

The United States Longevity Insurance Market

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Roadmap

- Overview of theoretical calculations of the value of annuitization.
- The declining role of Social Security and defined benefit pensions.
- The United States individual annuity market.
- Annuity market product innovations.
- Policy options for increasing annuitization rates.

Theoretical calculations of the value of annuitization

In the absence of annuities, households trade-off risk of outliving wealth against desire to maximize lifetime consumption.

Annuities solve this problem – insure households against outliving their wealth.

But annuities are actuarially unfair.

Theoretical calculations of the value of annuitization, cont'd

- How valuable is the longevity insurance?
- Is it sufficient to outweigh the actuarial unfairness of annuities?
- A complex computational problem!

Theoretical calculations of the value of annuitization, cont'd

- Mitchell, Poterba, Warshawsky, and Brown (1999)
- Brown and Poterba (2000)
- Dushi and Webb (2004)
- Conclusion – Pre-annuitized wealth and longevity risk pooling within marriage reduce but do not eliminate value of annuitization.

Theoretical calculations of the value of annuitization, cont'd

So why are annuitization rates so low?

- Inertia?
- Desire to obtain the equity premium?
- Bequest motive?
- Inability to do the actuarial calculations – Brown, Casey, and Mitchell (2007).
- Framing – Agnew, Anderson, Gerlach and Szykman (2008).
- Loss of liquidity – uncertain medical costs.

Theoretical calculations of the value of annuitization, cont'd

Medical costs may increase value of annuitization if mainly incurred at very old ages.

New more realistic models:

- Turra and Mitchell (2004)
- Pang and Warshawsky (2008)
- Yogo (2008)

Theoretical calculations of the value of annuitization, cont'd

- Not obvious that the currently retired are making a big mistake by shunning annuitization.
- But subsequent birth cohorts will have much lower annuity incomes.

The declining role of Social Security and defined benefit pensions

Social Security

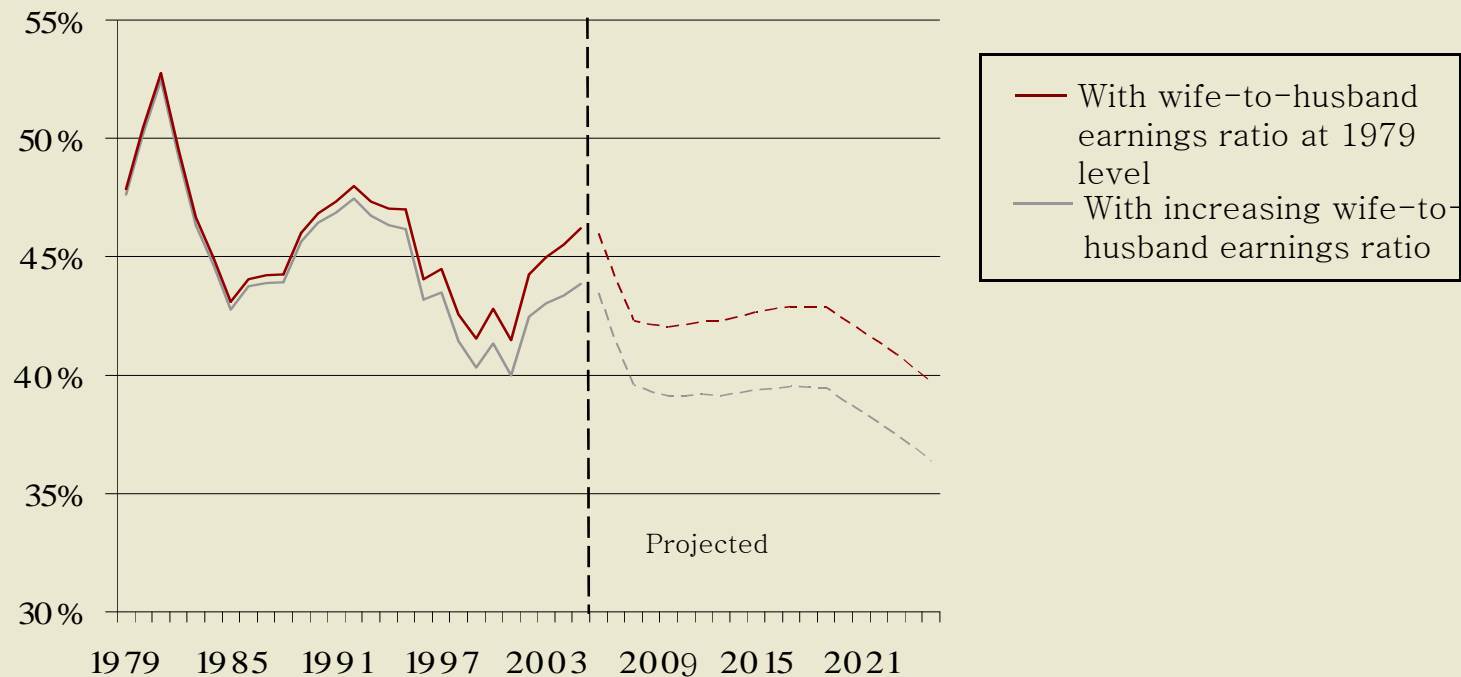
- PAYG social insurance funded by payroll tax.
- Benefits (in form of inflation-indexed annuity) can be claimed at any age from 62 to 70.
- Reduced if claimed before Full retirement Age (FRA), increased if claimed after.
- Spousal benefit for spouses with low/zero earnings.

