Japan's demographic trajectory

by NAB Group Economics

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National Australia Bank

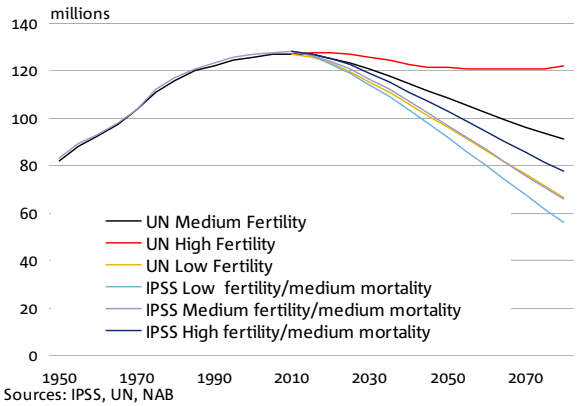
Key Points:

- Japan is in the midst of major demographic changes, which have had significant implications for its economy and will continue to do so. Japan's population is already declining, and with its society also ageing the drag on the workforce is potentially even greater.
- A clear implication of Japan's demographics is a lower GDP growth rate. Without an improvement in the rate of productivity growth, GDP growth will remain at very low levels; it could even turn negative in the decades ahead.
- Changing demographics are also placing downward pressure on household savings and Government finances (although corporate savings have offset these two trends to some extent). This in turn will likely reduce the current account balance, although the impact on the current account is not necessarily clear cut and may change over time (particularly as other countries also experience demographic change).
- The pressure on the Government's finances is of particular concern given Japan's poor current budget and debt position. If Japan is too slow to make the necessary adjustments (which the demographic changes make more difficult) the risk is that a loss of confidence in Japan's ability to repay its debt will cause a spike in interest rates.
- Ageing may have also been a factor behind Japan's low interest rates, although other factors such as BoJ monetary policy are at play. It is less clear that it explains Japan's long deflation.
- Aside from these big macro impacts, demographic changes will affect many aspects of the economy (which will affect social structures as well).
- There is no 'right' population level and adjustment to a declining population is possible. Individuals can work longer if necessary so measures of increasing 'burden' (based on a fixed definition of 'working age') can be misleading. The issue is whether society is willing to adjust.

Japan's population is declining & ageing…rapidly

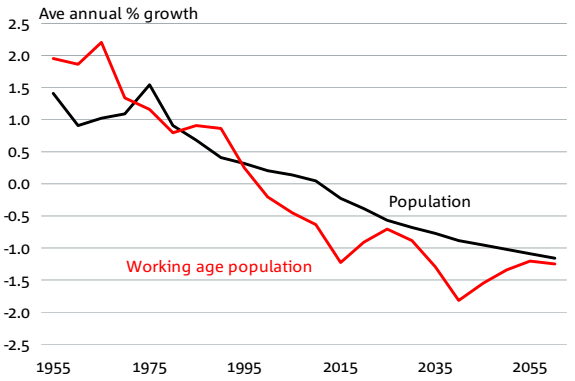
- Population growth in Japan started decelerating in the mid-1970s and turned negative in 2008. The trends are even more pronounced for the working age population – typically defined as those between 15 and 64 - which has been falling since 1996, and in each of the last two years is estimated to have fallen by around 1.5%.
- Only the most optimistic projections show any let up in these trends (figure 1). Projections by the Japanese National Institute of Population and Social Security Research (IPSS) has the population falling to around 65 million in 2080; around half of its peak (medium scenario).
- At the same time, the population is getting older. The number of 0-14 year olds has been declining consistently since the late 1970s. However, while the population is falling, the number of people 65 and over is still growing (and within the 65+ category the average age is also increasing).
- As a result the dependency ratio (non-working age as proportion of working age) has been increasing, driven by increases in the elderly dependency ratio (those over 65 as a proportion of the working age population). As a result while in 1950 there were around 12 workers per person 65 or over, in 2013 it was around 2½ and it is projected to keep falling.

