Institute and Faculty of Actuaries

The IFoA Conference 2022

22–23 June – etc.venues, 133 Houndsditch, London

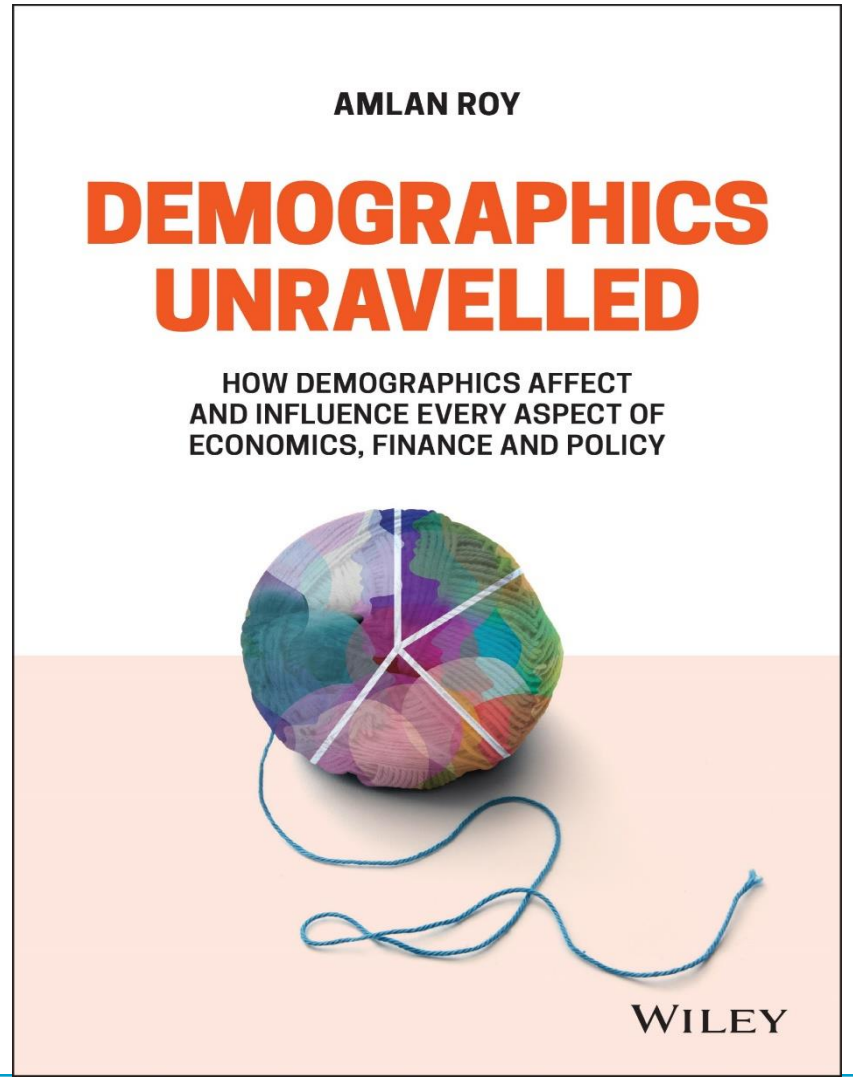
Institute
and Faculty
of Actuaries

Why Demographics Matter?

Macro, Investment & Risk Implications

Dr Amlan Roy, Founder of Global Macro Demographics
Research Associate, LSE Systemic Risk Centre
Guest Finance Professor, LBS
Honorary Fellow, iFoA
www.globalmacrodemographics.com

Demographics Unravelled (Wiley, Jan 2022)



- Interface of Economics, Finance & Actuarial Science
- Praised by Nobel laureate, Fed President, Investors, policy makers, pensions experts
- Mentioned by the FT's Martin Wolf as one of the best new books
- Addressed to investors, policy-makers and academics

Institute and Faculty of Actuaries

Why Demographics Matters? Why Misunderstood?

- Peter Drucker “Demographics is the single-most important factor that we do not pay attention to and when we do pay attention, we **miss the point**”.

- **Narrow identifications** with age, count of people, broad mis-classifications.

- Intrinsically refers to “people characteristics”, those characteristics are **most importantly those as a worker and a consumer**.

- Affects Income statements & Balance sheets. **At short, medium and long-term horizons**

Institute and Faculty of Actuaries

Recasting and Unravelling Demographics

WHAT IT INFLUENCES

D: Discount rates, **Debt**

E: **Economic Growth**, Efficiency, Structure

M: **Mortality**

O: Organisation Behaviour, Structure

G: Geography, Geopolitics, **Governance**

R: Robotics, **Real Estate**

A: Asset Prices, **Asset Allocation**

P: **People**, **Pensions**, Politics

H: **Heterogeneity**, **Households**

I: **Inflation**, **Inequality**, Institutions

C: **Consumers**, Culture, Cities

S: **Sustainability**

WHO DOES IT PERTAIN TO?

All ***Consumers and Workers*** in world.
Not just their age or their numbers.
Their behaviour too.

Affects GDP, Debt, Consumption & Asset Prices

It affects all Income Statements & Balance sheets in the world for

- Individuals
- Households
- Corporates
- Nations

Institute and Faculty of Actuaries

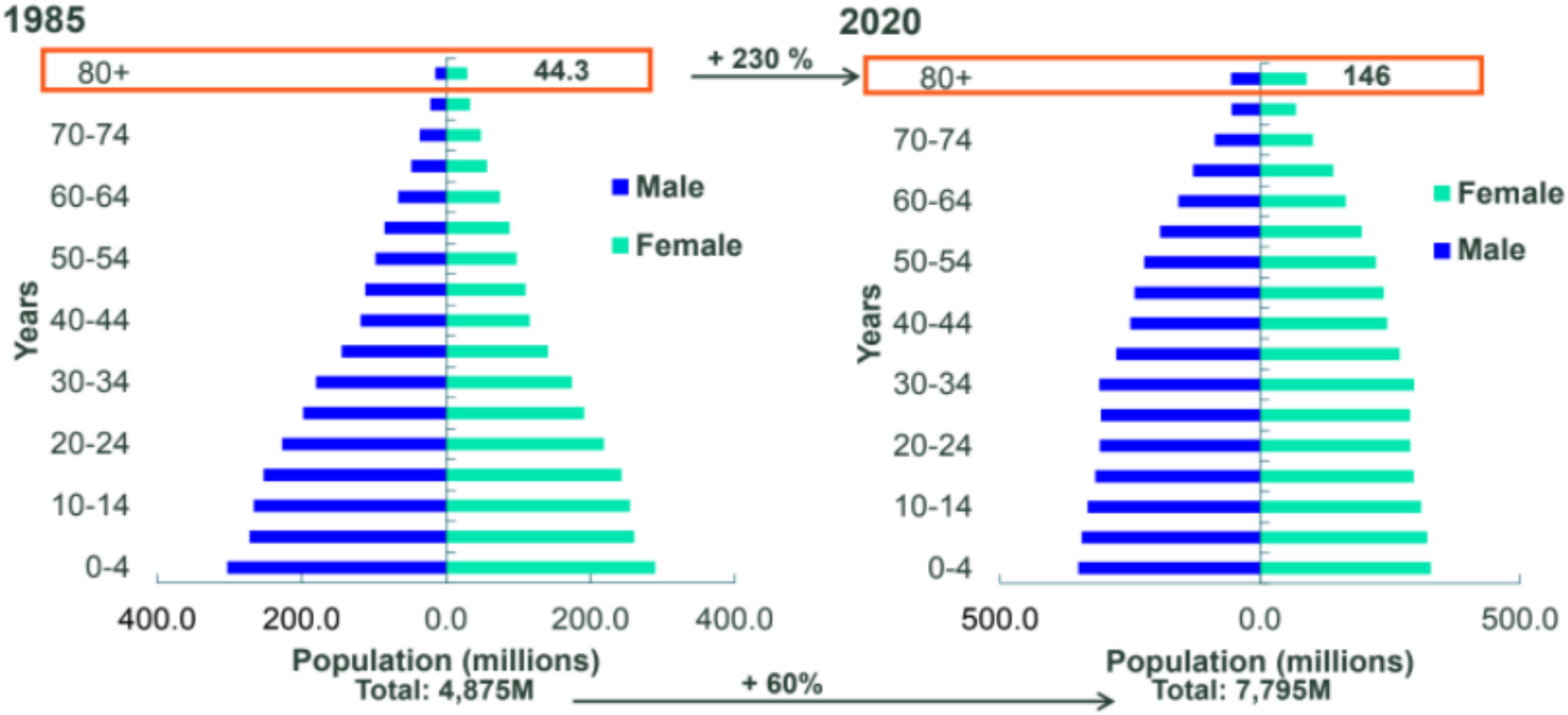
Radical Policy Actions: "*The Demographic Manifesto*"

