



Quantitative **Strategies**

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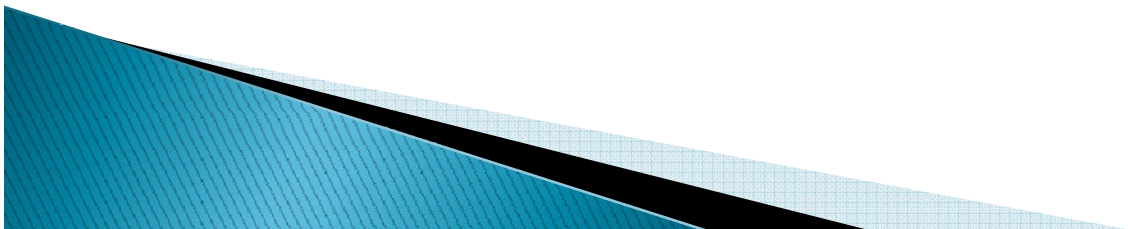
Changing Risks, Expecting the Unexpected

17th Global Conference of Actuaries & 2015 AGFA

2nd & 3rd February, 2015 Mumbai - India

Problem! What problem?:

An heretical perspective on the ageing population



What's the problem?

► Who's funding?

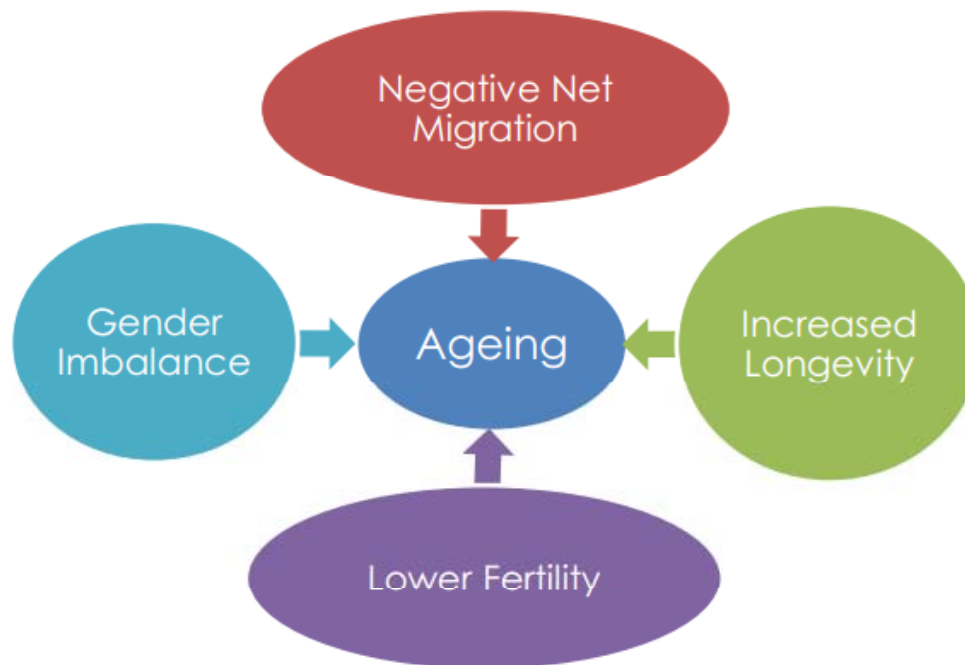
Unless action is taken to increase the growth potential of the economy and ensure spending is sustainable, spending will exceed revenue and result in a fiscal gap of 2¾ per cent of GDP by 2049–50.

If steps were not taken to close the fiscal gap over time, it is projected that net debt will emerge in the 2040s and grow to around 20 per cent of GDP by 2049–50. Acting now to address fiscal pressures posed by ageing will minimise the fiscal adjustments required in the future.

