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Study Effect of Retirement on Cognitive Performance: “Use it or Lose It” vs Reserve

- **Population Studied**: Longitudinal probability samples of older Americans in the ***Health and Retirement Study*** and comparable surveys from eleven countries in Europe (***ELSA*** from England, ***SHARE*** continental Europe)
- **Methods**: Different econometric models: Instrumental variables (IVs) to control for reverse causation; propensity/regression adjustment (teffects) to estimate treatment effects of retirement on cognition that account for non-random selection into retirement and/or occupation;
- Investigate the effect of retirement on measures of cognitive performance in three studies:
  - **Study 1**: Effect of retirement on immediate and delayed word recall using national retirement policies as IVs to obtain causal effect of retirement in cross-national cross-section
  - **Study 2**: Estimate variation in effects of retirement on 6 yr. change in word recall of differing retirement pathways and cognitive complexity of occupation using longitudinal HRS data and teffects model
  - **Study 3**: Use HRS to estimate the role of lifetime and old-age cognitive engagement in cognitive decline, the onset of dementia and the length of life with dementia in an econometric model that includes long-term associations and short-term dynamic effects in a unified framework. (IN PROGRESS)

Concepts Used In Research Draw from Human Capital Theory and Cognitive Psychology

- **Reserve** → Human capital cumulated over lifetime of education, work, occupation, earnings, non-market activities, measured psychological abilities and characteristics
- **Maintenance** → Offset depreciation of human capital by continued cognitive challenge of work and non-work activities
  - i.e., “Use it or Lose It” and maintain physical health capital.
- **Compensation** → Worker productivity depends on both fluid and crystallized intelligence.
  - Holding productivity constant, these factors can substitute for one another. Increases in one factor (e.g., general knowledge) may increase the marginal product of other factors (e.g., reasoning, specific knowledge).

Effect of Retirement on 6-yr Change in Memory Varies by Occupational Complexity (teffects model)

- **Concept**: Reserve
- **Measure**: Cognitive Complexity of Occupation in HRS longitudinal data
- **Operational definition**:

Complexity based on O*NET job demands:

- Thinking creatively
- Coaching others
- Frequency of decision making
- Freedom to make decisions

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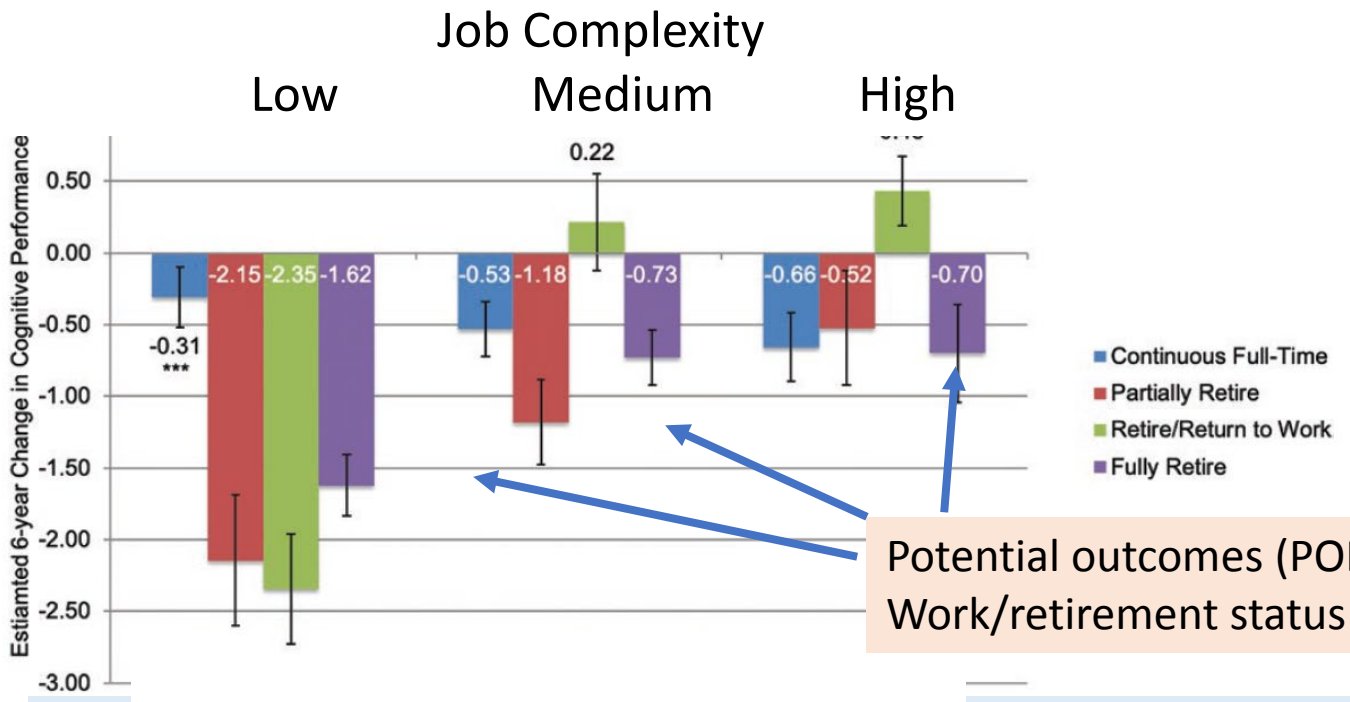

Potential outcomes (POMs) by Work/retirement status

Retirement Effect = POM(Retirement)-POM(Continued Work)

e.g., Effect of Full Time Retirement from Full Time Job

Low = (-1.62)-(-.031) = -1.31***

Medium = (-.053)-(-.073) = -0.20

High = (-0.66)-(-0.70) = -0.04

- Results point to beneficial effects on cognitive function of working longer for people with jobs of low complexity
- No retirement effect for people who worked in medium and high jobs