Figure 1: Japan population projections



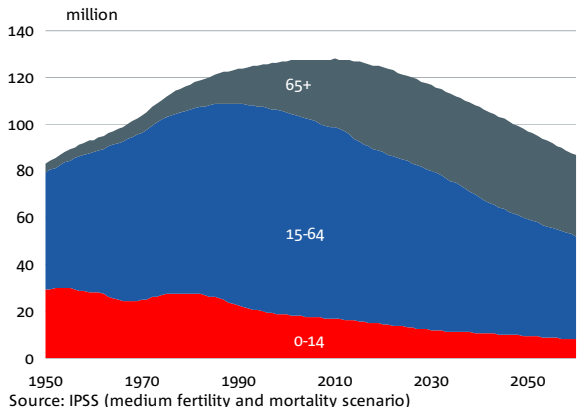
Sources: IPSS, UN, NAB

Figure 2: Working age and population growth



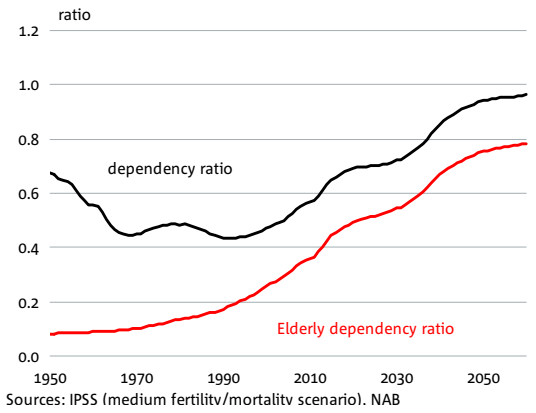
Source: IPSS (medium fertility/mortality scenario), NAB

Figure 3: Age composition



Source: IPSS (medium fertility and mortality scenario)

Figure 4: Dependency ratios

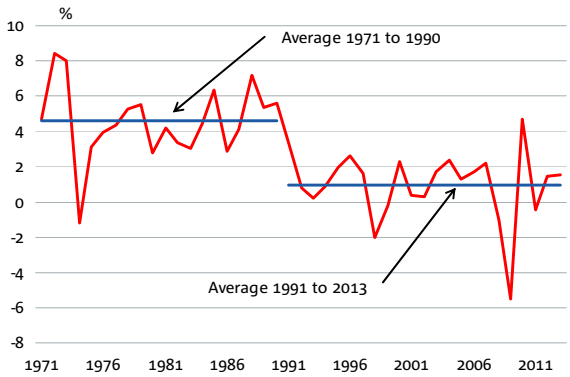


Sources: IPSS (medium fertility/mortality scenario), NAB

Low growth is one result

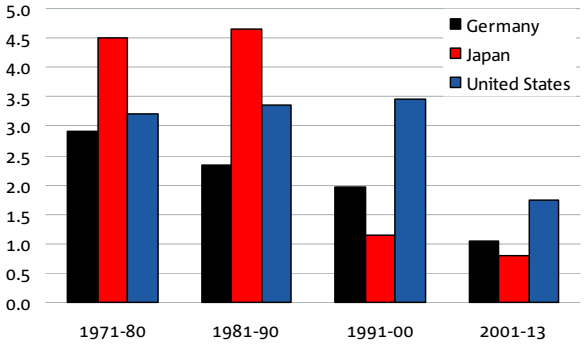
- An implication of Japan's demographics is a lower GDP growth rate. Fewer workers lowers the amount that can be produced. Fewer younger workers may also mean a less dynamic, adaptable and innovative economy (although the average age of those who come up with new ideas/inventions is increasing so society can adapt).
- At the start of the 1990s Japan went from growing more rapidly than other advanced economies to being noticeably slower. Part – but not all – can be explained by demographics. Another cause was the fall-out from the collapse of an asset price bubble. The strong post World War II growth was also a function of productivity catch-up (though increasing education levels, adopting overseas technologies etc) which could only last so long.
- The period since the early 1990s is often referred to as the lost decades. However, when comparing productivity growth, the difference between other major advanced countries narrows. Of course, with the working-age share of the population declining this means a slower rate of GDP per person, which is a better measure of overall welfare.
- To illustrate the importance of these changes, if productivity makes the same contribution to growth going forward as in the recent past (figure 7), then growth will remain at very low levels, if not turn negative in the decades ahead. This means that it will be difficult for Japan to grow itself out of its poor fiscal position, increasing the reliance on higher taxes, which may itself place downward pressure on productivity and growth.