From a colleague:



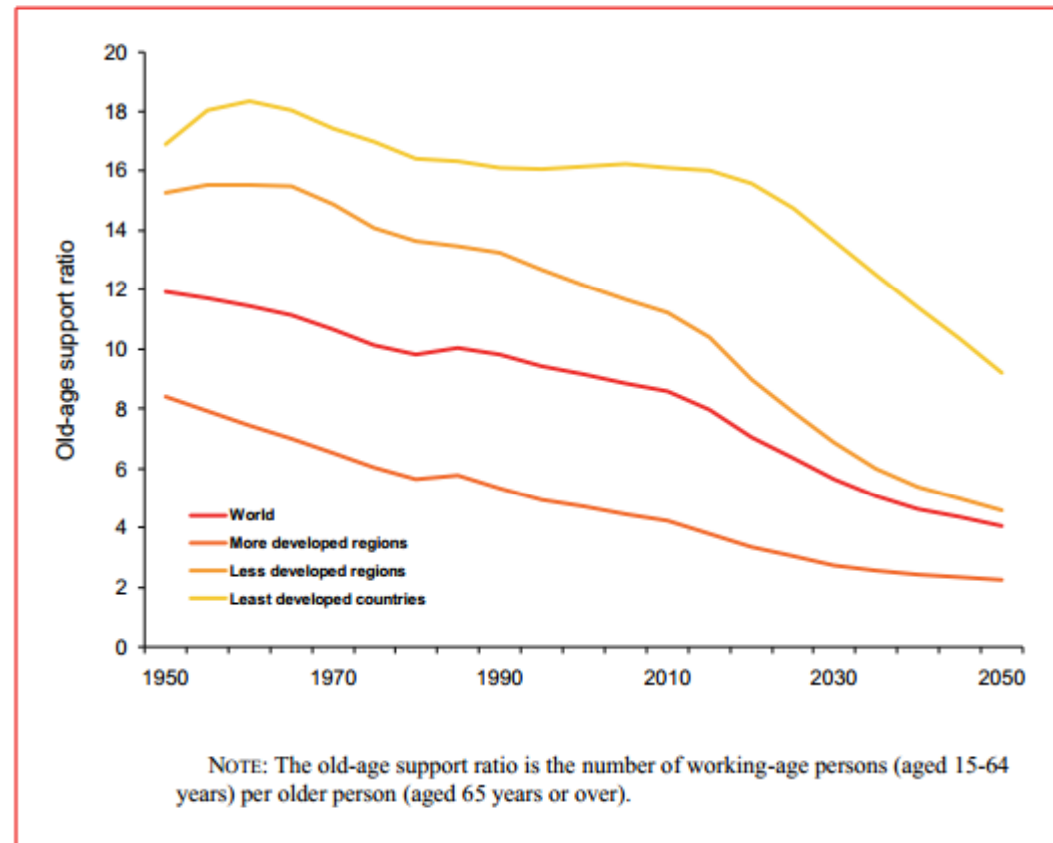
2. Population Ageing – A multi-waved tsunami



- *tsunami* is a loaded word

And the UN is onto it!

