

Making the Most of One's Nest Egg: Optimal Tax-wise Planning of Withdrawals from Retirement Accounts*

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Outline

Motivation For DSS Development



New Process For Planning Retirement Withdrawals



The Optimization Model



Results for Typical Scenarios



Future Development

Motivation For DSS Development

When I asked about planning *my* retirement income, my financial advisor recommended Conventional Wisdom (CW). However...



Considering federal taxes, CW does *not* always make sense –

*"The other piece of the puzzle is tax efficiency. You're probably familiar with the conventional wisdom: Draw down your taxable accounts first; then turn to tax-deferred accounts, like IRAs... In this way, tax-deferred assets get more time to grow. But the sequence isn't always that simple" **

*Ruffenach, Glenn. 2005. Before You Open That Nest Egg... The Wall Street Journal. December 12, 2005 R1.

Motivation For DSS Development

Complicating Tax Issues

- Tax deductions and exemptions may offset taxes owed on tax-deferred withdrawals
- Delaying tax-deferred withdrawals may result in higher tax brackets when satisfying federal required minimum distributions (RMDs) after age 70.





Motivation For DSS Development

More Complicating Issues

Many different retirement accounts:

- Annuities may restrict how funds are withdrawn.
- Some retirement funds may have rates of return (RORs) less than taxable investments.



Motivation For DSS Development Still More Complicating Issues

My financial advisor recommended selecting “withdrawal rate” with high “sustainability probability”...

- Makes more sense to plan withdrawals based on my living expenses.
- Annual updating of withdrawal plans should reduce concern for sustainability!

Motivation For DSS Development Yet Still More Complicating Issues



But what about tax impact...

- “Determine an acceptable withdrawal rate first... then we can apply an average tax rate and see what’s left for you to live on”
- **But...** makes more sense to figure out what’s needed to live on... then plan withdrawals for low tax impact.



DSS Objective

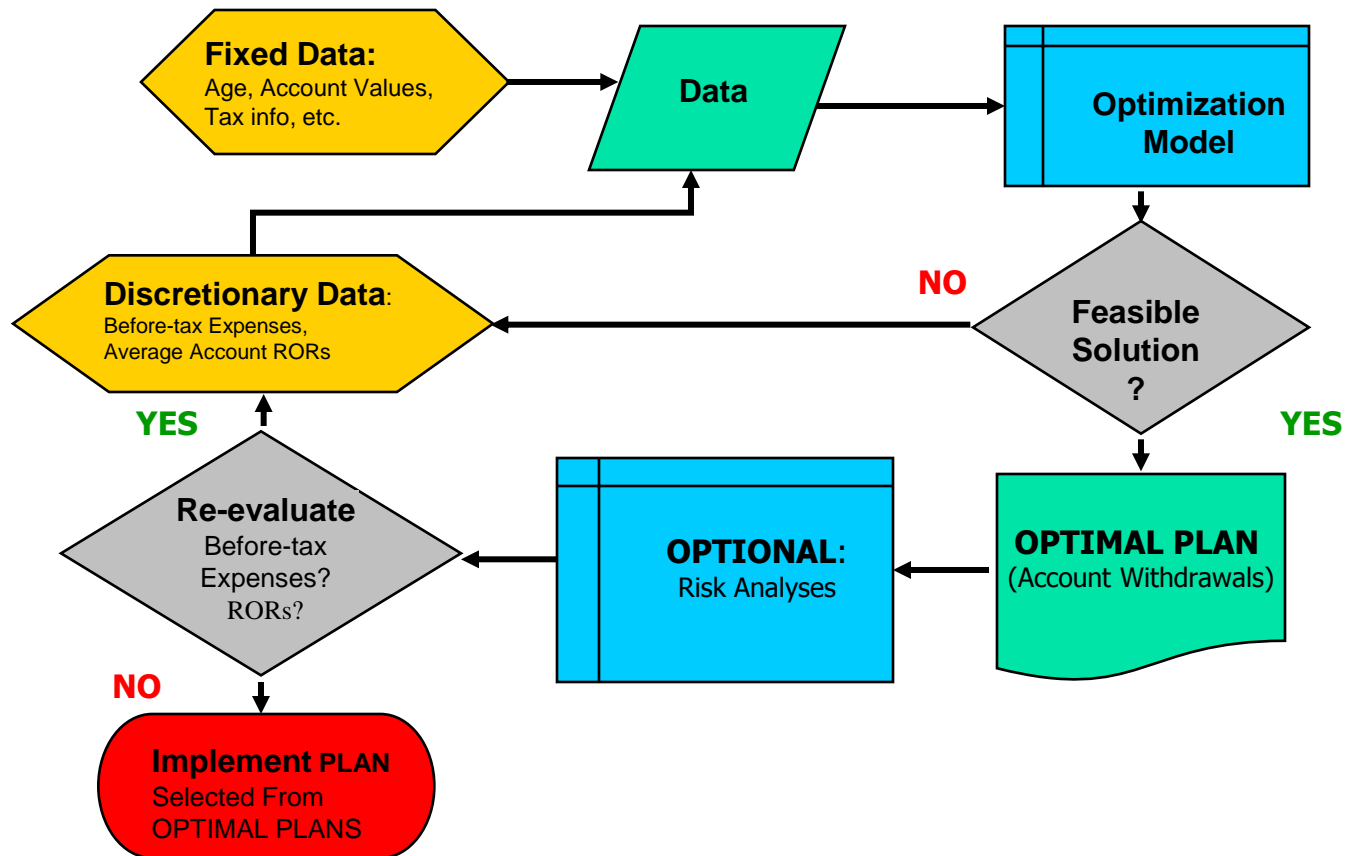
Provide decision support for retirees and their wealth managers in planning retirement withdrawals.



