Maximization of Social Security Benefits

Dang H. Ngo & Giovani Gutierrez

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Overview

The Problem & Motivation

- At age 62, one can begin claiming social security retirement benefits. However, this benefit amount may be decreased or increased depending on what age it is claimed at.
  - This present a complex trade-off between claiming reduced benefits sooner or increased benefits later.
  - This trade-off becomes even more complicated when considering one's life expectancy, health, marital status, etc...
- Why does this matter?
  - Social security benefits represent a significant portion of income for retirees, and maximizing these benefits directly impacts their financial well-being
  - A complex decision with no one-size-fits-all solution

Case Studies & Goals

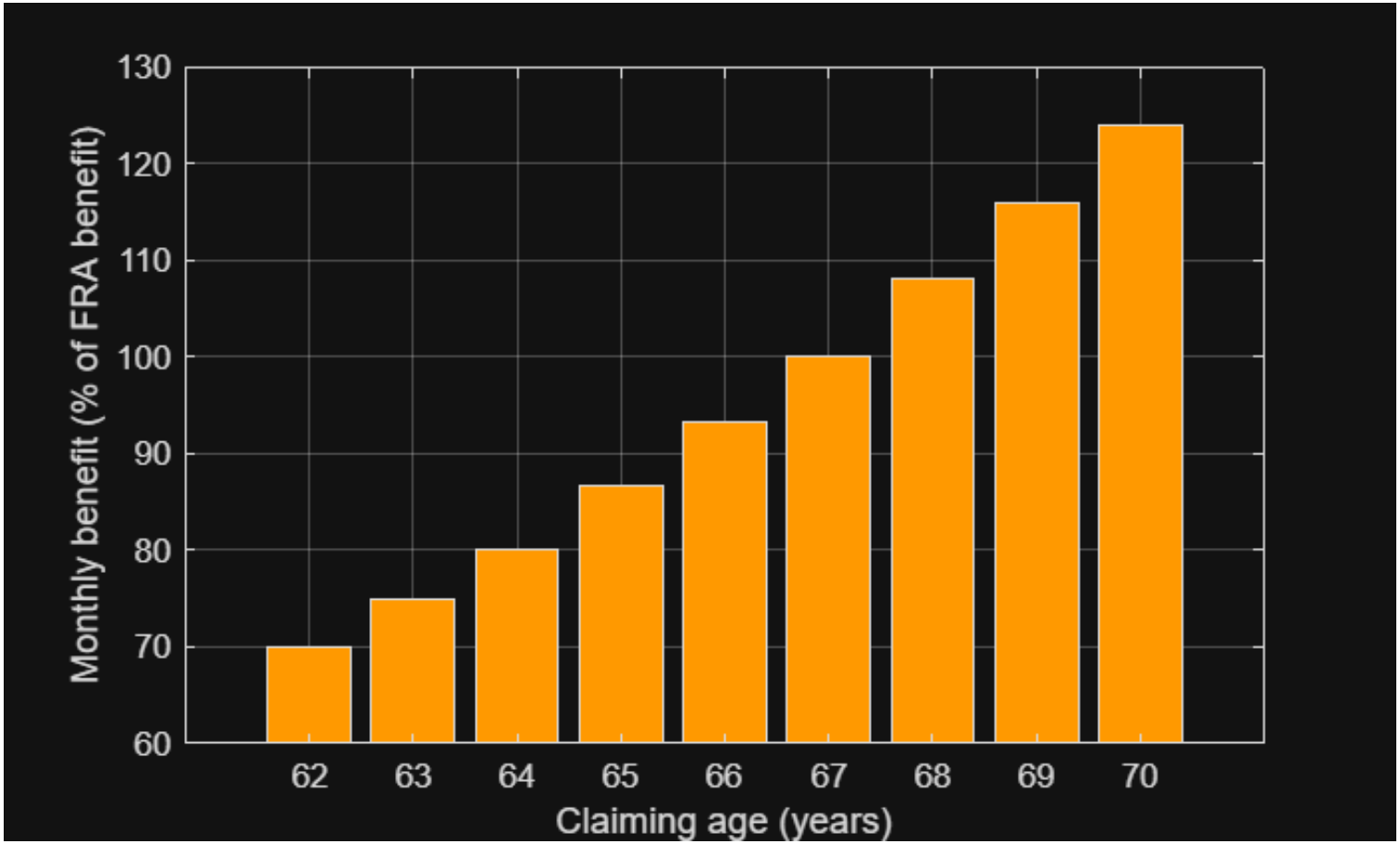
1. Early penalty and delay credit for retirement benefits
2. Impact of family and marriage decisions
3. Spousal benefits and its affect on benefits for married couples

Net Present Value (NPV)