- **Abolish Mandatory retirement ages.** Adopt Flexible retirement.
- **Close** gender gaps to better utilise female work potential
- **Rethink** & **implement** immigration policies
- **Outsource and off-shore** non-core jobs based on costs and benefits

Source: CS Demographics Research

Institute and Faculty of Actuaries

The World's Super-Old (80+ aged) Grow Fastest



Source: UN

Institute and Faculty of Actuaries

How Increasing Longevity Affects Us All?

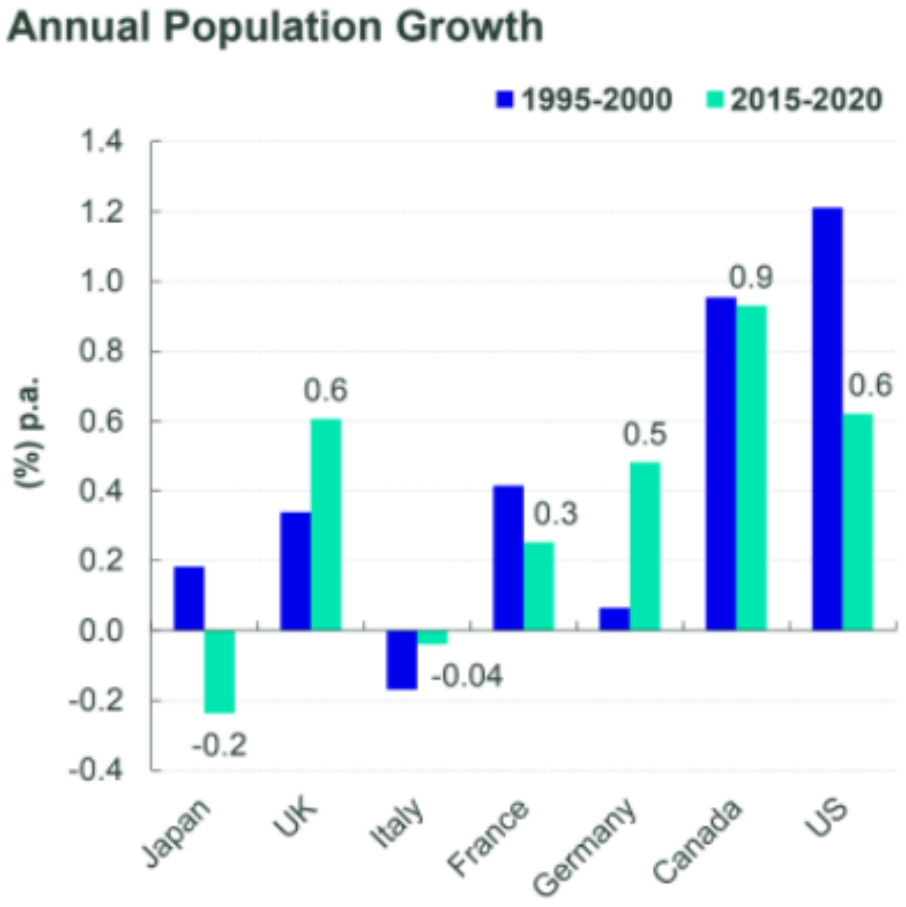
Individual & families	• Challenge existing asset & time allocation frameworks & intergenerational dynamics
Governments & Societies	• Policy changes in labour, education, health, pensions & social benefits necessary
Asset managers, pension funds, insurance cos., SWFs.	• Re-assess frameworks & assumptions. Develop new solutions for clients & new approaches to understanding longevity

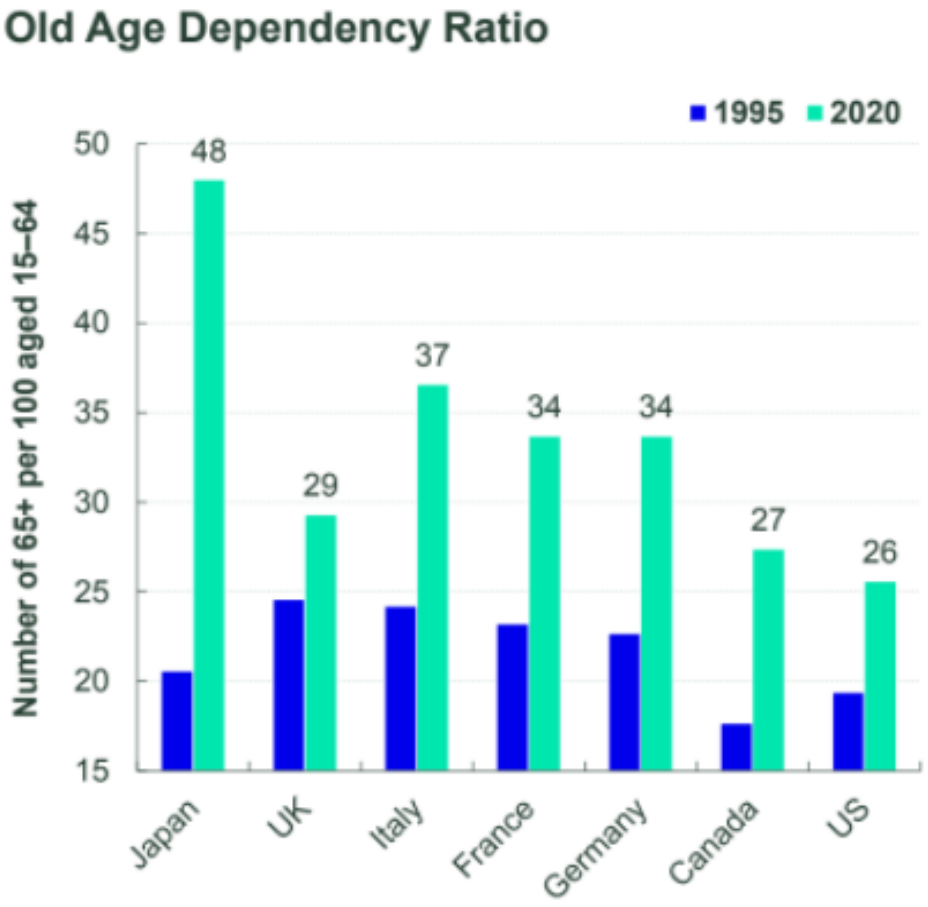
Significant change in thinking and mind-set