Use mathematical optimization to

- Determine amount to withdraw from each wealth source
- Assure satisfaction of
 - before-tax expense specifications.
 - Federal RMD constraints.
- Compute approximate federal income taxes *as an integral part* of the modeling process to
maximize final accumulated wealth.

*New Process For Planning Retirement Withdrawals**



*There is a patent pending on this process.



The Optimization Model Data

- **Fixed** over all scenarios:
 - Retiree age, RMD coefficients, tax exemptions*, federal tax brackets* and tax rates.
 - Social Security*
 - initial amount, start year.
- **Planning related** – dependent on lifestyle choices and investment portfolio distribution:
 - Interest/ROR rate per account.
 - Before-tax (federal) expenses.
 - Sub-totaled tax-deductions.

*cost of living adjustments are applied for each year during the planning horizon.



The Optimization Model Income Sources

- User specified:
 - Social Security.
 - Pensions, estimated earned income (for future development).
- Model determined withdrawals:
 - Taxable savings and investments.
 - Tax-deferred fixed annuities (fixed-term or lifetime).
 - Non-annuity tax-deferred savings.
 - traditional IRAs, 401(k) plans, etc.
 - Tax-free savings (for future development).
 - Roth IRAs, municipal bonds.



The Optimization Model

Objective Function

Maximize accumulated wealth at the end of the planning horizon.

Other possible objectives:

- Maximize final taxable savings.
- Maximize before-tax expenses, given desired final wealth



The Optimization Model

Constraints

- Withdraw no greater than available amount.
- Meet before-tax expenses.
- Satisfy federal RMDs.
- Others: To assure correct estimation of taxes

For prototype model with a 25 year horizon and 3 account types, Number of constraints = **297**



The Optimization Model

Variables – Model Determined Values

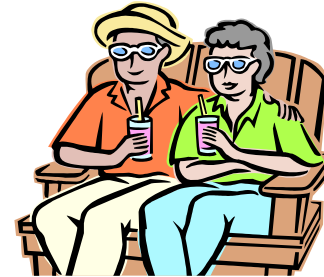
- Account withdrawals.
- Transfers from tax-deferred accounts to taxable savings.*
- Taxes

For prototype model with a 25 year horizon and
3 account types, Number of variables = **300**

*Other types of transfers can be considered in future model updates.

Results for Typical Scenarios Data

- A couple:
 - Husband – age 65, Wife – age 63.
 - Planning 25 years of retirement.
- Current retirement portfolio: \$1,000,000 split -
 1. Taxable savings investments:
 - \$100,000 – average ROR: 5.5%.
 2. Tax-deferred annuities:
 - \$300,000 – average ROR of 5.0%.
 - Withdrawals must be converted to either 10-year annuities or lifetime annuities.
 3. Non-annuity tax-deferred:
 - \$600,000 – average ROR of 7.5%.





Results for Typical Scenarios

Current* Before-tax Expenses

Item	Annual Amount
Household	\$40,800
Personal Care	\$7,200
Transportation	\$4,800
Leisure	\$11,800
Miscellaneous	\$4,800
Total	\$69,400

Itemized deductions: \$20,800.