The declining role of Social Security and defined benefit pensions, cont'd

- FRA increased from 65 (born before 1938) to 67 (born after 1959)
 - Equivalent to a 13.3 percent cut in benefits.
- Increase in women's earnings often increases denominator but not numerator.
- Taxation of Social Security benefits.
- Exhaustion of Social Security Trust Fund in 2041.

The declining role of Social Security and defined benefit pensions, cont'd

Historical and Projected Social Security Replacement Rates for the Average Household Claiming at Age 65, 1979 – 2025



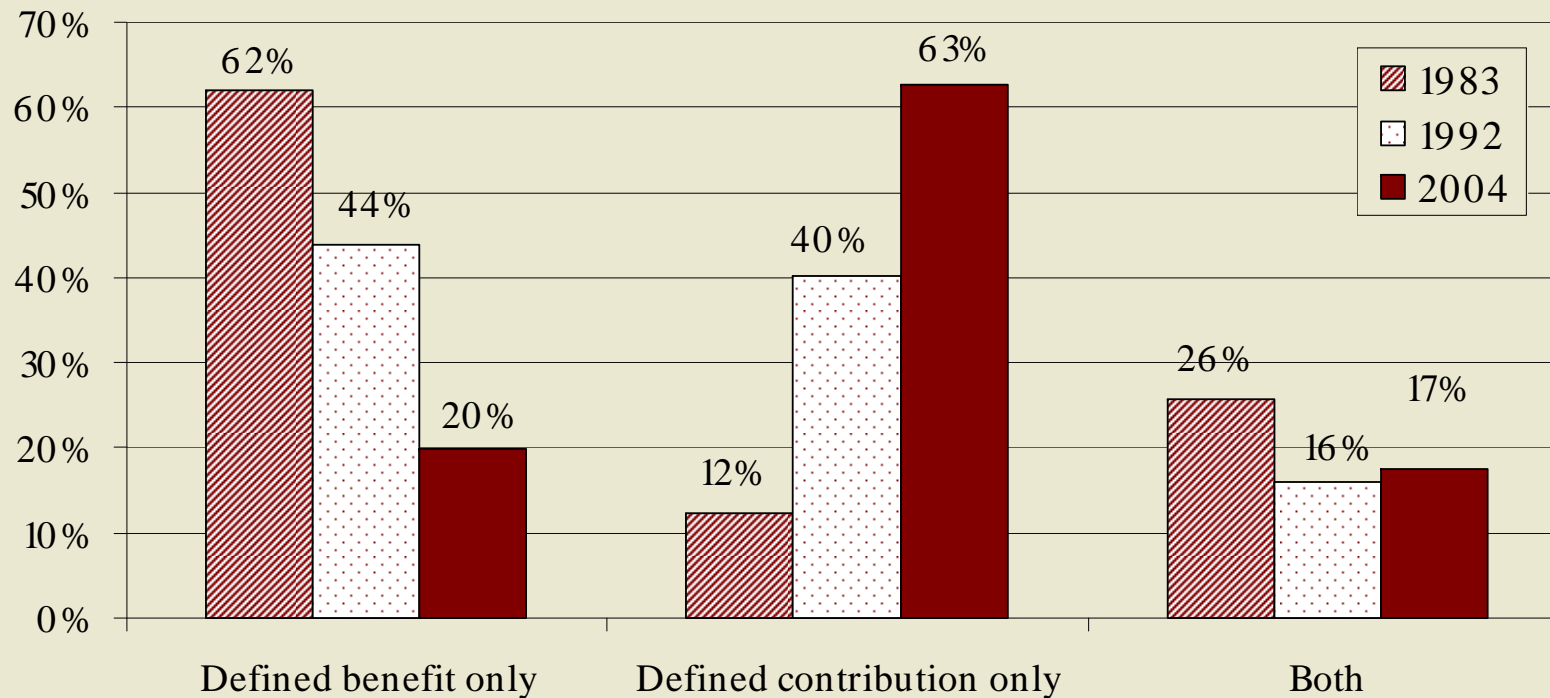
Sources: Munnell, Alicia H., Geoffrey Sanzenbacher and Mauricio Soto. (2007). Working Wives Reduce Social Security Replacement Rates. *Center for Retirement Research at Boston College*.

