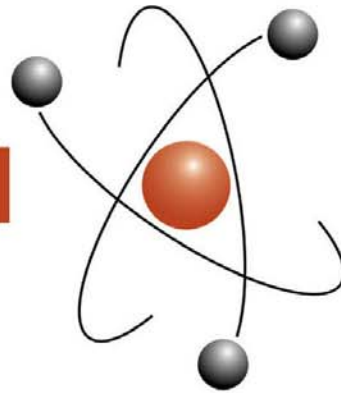


**S U S T A I N**



**A B I L I T Y**

**ACTUARIES AND THE FUTURE**

# **The Major Actuarial Challenges: A partly idiosyncratic view**

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## Outline

- **Credo**
- **Knowing our business**
- **Market challenges**
  - **Idiosyncratic risks**
  - **Market risks**
  - **By-products**
- **Professional challenges**
  - **Education**
  - **Personal**



## Credo

- **The social function of the actuarial profession is to meet people's need for financial security**
- **This is our business ...**
- **This is our calling ...**

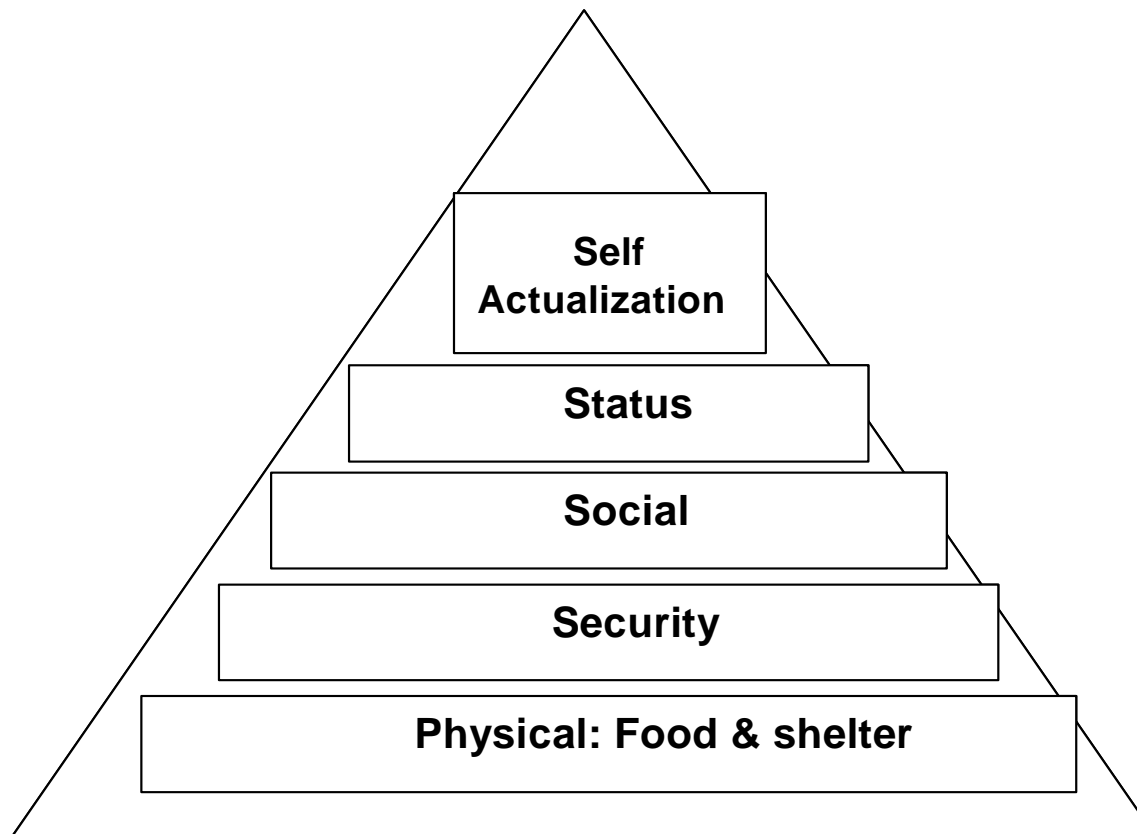


## Challenge 1: Know our business

- **What basic needs are we meeting?**
- **How do people earn and spend their money and time?**
- **What risks do they face?**
- **What actuarial products should they buy?**