Figure 2.6
Old-age support ratio: world and development regions, 1950-2050



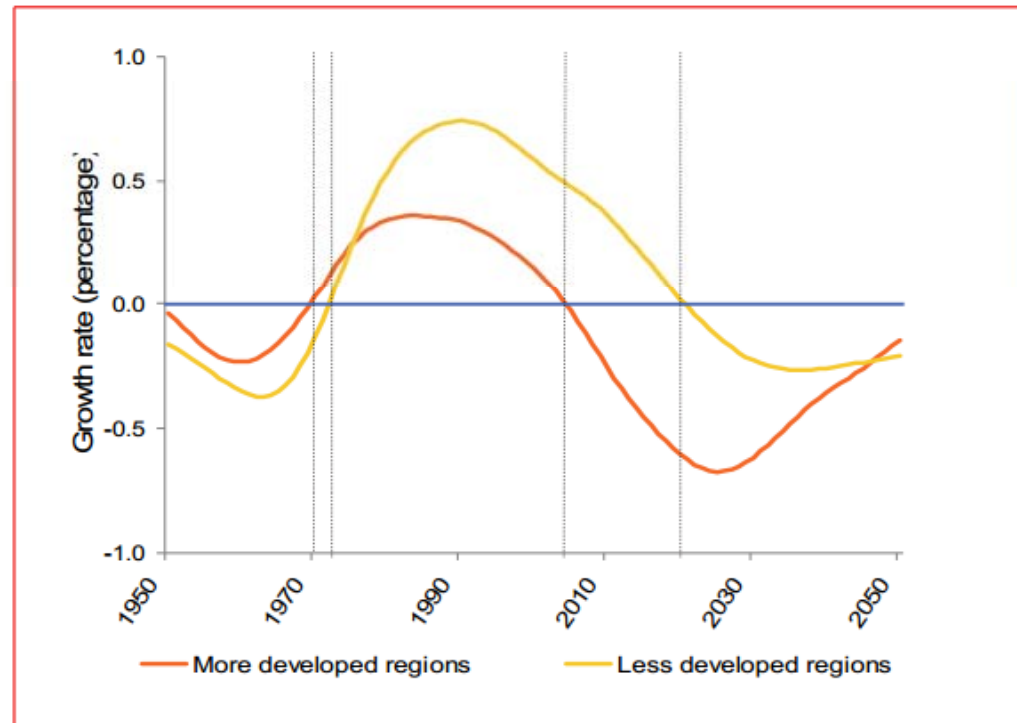
Source: UN World Population Ageing 2013

Shock! “Negative economic dividend”

- ▶ *Dividend* is another loaded word

Figure 2.10 shows the projected demographic dividend, that is, the difference between the growth rates of equivalent producers and consumers induced by demographic change alone. Values above zero reflect positive economic growth, while values below zero indicate a “negative dividend”, that is, a period during which demographic change is contributing to a reduction in economic growth, all things being equal.

Figure 2.10
Demographic dividend (demographically induced economic growth rates) by development region, 1950-2050



China: Old before it gets rich

Demography

China's Achilles heel

A comparison with America reveals a deep flaw in China's model of growth

Apr 21st 2012 | From the print edition



2.8k



613

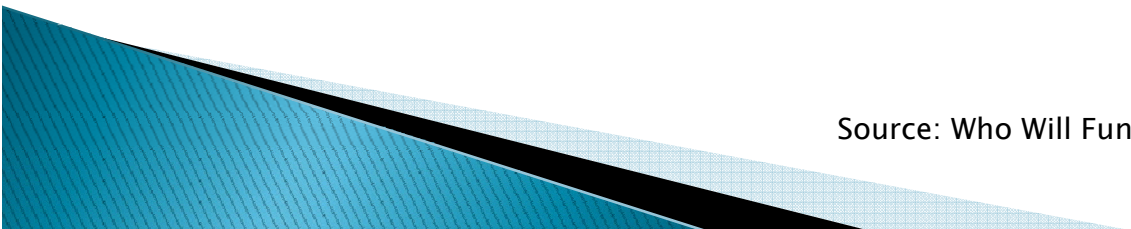


Source: The Economist

Health costs rise!

Our population is predicted to live significantly longer and forecasts indicate that spending on health care across all levels of government is expected to grow from 6.5% to 10.8% of GDP over the next 50 years.

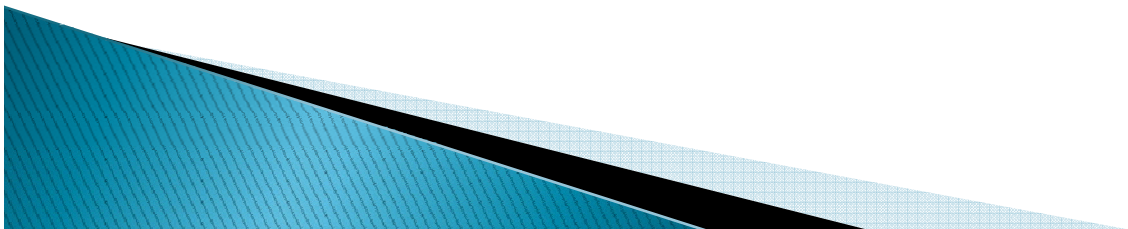
Some intergenerational cross subsidy is an inevitable part of our health care system (as it is with other services) but the cost on the working population through taxation needs to be addressed in order to protect the quality of Australia's health care services and system.



Source: Who Will Fund Our Health 2014 – Institute Actuaries (Aust)