The declining role of Social Security and defined benefit pensions, cont'd

- Defined benefit (DB) plans typically pay benefits in form of nominal annuity.
- Rapidly being displaced by defined contribution (DC) plans in which annuitization is voluntary.

The declining role of Social Security and defined benefit pensions, cont'd

Workers with Pension Coverage by Type of Plan, 1983, 1992, 2004



Source: Author's calculations based on U.S. Board of Governors of the Federal Reserve System. *Survey of Consumer Finances* (various years). Washington, DC.

The declining role of Social Security and defined benefit pensions, cont'd

- Increasing prevalence of lump sum options in remaining DB plans.
- 48% of DC participants say they plan to annuitize – Brown (1999).
- They haven't yet. Will they ever?!

The United States individual annuity market

Annuity taxonomy

- Immediate vs. deferred.
- Fixed vs. variable.
- Nominal vs. inflation protected.

The United States individual annuity market, cont'd

Deferred annuities give option to take a lifetime income.

Option rarely exercised – Brown and Warshawsky (2005), Reno et al (2005).

Annual immediate annuity sales about 1 percent of GDP.

The United States individual annuity market, cont'd

Annuity Sales by Product Types for the Period 1996 – 2007 (Dollars in Billions)

Variable Annuities	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<i>Variable Immediate Annuities</i>	0.2	0.2	0.3	0.5	0.8	0.7	0.6	0.5	0.3	0.3	0.4	0.3
<i>Variable Deferred Annuities</i>	74.1	88.0	99.5	122.5	136.6	112.6	114.4	128.9	132.6	136.6	160.0	183.8
Total Variable Annuities	74.3	88.2	99.8	123.0	137.3	113.3	115.0	129.4	132.9	136.9	160.4	184.1
Fixed Annuities												
<i>Fixed Immediate Annuities</i>	2.8	2.8	2.1	2.4	3.0	3.6	4.8	4.8	5.3	5.3	6.1	6.5
<i>Fixed Deferred Annuities</i>	32.8	32.7	26.6	35.3	44.7	64.7	92.6	78.6	76.6	68.3	66.3	60.3
<i>Structured Settlements</i>	2.4	2.7	3.3	4.0	5.0	6.0	5.9	6.0	6.0	5.9	5.9	6.2
Total Fixed Annuities	38.0	38.2	32.0	41.7	52.7	74.3	103.3	89.4	87.9	79.5	78.3	73.0
Total Immediate Annuities	3.0	3.0	2.4	2.9	3.8	4.3	5.4	5.3	5.6	5.6	6.5	6.8

Source: LIMRA 2006 Annuity full report & Q2 08 Annuity report.

The United States individual annuity market, cont'd

Annuity money's worths in the United States

- Depend on mortality and interest rate assumptions
 - Population vs. annuitant.
 - Treasury STRIP vs. corporate bond rate.
- All company average, or prices if you shop around.