Source: Credit Suisse Demographics Research, IPE Pension awards key note speech (Noordwijk, 2013)

Institute and Faculty of Actuaries

Core Indicators—G7 (Advanced Countries)

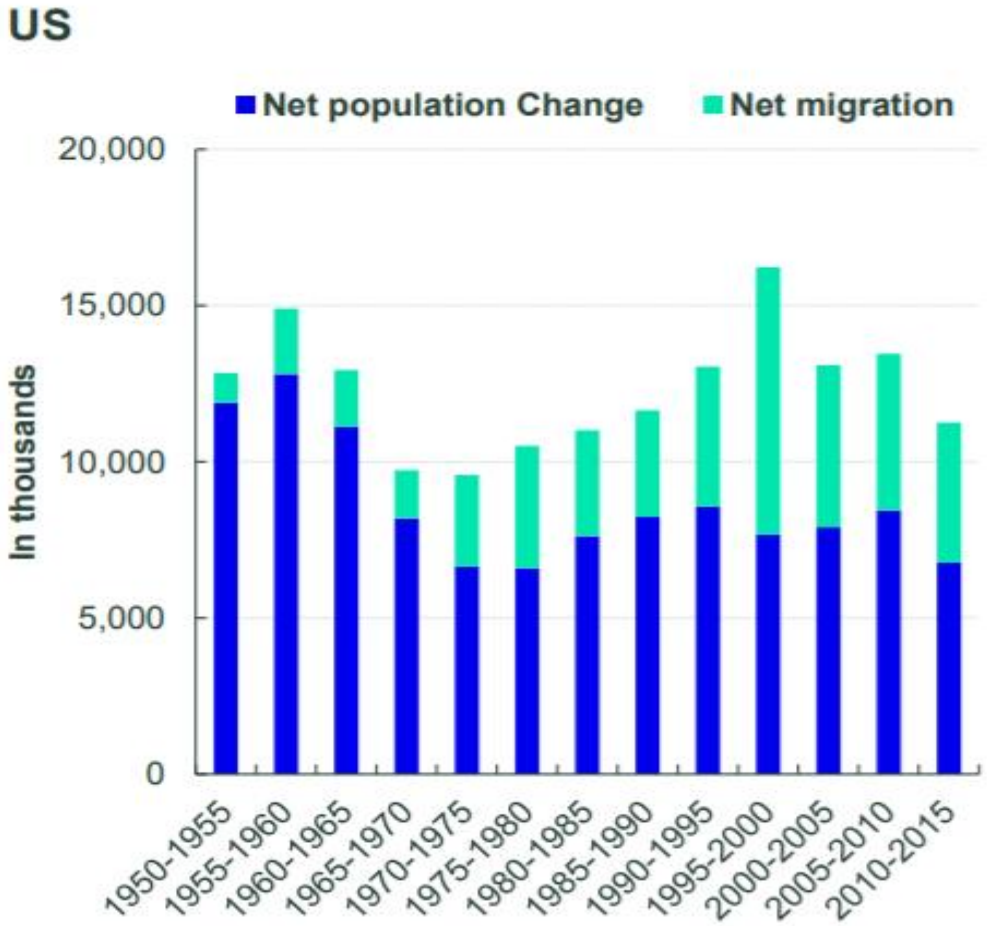


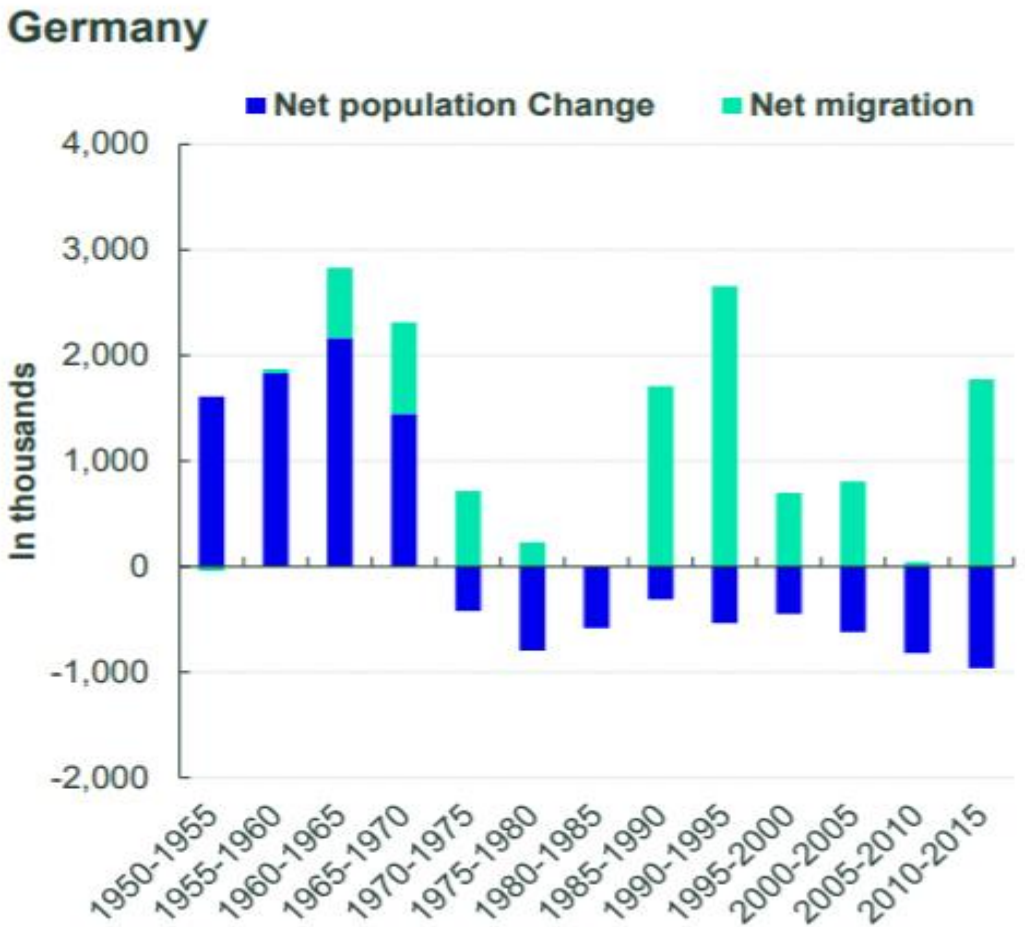