*Husband's age 65



Results for Typical Scenarios

Assumptions

- Withdrawals proportional to internal asset allocation of that account.
 - Example: If account is 40% bonds/60% equities, a \$1000 withdrawal will be \$400 from bonds and \$600 from equities.
- Social Security: 85% taxable.
- *Excess** non-annuity tax-deferred withdrawals made at year-end and deposited in taxable savings.

*(e.g., RMD more than amount needed to meet specified before-tax expenses)

Results for Typical Scenarios

Baseline Data: Tabular Results (\$000)

Age of Husband	Cash Needs			Cash Sources/Withdrawals			Total Cash-flow (incl Fed Taxes)	Total
	Specified Before-Tax Expenses	Approx. Federal Income Taxes	Total Cash-flow	Social Security	Taxable Savings	Withdrawals		
66	\$71.0	\$1.6	\$72.6	\$16.0	\$30.6			
67	\$72.7	\$2.9	\$75.6	\$16.5	\$23.0			
68					\$16.4	\$36.5	\$0.0	\$809.8
69					\$17.4	\$36.5	\$0.0	\$850.7
70					\$22.3	\$36.7	\$29.2	\$888.8
71					\$23.8	\$36.7	\$31.4	\$928.0
72	\$81.0	\$9.5	\$90.5	\$26.7	\$22.7	\$39.9	\$33.7	\$946.6
73	\$83.9	\$10.0	\$93.9	\$29.5	\$24.4	\$40.0	\$36.2	\$990.6
74	\$86.1	\$10.5	\$96.6	\$30.4	\$26.2	\$40.0	\$38.9	\$1,035.8
75	\$88.3	\$11.1	\$99.4	\$31.3	\$28.1	\$40.0	\$41.7	\$1,082.0
76	\$89.7	\$7.6	\$97.3	\$32.3	\$51.0	\$14.0	\$44.8	\$1,107.2
77	\$92.0	\$6.5	\$98.5	\$33.2	\$61.5	\$3.8	\$47.9	\$1,123.4
78	\$94.4	\$6.9	\$101.3	\$34.2	\$63.5	\$3.6	\$51.4	\$1,138.7
79	\$96.9	\$7.4	\$104.3	\$35.2	\$65.5	\$3.6	\$54.9	\$1,153.4
80	\$99.5	\$8.0	\$107.5	\$36.3	\$54.9	\$3.5	\$58.6	\$1,166.8
81 ^[2]	\$96.3	\$8.6	\$104.9	\$37.4	\$45.6	\$3.4	\$62.4	\$1,185.0
82	\$98.4	\$8.8	\$96.9	\$38.5	\$43.9	\$0.2	\$66.5	\$1,211.1
83	\$98.4	\$9.4	\$100.3	\$39.7	\$52.3	\$0.2	\$70.9	\$1,236.7
84	\$98.4	\$10.1	\$103.8	\$40.9	\$62.7	\$0.2	\$75.5	\$1,261.7
85	\$98.4	\$10.7	\$107.5	\$42.1	\$65.2	\$0.2	\$79.9	\$1,285.6
86	\$98.4	\$11.5	\$110.4	\$43.3	\$66.8	\$0.3	\$84.5	\$1,309.4
87	\$98.4	\$12.3	\$114.4	\$44.6	\$69.5	\$0.3	\$89.3	\$1,331.8
88	\$98.4	\$13.1	\$118.6	\$46.0	\$72.3	\$0.3	\$94.2	\$1,352.4
89	\$98.4	\$14.0	\$122.9	\$47.4	\$75.2	\$0.3	\$99.4	\$1,371.0
90	\$98.4	\$14.8	\$127.2	\$48.8	\$77.8	\$0.6	\$103.7	\$1,388.7

Beginning at age 70, some of the non-annuity account is withdrawn due to federal RMD