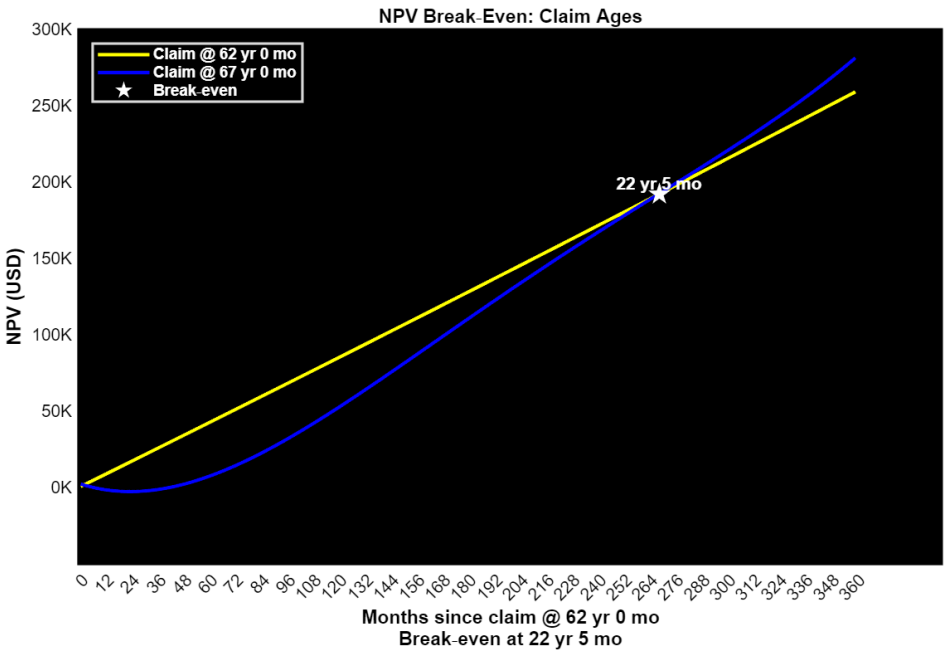
- Variables:
  - Δ = claiming age (in months) - FRA (in months)
  - M_l = months delayed reward
  - M_e = months early penalty
  - P = PIA (assume = \$1,000)
  - g = COLA = 2.2% annually or $1.022^{\frac{1}{12}}$ monthly
  - r = discount rate = 2% annually or $1.02^{-\frac{1}{12}}$ monthly
- Early factor:
  - $B_e = 1 - \frac{5}{9} \cdot \frac{1}{100} - [\max(M_e, 36)] - \frac{5}{12} \cdot \frac{1}{100}[\max(0, M_e - 36)]$
- Late Factor:
  - $B_l = \begin{cases} 1, & \text{at FRA} \\ 1 + 0.08 \cdot \frac{M_l}{12} & \text{for } M_l > 0 \text{ delayed credit} \end{cases}$
- NPV formulas:
  - $\text{NPV}_{\text{early}} = \sum B_e(a)(1+g)^{t-1}(1+r)^t$
  - $\text{NPV}_{\text{delayed}} = \sum B_d(a)(1+g)^{t-(M_e+1)}(1+r)^t$