Source: UN

Institute and Faculty of Actuaries

Immigration Matters: US vs. Germany

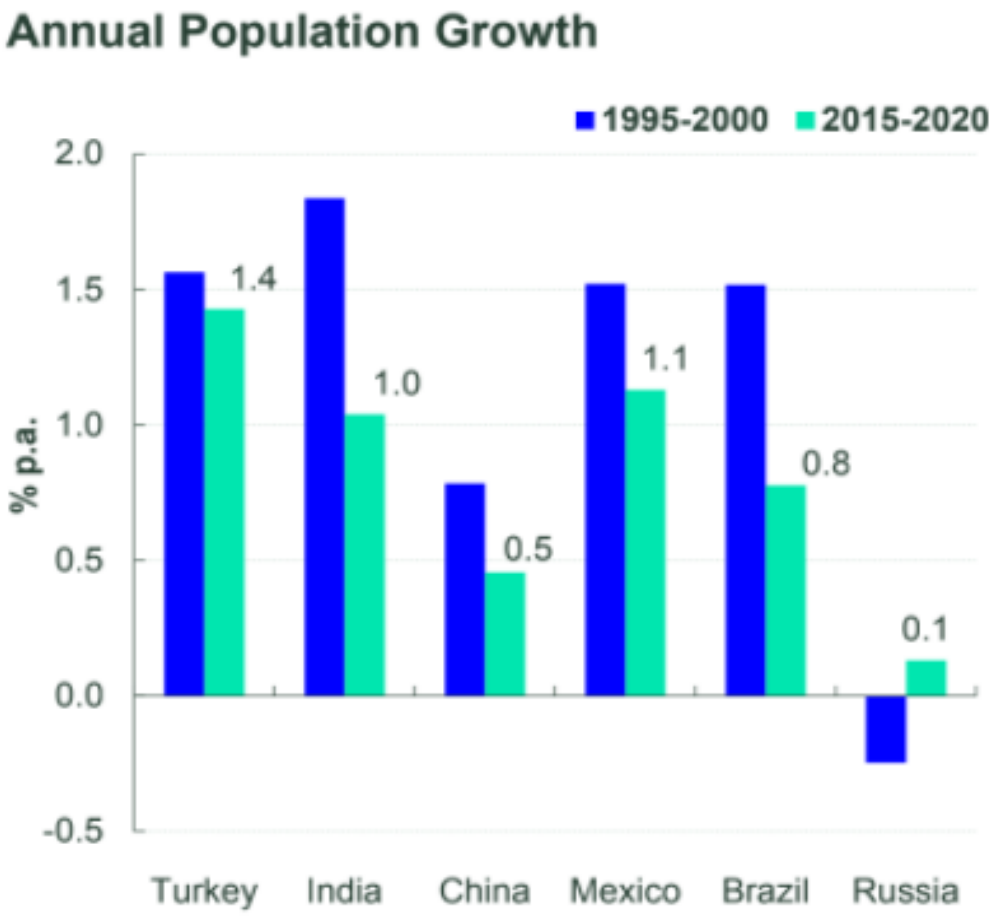


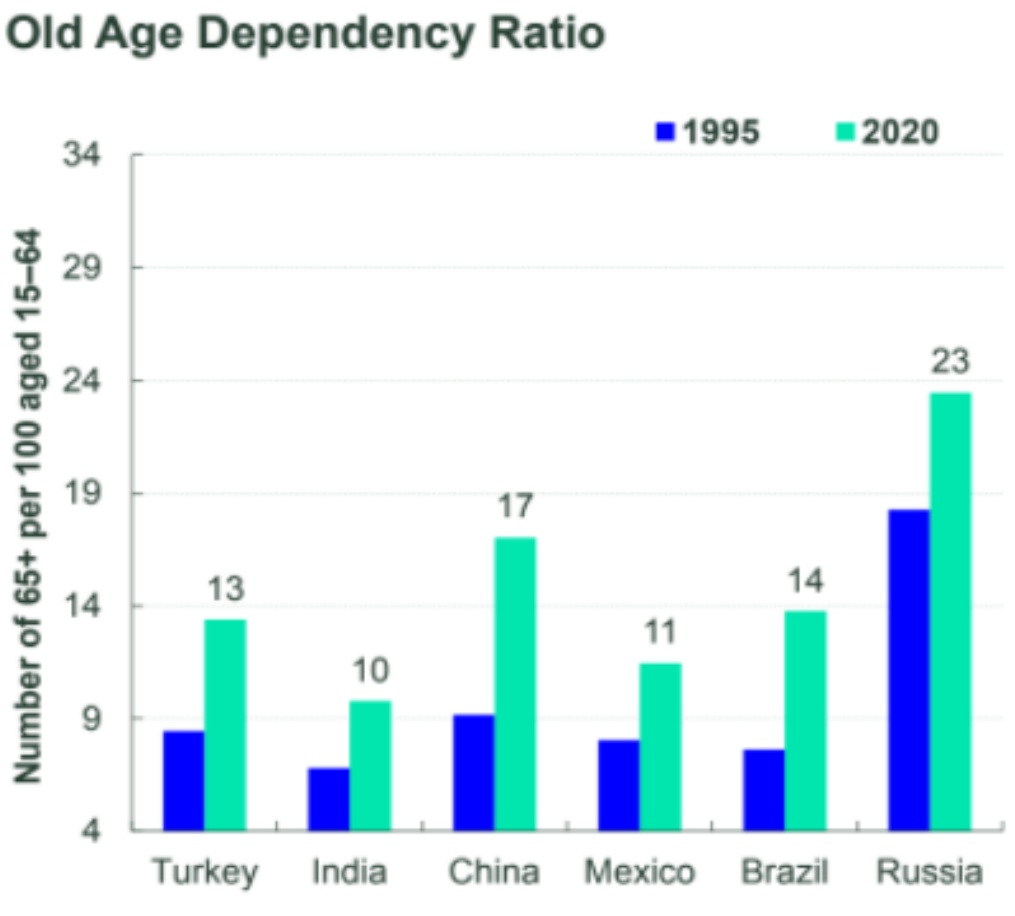


Source: OECD

Institute and Faculty of Actuaries

EMG6: Whither the Demographic Dividend?