Talking “money” is the problem

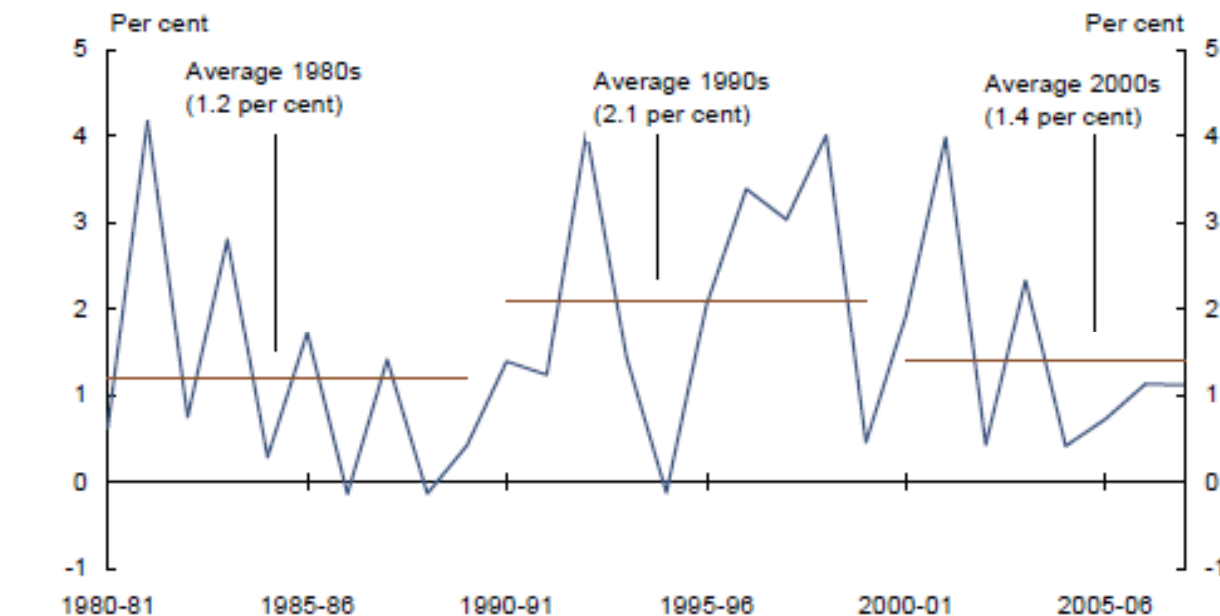
- ▶ Primary questions shouldn't be about finance
- ▶ **Primary:** can we produce and distribute the goods and services to meet projected demand?
 - **Secondary:** can we distribute money to facilitate the efficient production and distribution of goods and services



Australian Productivity

- ▶ Projected at 1.6% next 40 years

Chart 1.9: Labour productivity growth
Real GDP per hour worked



Note: Data are annual averages.
Source: ABS cat. no. 5206.0.

US productivity

- ▶ Projected at 1.6%–1.7% for the future

Table 1: Improvements in Living Standards, 1870 to 2010

Period	Total Factor Productivity (Average Annual Growth Rate)	Main Sources of Growth	Change in Life Expectancy at Birth (Years per Decade)
1870 to 1900	~ 1.5% to 2%	Transportation, communications, trade, business organization	1.3
1900 to 1920	~ 1%		3.2
1920s	~ 2%	Electricity, internal combustion engines, chemicals, telecommunications	5.6
1930s	~ 3%		3.2
1940s	~ 2.5%		5.3
1950 to 1973	~ 2%	Widespread	1.4
1973 to 1990	< 1%		2.4
1990s	> 1%	Information technology	1.7
2000s	~ 1.5%		1.4
1870 to 2010	~ 1.6% to 1.8%		2.3
1950 to 2010	~ 1.2% to 1.5%		1.8

Sources: Field (2012), Gordon (2010), Carter et al. (2006), Center for Disease Control and Prevention (http://www.cdc.gov/nchs/data/dvs/deaths_2010_release.pdf).