Figure 5: Japanese GDP growth



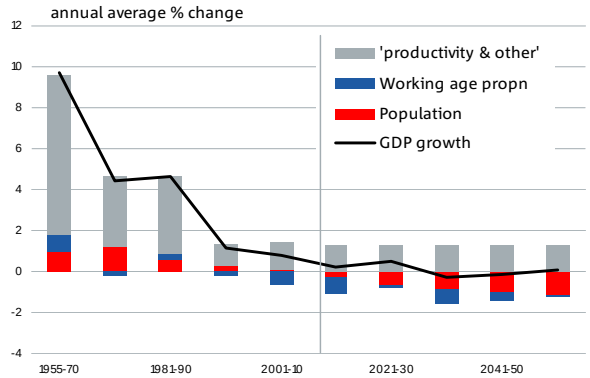
Source: OECD (http://stats.oecd.org/), NAB

Figure 6: Average annual GDP growth rates



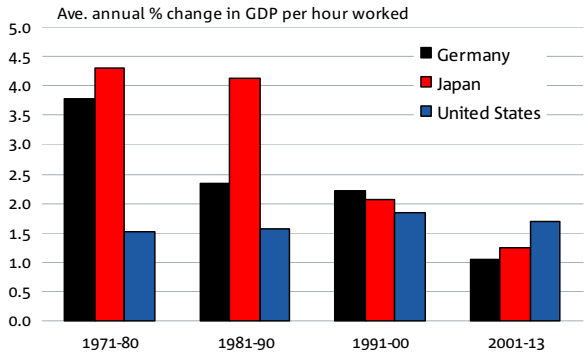
Source: OECD (http://stats.oecd.org/), NAB