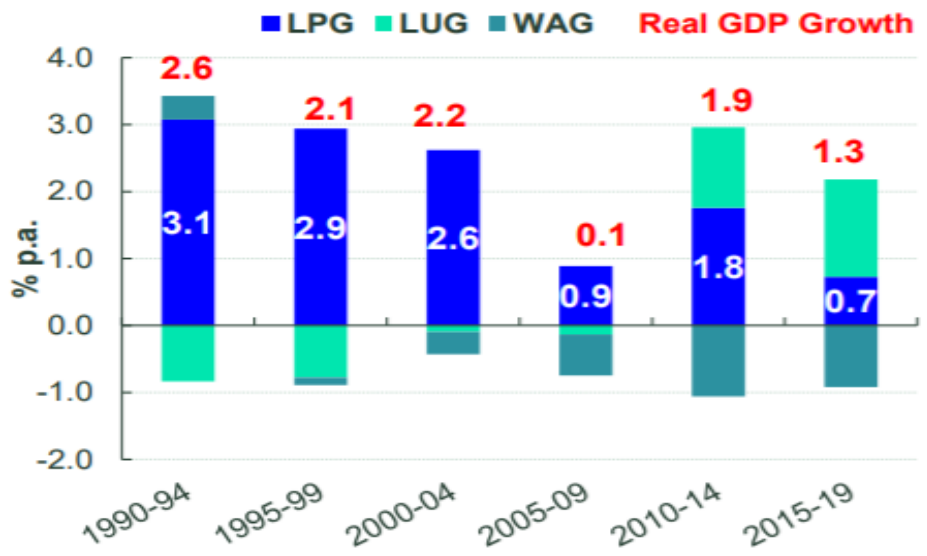
Source: UN

Institute and Faculty of Actuaries

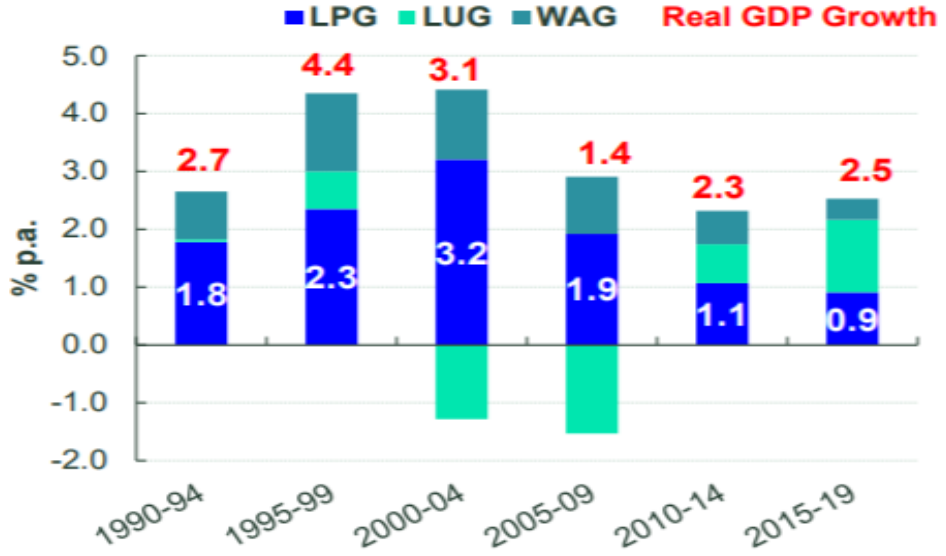
GDP Growth: Demographic Decomposition

Working-age Pop. Growth (WAG)	Labour Productivity Growth (LPG)	Labour Utilisation Growth (LUG)
working-age population = population aged 15–64	labour productivity = real GDP/hours worked	labour utilisation = hours worked/working-age population

Japan



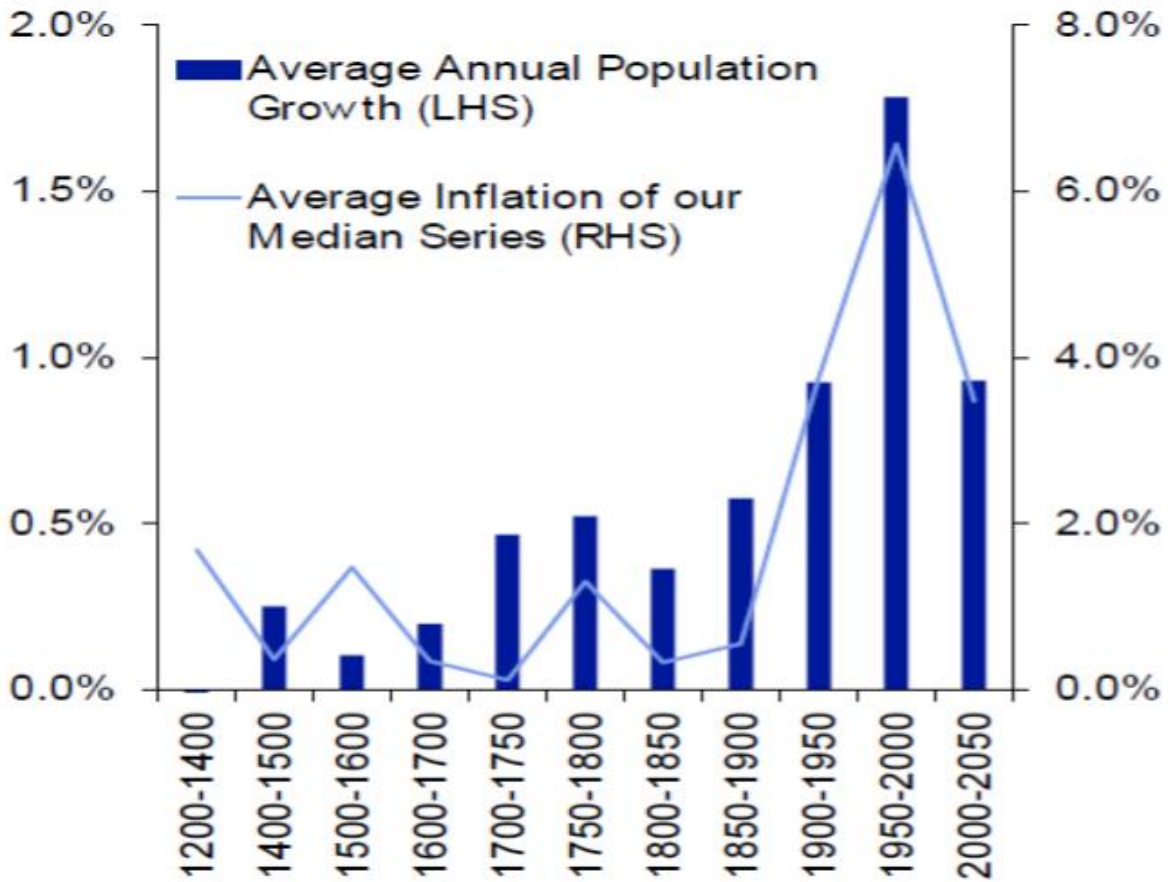
US



Source: GGDC, UN

Institute and Faculty of Actuaries

Demographics Has Driven Inflation Historically



Deutsche Bank (2018), Long Term Asset Return Study, Figure 3, Jim Reid.

Jim Reid and Team (DB)

- No country saw average annual inflation below 2% since 1971 when we moved to a global fiat currency system (87 in our sample).
- Only 28 averaged less than 5%. No country has seen annual average inflation below 2% since 1900 (25 in our sample) and only 4 between 2%–3%.
- 20th century: They conclude that a confluence of forces but **ultimately underpinned by a unique explosion in the size of the global population**, especially in the second half of the century

Institute and Faculty of Actuaries

Public Debt Strains Emanate from Demographics

EU28, Social Expenditure, 2016

Category	% of Total Benefits
Old Age	38.7
Sickness/Healthcare	28.4
Unemployment	4.5
Family & Children	8.4
Survivors	5.3
Disability	7.1
Others	8.5