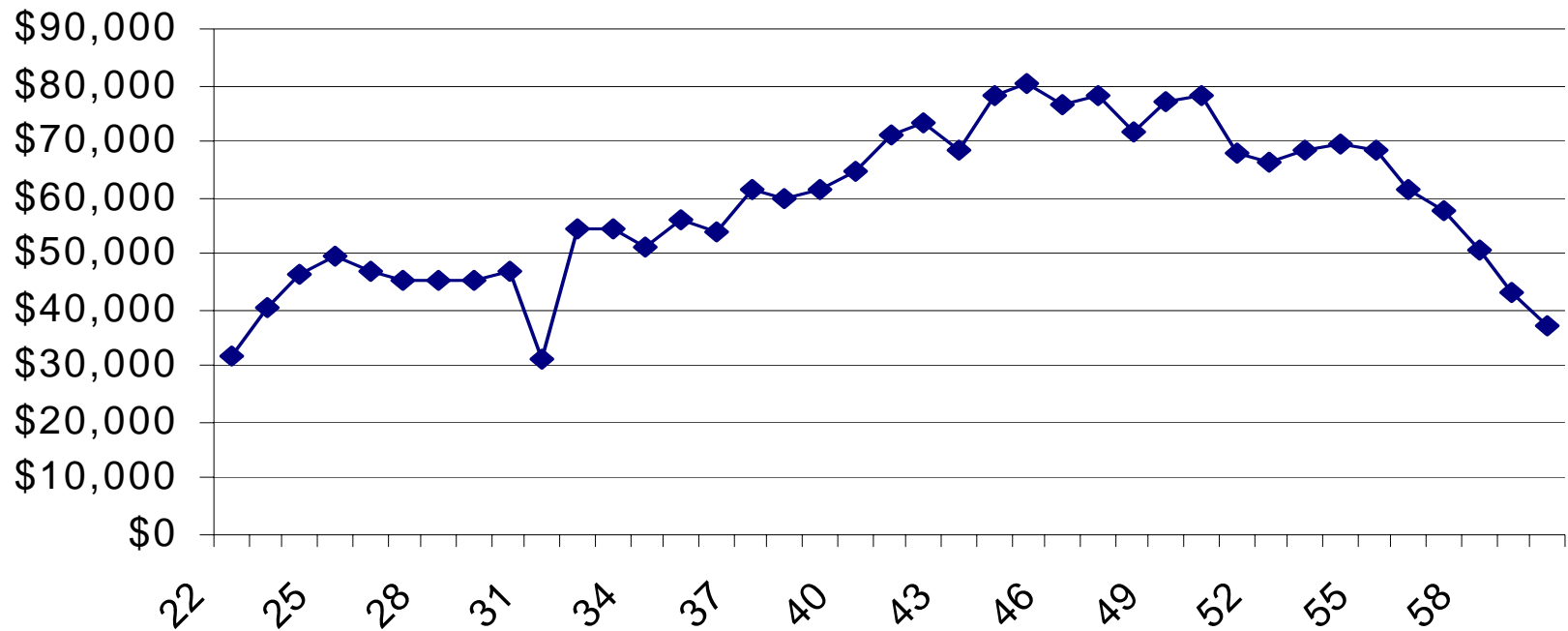
# Maslow's hierarchy of needs





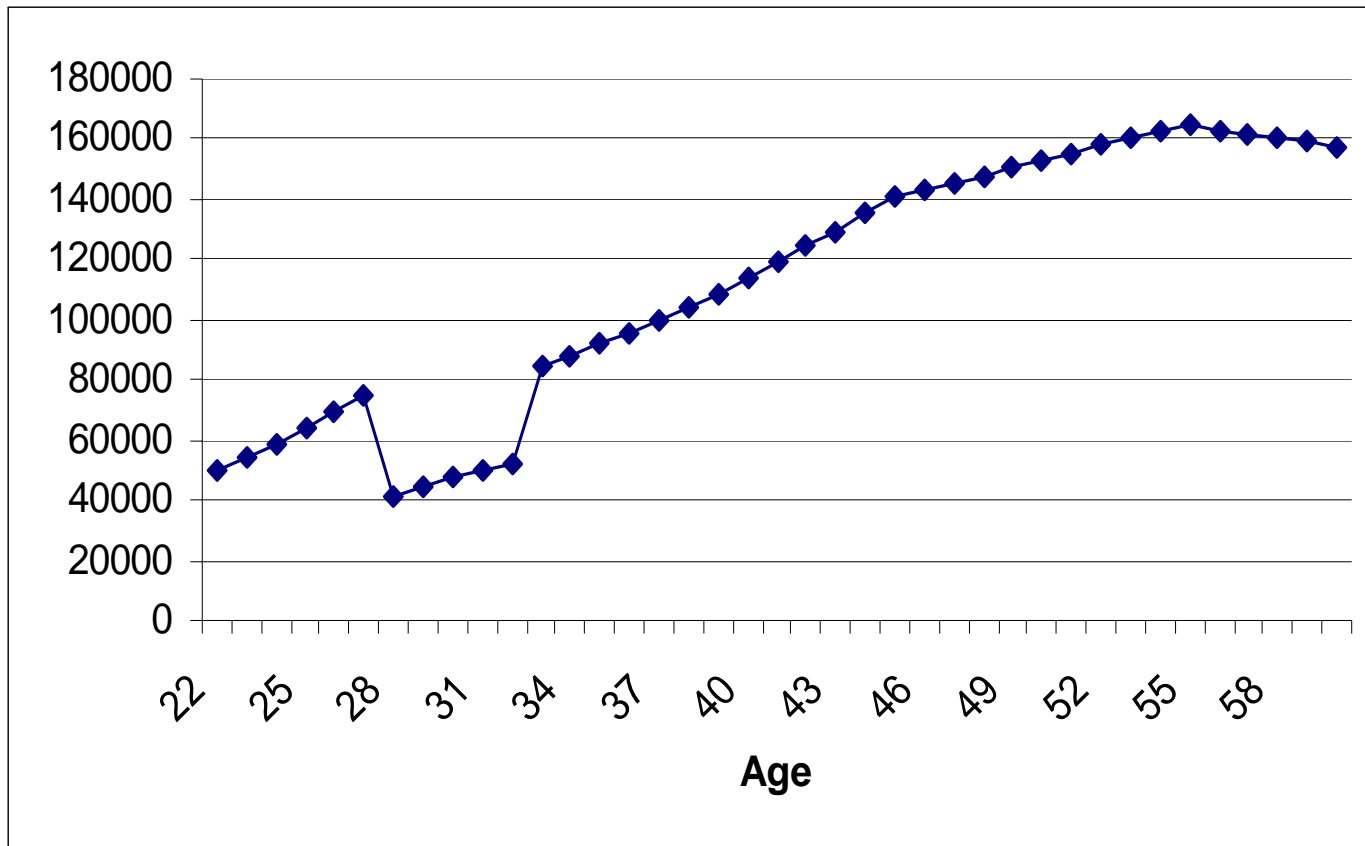
# Typical manual income

Lower income couple annual net income



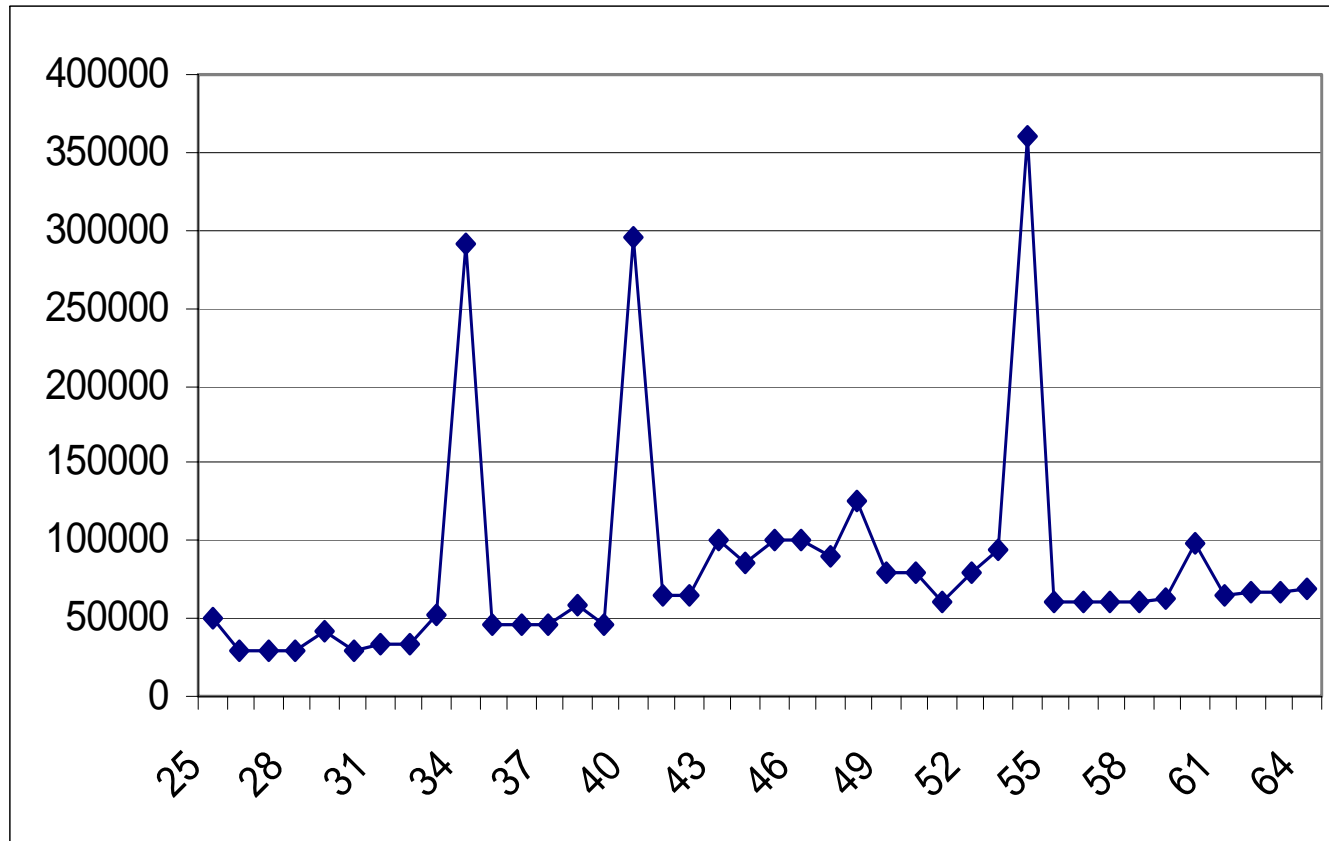


# Typical educated income





# Typical spending pattern







# Savings over the lifespan

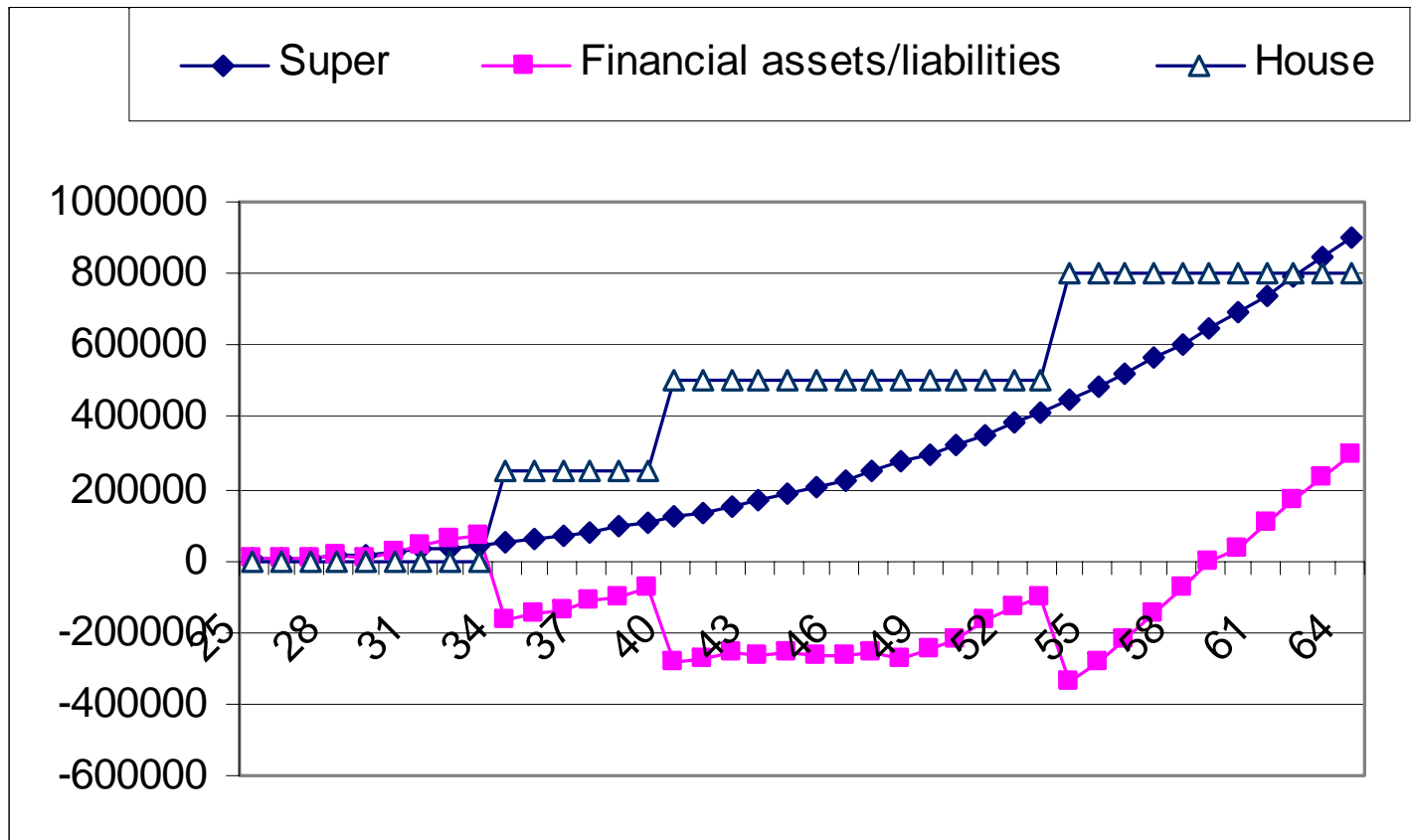




TABLE 5: Time allocations\* by household type

Household Type	Life cycle phase	Male hours of work			Female hours of work		
		Market	Domestic	Total	Market	Domestic	Total
I&II	1	2314	554	2972	1811	1014	2285
I	2	2359	1369	3775	15	4103	4118
	3	2394	1358	3859	111	3664	3762
	4	2415	1185	3600	355	3170	3525
	5	2362	817	3179	504	2393	2897
	6	2367	815	3182	670	1781	2451
	7	1862	1093	2955	0	2026	2026
	II	2	2432	1464	3943	1378	2908
3		2478	1306	3784	1615	2679	4291
4		2464	1095	3559	1915	2285	4200
5		2527	856	3383	2120	1753	3873
6		2369	958	3327	2217	1568	3785
7		2062	1083	3145	1202	1458	2660
I&II		8	0	1458	1458	0	1750

\* Weighted data means, hours pa. Source: Patricia Apps & Ray Rees (2004)

