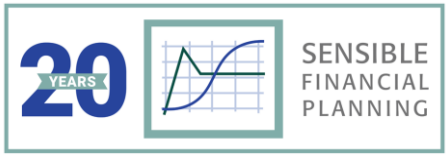


MAXIFI®

The Economics Approach to Financial Planning

a Five-Part Presentation to Dimensional Fund Advisors

Rick Miller
Founder and CEO, Sensible Financial Planning

Laurence Kotlikoff
Professor of Economics, Boston University
President, Economic Security Planning, Inc.

Outline of Talks

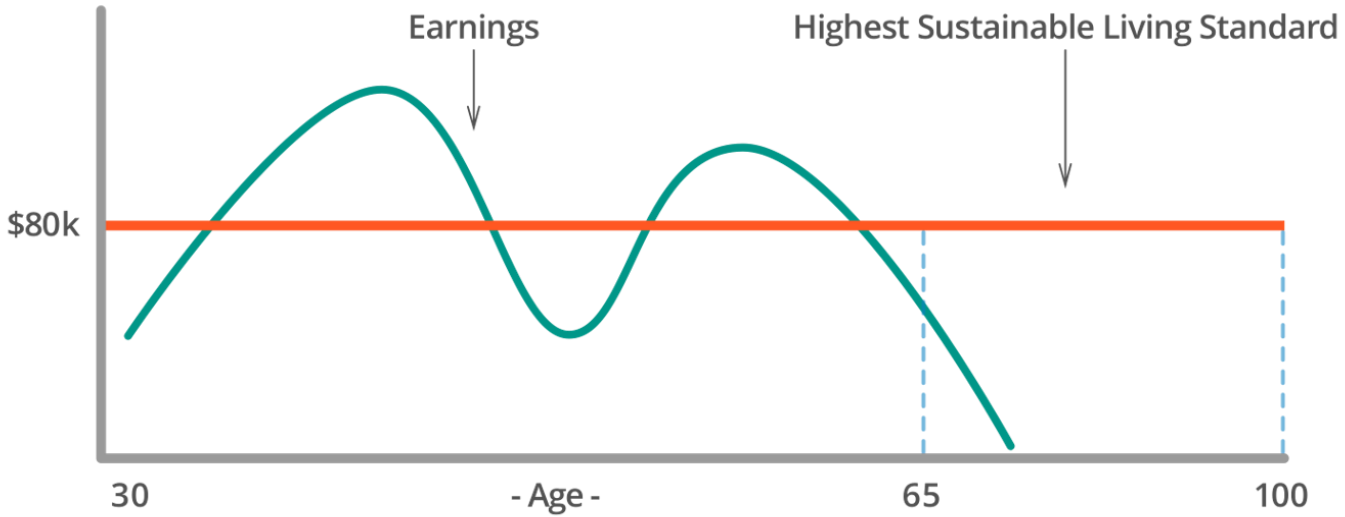
1. Consumption Smoothing
2. MaxiFi Planner – Illustrating the Economics Approach
3 . Pricing Lifestyle Decisions – An Example: When Can I Retire?
4. Secrets to Maximizing Lifetime Social Security Benefits
5. Finding Alpha – Raising Households' Living Standards at No Risk

Economics-Based Financial Planning

- Smooths Your Living Standard
- Raises Your Living Standard
- Protects Your Living Standard
- Prices Lifestyle Decisions

Consumption Smoothing

Achieving a Stable Living Standard



Living Standard is the Bottom Line

- Living Standard – Consumption Per Household Member**
- Households Seek to Maintain their Living Standard or Have it Change Gradually
- Consumption Smoothing Underlies Saving/Spending, Insurance, Portfolio Choice