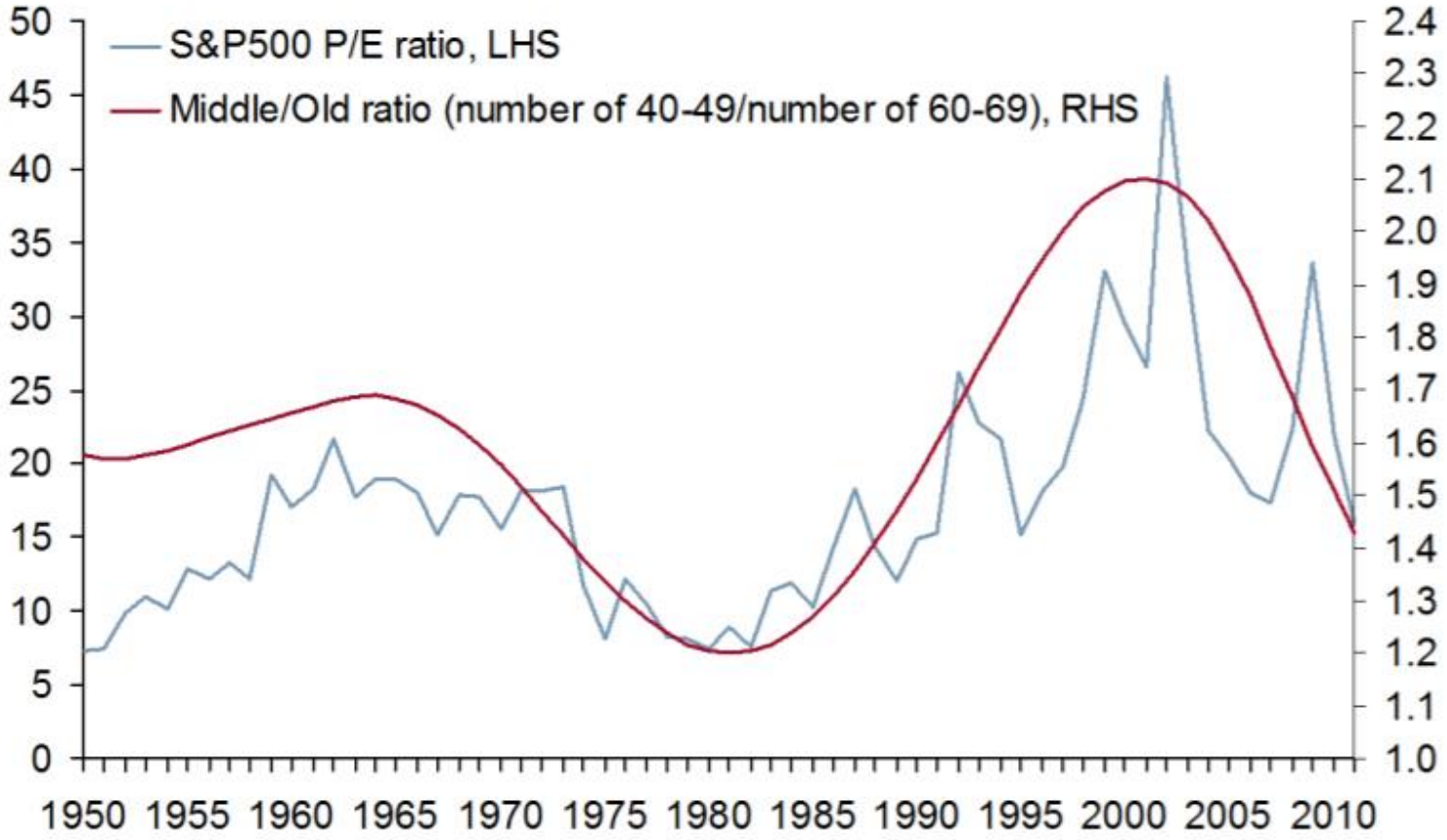
Source: European Commission

Public Expenditure as % of GDP

Country	Year	Public Pensions	Long-term care	Health care
DE	2020	10.3	1.5	7.6
	2070	12.5	1.9	8.9
UK	2020	7.7	1.6	8.1
	2070	9.5	2.8	9.4
NL	2020	7.0	3.7	6.5
	2070	7.9	6.0	7.6
EU27	2020	11.8	1.7	6.8
	2070	11.4	2.7	8.0

Institute and Faculty of Actuaries

US: S&P 500 P/E Ratio & Middle/Old Ratio



Weak correlation for France, Germany and Japan

Source: CS Demographics Research

Institute and Faculty of Actuaries

Equity Premia, House Prices & Bond Yields

Ang, Andrew and Angela Maddaloni, 2003, "Do Demographic Changes affect Risk Premiums? Evidence from International Data:"

- There is weak evidence in the US that demographic changes predict future equity risk premia, but strong evidence in favour of predictability for other developed countries
- Demographic variables that predict equity risk premia in the US are different from those that predict equity risk premia in other developed markets

Bergantino, "Life Cycle Investment Behavior, Demographics and Asset Prices", MIT (1998):

- There is statistically significant link between demographic changes in the US populatior and observed long run movements in housing, stock and bond prices
- Demographic factors can account for approximately 59% of the observed annual increase in real house prices between 1966 and 1986 and 77% of the observed annual increase in real stock prices between 1986 and 1997

Institute and Faculty of Actuaries

Demographics & Interest Rates

Philip Turner (BIS, 2013) — Benign neglect of the long-term interest rate:

- Maturity risk reduction makes financial system more shock resilient. Extended period of low long rates and high public debt creates **financial stability risks**.
- Central banks in advanced economies hold a high proportion of government bonds. Implementing an effective exit strategy will be difficult.
- Policy frameworks should be reconsidered, with a view to clarifying **the importance of the long-term interest rate for monetary policy, financial stability and government debt management**

Stanley Fischer (Federal Reserve Board, 2016) 'The Low Level of Global Real Interest Rates':

- Aging population lowers equilibrium interest rate beyond effect on labor force and trend growth
- Higher saving by near-retirement households could be pushing down longer-run equilibrium federal funds rate relative to its level in the 1980s by 75 bps

What affects Housing Demand & Supply ?

Demand

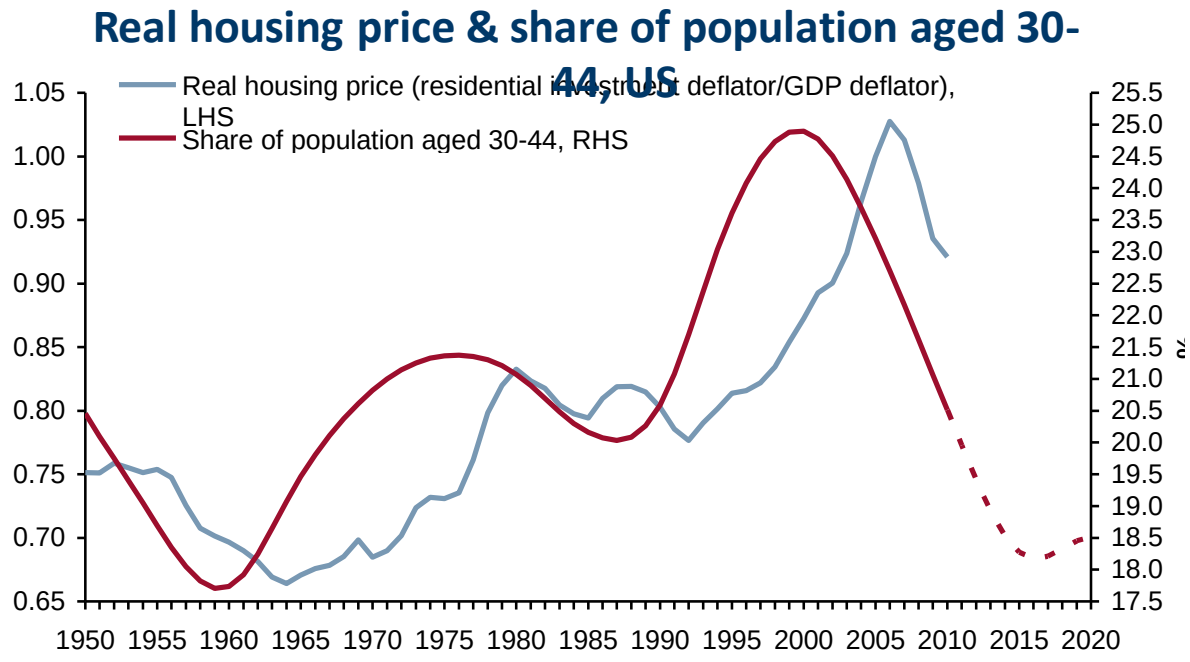
- Population Growth
- Labour Market
- Wages & Income, Wealth
- Household Structure
- Rural and Urban
- Credit Provision
- Stage of life-life cycle and career