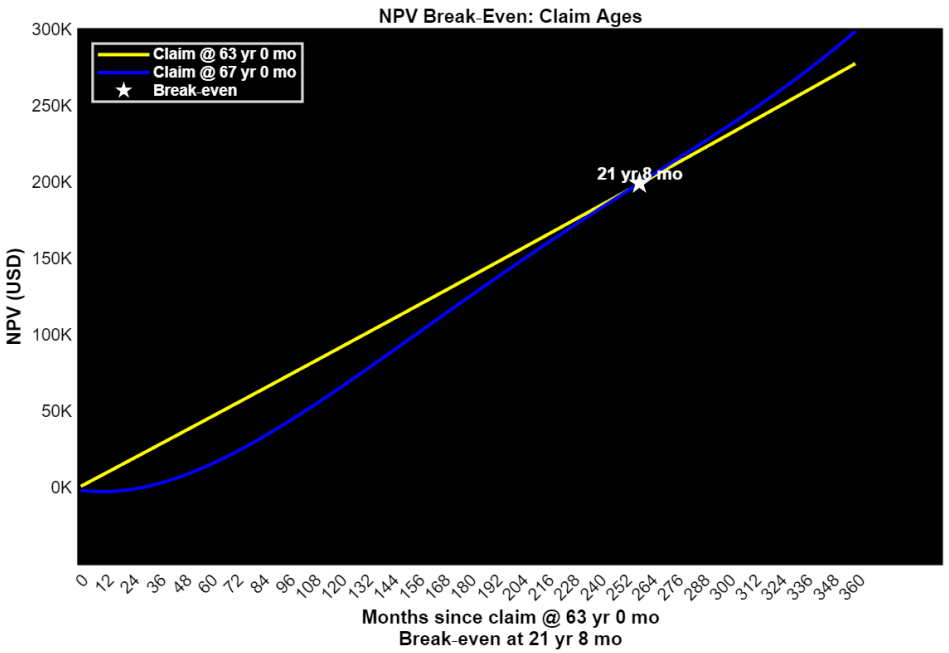
Single Claimant

SS Monthly at age 62-70 vs FRA



NPV Break-Even Claim Age

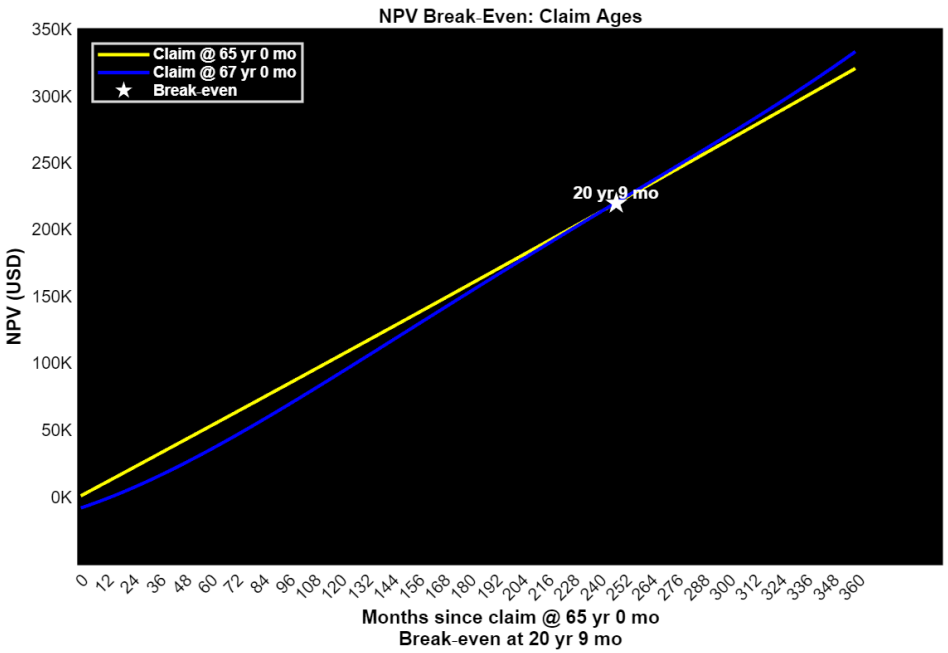


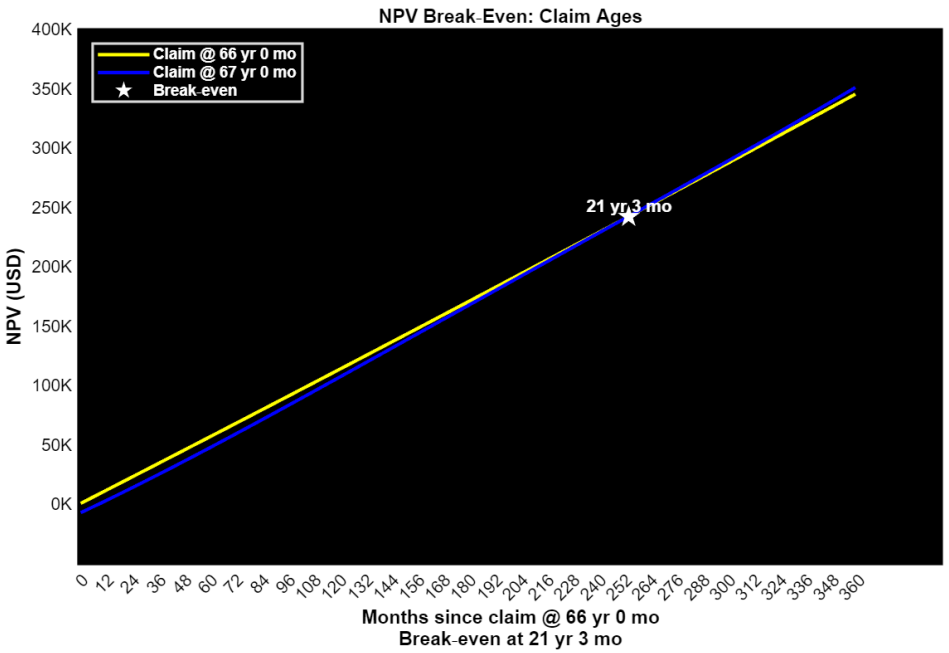


- NVP of 67 yr old: $\$192,230.70$
- NPV of 62 yr old: $\$192,162.34$
- To break even, FRA claimer must reach age 84 yr 5 mos

- NPV of 67 yr old: $\$242,602.92$
- NPV of 63 yr old: $\$242,602.42$
- To break even, the FRA claimer must reach age 87 yr 3 mo.

