# Optimal Social Security Claiming Behavior under Lump Sum Incentives: Theory and Evidence

Prof. Dr. Ralph Rogalla
St. John's University, New York, NY

Paper co-authored by: O.S. Mitchell (Wharton School, UPenn), R. Maurer & T. Schimetschek (Goethe University Frankfurt)

# About the speaker

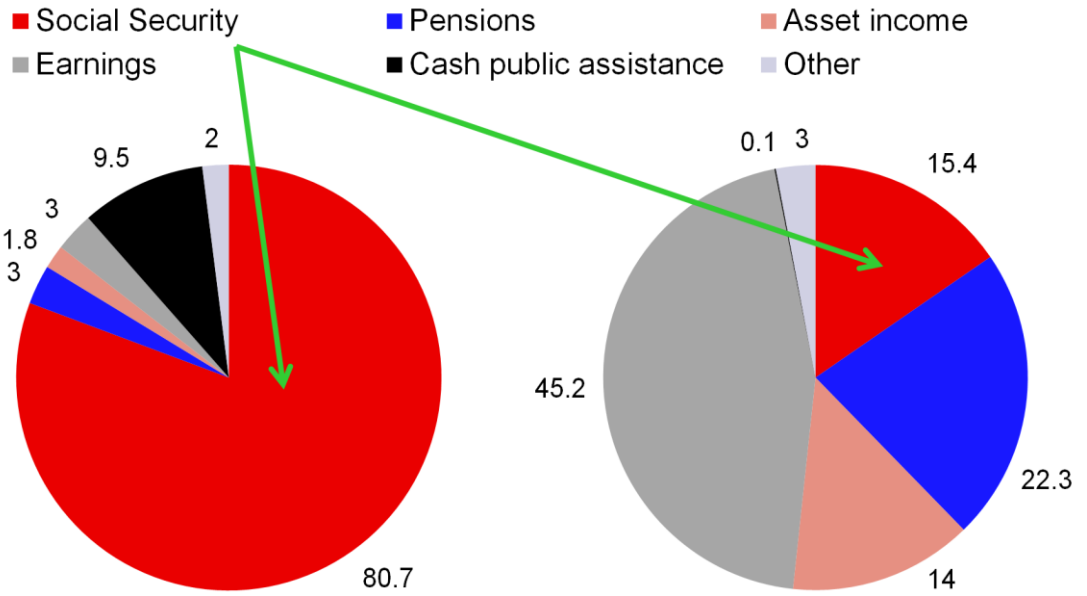
- **Prof. Dr. Ralph Rogalla**
- Assistant Professor
- Dr. Rogalla joined St. John's University in September 2015. He received his Ph.D. in Finance and his habilitation from Goethe University in Frankfurt, Germany, and holds a diploma in economics from Technical University Berlin, Germany. In 2014 he was Metzler Visiting Professor at the Wharton School, University of Pennsylvania. His research focuses on pension finance and household portfolio choice.

---

- **St. John's University**
- Peter J. Tobin College of Business
- School of Risk Management, Insurance, and Actuarial Science

# US Social Security Key For Many Elders

- Shares of aggregate income for the lowest and highest income quintiles, by source, 2014 (in %):




Source: SSA: Income of the Aged Chartbook, 2014

# US Social Security in Brief

- Old-Age, Survivors & Disability Insurance (OASDI)
  - This Paper: Social Security only refers to Old-Age Insurance

- Benefit level degressive, depending on inflation-indexed monthly earnings averaged over best 35 years

- Claimable anytime between age 62 and age 70
  - Prior to FRA: Lifelong benefit reduction (5%-6.67% p.a.)
  - After FRA: Livelong benefit increase (8% p.a.)

# Social Security Claiming Age Distribution 2015

| Claiming Age | Men (%) | Women (%) |
|---|---|---|
| 62 | 38 | 44 |
| 63 | 8 | 8 |
| 64 | 7 | 8 |
| 65-FRA | 12 | 12 |
| FRA | 21 | 15 |
| After FRA | 14 | 13 |

Source: SSA (2017), Annual Statistical Supplement 2016, Table 6.B5 (base adjusted for disability conversions)

# Full Retirement Age by Cohort

| Year of Birth | Full Retirement Age | % Benefit Cut (Age 62) |
|---|---|---|
| 1937 or earlier | 65 | 20 |
| **1943-1954** | **66** | **25** |
| 1955 | 66 + 2 mos | 25.8 |
| 1956 | 66 + 4 mos | 26.7 |
| 1957 | 66 + 6 mos | 27.5 |
| 1958 | 66 + 8 mos | 28.3 |
| 1959 | 66 + 10 mos | 29.2 |
| **1960 and later** | **67** | **30** |

Source: http://www.ssa.gov/retire2/retirechart.htm , http://www.ssa.gov/retire2/agereduction.htm

# Prior Study
# Maurer/Mitchell/Rogalla/Schimetschek 2016

- Research questions:
  - Would people delay claiming Social Security, if they got the benefit boost as an actuarially fair lump sum instead of higher annuity?
  - If so, how would they adjust their labor supply?

