Discussion of

Annuities and Endogenous Longevity

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Brief History of Annuities

Poterba (2001):

- Life annuities first available in ancient Rome
- During 1700s, England sold life annuities in lieu of government bonds
- *"Annuities initially were sold to all individuals at a fixed price, regardless of their age or sex. As it became clear over time that* ***mortality rates for annuitants were lower than those for the population at large****, a more refined pricing structure was introduced"* → ***Differences in mortality rates always framed as adverse selection***
- Annuities first appeared in US in 1759 to "provide survivorship annuities for the families of ministers"

Data & Institutional Details

- Analyze longevity of **64,145 deceased** retirees from Chile
- Workers chose how to invest
  - **Fund A** riskiest; **Funds B, C, D** collectively serve as "age-dependent default" (**Fund D** when closest to retirement); **Fund E** is safest
- Chose year-month in which to retire
  - Standard retirement age is **65** for men and **60** for women
- Chose whether to work with financial advisor
- Chose payout: **Life Annuity** or **Programmed Withdrawal**
  - **Immediate** and **delayed annuities** can offer guaranteed # payments
  - Under **PW**, worker can invest in **Fund C, D,** or **E**; payments reset each year based on balance; beneficiaries receive balance at death
  - Under **PW**, worker retains option to convert to **Life Annuity**

Empirical Strategy & Findings

- **Research Question:** ***Did workers choosing life annuities live longer than workers choosing PW?***
  - Private information → adverse selection → "Yes"
  - Higher stock returns predict lower demand for annuities (Chalmers and Reuter 2012; Previtero 2014)
  - To shut down adverse selection, authors use recent portfolio returns (of Fund C) as their IV
- **Findings:**
  - IV: 1 SD decrease returns → **2.5 pp** increase **Pr(annuity)**
  - 2SLS: Choice of annuity increases longevity **5.4 years(!)** and reduces likelihood of disability 15-20 years later

Mechanism?

- **Authors argue that life annuity provides an incentive to invest in health… which shows up over long horizons**
  - Are differences in extent of problems with day-to-day living driven by subset of ten survey questions? (Please list these survey questions and any other health measures)
  - Are there any ways to measure "investments" in health? Were annuity holders more cautious during COVID?
- **… and/or fluctuations in benefit payments arising from fluctuations in portfolio returns are bad for your health**
  - Does difference in longevity depend on how PW invested or on level or volatility of returns over long horizons during retirement?

Mechanism? (2)

- **IV begs question:** Who responds to recent market returns?
  - Chalmers and Reuter (2012): deaths 1-24 months after retirement predicts lump sum payout; 25-48 do not
    - *Private information about mortality has short lifespan... but 1st stage will be weakest for those who are sickest*
    - *Curious to see how mortality rates of those retiring with high and low returns evolve in event time*
  - Authors argue that higher returns should increase longevity, everything else equal
    - *May be useful to relate their findings to economics literature on why **life expectancy goes up** in recessions (Stevens et al. 2012, Coile et al. 2014)*

Mechanism? (3)