* * Adjusted for economies in shared living and lower cost of children

Consumption Smoothing
Subject to Two Important Constraints

- Lifetime Budget Constraint
- Annual Cash-Flow Constraints

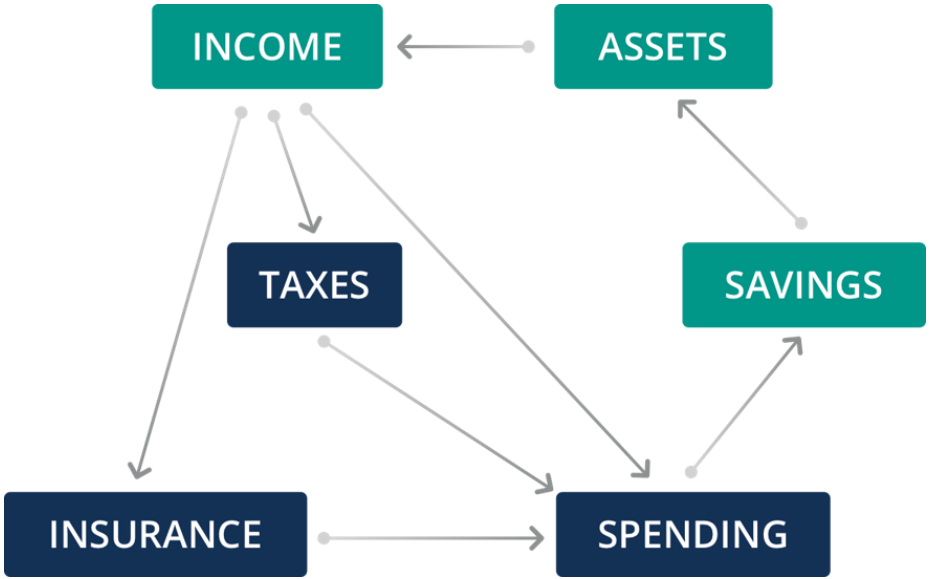
Consumption Smoothing – We All Do It!

Consumption Smoothing – the Physiological Basis

- Satiation – No One Wants to Eat 20 Cupcakes at One Sitting
- No One Wants to Party Today and Starve Tomorrow or Vice Versa
- Squirrels Gather Nuts to Smooth Consumption
- Humans Save, Insure, and Diversify to Smooth Consumption

Consumption Smoothing Is Difficult

Myriad Interconnected Factors



The Disconnect Between Economics-Based and Conventional Financial Planning

- Economics-Based Planning Is at Odds with Conventional Planning
- Economists Don't Teach Conventional Planning
- (Most) Practitioners Don't Employ Economics-Based Planning

Problems with Conventional Financial Planning

- Conventional Planning Produces Consumption Disruption
- Conventional Planning Ignores Lifetime Budget Constraint
- Consumption Planning Ignores Cash-Flow Constraints

No Concern with Consumption Smoothing

- Guesswork – You specify/target desired post-retirement spending
- Mistargeting Is Guaranteed – Ensures consumption disruption
- No Lifetime Budgeting – Spend whatever you'd like
- No Recognition of Cash-Flow Constraints

Case Study

- Dan and Sue age 58. Kids are grown.
- Dan earns $100k. Sarah earns $150k. Will retire and take Social Security at 62.
- Live in Illinois in a $850k home with a $250k mortgage.
- Jack has $750k in retirement accounts. Sarah has $1 million.
- Couple has $50k in regular assets.