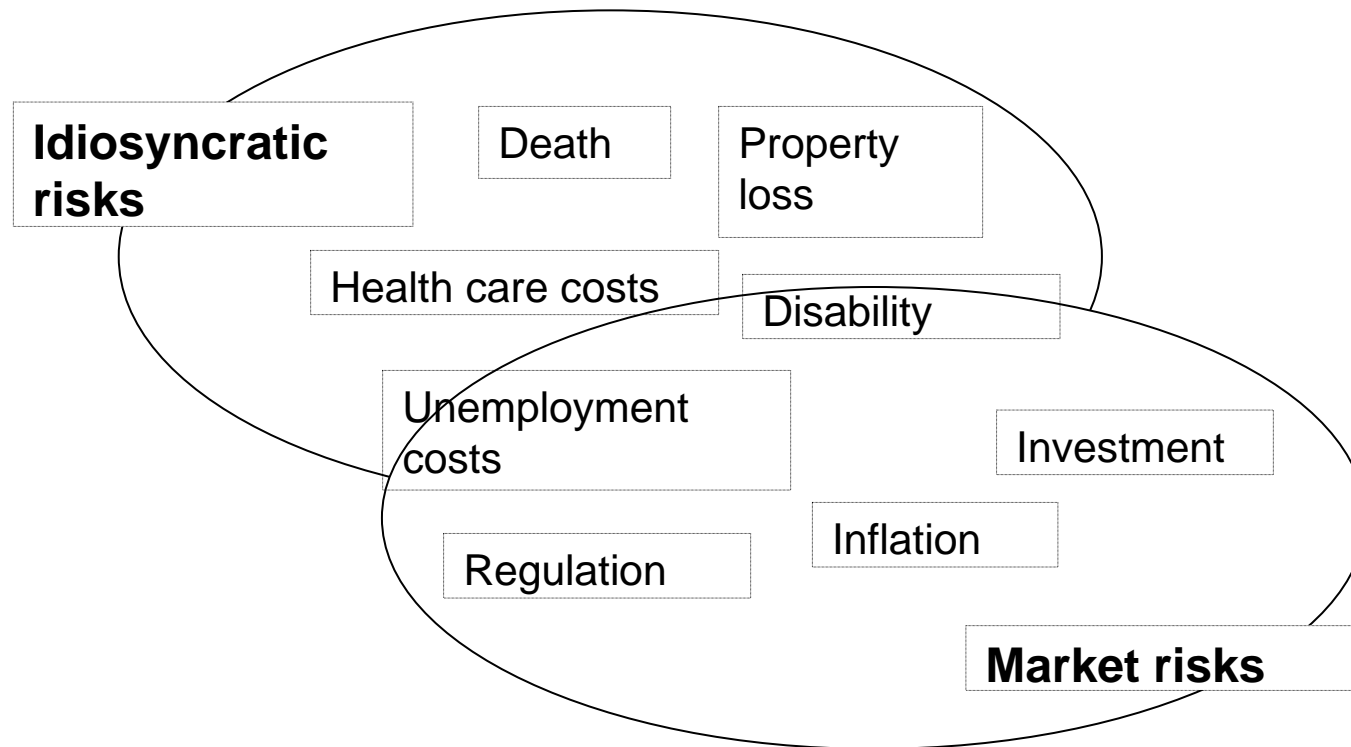


TABLE 2 Comparable living standards (3.4.3 in Dunsford and Ho, 2003)

	Couple with dependent children (\$'000s)	Couple as "empty nesters" (\$'000s)	Couple retired (\$'000s)
Total Gross Income			
Earnings	75.2	75.2	0.0
Pensions	0.0	0.0	37.6
Income Support	2.1	0.0	0.0
Total Gross Income	77.3	75.2	37.6
Less			
Income Tax	16.3	16.3	0.0
Voluntary Super Contributions	0.0	7.5	0.0
Housing Costs	15.7	15.7	2.7
"Discretionary" Income	45.3	35.7	34.9
<b>"Modest but Adequate" living standards benchmark</b>			
Cost of 2 adults	21.2	21.2	21.2
Cost of working	2.3	0.0	0.0
Cost of children	15.6	0.0	0.0
Benchmark	39.1	23.5	21.2
Living Standards Index	1.16	1.52	1.65