Figure 7: Japan GDP breakdown & outlook with constant productivity



Sources: Cabinet Office, Ministry of Internal Affairs & Comm., IPSS, NAB

Figure 8: Productivity comparison

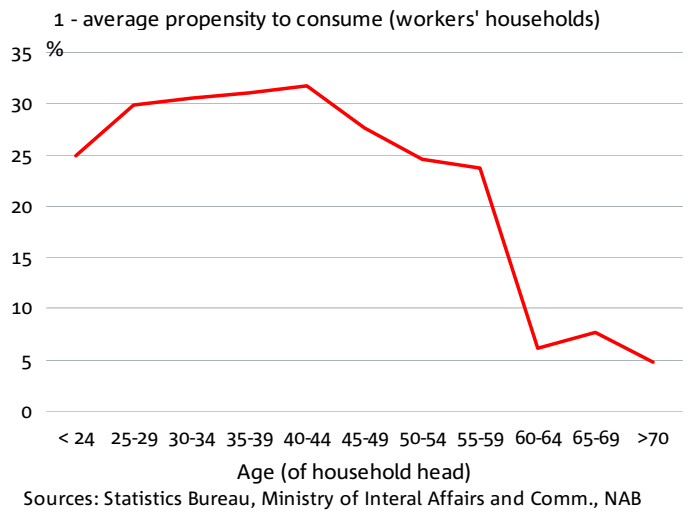


Source: OECD (http://stats.oecd.org/), NAB

Also implications for savings…

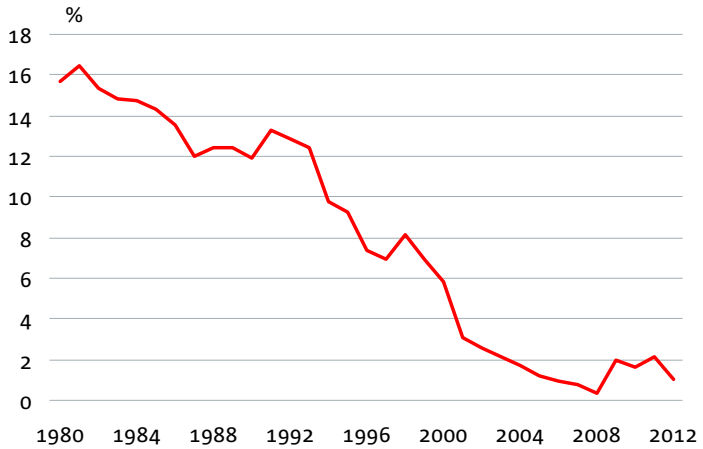
- Another issue associated with ageing is the potential impact on savings.
- Savings rates tend to vary with age – low when young (as they have little income), then higher as incomes rise and there is a need to save to buy a house or to fund retirement, then low again as people retire and drawn down their savings to meet their living expenses. This means that 'ageing' does not necessarily mean a reduction in savings, rather it depends on whether ageing is due to a large cohort of young workers moving into high savings middle age, or the later stage where they move into retirement. Japan is clearly in the latter stage.
- As a result, population ageing might be expected to lead to a decline in overall savings rates – which is what has been observed for households since the early 1980s; although the decline paused around the time of the GFC. Savings rates also rose in other countries at that time, as consumers became more uncertain about the future.
- This highlights the point that ageing is only one factor affecting savings. If uncertainty rises about future pension benefits (e.g. because of doubts about the Government's ability to meet commitments) then households may lift savings rates. An increase in life expectancy – and years in retirement – may also affect savings behaviour. Alternatively, Government efforts to reduce its deficits – e.g. through increases in taxes – may reduce savings rates across all age groups as they absorb the impact both through lower spending and lower saving.
- In terms of national savings, it is not so simple, as government and businesses are also a factor. Since the early 1990s the decline in households net savings has been offset by a rise in corporate savings; corporations are of course ultimately owned by households (including some foreign ownership (figure 11, following page). At the same time, the government has become a net borrower.

