THE ANNUITY MARKET IN AN EVOLVING PENSION SYSTEM: THE CASE OF ITALY

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Plan of the talk

1) **Motivation: the evolving pension landscape**

2) **The market for annuities in Italy: an overview**

4) **The prices of Italian annuities: a survey**

5) **The prices of Italian annuities: money's worth ratio calculations**

6) **Policy implications**

Motivation: an evolving pension landscape

- **Pension reforms in the nineties (Amato 1992, Dini 1995) significantly cut public pension debt (by about 1/3!)**

  Financial sustainability improved, there are however concerns for pension adequacy. In the 2011-2050 period:
    - **the ratio between average pension and average wage will go down by 30%**
    - **the ratio between the last wage and the first pension will go down from 0.7 to 0.5**

- **The second and third pension pillars are (slowly) taking-off.**

  Reforms have been implemented aimed at:
    - **increasing participation (automatic enrolment, tax incentives)**
    - **improve pension fund governance**
    - **increasing annuitization of pension wealth at retirement**

The Italian annuity market: an overview

At present, the market is quite thin

- No extensive data on single premium annuities, but they are few

- Deferred annuities actually in payment are about 15.000

- In the 2003-05 period, 1.940.000 deferred annuity contracts became due: 99% were paid as a lump sum

However, in a few years' time the market is expected to take-off

- Are actual practices and regulations adequate?

- Annuity prices can be informative in this respect
    - In part they can also explain today's thinness

The price of annuities: determinants

Annuity prices are influenced by:

- **Adverse selection costs:** annuitants have a longer-than-average lifespan
  - Mortality tables used by insurance companies take this into account

- **Longevity risk premium**
  - insurers are able to diversify away **idiosyncratic** longevity risk
    (the risk that a given individual lives longer than his cohort's average)
  - but they have to bear **aggregate** longevity risk
    (the risk that a cohort lives, on average, more than it was expected ex ante)

- **Administrative costs and profit margins**

A measure of the price of annuities

- We use the **money's worth ratio (MWR)**, popularized by Mitchell et al. (1999)

- It is **the ratio** between the **NPV of the annuity payments** - discounted with expected market interest rates and expected mortality rates – and the premium paid by the client to the insurance company

$$MWR = \frac{\sum_{t=0}^{T} A(t)\, p(t)\, R(t)}{P}$$

$$R(t) = \prod_{s=1}^{t} 1/(1 + r(s))$$

$$p(t) = \prod_{s=0}^{t} (1 - q(s))$$

A survey of Italian prices

- **In January 2008, we asked contract conditions to 10 major annuity providers (together, they make up most of the market)**

- **To each company we asked the monthly payment granted by:**
  - **a single-premium, immediate, variable annuity**
  - **for a 65 y. o. man**
  - **with a premium equal to 100.000/200.000/400.000 euros**
  - **with and without reversibility in favour of the annuitant's spouse**

- **Products sold on the Italian market share same peculiarities**
  - **the rate of increase of monthly benefits is equal to the minimum between 0 and the return of a portfolio of assets (*gestione separata*), net of fees and minus a notional rate of return (*tasso tecnico*), which is already embedded in the first-period payment**

How to compute the MWR

$$MWR = \frac{\sum_{t=0}^{T} A(t)\, p(t)\, R(t)}{P}$$

$$R(t) = \prod_{s=1}^{t} 1/(1 + r(s))$$

$$p(t) = \prod_{s=0}^{t} (1 - q(s))$$

• **Our survey provides the first payment A(1) and the premium P**

• **To compute [A(s)-A(s-1)]/A(s-1), p(s), r(s), we need to make some assumptions**

How to compute the MWR (2)

- **Assumptions on the rate of return of the underlying portfolio (*gestione separata*)**

  - equal to the expected return on Treasury bonds +
    difference between the average observed return of *gestione separata*
    and Treasury bonds (last 5 years; about 50 b. p.)