NPV Break-Even Claim Age

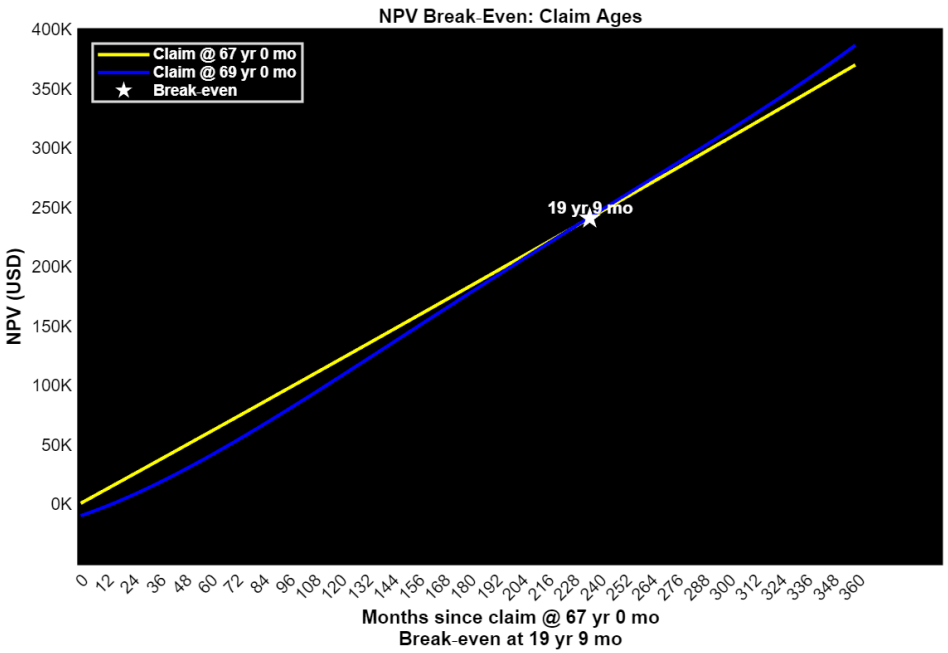


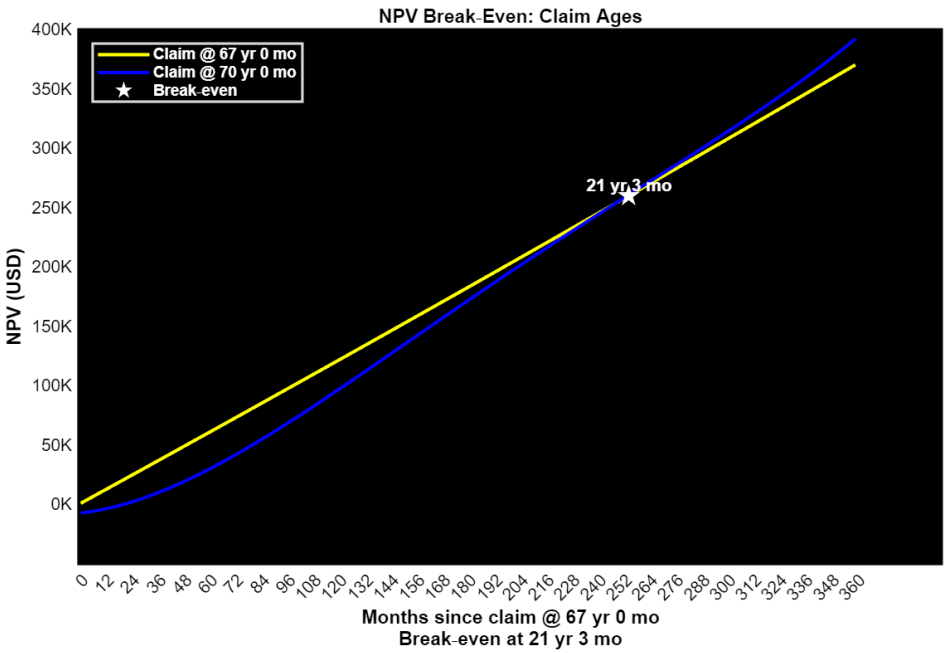


- NPV of 67 yr old: $\$219,902.41$
- NVP of 65 yr old: $\$219,864.68$
- To break even, the FRA claimer must reach age 85 yr 9 mo.

- NPV of 67 yr old: $\$242,602.92$
- NPV of 66 yr old: $\$242,602.42$
- To break even, the FRA claimer must reach age 87 yr 3 mo.

NPV Break-Even Claim Age





- NPV of 69 yr old: $\$241,244.36$
- NPV of 67 yr old: $\$241,226.05$
- To break even, the 69 yr old claimer must reach 86 yr 9 mo

- NPV of 70 yr old: $\$242,602.92$
- NPV of 67 yr old: $\$242,602.42$
- To break even, the 70 yr old claimer must reach 87 yr 3 mo.

Primary Insurance Amount

- The primary insurance amount (PIA) is the benefit amount an individual would receive at their FRA.
  - At this age, the benefit is neither reduced for early retirement nor increased for delayed retirement.
- The PIA is computed by summing three separate percentages of portions of average indexed/adjusted monthly earnings (AIME).
  - These portions (also called bend points) depend on the year in which a worker attains age 62.

Spousal Benefits

- When a worker files for retirement benefits, the worker's spouse may be eligible for a benefit based on the worker's earnings
  - The spouse must be at least age 62
  - If a spouse is eligible for a retirement benefit based on their own earnings, and if that benefit is higher than the spousal benefit, then the retirement benefit is paid. Otherwise, the spousal benefit is paid.
  - For a spouse who is not entitled to benefits on their own earnings record, this reduction factor is applied to the base spousal benefit, which is 50 percent of the primary worker's PIA.

Spousal Benefit Reduction Factor

- The amount the spousal benefit is reduced by is based on the number of months before the FRA the spouse claims the benefit at.
  - A spousal benefit is reduced 25/36 of one percent for each month before FRA, up to 36 months.
  - If the number of months exceeds 36, then the benefit is further reduced 5/12 of one percent per month.