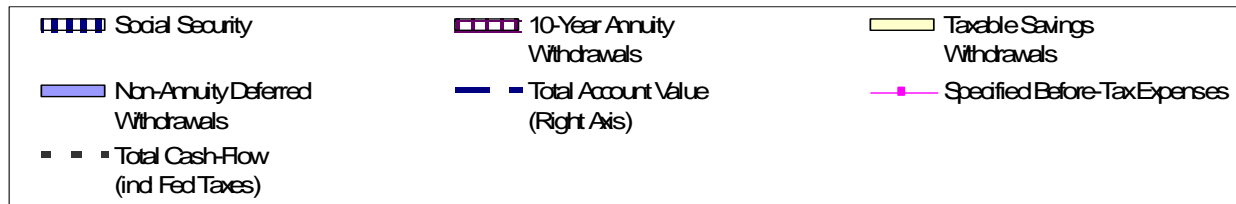
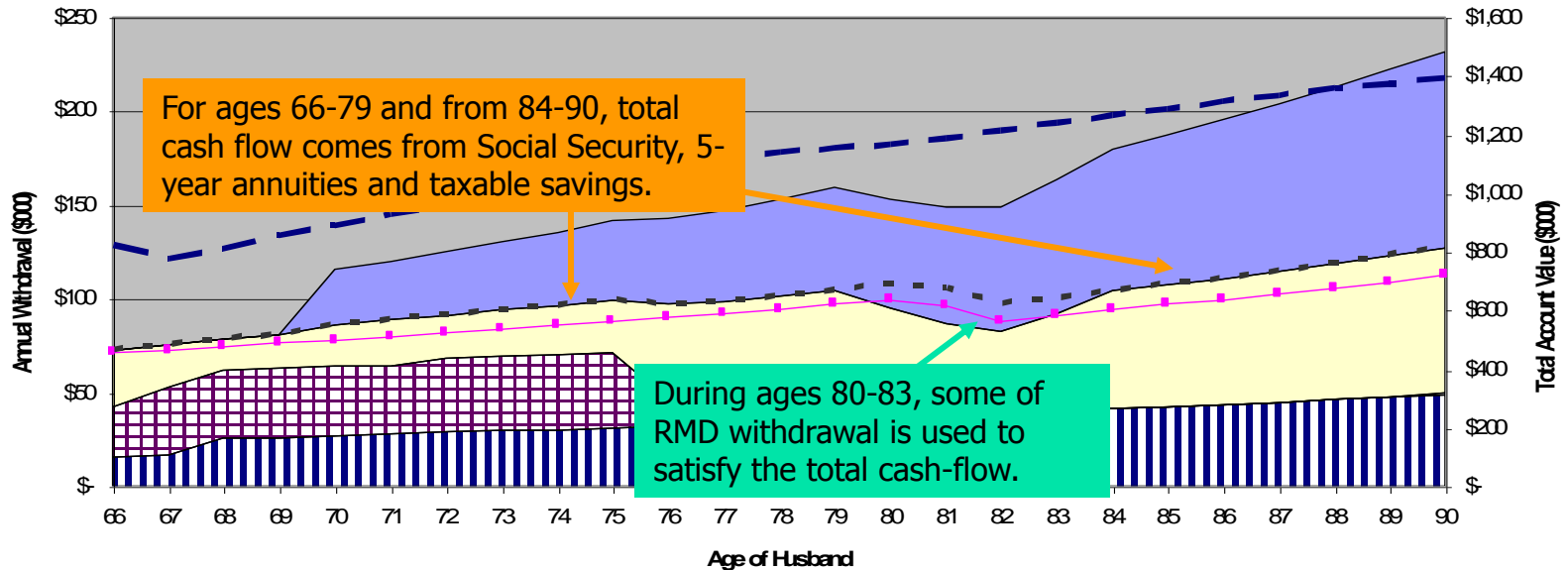
Most of the annuity account is converted into 10-year annuities and exhausted by the second year.

Mortgage payments end

Low taxes due, in part, to itemized tax deductions and exemptions in the range \$27,000 – 43,000 over the 25 year horizon.

Results for Typical Scenarios

Baseline Data: Graphic Results





Results for Typical Scenarios

Baseline Data: *Wealth Planning Implications*

Limited use of non-annuity deferred savings before age 80 suggests redistributing this portfolio for greater ROR in early years, even with higher volatility.

- New plan:
 - Re-distribute to target RORs of 8.5% for ages 66-73, 7.5% for ages 74-80 and a lower risk 6.5% for ages 81-90.
 - New optimal plan result: final total account value of **\$1,448,755** – **4.3% higher** than initial plan.



