How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

5.1.2018 | FPA Houston

Handouts/Materials: kitces.com/FPAHS18
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Traditional Planning Assumptions

- Constant real earnings
- Fixed-dollar or fixed-percentage savings
- Straight-line investment growth
**How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies**

**Historical Analysis**

- Safe Withdrawal Rate (SWR) approach
- Captures historical volatility, but focuses primarily on distribution
- Project retirement saving/spending annually
- Ignores earning and spending volatility
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Monte Carlo Simulation

• Incorporates random variables
• Most commonly investment returns
• Probability of success in accumulation and decumulation
• Returns typically assumed to be independent of one another
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

**Average Annual Compound Growth of All Historical Scenarios vs Expected Monte Carlo Variation**

- **Monte Carlo Expected Range (3 SD)**
- **Monte Carlo Expected Range (2 SD)**

Assumptions:
- Initial Portfolio: $1 million
- Initial Withdrawal Rate: 4.08%
- Monte Carlo Real Expected Return (Std. Dev.): 5.9% (11.2%)

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How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Traditional Earnings Growth Assumptions

• Fixed rate of annual growth (COLA)
• Ignores earnings volatility
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

**Traditional Earnings Growth Assumptions**

- **Nominal Earnings**
- **Real Earnings**

<table>
<thead>
<tr>
<th>Age</th>
<th>Earnings</th>
</tr>
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<tbody>
<tr>
<td>25</td>
<td>$50,000</td>
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<td>$200,000</td>
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</table>

Handouts/Materials: kitces.com/FPAHS18
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Historical Earnings Growth By Decile

Real Earnings Growth

Age

0%
50%
100%
150%
200%
250%
300%
350%
400%
25 30 35 40 45 50 55 60

90th
80th
70th
60th
50th
40th
30th
20th
10th
## How Earnings Growth Throughout the Lifecycle Impacts Retirement Savings Strategies

### Earnings at a Given Age vs. Lifetime Earnings

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Age 25</th>
<th>Age 50</th>
<th>Lifetime Earnings (High School Grad)</th>
<th>Lifetime Earnings (College Grad)</th>
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<tbody>
<tr>
<td>99th Percentile</td>
<td>$150,000</td>
<td>$400,000</td>
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<td>$65,000</td>
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<td>50th Percentile</td>
<td>$29,000</td>
<td>$47,000</td>
<td>$610,000</td>
<td>$1,420,000</td>
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</tbody>
</table>

Source: DQYDJ

Source: Hamilton Project
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Earnings Growth by College Major (Age 25-29)

% Earnings Growth over First 5-Years

Initial Median Earnings

$10,000 $20,000 $30,000 $40,000 $50,000 $60,000

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% 110% 120% 130% 140%
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

**Historical Earnings Growth By Decile**

![Graph showing historical earnings growth by decile across different ages.](image-url)
Historical Earnings Growth By Decile

- Real Earnings Growth
- Age

- 90th
- 80th
- 70th
- 60th
- 50th
- 40th
- 30th
- 20th
- 10th

Traditional Assumption
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Historical Earnings Growth By Decile

<table>
<thead>
<tr>
<th>Decile</th>
<th>Earnings Growth</th>
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<tr>
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<tr>
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<tr>
<td>80th</td>
<td>350%</td>
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<tr>
<td>90th</td>
<td>400%</td>
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</table>

Real Earnings Growth vs. Age

- 90th
- 80th
- 70th
- 60th
- 50th
- 40th
- 30th
- 20th
- 10th

Traditional Assumption
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

**Historical Earnings Growth By Decile**

- Real Earnings Growth
- Age

*Traditional Assumption*

- 90th
- 80th
- 70th
- 60th
- 50th
- 40th
- 30th
- 20th
- 10th

Handouts/Materials: kitces.com/FPAHS18
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Historical Earnings Growth By Decile

- 0%
- 50%
- 100%
- 150%
- 200%
- 250%
- 300%
- 350%
- 400%

Real Earnings Growth

Age

- 25th
- 30th
- 35th
- 40th
- 45th
- 50th

Traditional Assumption
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings

Traditional Earnings Assumptions Compared to Historical Earnings

• Age 25 to 50
  • Understates savings potential
  • Understates lifestyle growth

• Age 50 to Retirement
  • Overstates savings potential
  • Understates lifestyle decline
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Safe Savings Rate (SSR) Research

• Similar to SWR research with an accumulation phase
• Both historical analyses and Monte Carlo simulations
• Results tend to indicate that Americans need to save much more
Historical Analysis

• Kitces (2008): Market declines prior to retirement historically result in higher spending in retirement
  • Higher percentage of lower base

• Pfau (2011): Historical accumulation and decumulation periods should be analyzed in conjunction
Historical: Pfau (2011)

- Baseline case:
  - 30-year retirement
  - 60/40 allocation

- SSR by accumulation phase:
  - 40 Years: 9%
  - 30 Years: 17%
  - 20 Years: 36%
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Historical: Blanchett, Finke, Pfaau (2017)

• Baseline case:
  • Age 65 retirement
  • Morningstar Moderate Lifetime Glide Path
  • $100k household income

• SSR by accumulation phase:
  • 40 Years: 7%
  • 30 Years: 10%
  • 25 Years: 13%
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Simulation: Blanchett, Finke, Pfau (2017)

• Baseline case:
  • Age 65 retirement
  • Morningstar Moderate Lifetime Glide Path
  • $100k household income
  • Low-return environment

• SSR by accumulation phase:
  • 40 Years: 12%
  • 30 Years: 17%
  • 25 Years: 19%
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Historical: Tharp & Kitces (2018)