Dan and Sue's Lifetime Balance Sheet

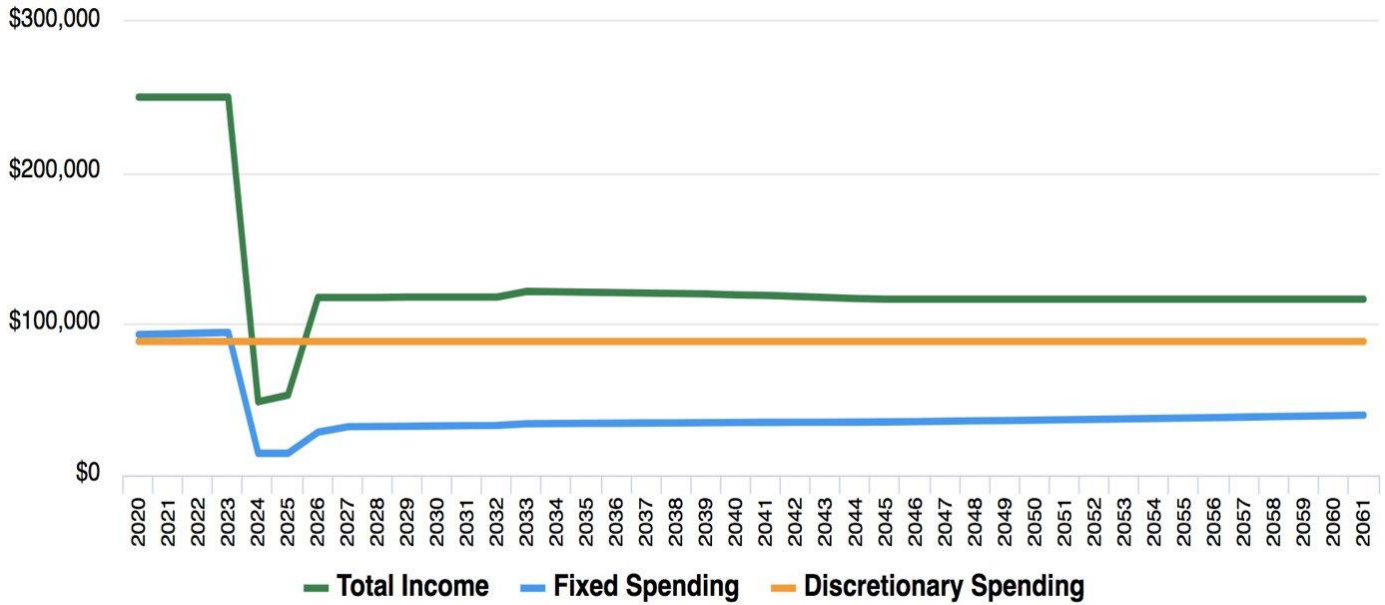
Lifetime Income

Labor Earnings	$1,000,000
Social Security Benefits	$2,019,208
Pensions and Annuities	$0
Retirement Account Withdrawals	$2,322,125
529 Account Withdrawals	$0
Reserve Fund Assets	$0
Real Estate Income	$0
Special Receipts	$0
Regular Assets	$50,625
TOTAL	**$5,391,958**

Lifetime Spending

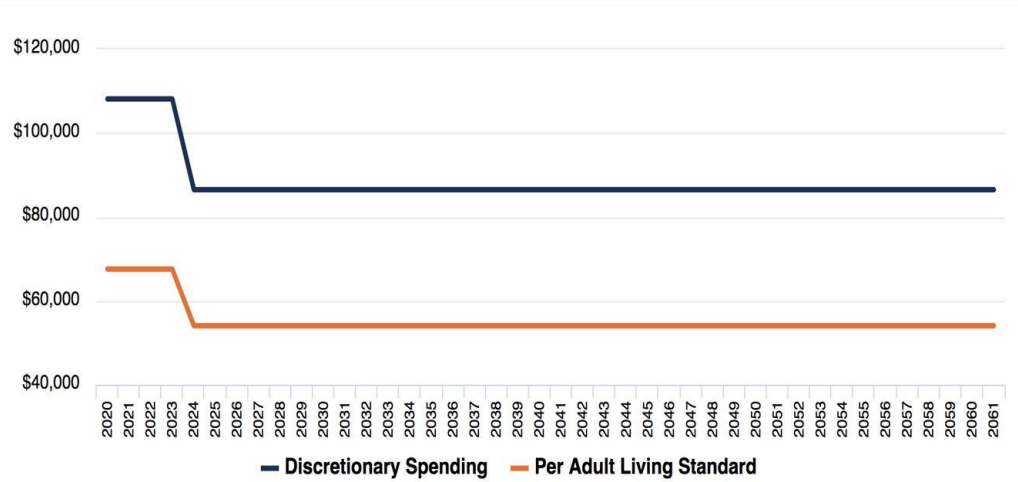
Housing Expenses	$609,000
Other Expenses	$0
Federal and State Taxes	$778,117
Retirement Account Contributions	$32,000
529 Contributions and Expenses	$0
Ending Reserve Fund	$0
Medicare Part B Premiums	$258,752
Life Insurance Premiums	$0
Discretionary Spending	$3,714,088
TOTAL	**$5,391,957**