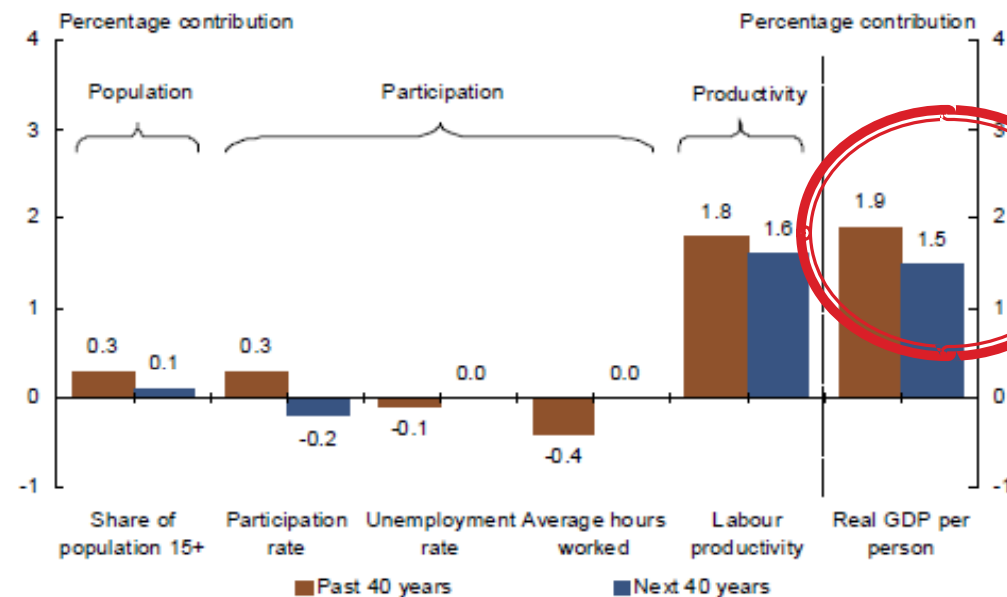
Source: US CBO – Total Factor Productivity Growth in Historical Perspective 2013

Can we produce the goods?

- ▶ Australia example – *Real GDP per person*:

- ▶ Yes we can!