• Lifetime earnings curves vs. constant real earnings:
  • 30-year retirement
  • 60/40 allocation
  • 100% replacement ratio (net of taxes and savings)
# How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

## 40-Year Saving & 30-Year Dissaving

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
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<tbody>
<tr>
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## 30-Year Saving & 30-Year Dissaving

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## 20-Year Saving & 30-Year Dissaving

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<tr>
<td>Min</td>
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<td>17.7%</td>
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<td>20.4%</td>
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How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

**Historical with SS: Tharp & Kitces (2018)**

<table>
<thead>
<tr>
<th>Lifetime Earnings Percentile</th>
<th>Replacement Ratio with Social Security</th>
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<tr>
<td>10th</td>
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<td>40%</td>
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<td>70th</td>
<td>50%</td>
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<td>80th</td>
<td>55%</td>
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<td>90th</td>
<td>67%</td>
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How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

**Historical with SS: Tharp & Kitces (2018)**

### 40-Year Saving & 30-Year Dissaving (with Social Security)

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<tr>
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<th>70th</th>
<th>80th</th>
<th>90th</th>
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### 30-Year Saving & 30-Year Dissaving (with Social Security)

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### 20-Year Saving & 30-Year Dissaving (with Social Security)

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<td>8.7%</td>
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<td>12.4%</td>
<td>15.5%</td>
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How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Low-Return Simulation (w/o SS): Tharp & Kitces (2018)

<table>
<thead>
<tr>
<th>Savings Rates Needed by Lifetime Earnings Percentile</th>
<th>Baseline</th>
<th>10th</th>
<th>20th</th>
<th>30th</th>
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<th>80th</th>
<th>90th</th>
</tr>
</thead>
<tbody>
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<td>40-Year Saving &amp; 30-Year Dissaving</td>
<td>25.5%</td>
<td>18.5%</td>
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<td>30-Year Saving &amp; 30-Year Dissaving</td>
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How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings

**Low-Return Simulation (with SS): Tharp & Kitces (2018)**

<table>
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<td>0.6%</td>
<td>5.7%</td>
<td>8.6%</td>
<td>10.5%</td>
<td>12.2%</td>
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<td>15.6%</td>
<td>19.8%</td>
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<tr>
<td><strong>30-Year Saving &amp; 30-Year Dissaving</strong></td>
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<td>1.3%</td>
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<td>17.2%</td>
<td>20.7%</td>
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<td>28.8%</td>
<td>35.1%</td>
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<td><strong>20-Year Saving &amp; 30-Year Dissaving</strong></td>
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<td>27.1%</td>
<td>35.7%</td>
<td>41.2%</td>
<td>45.2%</td>
<td>47.5%</td>
<td>50.9%</td>
<td>57.6%</td>
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How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Key Takeaways and Planning Implications

• Important to consider earnings trajectory in any type of analysis
  • Constant real earnings is often not accurate
  • For affluent clients, tends to:
    • Understate savings needed for those under 50
    • Overstate savings needed for those over 50
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Key Takeaways and Planning Implications

• Huge opportunity to avoid lifestyle creep
  • Highest income growth rates in 20s and 30s
  • Transition out of college and marriage are crucial events
  • Peak earnings in late 40s early 50s
Key Takeaways and Planning Implications

• Can move backward with “percentage-of-income” savings strategies and big raises

• When real earnings growth > 0% and replacement ratio remains constant, increased savings do not offset increased retirement expenditures
KEY TAKEAWAYS AND PLANNING IMPLICATIONS

• Example:
  • Charlie is 25 and makes $50k
  • Saves 15% of his income
  • 100% replacement (net of taxes and savings) at 4% SWR
  • Over next three decades, income grows by:
    • 1st Decade: 5% per year above inflation
    • 2nd Decade: 2.5% per year above inflation
    • 3rd Decade: 1% per year above inflation
  • Charlie is *further* from his retirement savings need at 55 than he was at 25!
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Key Takeaways and Planning Implications

How Lifestyle Creep Causes Retirement Needs to Outpace Retirement Savings

Assumption: 7% Return

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Handouts/Materials: kitces.com/FPAHS18
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Key Takeaways and Planning Implications

• Example:

  • If Charlie instead saves 50% of his annual raise, Charlie will be retired by age 55!
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Key Takeaways and Planning Implications

![Graph: Reducing lifestyle creep turbocharges retirement success](https://example.com/graph.png)

- **Assumption: 7% Return**

  - Retirement Savings (15% of Salary)
  - Retirement Savings Need (Lifestyle Creep)
  - Retirement Savings (25% of Salary)
  - Retirement Savings Need (Reduced Lifestyle Creep)

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How Earnings Growth Throughout The Lifecycle Impacts Retirement
Savings Strategies

Key Takeaways and Planning Implications

• Example:

  • If Charlie instead saves 50% of his annual raise, Charlie will be retired by age 55!
  • High savings rate serves dual purpose:
    • Provides funds for retirement
    • Constrains lifestyle creep
How Earnings Growth Throughout The Lifecycle Impacts Retirement Savings Strategies

Key Takeaways and Planning Implications

• “Save More Tomorrow” strategies to plan for future saving
  • Benartzi & Thaler’s SMarT program for future commitments
  • Works for young clients moving towards peak earnings
  • Works for older clients as a way to constrain real spending
SUMMARY

• Real earnings curves aren't flat
• Vary at age/stage of life (and by career/major)
• Earnings curves impact not just ability to save, but lifestyle spending by default (if not planned for)
• Can drastically change optimal savings rates, requiring more from young people and less from older people
• Integrates with Social Security as well, suggesting lower income folks may actually be relatively on track, but high-income young people are especially far off!
QUESTIONS

Handouts & additional materials: www.kitces.com/FPAHS18

Contact: questions@kitces.com