The United States individual annuity market, cont'd

Money's Worth of Inflation Indexed and Nominal Annuities

		Annuitant Mortality				Population Mortality			
		Treasury BBA	AA Corporate	Treasury BBA	AA Corporate	Treasury BBA	AA Corporate	Treasury BBA	AA Corporate
		Inflation Indexed	Nominal	Inflation Indexed	Nominal	Inflation Indexed	Nominal	Inflation Indexed	Nominal
Best Buy Purchase Age	60	1.114	1.132	1.029	0.916	0.995	1.047	0.959	0.861
	65	1.115	1.131	1.039	0.935	0.981	1.030	0.953	0.865
	70	1.110	1.126	1.045	0.951	0.965	1.012	0.946	0.869
	75	1.113	1.128	1.058	0.975	0.950	0.995	0.940	0.874
	80	1.012	1.093	1.034	0.965	0.841	0.937	0.893	0.840
	85	1.043	1.123	1.073	1.013	0.813	0.907	0.873	0.832

Notes: All annuities are joint life, 2/3 survivor, payable monthly, no guarantees.

Source: Gong, Guan and Anthony Webb. 2008. "Evaluating the Advanced Life Deferred Annuity - An Annuity People Might -Actually Buy." Working Paper 2007-15. Center for Retirement Research at Boston College.

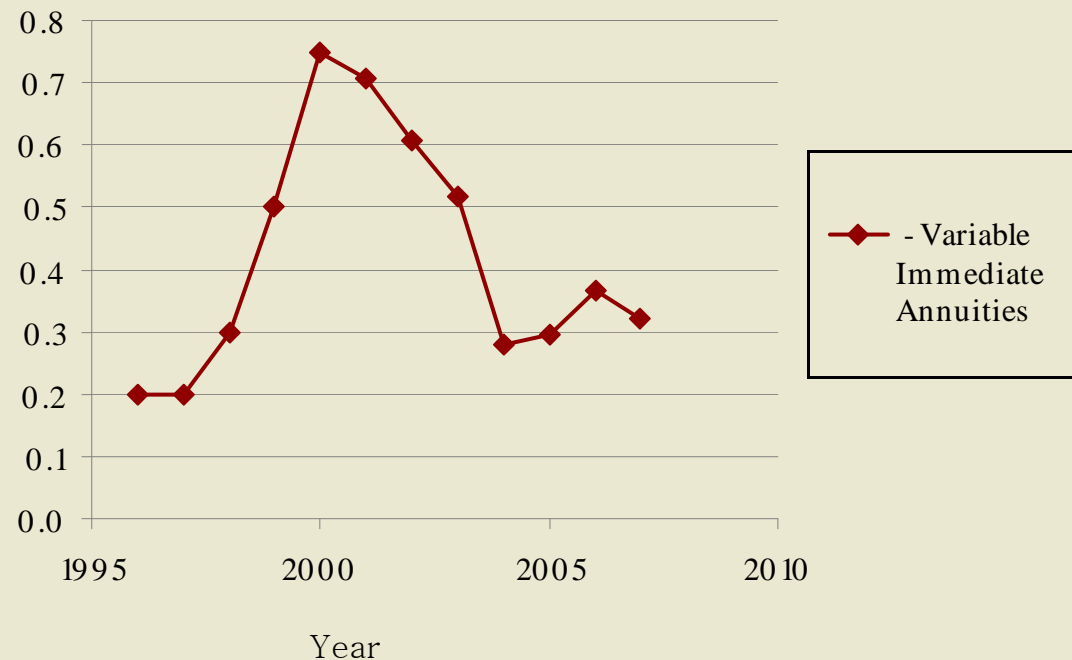
Annuity market product innovations

Variable immediate annuity

- Gives households the equity premium AND mortality credits.

Annuity product innovations, cont'd

Variable Immediate Annuity Sales for the Period 1996 – 2007
(Dollars in Billions)



Sources: LIMRA 2006 Annuity full report & Q2 08 Annuity report.

Annuity product innovations, cont'd

Medically underwritten annuities

- Puzzle is why most annuities aren't medically underwritten.
- About 4 percent of the market.

Annuity product innovations, cont'd

Zipcode underwriting

- Not yet in the United States.

Annuity product innovations, cont'd

Inflation protected annuities

- Treasury Inflation Protected Securities first issued in 1997.
- Have similar money's worths to nominal annuities – Gong and Webb (2008).
- Small market – \$200m – 3 percent of total immediate annuity sales.
- Why?

Annuity product innovations, cont'd

The Advanced Life Deferred Annuity

- Annuities are most effective when used to fund consumption at older ages.
- Cost to 60 year old funding \$1 consumption at age 100 = $\$1.03^{(-40)} = \$.031$.
- If instead the 60 year old buys an annuity making single payment of \$1 at age 100.
- Assume 100% insurance company mark-up, 1% probability of living to 100.
- Cost of \$1 consumption \$0.0062.