Chart 1.10: Growth in real GDP per person based on the 3Ps

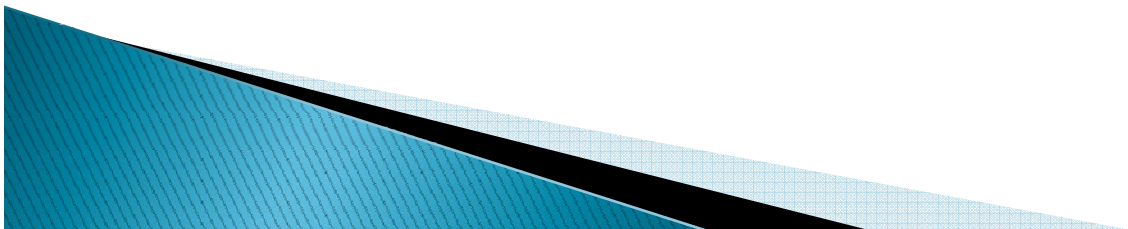


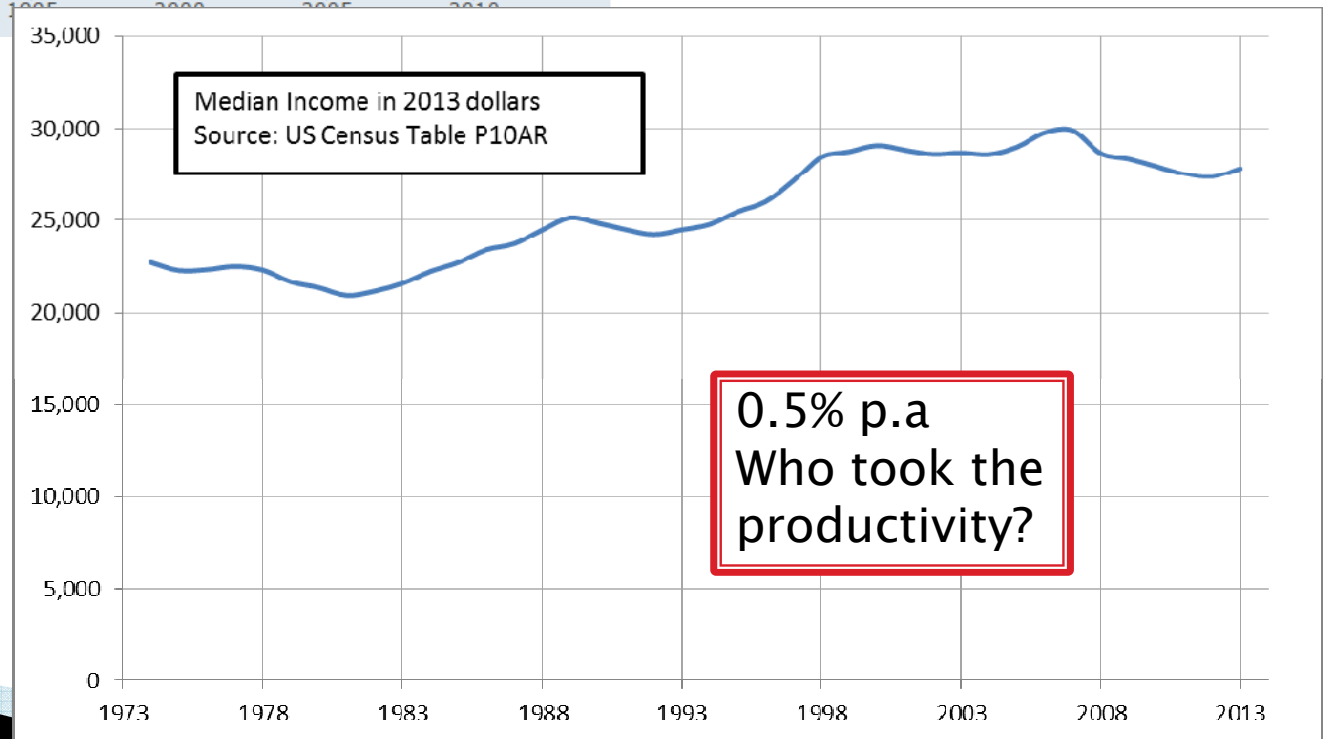
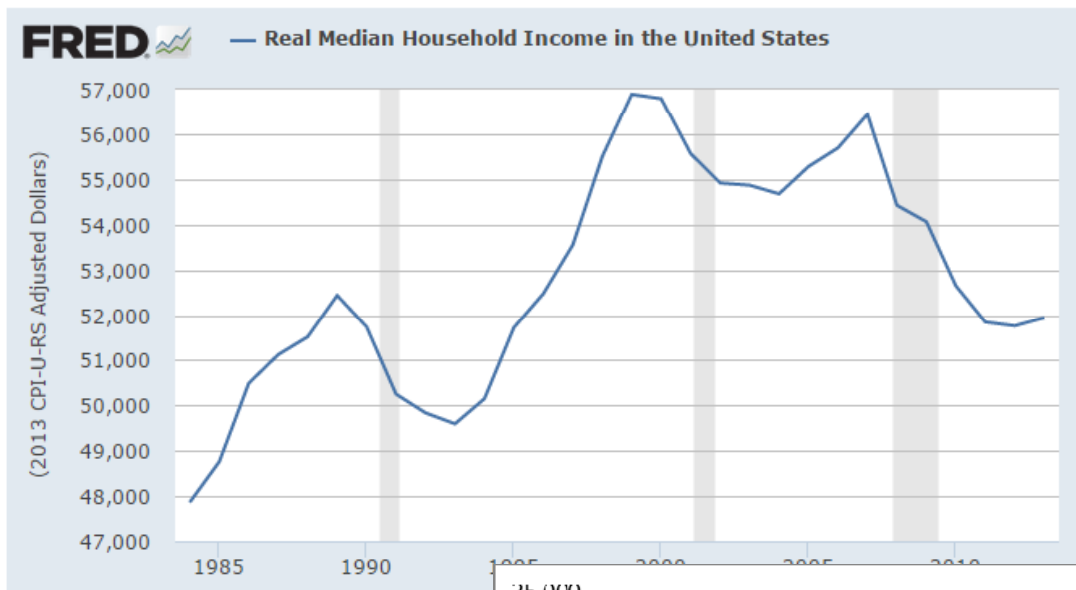
Source: ABS cat. no. 5206.0, cat. no. 3105.0.65.001 and cat. no. 6202.0, and Treasury projections.

- ▶ +1.5% p.a.
- ▶ Double GDP per person over 40 years

Recap:

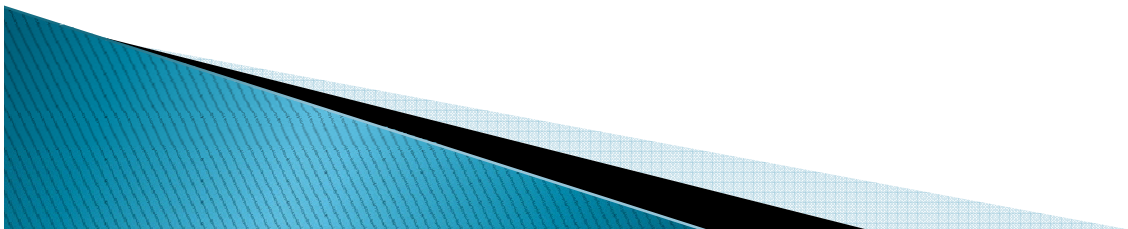
- ▶ GDP growth is not a problem
- ▶ Productivity is the important factor
- ▶ We need to distribute the resources appropriately
- ▶ Want to avoid US problem of little rise in real income