- Study design:
  - Online survey (~2,500 respondents) via module in RAND's American Life Panel

# Financial Impact of Delayed Claiming: Status Quo vs Lump Sum Alternative

- Example:
  - FRA = 67
  - Monthly benefit (at age 62) = $1,500

| Claiming Age | *Status Quo* Annuity | *Lump Sum* Annuity | | Lump Sum |
|---|---|---|---|---|
| 62 | 1,500 | 1,500 | + | 0 |
| 63 | 1,607 | 1,500 | + | 20,208 |
| 64 | 1,714 | 1,500 | + | 39,382 |
| 65 | 1,857 | 1,500 | + | 63,887 |
| 66 | 2,000 | 1,500 | + | 86,963 |
| 67 | 2,143 | 1,500 | + | 108,589 |
| 68 | 2,314 | 1,500 | + | 133,427 |
| 69 | 2,486 | 1,500 | + | 156,480 |
| 70 | 2,657 | 1,500 | + | 177,723 |

Source: Authors' calculations.

# ALP Survey Result: Mean Claiming Ages

- SQ Claiming Ages: Early Claimers: <65 / Normal Claimers: 65 – 67 / Late Claimers: > 67

| | Full Sample | Early Claimers | Normal Claimers | Late Claimers |
|---|---|---|---|---|
| Claiming Age (years) | | | | |
| (a) Status Quo | 65.74 | 62.72 | 65.87 | 69.43 |
| (b) Lump Sum | 66.13 | 63.89 | 66.29 | 68.74 |
| (b) – (a) | 0.39*** | 1.17*** | 0.42*** | -0.69*** |
| p-Value (b) – (a) | 0.000 | 0.000 | 0.000 | 0.000 |
| Wealth ($000) | 90.75 | 83.91 | 94.71 | 92.40 |
| PIA ($000) | 1.65 | 1.59 | 1.69 | 1.66 |
| N | 2,428 | 764 | 1,074 | 590 |

Source: Authors' calculations.

# Research Questions - This Study

- In this study we ask:
  - Can the Status Quo claiming ages surveyed by MMRS (2016) be brought in line with rational lifecycle decision making?

- If so:
  - Does the resulting model parameterization fall within a reasonable range of parameter values?
  - Can the resulting model correctly predict the Lump Sum claiming ages?
  - How sensitive is the (average) claiming decision to the lump sum amount?

# Main Findings - This Study

- Optimal LC claiming ages under Status Quo can be closely matched to empirical observations
  - Δ Avg. Claiming Age ~ 0.02 years
  - Parameters in line with literature

- "Out-of-sample" LC model projection of claiming age impact of Lump Sum incentives virtually replicate empirical data.

- Claiming age increase under Lump Sum incentive is positive for lump sums above about 87% of actuarially fair value.

# Other Related Studies

- Fetherstonhaugh/Ross (1999) survey attractiveness of delayed retirement credit lump sum
  - 75% personally prefer LS over annuity
  - 80% generally consider LS greater incentive for delayed claiming
- Orszag (2001) discusses design aspects of delayed retirement credit lump sum
  - Central issue: Impact of offering LS before FRA
- Chai/Maurer/Mitchell/Rogalla (2013) study delayed retirement credit lump sum in LC PC model
  - Can raise average retirement age by 1.5-2 years

# Lifecycle Decision Making Framework

- Objective: Maximize Epstein/Zin Lifetime Utility

$$V_t = \left[ (C_t \cdot L_t^{\alpha})^{1-\frac{1}{\phi}} + \beta \cdot E_t \left( p_{x,t}^{S} \cdot V_{t+1}^{1-\gamma} \right)^{\frac{1-\frac{1}{\phi}}{1-\gamma}} \right]^{\frac{1}{1-\frac{1}{\phi}}},$$

- Subject to

$$C_t + S_t = \begin{cases} W_t + NAI_t & if \quad t+61 < k \\ W_t + AB_k + LSB_k & if \quad t+61 = k \\ W_t + AB_k & if \quad t+61 > k, \end{cases}$$
$$C_t > 0, \qquad S_t \geq 0.$$

- By choosing optimal policies for
  - Consumption ($C$), Saving ($S$), Leisure ($L$), Claiming Age ($k$)

# Preference Parameter Calibration

- Household utility depends on 4 parameters:
  - Risk Aversion, Time Preference, Leisure Preference, Intertemporal Elasticity of Substitution

- Survey data provides insights on claiming age impact of only 2 of them:
  - Risk aversion: Highly significant positive impact on claiming age
  - Time preference: Impatience significant negative impact

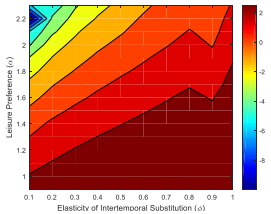
- We pre-specify risk aversion, time preference using common parameters in the literature:

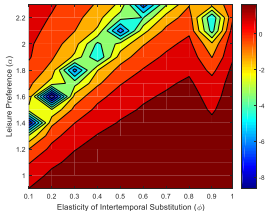
| | Early Claimers | Normal Claimers | Late Claimers |
|---|---|---|---|
| *Pre-specified Model Parameters* | | | |
| Risk Aversion $(\gamma)$ | 1.5 | 3 | 5 |
| Time Preference $(\beta)$ | 0.9 | 0.93 | 0.96 |

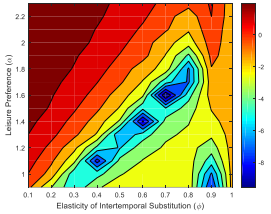
Source: Authors' specifications.