Figure 9: Savings rate changes by age



Sources: Statistics Bureau, Ministry of Interal Affairs and Comm., NAB

Figure 10: household savings rate

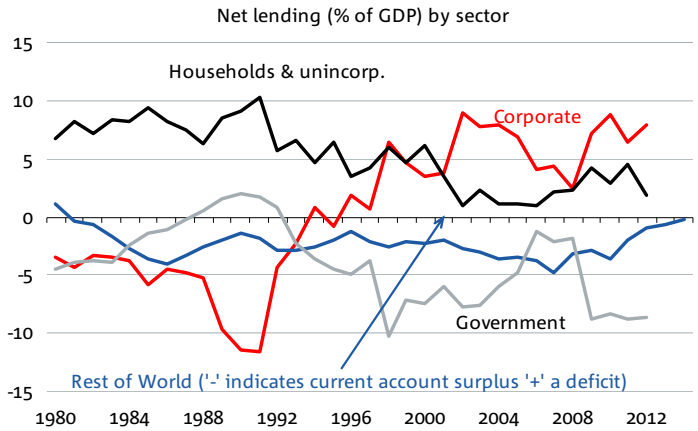


Sources: Cabinet Office, NAB

...and the current account and interest rates

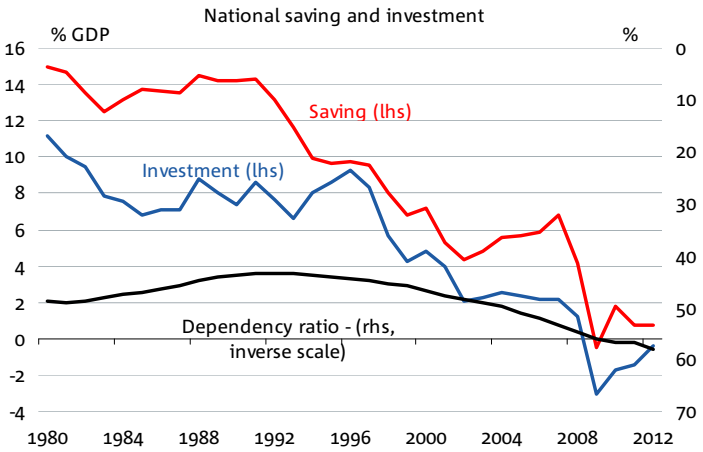
- A related concern has been that the decline in savings will put pressure on the current account balance. Indeed, in late 2013/early 2014 it temporarily moved into deficit. Other factors have clearly been at play, such as higher energy costs due to turning off nuclear reactors after the 2011 Great East Japan Earthquake.
- A reason cited for why Japan's government has been able to run high debt levels with low interest rates, is that it has been mostly financed domestically (and the home bias of domestic investors provides a discount). Moreover, as people move closer to retirement individuals seek 'safe' assets, such as government bonds, also putting pressure on rates. More generally, lower interest rates are often considered to be associated with lower potential GDP growth.
- As the current account turns negative then there may be pressure on interest rates, as external finance will be increasingly relied upon. However, even as Japan's current account surplus has narrowed interest rates have stayed low. This may reflect the impact of monetary policy – the Bank of Japan has been buying up a substantial share of government bond issuance as part of its monetary stimulus programme. Moreover, international factors also affect rates, and interest rates in most developed countries are currently at low levels.
- That said, the impact on the current account is not necessarily clear cut and may change over time. The current account is equivalent to investment less savings. Investment is also likely to fall as the population ages and studies have found national saving and investment tends to move together although the link is weakening as economies become more open.
- Looking at the current account in national savings and investment terms can create the impression that it is purely a function of domestic factors. However, the current account measures a country's interaction with the rest of the world, and so external factors are also important, with movements in the exchange rates used to align all the individual country forces in play. This means that demographic changes in other countries will also play a role, with ageing also occurring in many other countries, as well as declines in population in some. The stage of ageing matters so as the countries around the world, and Japan, move into different phases, the demographic impact on Japan's current account will change. For example, some studies have suggested that there may be an improvement in Japan's current account balance in the 2030s as the 'echo boomers' (the children of the early post WWII baby boomers) enter their prime savings years and ageing intensifies in other countries.

Figure 11: sectoral net lending & current account



Sources: Cabinet Office, BoJ/MoF, NAB. Series break in 2004. RoW extended into 2013 and 2014 based on current account (BoP) data to Oct.14