Supply and Demand

- ▶ Usual perspective – reduce transfer or government funding of aged persons' expenditure
BUT
- ▶ Will an aged society have the demand to employ the workers?
- ▶ Government might need to increase demand to keep employment up
 - See current debate on *secular stagnation*



Distribution in the macroeconomy

- ▶ The government is not like a household or a company
- ▶ The economy as a whole is a closed system
 - My spending is someone's income
 - My saving is their borrowing or capital raising
 - Government* deficit is more private sector assets
 - Surplus is less private sector assets



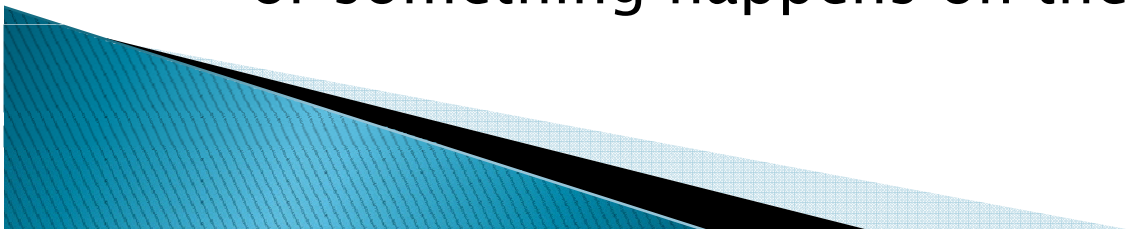
* Sovereign government

Private sector funding?

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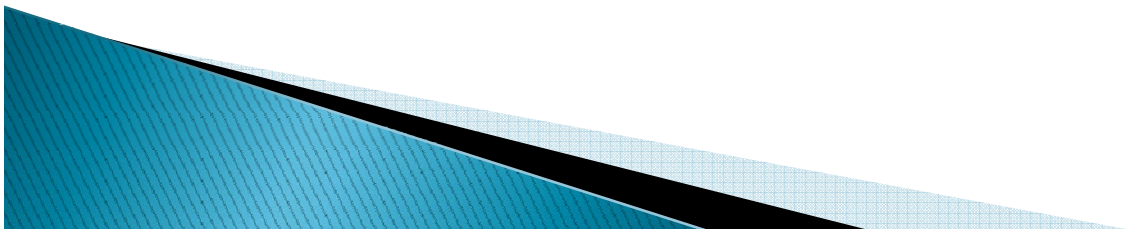
If steps were not taken to close the fiscal gap over time, it is projected that net debt will emerge in the 2040s and grow to around 20 per cent of GDP by 2049–50. Acting now to address fiscal pressures posed by ageing will minimise the fiscal adjustments required in the future.

- ▶ Private sector needs to net save if we want to private sector to provide the future payment for the resources for ageing
- ▶ This means the government sector runs a deficit
 - or something happens on the current account.



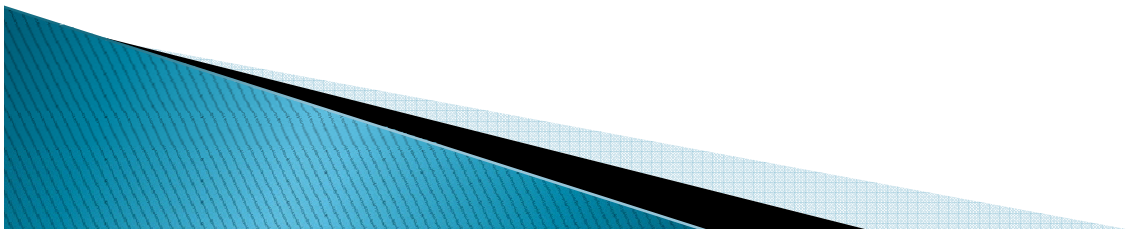
Interjection!

- ▶ Q. Why don't the old people save in the private sector?
- ▶ A. What happens when they want the money?
 - The younger people have to give it to them by maturity of their bonds, buying their equity, coupons, dividends.
 - The usual argument is that we can't tax the young people enough, but with this method the transfer is the same, but via a different means. What if the young want to consume – maybe they don't buy the equities? Older people then don't have the desired resources.