Supply

- State of the Economy
- Business Credit
- Land
- Complementary Infrastructure
- Labour & Materials supply
- Technology

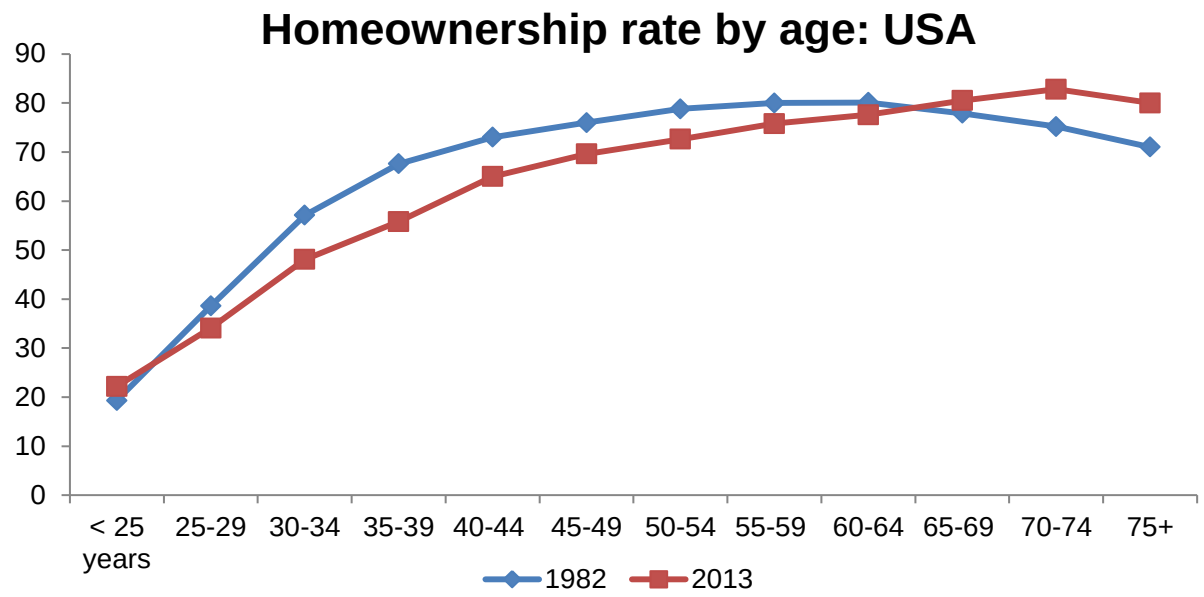
Institute and Faculty of Actuaries

Housing and Share of Population Aged 30-44, US



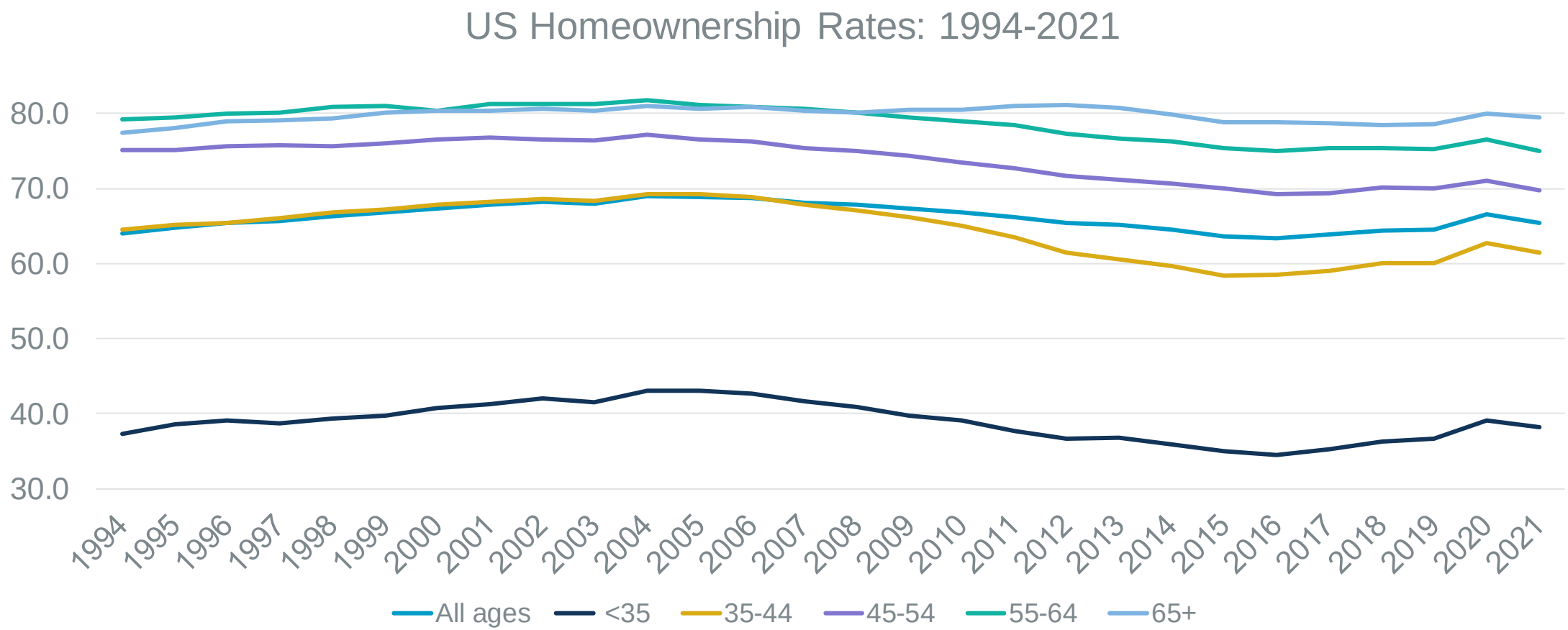
Real housing price is the residential investment deflator divided by the GDP deflator