Annuity product innovations, cont'd

The Advanced Life Deferred Annuity, cont'd

Gong and Webb (2008)

- If annuities actuarially fair – full annuitization at retirement optimal.
- At plausible levels of actuarial unfairness, ALDA dominates immediate/deferred annuitization/optimal drawdown.

Annuity product innovations, cont'd

The Advanced Life Deferred Annuity, cont'd

- Nominal ALDAs now available.
- Modest sales so far.

Annuity product innovations, cont'd

The Life Care Annuity

Warshawsky, Murtaugh, and Spillman (2001)

- Pays out more if in long-term care.
- Launched 2001 – only modest sales.

Annuity product innovations, cont'd

Aggregate mortality risk sharing

- Insurers typically reinsure aggregate mortality risk.
- Transfer to capital markets may be preferable
 - Dowd (2003), Smetters (2004).

Annuity product innovations, cont'd

Aggregate mortality risk sharing, cont'd

- Longevity bonds?
- Mortality derivatives.
- Participating annuities – Piggott, Valdez, and Detzel (2005), Brown and Orszag (2006).

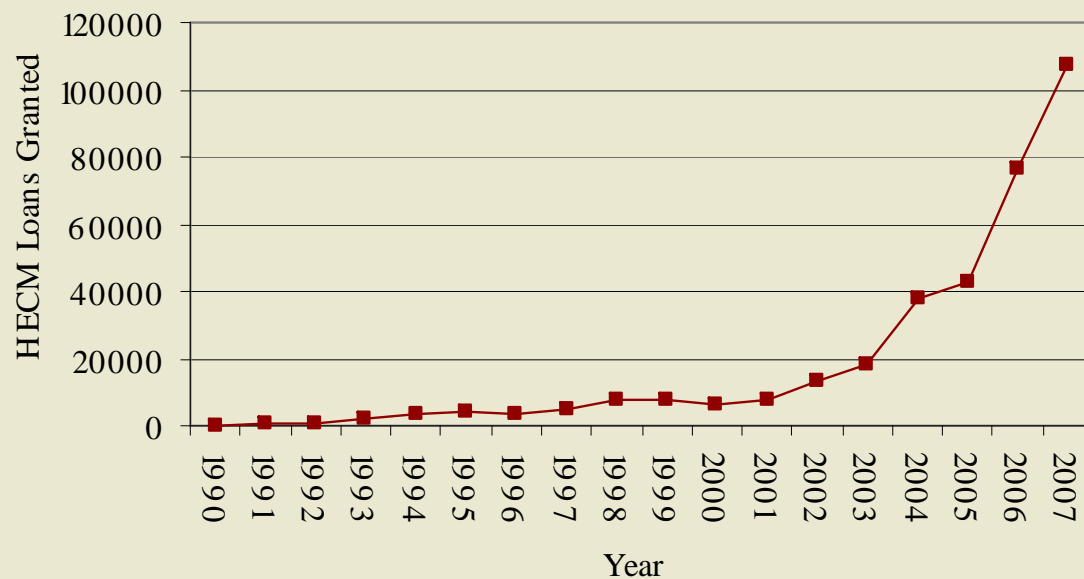
Annuity product innovations, cont'd

Reverse mortgages

- Enable households to consume the eventual sale proceeds of their home, while continuing to live in it.

Annuity product innovations, cont'd

Sales of reverse mortgages



Source: National Reverse Mortgage Lenders Association/U.S. Department of Housing and Urban Development, Fiscal Year October 1 - September 30.

Annuity product innovations, cont'd

Reverse mortgages, cont'd

- Proceeds can be taken as a lifetime income.
- This option is rarely chosen.
- Why? Annuity aversion/specific needs.

Policy options for increasing annuitization rates

Mandatory annuitization not on the agenda.

Experience of the United Kingdom.

Defaults?

Policy options for increasing annuitization rates, cont'd

Defaults

- Used successfully with 401(k) enrollment.
- But important differences.

Policy options for increasing annuitization rates, cont'd

Issues with defaults

- Irreversibility.
- How much and when.
- What kind of default – single vs. joint, nominal vs. inflation, indexed vs. variable.

Duty to:

- Obtain most competitive rate?
- Investigate financial strength of insurer.
- Unisex vs. gender specific rates.