Results for Typical Scenarios

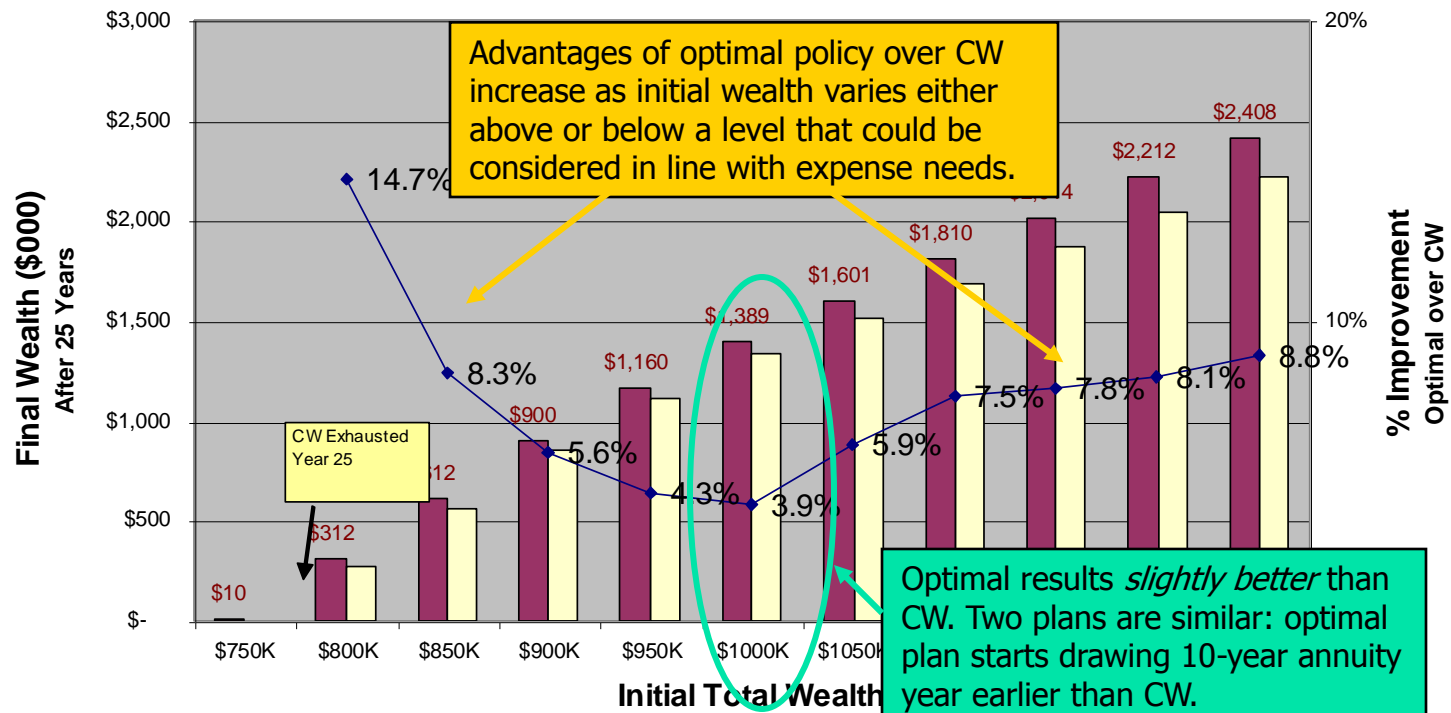
Conventional Wisdom Vs. Baseline

Conventional Wisdom (CW) Policy:

Withdraw retirement income from taxable savings first, then from tax-deferred accounts.

- Tax-deferred withdrawn:
 - 10-year annuity first.
 - Then non-annuity.

Results for Typical Scenarios CW Vs. Baseline: Graphic Results



Optimal results *slightly better* than CW. Two plans are similar: optimal plan starts drawing 10-year annuity year earlier than CW.

NOTE: If lifetime annuities substitute for 10-year annuities in CW, final wealth of optimum is **16%** higher!



Results for Typical Scenarios

CW Vs. Baseline: *Wealth Planning Implications*

- For retirees with relatively low savings:
 - Optimal planning improves chances that initially specified before-tax expenses will be sustainable.

- For retirees who have more than enough to meet basic needs:
 - Optimal planning provides wealth managers greater leverage to work with retirees to better manage account portfolios to enhance quality of life.



