effect and income effect in a standard labor supply decision
  - Little consistent evidence on health capital effects

What can we do with this?

- Account for differential arrival of health shocks by education when thinking about interaction of retirement and disability policies
  - Raising the retirement age or limiting disability benefits will have unfavorable equity implications
  - Considering age in eligibility decision could help to offset some of this adverse distributional effect
- Provide earnings support for at-risk workers before they decide to apply for SSDI
  - e.g., workers with ADLs
- To extent that health insurance affects the response to shocks, health reform may help