Novel bonds for saving

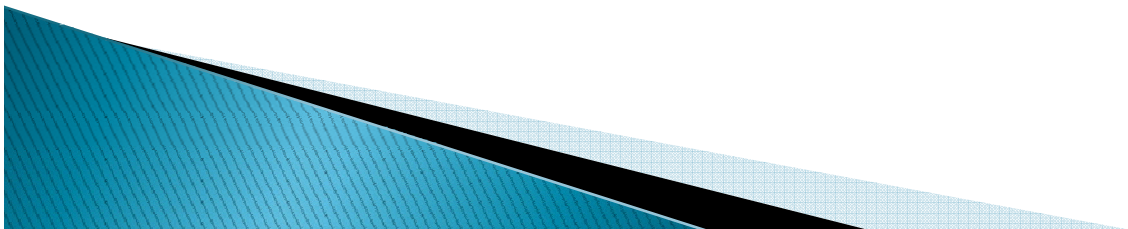
- ▶ Government borrowing by bonds is an interest rate swap
 - Fixed rate for known term for floating cash rate
- ▶ Different sorts of swaps could meet private demand for financial products to help provide retirement income e.g.
 - inflation linked payments,
 - linked to nominal GDP,
 - perpetuities



Standard partial solution

- ▶ Increase liquidity of non-liquid assets
 - negative mortgages;
 - reduce taxes on transactions
 - remove legal impediments for securitisation
 - but strengthen regulation
 - ...

- ▶ Fully agree



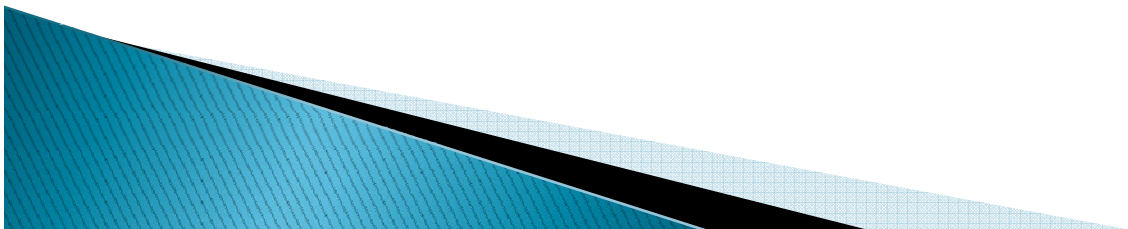
Change happens

- ▶ Medical costs as a proportion of GDP does not matter – economy is a closed system.
- ▶ So what if we spend a lot of money on end-of-life care, if that's what we decide to do.
- ▶ Over 40 year periods economies change a lot
 - We can't predict what will happen



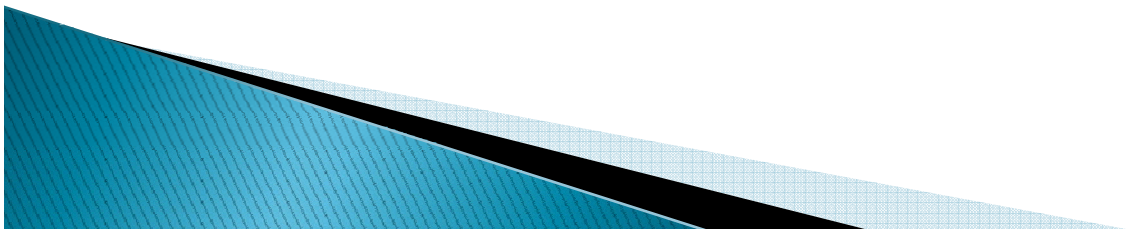
Morality and economics

- ▶ Beware of subconscious moral judgments that interfere with economic decisions
- ▶ Economic debt is not a moral issue
 - (OTOH moral debts can't be paid economically)



Morality and economics (ii)

- ▶ Beware status snobbery
- ▶ Caring service jobs that do not require a university degree or much training are menial
- ▶ Large increase in service industry for aged care;
 - needs workers;
 - low current pay does not attract workers;
 - need to increase wages;
 - if we want decent aged care this is what we must do



Conclusion

- ▶ Problems raised with ageing are false perspective
- ▶ Before rushing to solutions we need the problem looked at from proper macroeconomic and historical perspective
- ▶ Don't worry too much