# Preference Parameter Calibration

- Missing parameters calibrated through moment matching




| | Early Claimers | Normal Claimers | Late Claimers |
|---|---|---|---|
| *Fitted Model Parameters* | | | |
| Leisure Preference ($\alpha$) | 2.2 | 1.6 | 1.6 |
| IES ($\phi$) | 0.1 | 0.2 | 0.7 |

Source: Authors' calculations.

- Hall (1988): IES < 0.2; Attanasio/Weber (1993/95): IES 0.65-0.8
- Low (2005): $\alpha$=1.5 , Laitner/Silverman (2012): $\alpha$=1.5

# Status Quo Claiming Ages: Data vs. Model

- SQ Claiming Ages: Early Claimers: <65 / Normal Claimers: 65 – 67 / Late Claimers: > 67

| | Empirical Data | Model Prediction |
|---|---|---|
| Claiming Age (years) | | |
| - Full Sample | 65.7 | 65.8 |
| - Early Claimers | 62.7 | 62.7 |
| - Normal Claimers | 65.9 | 65.9 |
| - Late Claimers | 69.4 | 69.4 |

Source: Authors' calculations.

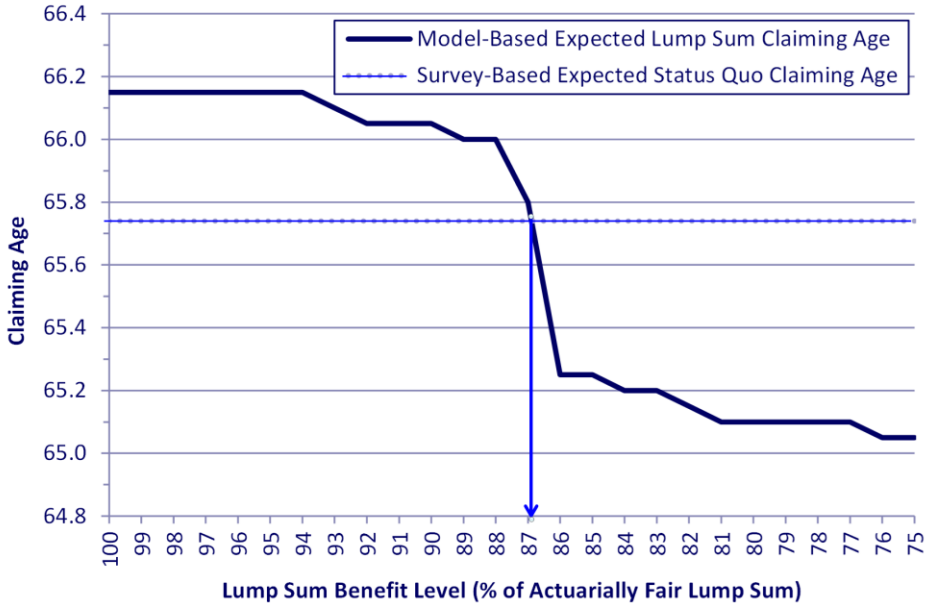
# Lump Sum Claiming Delay: Data vs. Model

- SQ Claiming Ages: Early Claimers: <65 / Normal Claimers: 65 – 67 / Late Claimers: > 67

| | Empirical Data | Model Prediction |
|---|---|---|
| Claiming Age Difference (years) | | |
| - Full Sample | 0.4 | 0.4 |
| - Early Claimers | 1.2 | 1.2 |
| - Normal Claimers | 0.4 | 0.4 |
| - Late Claimers | -0.7 | -0.5 |

Source: Authors' calculations.

# Claiming Ages under Unfair Lump Sums




Source: Authors' calculations.

# Summary & Implications

- Empirical studies indicated people's willingness to delay claiming in exchange for access to lump sums.
  - Delay about 0.4 years longer than under the Status Quo.
- Based on a LC framework we show that these empirical findings are consistent with rational decision making under plausible parameter assumptions.
- Claiming age increase under Lump Sum incentive is positive even for less than actuarially fair lump sum benefits.
- Voluntarily extended working lives raise Social Security tax revenue.
  - 'Politically viable' way to reform Social Security?

## Thank you very much for your attention!


Contact details:

**Prof. Dr. Ralph Rogalla**

address: 101 Astor Place
New York, NY 10003, USA

phone: +1-212-277-5143

mail: rogallar@stjohns.edu

web: www.stjohns.edu/academics/bio/ralph-rogalla-phd