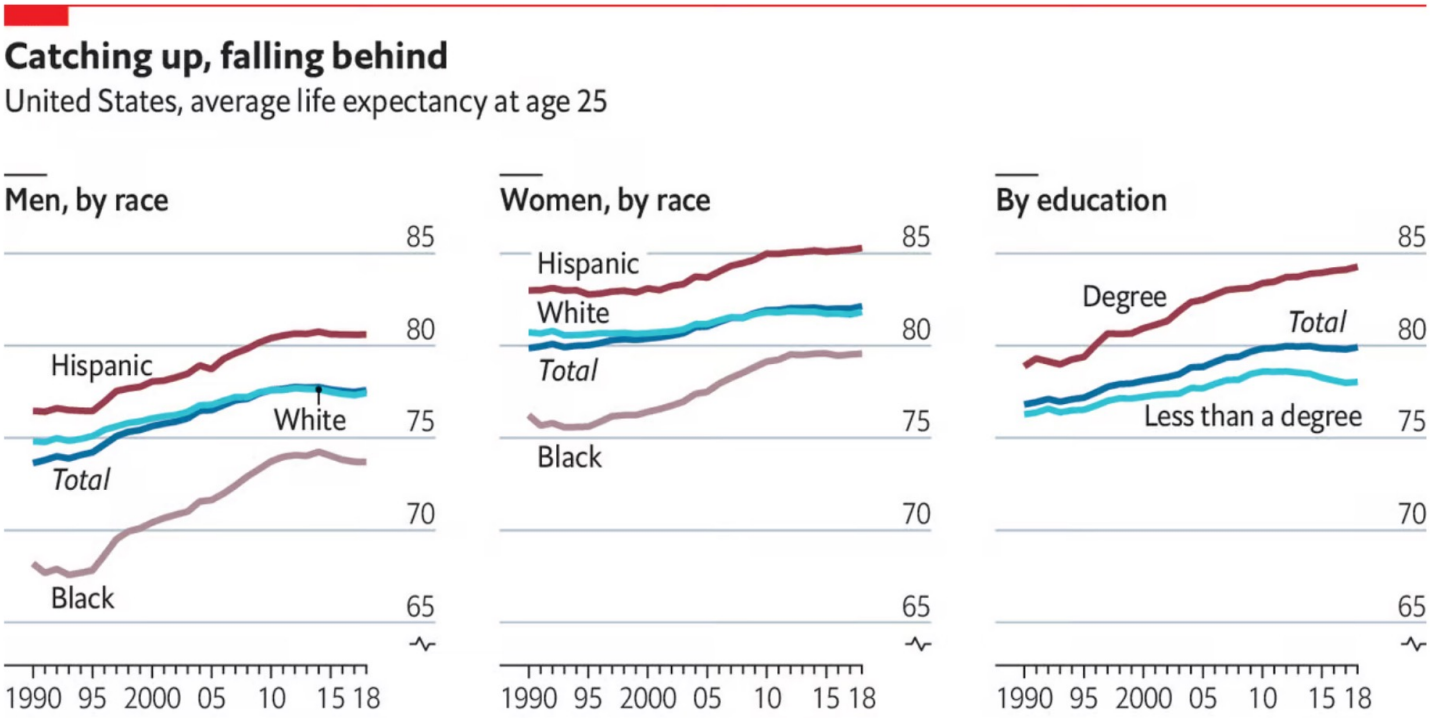
- More generally, who do we expect to respond most strongly to consider recent portfolio return?
  - Are 1st stage results stronger for some populations than others (e.g., men vs. women, high vs. low income)?
  - Clients of financial advisors?
    - **Table 1: 74-82%** of workers choosing annuity work with financial advisor versus **16%** of workers choosing PW
    - **Institutional Detail?** Do advisors highlight recent returns or do they only come into play when workers are choosing between annuities?
    - To extent this measure captures differences in financial literacy, encourage authors to retain beyond Table 1

Economic Significance?

- Those choosing annuities for plausibly exogenous reason live **~5 years longer** than those who do not
  - This is a huge (albeit noisy) estimate
  - What is life expectancy conditional on reaching normal retirement age? 15-20 more years?
- How might we benchmark this difference in longevity?
  - Non-smoker live **~10 years** longer than smokers
  - Women live **~5 years** longer than men
  - College grads live **~7 years** longer than those without a college degree... and there are enormous differences between these two groups

Economic Significance? (2)

- Additional statistics from *The Economist* in March 2021



Workers Face Many Choices

- **While authors focus on annuity versus PW, actual choice is multidimensional:**
  - Delayed annuity vs. immediate annuity → *may contain information about life expectancy*
  - Length of guarantee period for annuity payments → *may "reduce cost" of unhealthy living*
  - When/whether to convert from PW to annuity → *option value? Do 17-18% convert to annuities following low returns?*
  - How much portfolio risk to take during PW → *Fund C, D, E?*
  - **Are their optimal choices w.r.t. claiming age and payout type for certain types of workers (e.g., delay SS until 70 in US)?**
- *Unclear existing IV can be used to address this complexity*

Measuring Sensitivity to Returns?