Spousal Benefit Reduction Factor

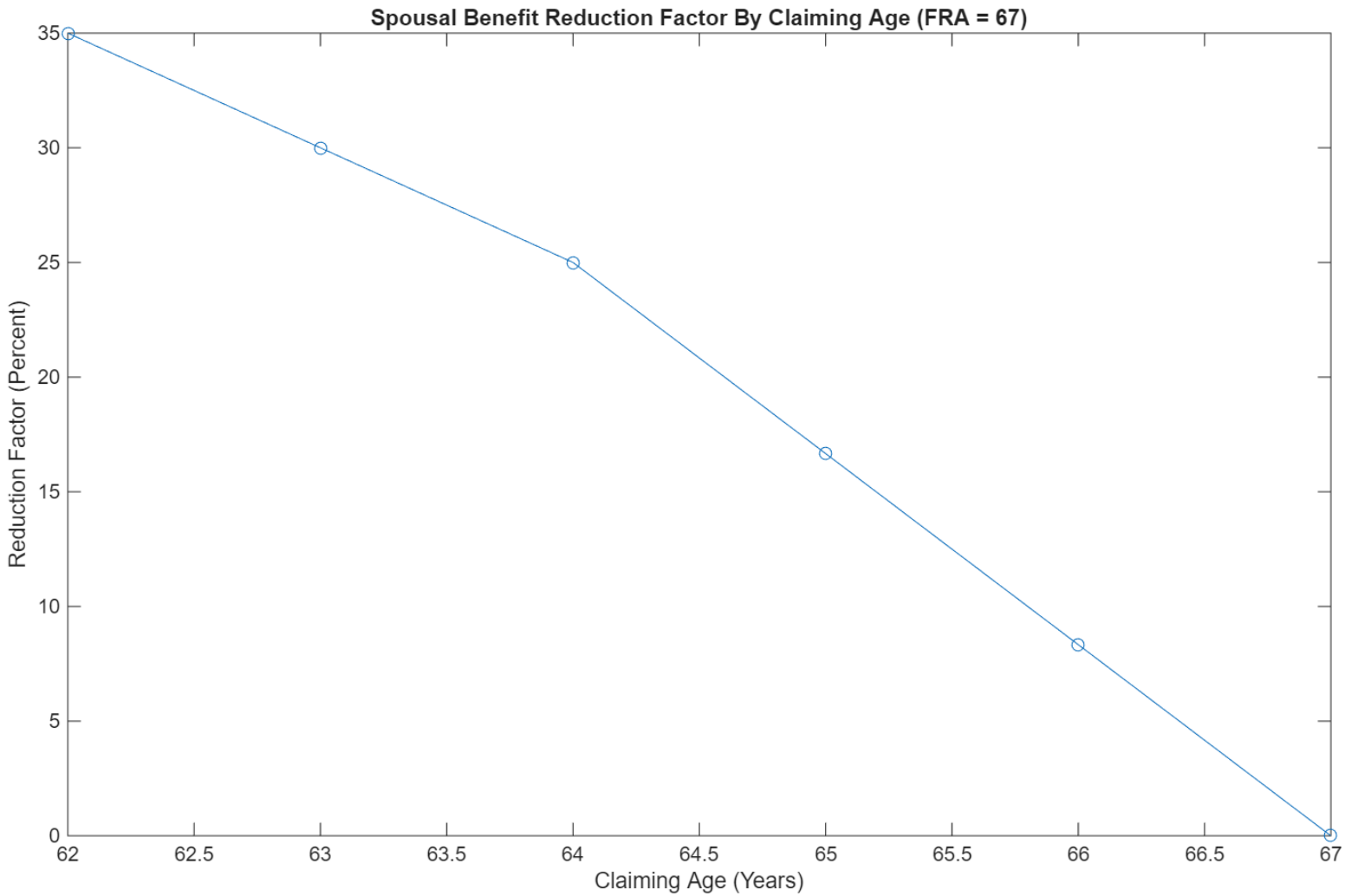
- Assume FRA $= 67$ and let a_s be the spouse's claiming age. Then, the spousal benefit reduction factor is given by

$$f_s(a) = \begin{cases} \frac{(67-a)}{12}, & a < 67 \text{ and } 12(67-a) \leq 36 \\ \frac{12(67-a)-36}{240} + \frac{1}{4}, & a < 67 \text{ and } 12(67-a) > 36 \\ 0, & a \geq 67 \end{cases}$$