Results for Typical Scenarios

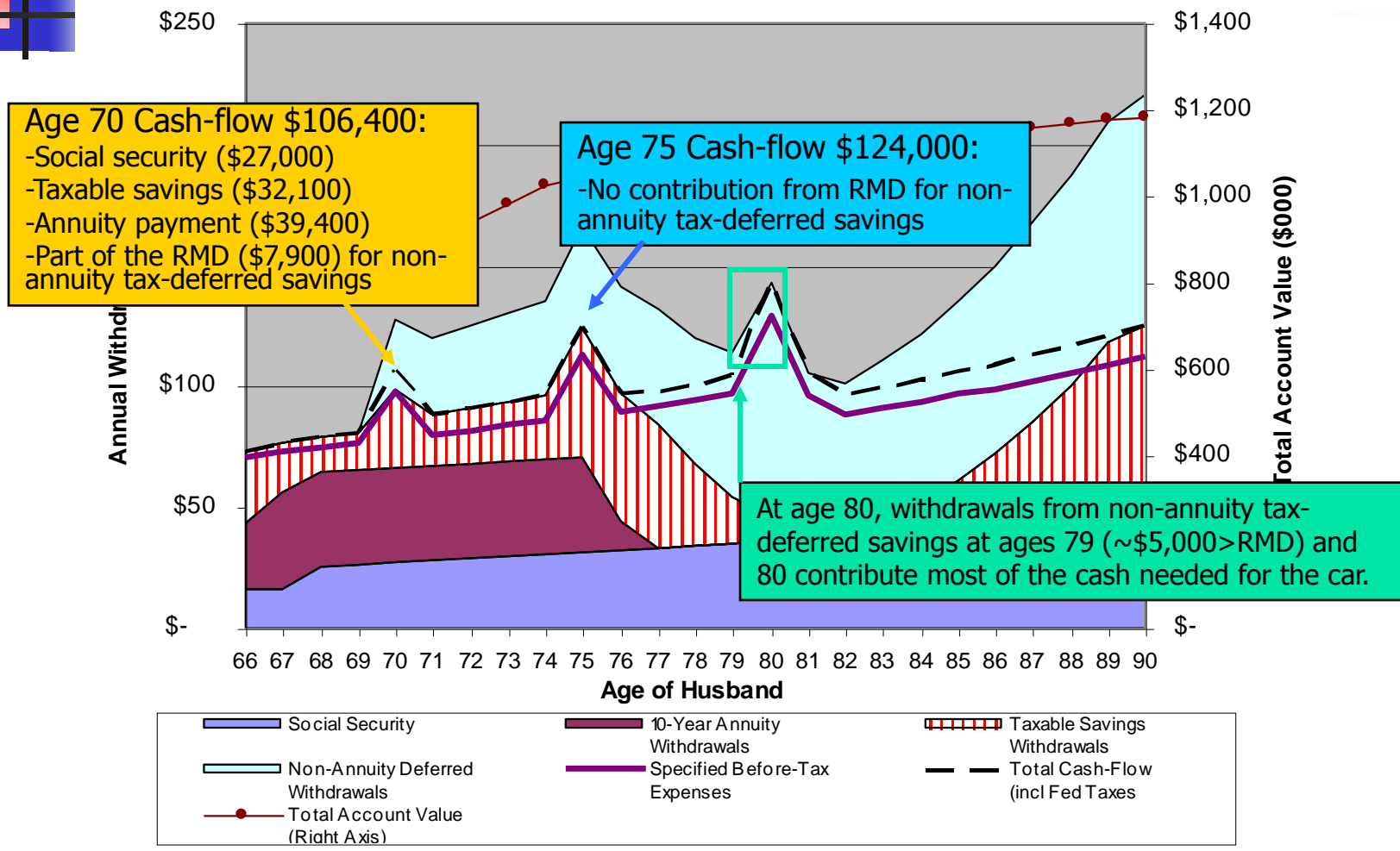
Baseline plus Car Purchases

How does model “smooth” tax burden for occasional large expense needs?

- Consider car purchases every 5 years at ages 70, 75 and 80 for **\$20,000**, **\$25,000** and **\$30,000**

Results for Typical Scenarios

Baseline + Cars: Graphic Results





Results for Typical Scenarios

Baseline + Cars: *Wealth Planning Implications*

- Occasional need for large withdrawals is expected, but planning for them in an optimal tax-wise manner is complex.
- Optimal planning takes out guesswork!
 - Automatically provides withdrawal policy with significant financial benefits.



Future Development

- Evaluate impact of adding other income sources:
 - tax-free savings (e.g., Roth IRAs, municipal bonds).
 - capital gains.
- Use optimal planning to analyze
 - Age to start Social Security.
 - Need for long-term care insurance.
- Use optimal planning as part of ROR simulation to assess sustainability risk.