- **Main specification:**
  - By including birth-year FEs (interacted with controls), authors exploit variation in 6-month returns in (very narrow) age cohort based on variation in month of retirement
    - *When there is little/no feedback from recent returns to month of retirement, this is an excellent empirical strategy*
    - *Are SD of 6-month returns with FE same as unconditional SD of 6-month returns? (Mummulo & Peterson 2018)*
- **Robustness:**
  - Standard retirement age sample reduces most feedback from returns to retirement dates*... and only reduces estimate ~25%*

Measuring Sensitivity Returns? (2)

- **Robustness:**
  - Top rows of Table 5 consider 3-month, 6-month, and 12-month lagged returns

The table reports regression results for the effect of different returns on longevity for the whole sample of retirees (col 1-6) and the standard retirement sample (col 7-12). Returns correspond to the returns on Fund C (moderate fund) in the months before or after the retirement decision of each person. The sample includes all retirees. All regressions include as control: gender, last salary, accumulated balance, years contributed, dummies for pension fund administrator, and dummies for retirement type (advanced, disability, standard), all of them fully interacted with birth-year fixed effects. Standard errors clustered at the birth-year level are reported in parentheses, and p-values are reported below. Significant at: *10%, **5% and ***1%.

VARIABLES	(1) Longevity	(2) Longevity	(3) Longevity	(4) Longevity	(5) Longevity	(6) Longevity	(7) Longevity	(8) Longevity	(9) Longevity	(10) Longevity	(11) Longevity	(12) Longevity
Returns (months t-12 through t-1)	-1.78***						-1.08**					
	(0.360)						(0.462)					
	0.000						0.025					
Returns (months t-6 through t-1)		-2.05***						-1.56**				
		(0.500)						(0.647)				
		0.000						0.021				
Returns (months t-3 through t-1)			-2.00***						-1.21			
			(0.569)						(0.722)			
			0.001						0.101			

  - I was surprised to see similar estimates for 1 SD increase in 3-month, 6-month, and 12-month returns... because I expected SD 12-month return to be ~ four times SD 3-month return

Measuring Sensitivity Returns? (3)

- **Robustness (cont.):**
  - Alternative: Simultaneously include ***t-12*** to ***t-10***, ***t-9*** to ***t-7***, ***t-6*** to ***t-4*** and ***t-3*** to ***t-1*** returns?
  - Authors focus on recent returns of **Fund C**... but workers invested in **Funds A, B, C, D,** and **E** presumably experience meaningfully different returns... and default fund for those closest to retirement may actually be **Fund D**
  - Does sensitivity to recent returns in 1st stage increase when focusing on worker's actual returns?
    - I understand that focusing on Fund C allows authors to abstract from endogeneity of fund choice.
    - Possible to leverage recommendations of **Happy & Loaded** as shocks to volatility of portfolio returns?

Other Questions & Comments

- **Sample selection?**
  - Do any biases arise from focusing on deceased retirees instead of estimating hazard rates using all retirees?
- **Eligibility?**
  - Figure 3 includes demand for annuities for birth years between 1920s and 1990s... but men born in 1960 still haven't reached standard retirement age
- **Additional reference:**
  - Heimer et al. (2019) argues older households overestimate survival probabilities which reduces spending in retirement
  - *Annuities might reduce this impulse; they certainly reduce scope for financial fraud and mistakes (in other settings)*

Conclusion

- Paper uses cool Chilean data to argue retirees choosing life annuities for plausibly exogeneous reasons live **significantly** longer, on average, than those whose retirement balances are subject to market fluctations
- Provocative finding implies that even large differences in longevity need not reflect adverse selection
  - Unclear distinction matters to pricing by insurance companies
- Qualitative implication that annuities increase healthy living is entirely plausible...
  - **Andrew Scott:** 2/3rd of longevity up to age 80 is due to behavior but only 1/3rd of longevity after age 80 is due to behavior
- ... but magnitude is much larger than I would have expected