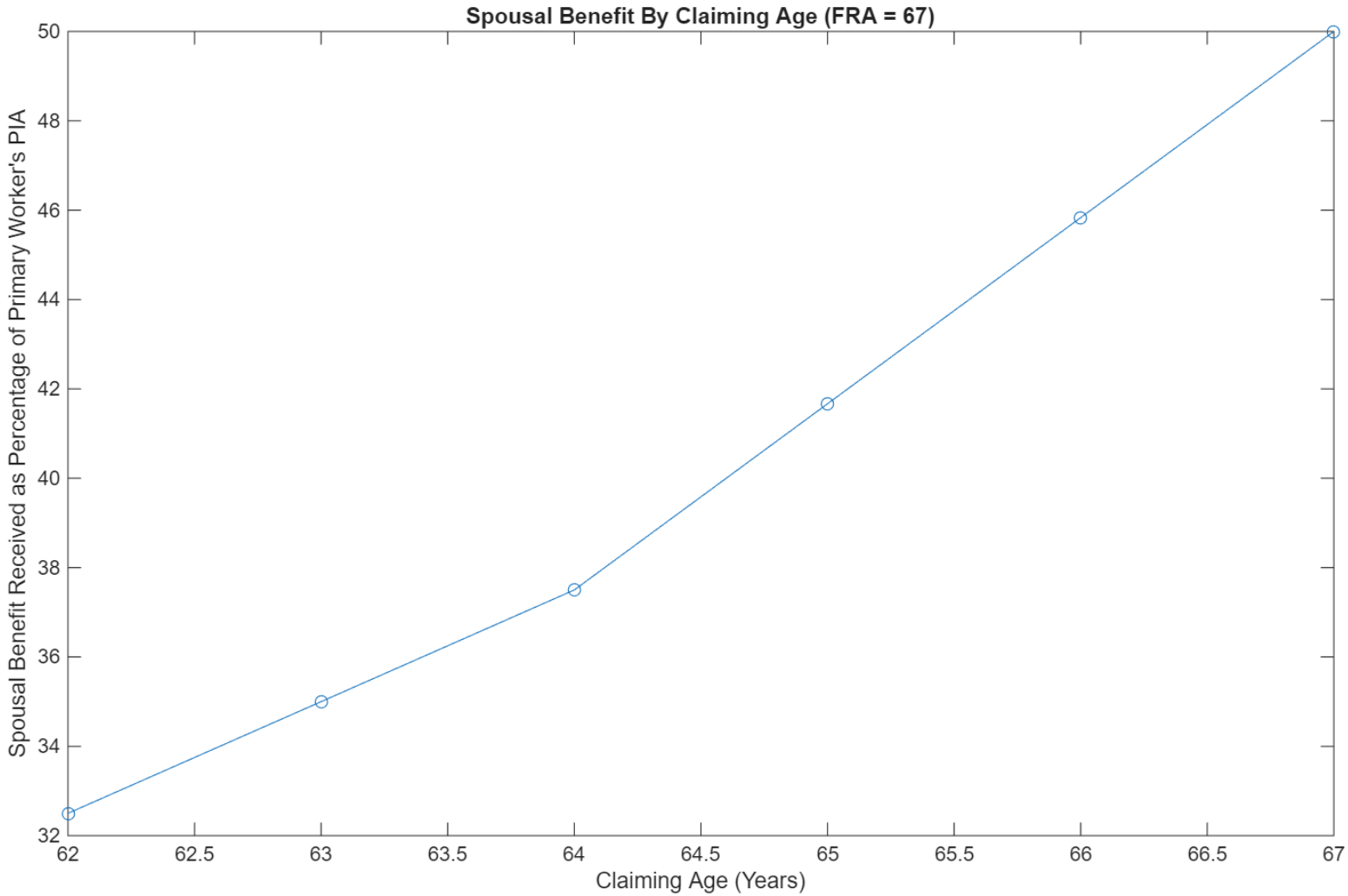
  - Let a_s be the claiming age of the spouse and PIA_p be the primary worker's PIA. Then, the spousal benefit is given by