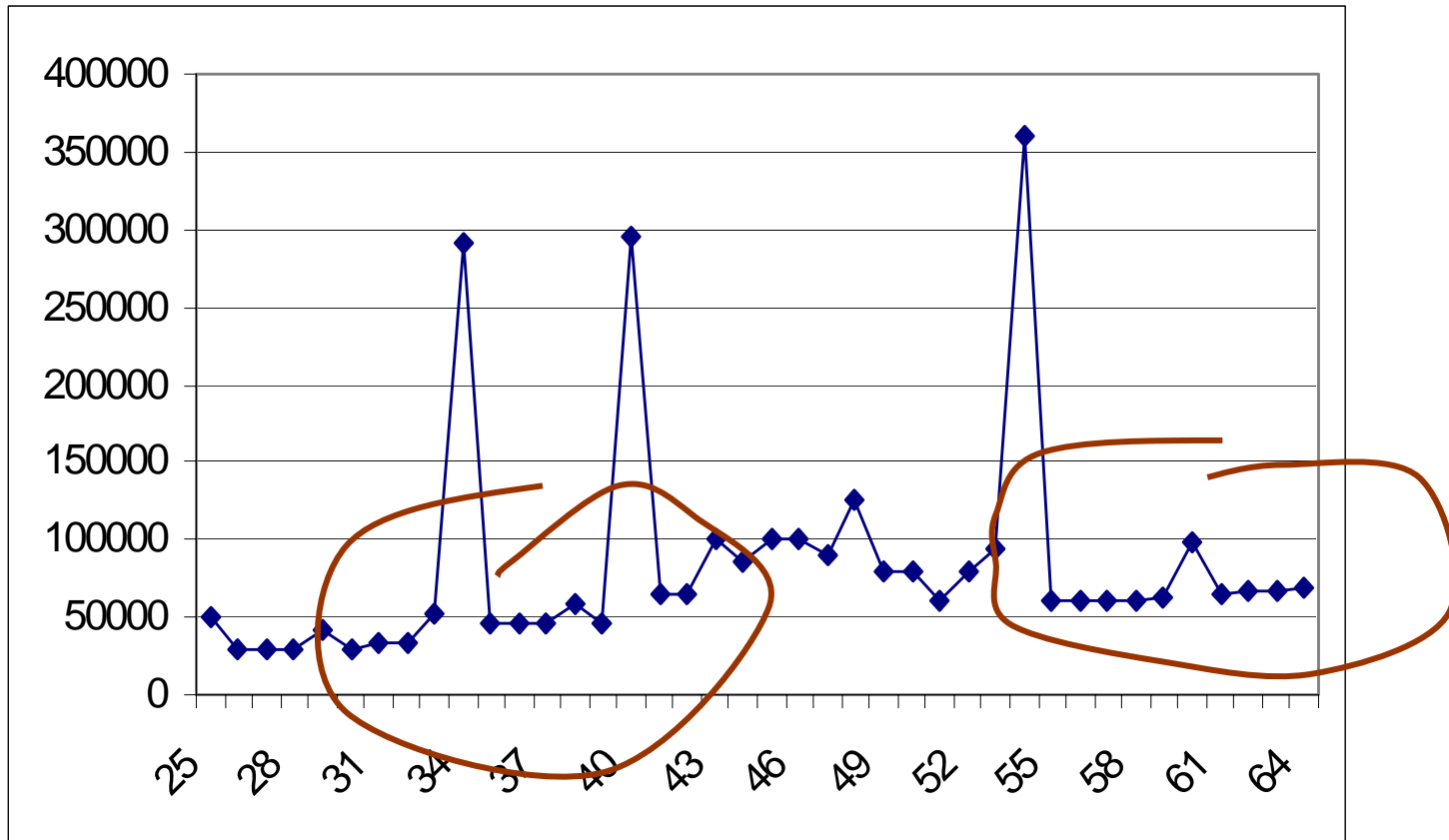


# What risks do people face?





# Early liquidity constraints





## Challenge 2a: Idiosyncratic risks

### *Early adult issues*

- **Insurance – product & distribution**
  - death
  - disability
  - property - especially catastrophes
  - health



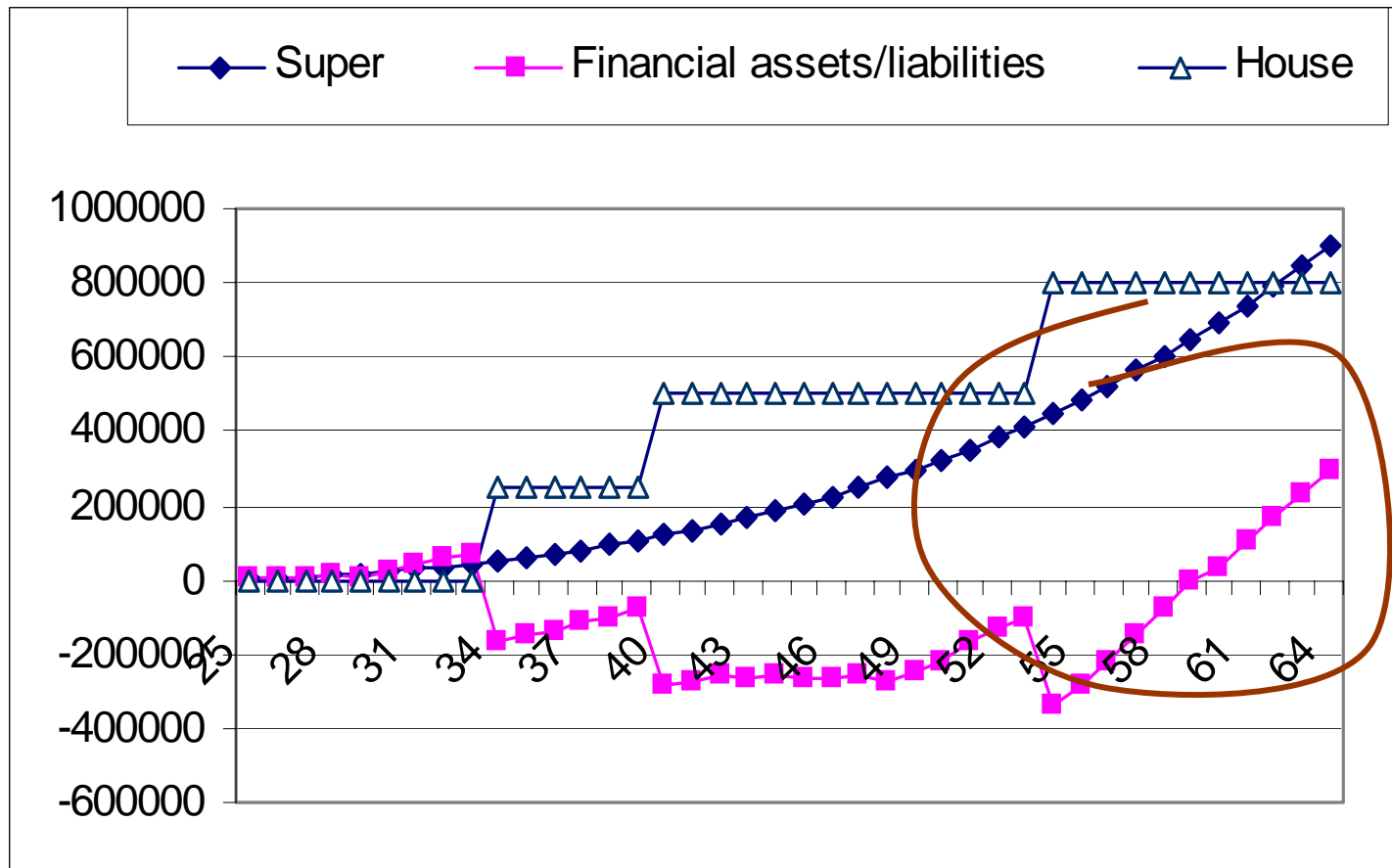
## Challenge 2b: Idiosyncratic risks

### *Later adult risks*

- **Disability / impaired life annuities**
- **Annuitization**
- **Reverse mortgages**
- **Long term care**



# Savings – pre retirement







## Challenge 2c: Idiosyncratic risks

### *Publicly born costs*

- **Education**
  - Rights, commerce and community
- **Medical expenses**
  - Rights and commerce
  - Budgeting
- **Frail care**