Source: Bureau of Economic Analysis, US Census Bureau UN, Credit Suisse



Institute and Faculty of Actuaries

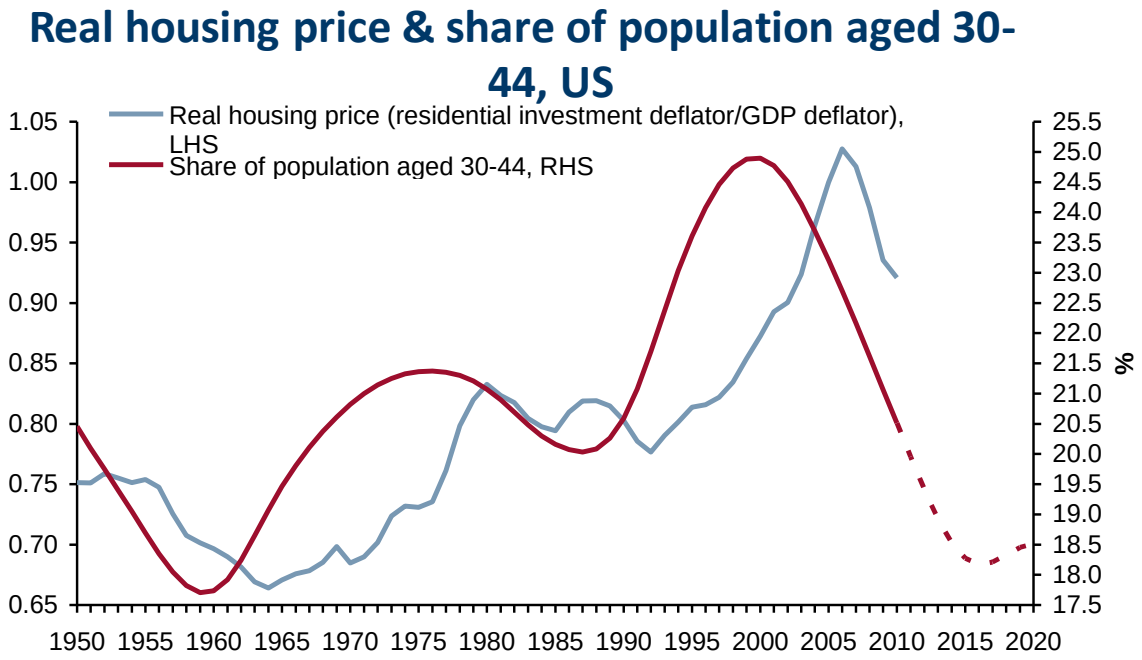
Home-Ownership Rates by Age



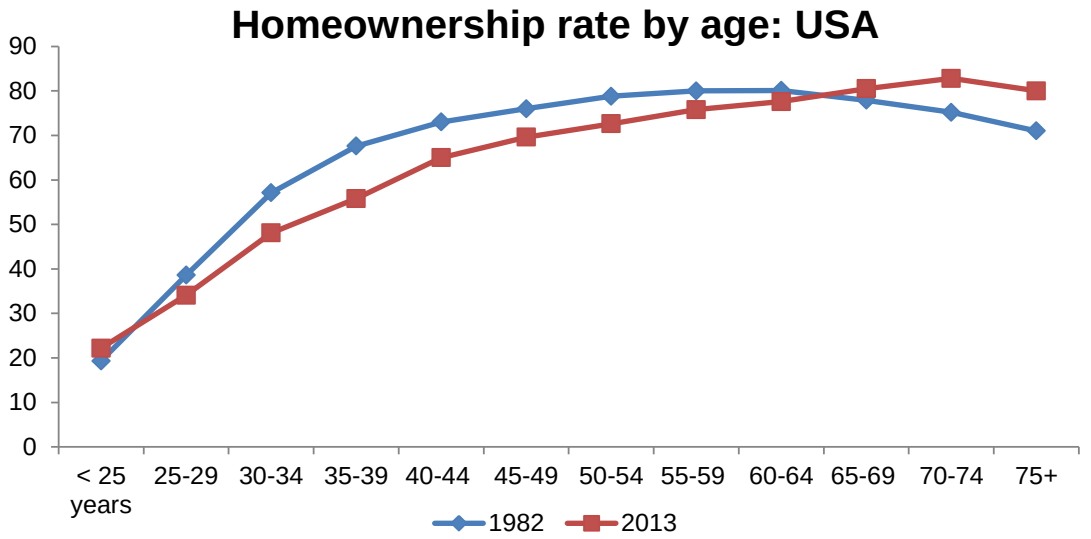
Source: US Census Bureau

Institute and Faculty of Actuaries

Housing and Share of Population Aged 30-44, US



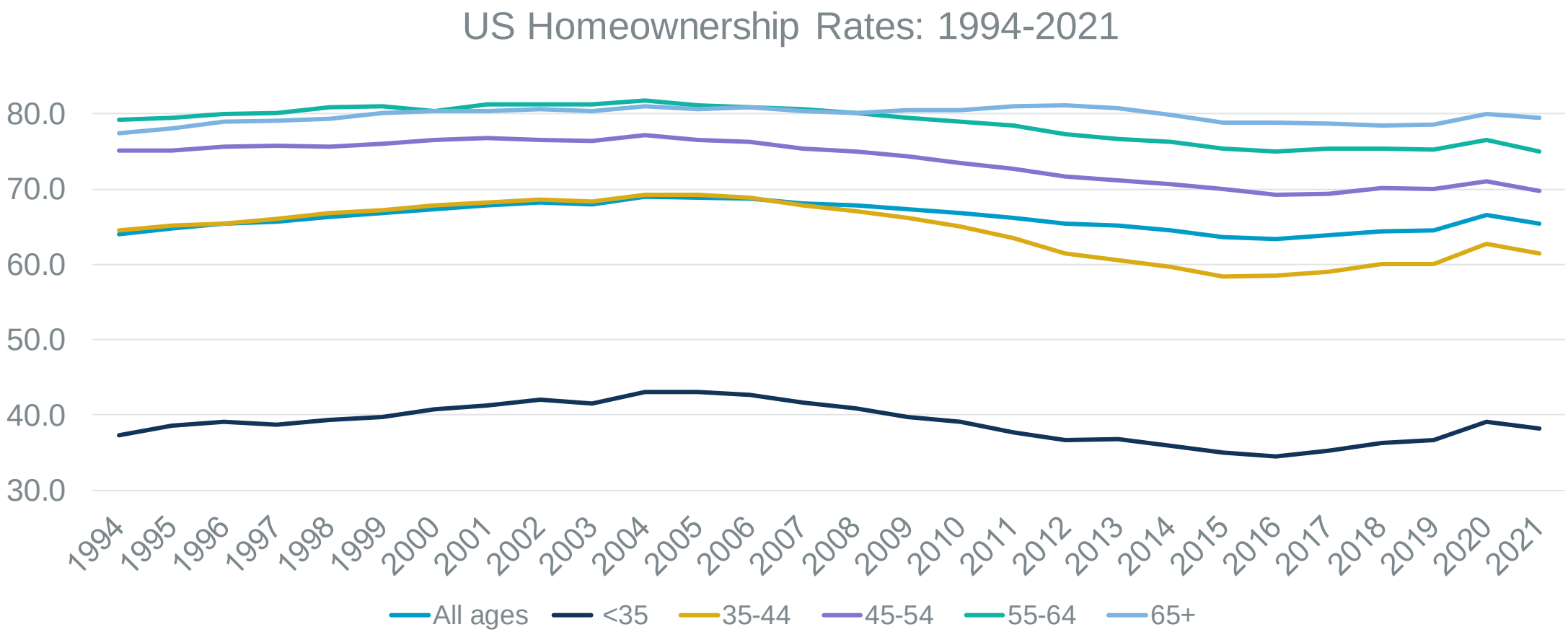
Real housing price is the residential investment deflator divided by the GDP deflator



Source: Bureau of Economic Analysis, US Census Bureau UN, Credit Suisse

and Faculty of Actuaries

Home-Ownership Rates by Age



Institute and Faculty of Actuaries

Conclusions

- Demographics affects ***macro fundamentals*** such as growth, inflation, debt sustainability and current account
- Understanding of macro-demographic fundamentals is critical. ***Changing behaviour*** of consumers and workers is rendering many old models invalid
- Retirement Planning requires ***changes*** in: Mindset, Tools & Asset Allocation
- SAA and SALM require better holistic and integrated understanding of asset price and longevity dynamics

Institute and Faculty of Actuaries