$$B_s(a_s) = \max\left\{B(a_s), \frac{\text{PIA}_p}{2}(1 - f_s(a_s))\right\}.$$

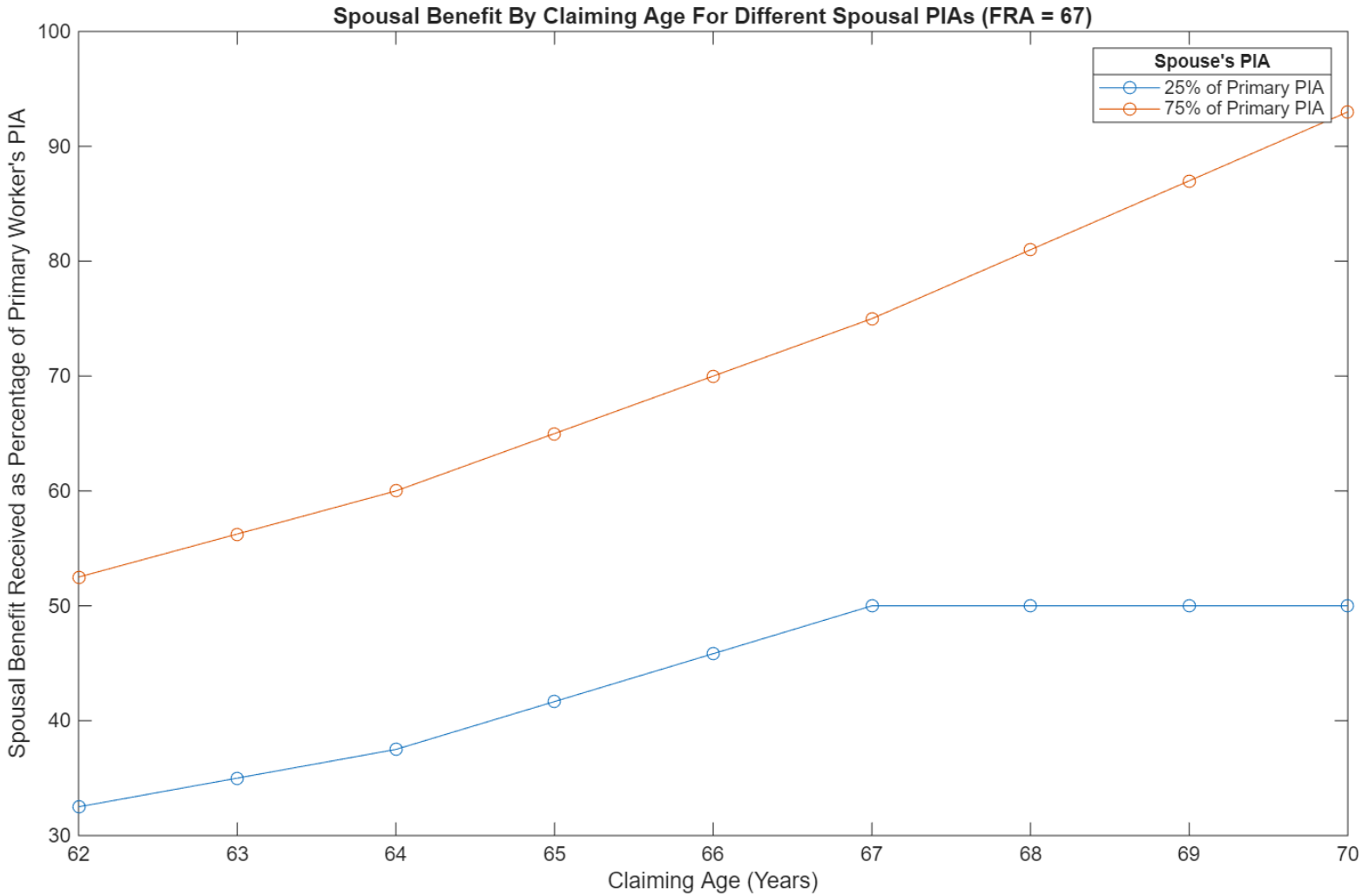
Spousal Benefit Reduction Factor



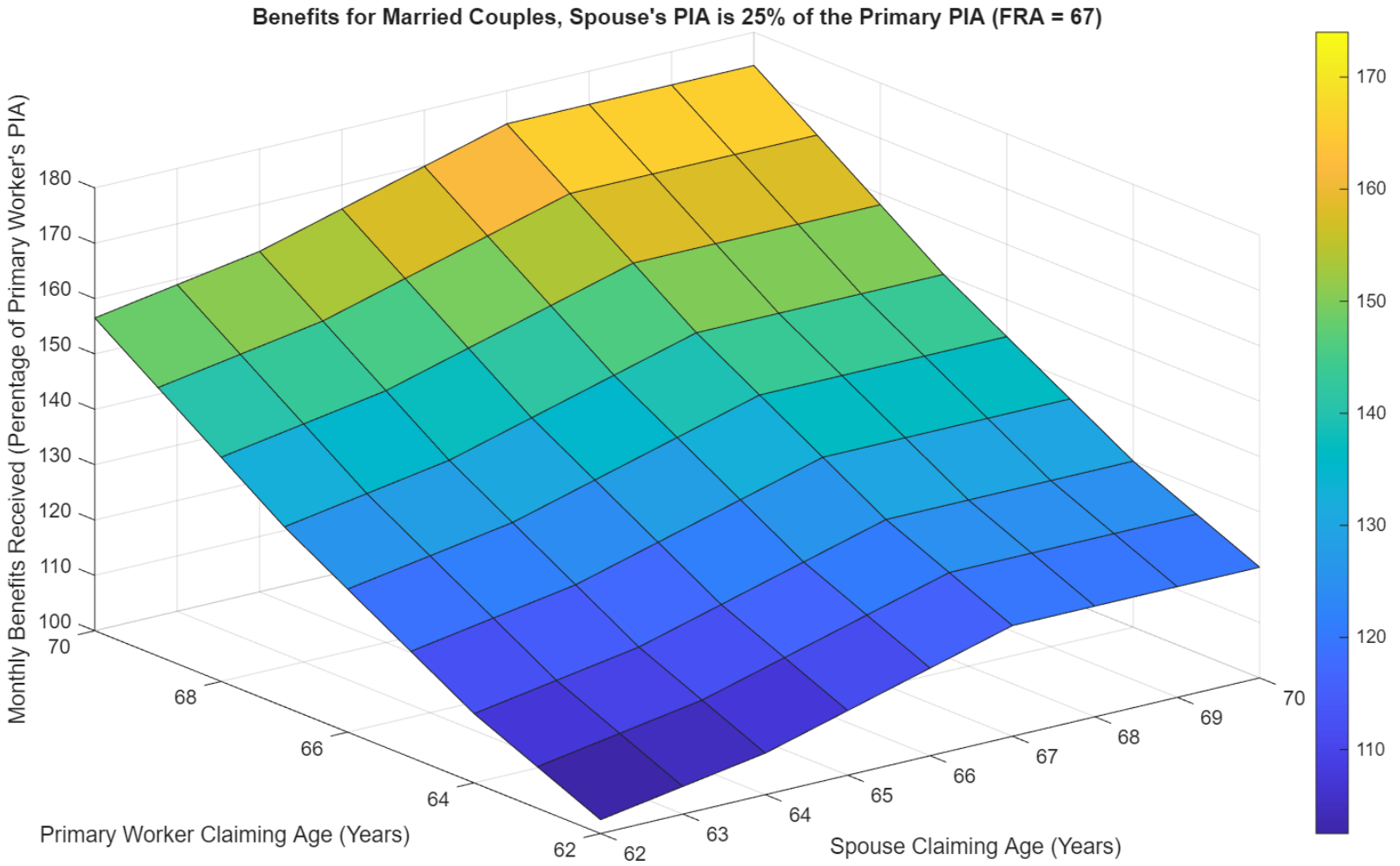
Spousal Benefit Amount



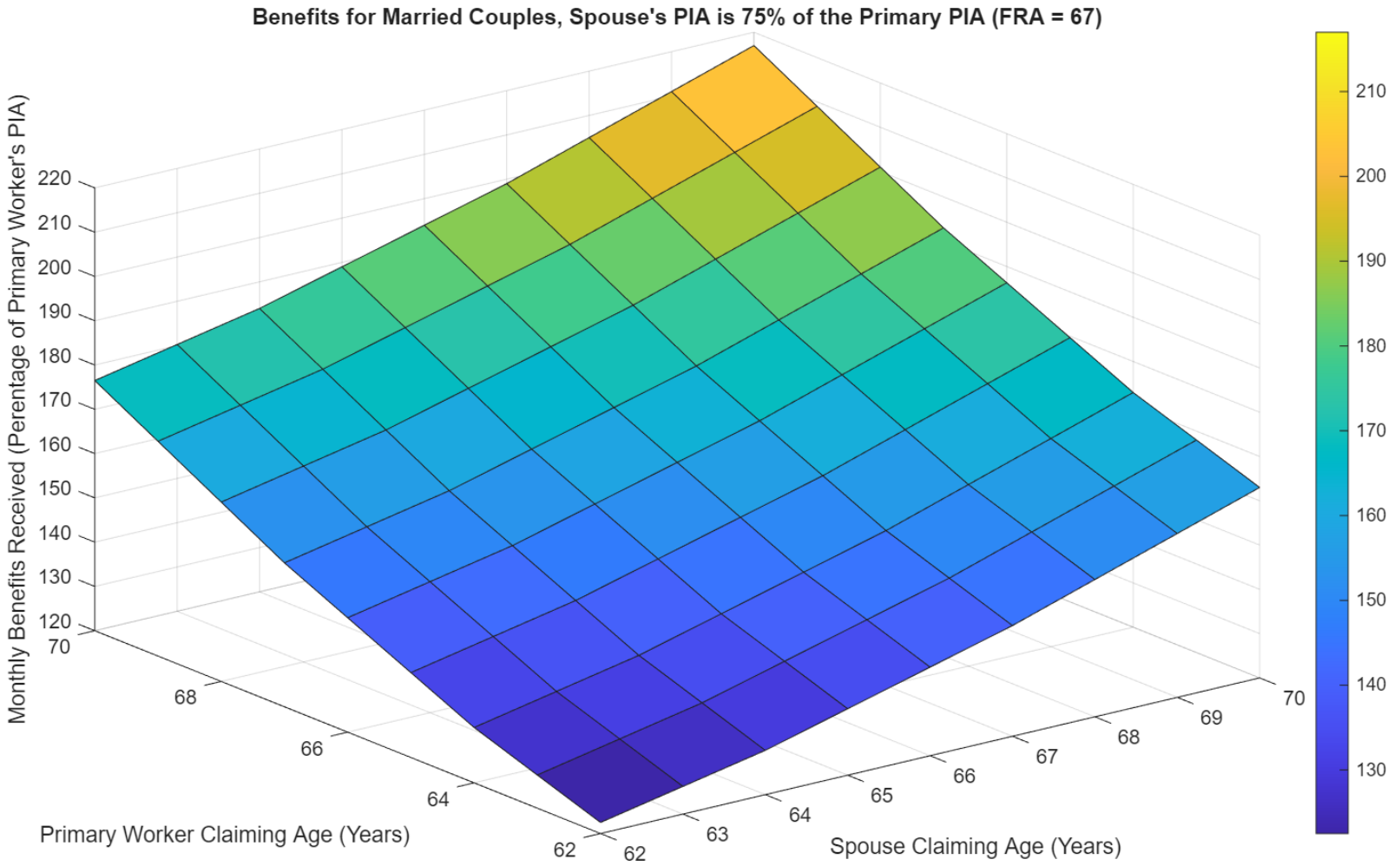
Spousal Benefit Amount For Different PIAs



Marital Benefit Amount For Different Spousal PIAs



Marital Benefit Amount For Different Spousal PIAs



References

- Early or Late Retirement: https://www.ssa.gov/oact/quickcalc/early_late.html
- SS Benefits for Spouses: https://www.ssa.gov/oact/quickcalc/spouse.html
- Social Security Government Website: https://www.ssa.gov/