## Challenge 3: Market risks

- **Income futures**
- **Income linked financing**
  - **Education and housing**
  - **Cash flows or returns**
- **Unemployment insurance**
- **Enhance labour mobility**
  - **Labour market information**
  - **Employee benefits**



## Challenge 4a: Justice



- **Blind to vested interests**
  - **Listens to all sides**
  - **Horizontal and Vertical Equity**
- **Weighs up desert, need, freedoms, efficiency**
- **Bears the sword of state - treats all without fear**



# Challenge 4b: Justice

	<i>Desert</i>	<i>Efficiency &amp; Prosperity</i>	<i>Equality &amp; Need</i>	<i>Completely Free Markets</i>
<i>Pure Interest</i>	Capital	Capital	Related Poor	Capital
<i>Risk Premium</i>	Risk Bearer	Risk Bearer	Related Poor or Government	Capital
<i><u>Innovation:</u> Genius</i> ----- <i>Institutional</i>	Entrepreneur ----- Capital	Entrepreneur ----- Capital	Everyone	Everyone
<i><u>Rent:</u> Natural</i> ----- <i>Monopoly</i>	Everyone ----- Customer	Capital ----- Everyone	Everyone	Tightest organised



## **Challenge 4c: Justice**

**Underwriting – social exclusion**

**Tax and means tests**

**Defending the powerless**

- Widows and orphans**
- Excluded homeowners & the gerontocracy**
- Torts**



## Challenge 5: Funding pensions

*How do we find and apply capital?*

- **GDP analysis**
  - Wages 70: profits 15: depreciation 15.
- **Demographic analysis**
  - Pensioners 15%
  - Total retirement assets – 4 x 70%
- **Creating new assets?**



## **Challenge 6a: Feast or famine?**

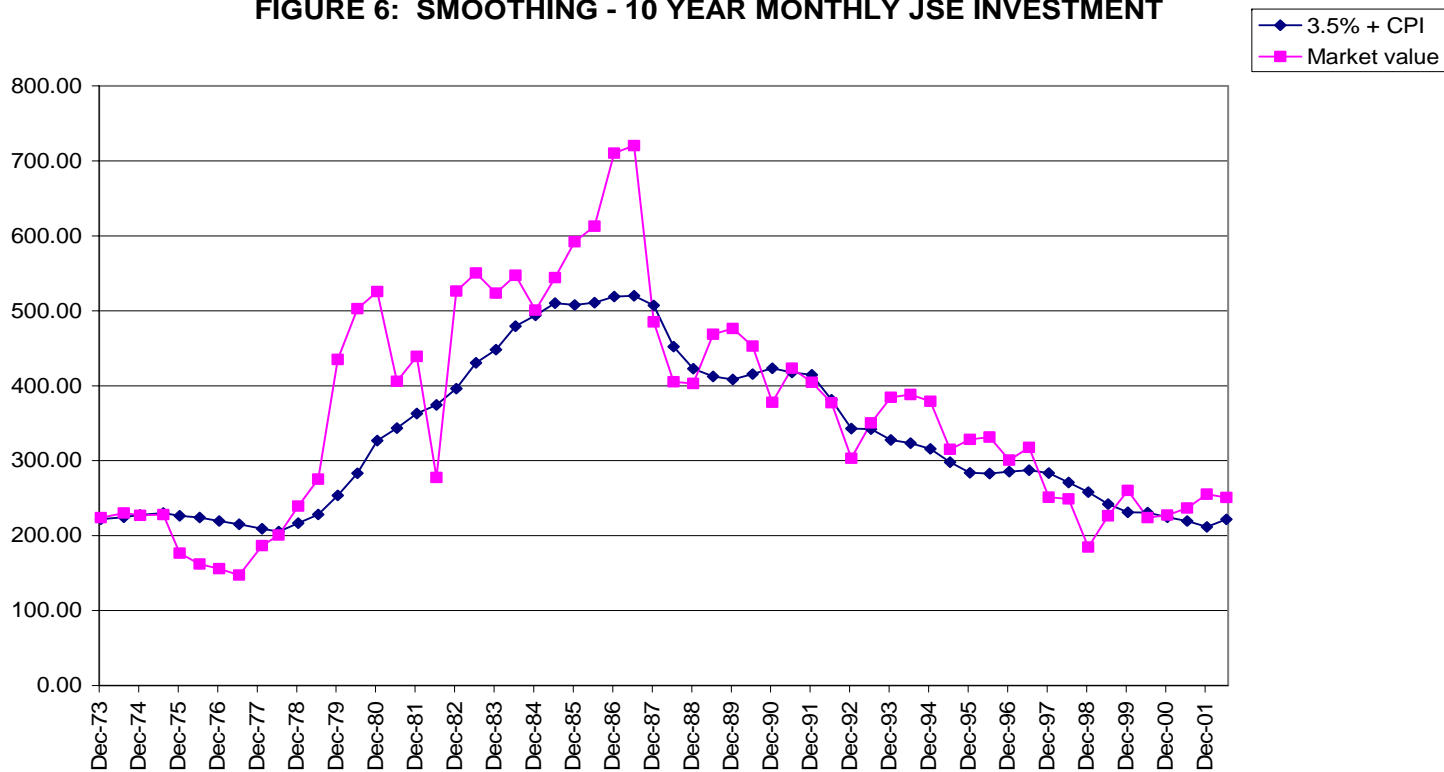
***How do we manage universal market and consumption risks?***