- **Assumptions on expected interest rates**

  - Expected Treasury bonds rate, as implicit in the term structure as of January 2008
  - Expected corporate bonds rate the expected return on Treasury bonds+ difference between the average observed return on insurance companies' bonds and Treasury bonds (last 8 years; about 65 b.p.)

How to compute the MWR (3)

- **Assumptions on mortality rates**

  - Official projections (ISTAT, 2002), for the 2001-2051 period, for the whole Italian population
    - It is a "cohort" life table: mortality rates are not only a function of age (as in a "period" life table), but also on the date of birth.

  - IPS55 life table, based on the above-mentioned official projections, takes adverse selection into account.

  - Difference between IPS55-based MWR and the ISTAT-based MWR measures the importance of the adverse selection problem (Mitchell et al., 1999)
    - in 2007 the expected lifespan for a 65 y. o. male was 18 years in the population as a whole, 21 years in the annuitants' subgroup

How to compute the MWR (4)

Sensitivity analysis

- To check the robustness of our results we also use

  - the **RG48 life table**, built by the national association of insurers (ANIA). It was used by companies before the adoption of IPS55. It corrects for adverse selection.

  - The **still unpublished life table** built by *Nucleo di osservazione   sulla durata di vita dei percettori di rendite* (ANIA). **It will replace IPS55.**
    - It is the first one that, in order to control for adverse selection, uses **data from the Italian population of annuitants** (the other tables use data form the British population of annuitants)

Lifetables: a comparison
(100Xq(x))

Età	RG48	IPS55	ANIA 2008	ISTAT	Età	RG48	IPS55	ANIA 2008	ISTAT
65	0.73	0.71	0.84	1.56	88	12.09	9.34	9.18	10.24
66	0.82	0.79	0.90	1.69	89	13.53	10.42	10.10	11.27
67	0.92	0.88	1.02	1.84	90	14.94	11.62	11.18	12.33
68	1.04	0.98	1.11	1.98	91	17.19	13.05	12.36	13.61
69	1.17	1.10	1.26	2.14	92	19.59	14.62	13.63	14.94
70	1.33	1.22	1.42	2.32	93	22.14	16.34	15.01	16.36
71	1.49	1.35	1.50	2.51	94	24.84	18.32	16.49	17.89
72	1.67	1.47	1.71	2.71	95	27.70	20.36	18.18	19.62
73	1.88	1.62	1.92	2.92	96	29.82	22.56	20.00	21.50
74	2.12	1.79	2.13	3.13	97	31.97	24.95	21.94	23.50
75	2.40	2.03	2.56	3.37	98	34.15	27.49	24.00	25.63
76	2.71	2.32	2.67	3.65	99	36.37	30.20	26.18	27.86
77	3.06	2.68	2.95	4.00	100	38.61	32.66	28.49	30.20
78	3.44	3.08	3.32	4.43	101	40.56	35.35	30.91	32.66
79	3.85	3.49	3.56	4.89	102	42.51	38.14	33.45	35.35
80	4.30	3.91	4.11	5.34	103	44.46	40.98	36.10	38.14
81	4.90	4.33	4.43	5.77	104	46.41	43.86	38.85	40.98
82	5.59	4.77	5.01	6.19	105	48.35	46.75	41.70	43.86
83	6.37	5.36	5.34	6.66	106	50.30	49.64	44.64	46.75
84	7.25	5.94	6.32	7.22	107	52.25	52.51	47.65	49.64
85	8.26	6.66	6.84	7.87	108	54.20	55.34	50.73	52.51
86	9.41	7.43	7.55	8.59	109	56.15	58.11	53.86	55.34
87	10.70	8.31	8.33	9.33	110	.	.	57.03	58.11

Survey data

Initial payment in exchange of a premium P=200.000 (euros)

Company	Monthly payment	
	No reversibility	Full reversibility
A	902	679
B	924	681
C	934	683
D	939	703
E	940	684
F	958	706
G	962	691
H	969	714
I	1.003	734
L	1.040	761
Average	*957*	*704*

Results (1)

- with **population life table**, average MWR is equal to **77%** (min=71%, max=84%)