Consumption Smoothing



Targeting 20 Percent Too Low

Discretionary Spending Drops from $108,102 to $86,482



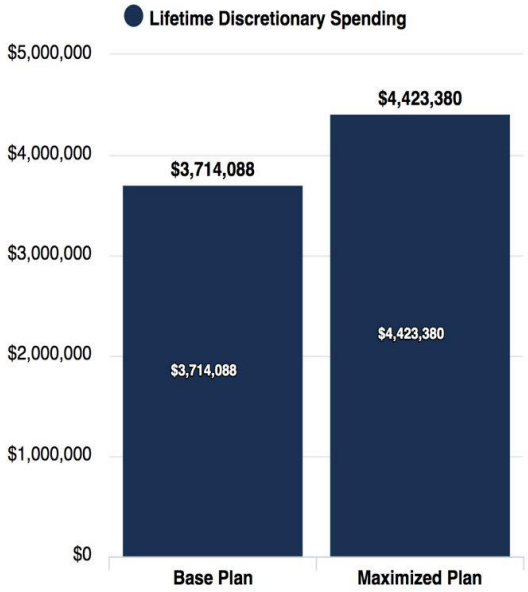
Note: All results are presented in Today's Dollars.

Export as CSV

Maximizing Dan & Sue's Lifetime Discretionary Spending

$709,292

Increase in Lifetime Discretionary Spending Under the Maximized Plan

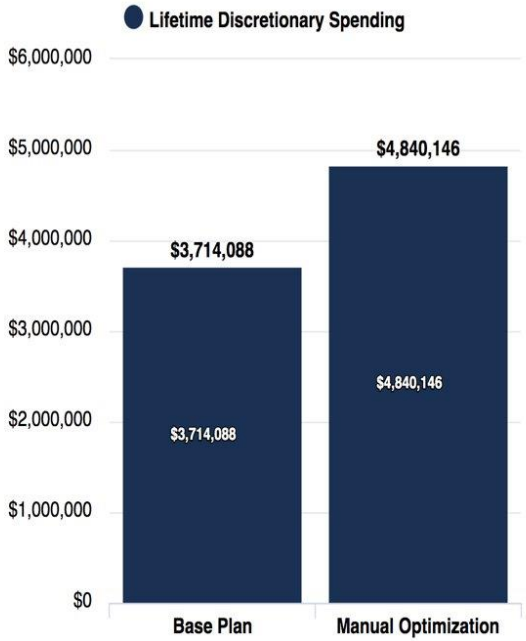


Manually Maximize Dan & Sue's Lifetime Spending

Example: Both Retire at 67

$1,126,058

Increase in Lifetime Discretionary Spending Under the Manual Optimization

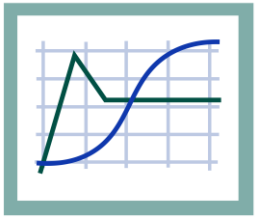


Conventional Investment Advice

- Set a post-retirement spending target
- Assume pre-retirement spending is given
- Simulate plan success probability – dying with money on the table
- Choose portfolio to maximize plan success probability subject to a given level of failure risk
- Advice predicated on
  - Sub-optimal saving pre-retirement
  - Sub-optimal spending post-retirement
  - Assuming no spending adjustment during retirement
- Conventional planning reflects computational ease, not a method grounded in economic science

Economics-Based Investment Advice

- Economics focus is on Expected Lifetime Utility
- Utility in a given year is a mathematical formula based on the household's living standard in that year
- Utility function (formula) depends on key variable – coefficient of risk aversion
- Expected lifetime utility determined by living standard trajectories
- Optimal time-varying investment strategy maximizes expected lifetime utility
- Upside Investing



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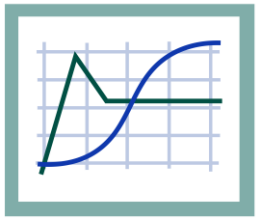

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