- **Smoothing short term fluctuations**
- **Sharing long term prosperity and pain**
- **New products and institutions**
  - **Smoothing**
  - **Profit and productivity sharing**
- **Ecological disasters?**



# Challenge 6b: Smoothing

FIGURE 6: SMOOTHING - 10 YEAR MONTHLY JSE INVESTMENT







# Challenge 7a: Investment market failure

- **Asset price bubbles**
  - Demand / supply imbalances
  - Superstition and statistical education
  - Market paradox: ineffective faith
  - Procyclicality (mean reversion)
- **Prospective accounting**



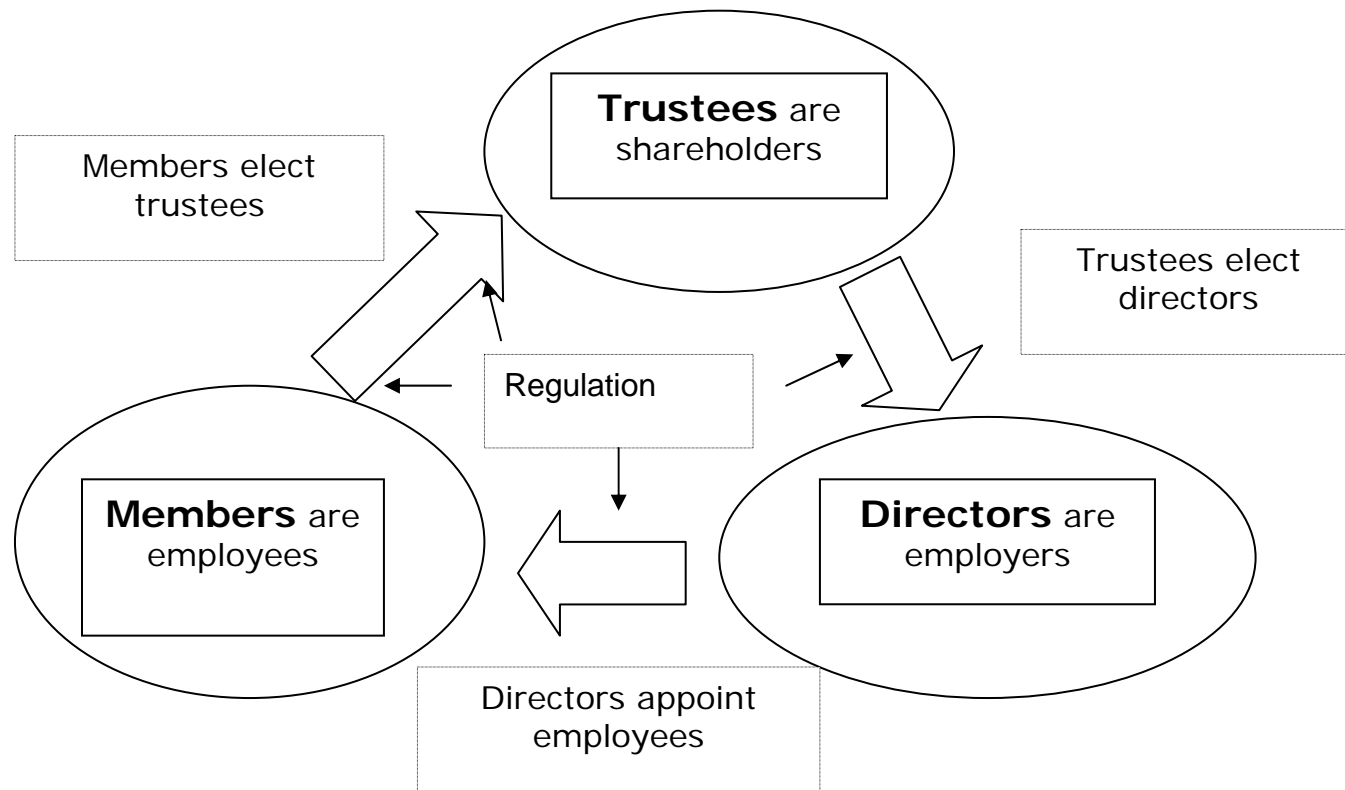
## Challenge 7b: Capital governance

*How do we control the capital?*

- **Agency risks**
  - CEO over-remuneration
  - Trustee duties
- **Structures of accountability**



# Circle of accountability





## Challenge 8: Institutional risks

- **International actuarial computing language**
- **Data management protocols**
- **Decent data for sensible modelling**
- **Virtue**
  - **Integrity**
  - **Prudence**
  - **Courage**



## Challenge 9: Professional Education

- **Maintaining standards**
- **Lifelong learning**
- **Development of virtue**



Table 3: Erikson's psychological stages

<b>Ages</b>	<b>Psychological Crises</b>	<b>Virtue</b>	<b>Significant Relations</b>
Until 2	Basic trust vs. Mistrust	Hope	Mother
2/3	Physical Autonomy vs. Shame and doubt	Will	Father
3-5	Initiative vs. Guilt	Purpose	Family
6-12	Industry vs. Inferiority	Competence	School
13-18	Identity vs. Identity confusion	Fidelity	Peer groups and out groups
19-35	Intimacy vs. Isolation	Love	Partners, friends and colleagues
36-65	Generativity vs. Stagnation	Care	Work and home
Over 65	Integrity vs. Despair	Wisdom	Humankind



## Challenge 10: Personal

***What do you want to be remembered for?***