- with **annuitants' life table** (IPS55), MWR is equal to 87% (min= 81%, max=95%)

- the difference between the two (**10 p. p.**) captures **adverse selection costs**

- the **residual** (13 p. p.) captures administrative costs, fees, profit margin, aggregate longevity risk premium

Results (2)

Sensitivity analysis

Ipotesi di calcolo	Rendita Media	Moneys' Worth Rate (2)			
		ISTAT	RG48	IPS55	ANIA 2008
Rendita rivalutata al rendimento della gestione e scontata ai tassi impliciti nella curva dei titoli di Stato	957	**0,77**	0,83	**0,87**	0,86
Rendita rivalutata al rendimento della gestione e scontata ai tassi *corporate*	957	0,72	0,78	**0,82**	0,80
Rendita costante e scontata al 2% (tasso tecnico)	957	0,81	0,88	**0,92**	0,90
Vita media attesa di un 65-enne (anni)	-	*18.3*	*19.9*	*21.1*	*20.7*

Results (3)

To sum up:

1) **Italian private annuities are quite expensive in a comparative perspective**

2) **Adverse selection costs are significant, but in line with what observed in other countries**

MWR in selected countries

Study	UK		US		Canada		Australia		Switzerland		Germany		Chile	
	Pop	Ann	Pop	Ann	Pop	Ann	Pop	Ann	Pop	Ann	Pop	Ann	Pop	Ann
Cannon-Tonks (2004)	95,6	98,5												
Finkelstein-Poterba (2002)	86,5	98,8												
Mitchell et al. (1999)			81,4	92,7										
James-Song (2001)	91,2	98,3	85,8	97,4	91,4	98,1	91,1	101,0	91,6	108,2				
von Gaudeker-Weber											88,7	98,0		
Thorburn et al. (2007)														106,7

Note: without reversibility, for a 65 y.o. man; computed using the risk-free rates

Some caveats

- Not taking the value of the **minimum return guarantee** into account could bias the results, but **unlikely to be quantitatively important**

- **Do high prices explain today's lack of demand?**

    - There might be other factors. Some are common to all countries (cognitive biases, behavioural biases, lack of information, lack of financial education)
    - Other factors are specific to Italy, e.g.: a big public PAYG pillar crowds out the market (some categories might actually be over-annuitized)

Policy implications

- **Results show that there is significant room for improvement. Both the State and the insurance industry have a long to-do list.**

- **Insurance companies should offer:**

  - **more simple, transparent, cost-effective products**
  - **inflation-indexed, escalating annuities**
  - **products targeted at specific subgroups (so called enhanced annuities)**

- **The State should:**

  - **Guarantee increased transparency with respect to prices and other product characteristics (as in the UK or in Chile)**

  - **Promote the adoption of accurate, up-to-date life tables, and the release of mortality estimates for particular subgroups in the population (e.g. smokers)**

Policy implications (2)

- **The State could also:**

  - Reconsider **debt management policy,** to help companies in managing aggregate longevity risk: issue more **very long term bonds, inflation-indexed bonds,** maybe **longevity bonds.**

  - Introduce **more stringent annuitization requirements** (at present, the retiree can cash as a lump sum up to 50% of her/his pension capital)

  - **The relative importance of the market and the public sector in the pension pay-out phase could be reconsidered**

There are countries (e.g. Sweden), in which the public sector is the monopoly provider of annuities, even if the private sector has a role in the accumulation phase.

Aside: the State as an annuity provider

- **One could compute social security's MWR (Geanakoplos et al., 2000)**
  - as before, the numerator is the NPV of benefits discounted to take death probability into account
  - the denominator (the price) is given by the NPV of past contributions over the worker's career

- However, Social security has both an accumulation and a de-cumulation component

- Given the rules of the Italian public pension system (NDC), **it is possible to compute separately the MWR of the annuity component. It is about equal to 100%.** It goes down to 86% using the new "transformation coefficients" (to be adopted starting from 2010): still **quite higher than private annuities**

- Moreover, Social security offers an inflation-indexed annuity!