Figure 12: Saving and Investment

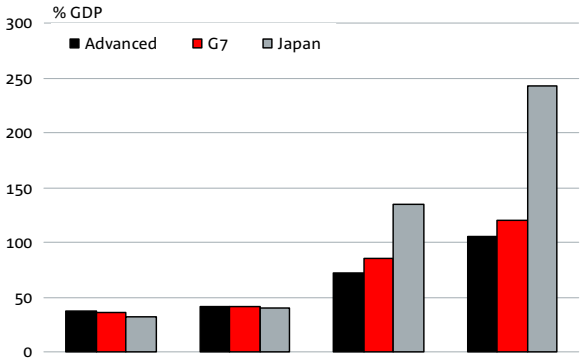


Sources: Ministry of Internal Affairs & Comm,. Cabinet Office, NAB

...complicating an already difficult Government budget position

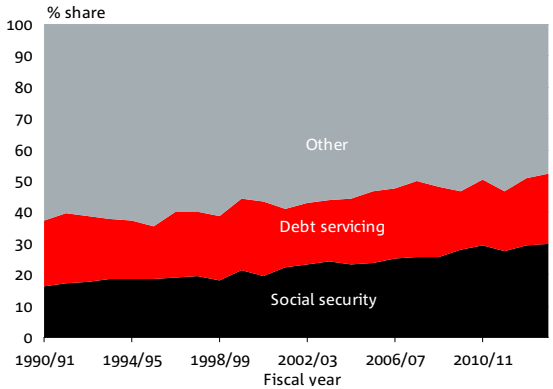
- An ageing population also puts pressure on Government budgets. This is of particular concern for Japan given its poor fiscal position; its level of government debt is well above other advanced and major economies, particularly on a gross basis.
- Changing demographics can put upwards pressure on spending while at the same time placing downwards pressure on revenue as the economy grows more slowly.
- Ageing increases demand for government services (or services government contributes to) such as aged care and income transfers such as pensions. These pressures are clearly at play in Japan's pension system, which is funded on pay-as-you-go basis – contributions have slowed as payments have picked up.
- The Government is aiming to improve the budget but these dynamics will make it difficult, particularly given increasing voter share of older people. Even before the decision to postpone next year's VAT increase the Government was struggling to meet its targets. It is relying on Abenomics structural reforms to deliver a big growth dividend ('economic revitalisation case', figure 16).
- A risk with major long-term fiscal consolidation is that it lowers growth (either through demand effects, increased uncertainty, or adverse efficiency/incentive impacts of higher taxes). That said, Japan raises a relatively low amount of revenue compared to its peers. Therefore, the scope for adjustment is there, although the magnitude of the change will make it difficult. If done too late, the risk is that a loss of confidence in Japan's ability to repay its debt could cause a spike in interest rates.

Figure 13: General Government finances



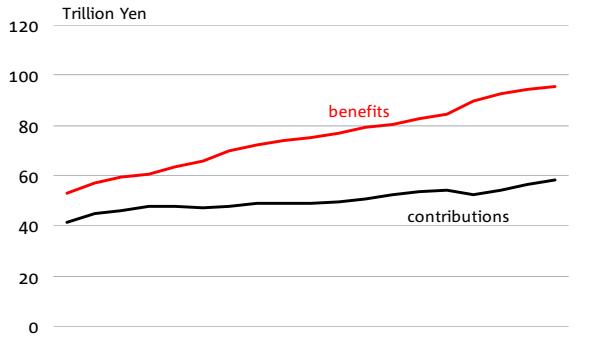
Source: IMF

Figure 14: General account spending



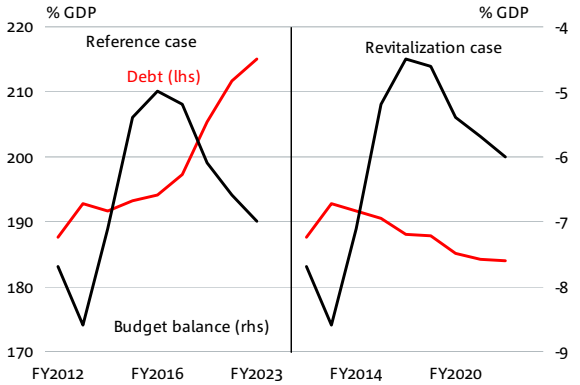
Sources: Econdata DX, ThomsonReuters Datastream, Cabinet Office, NAB.

Figure 15: Social security finances



Source: Econdata (dXtime)

Figure 16: fiscal outlook

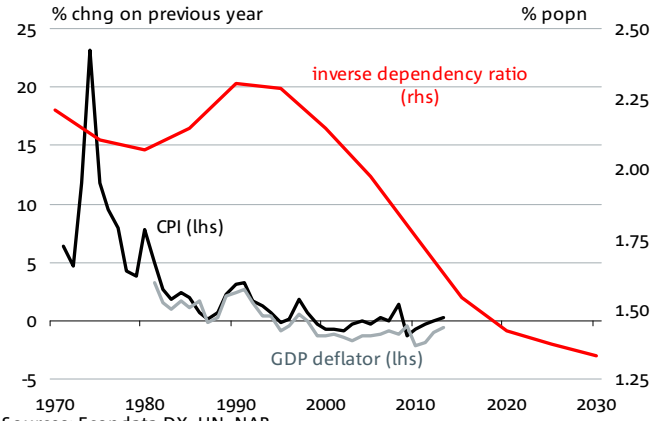


Source: Cabinet Office Medium Term Projections (Jan. 2014)

Are Japan's demographics deflationary?

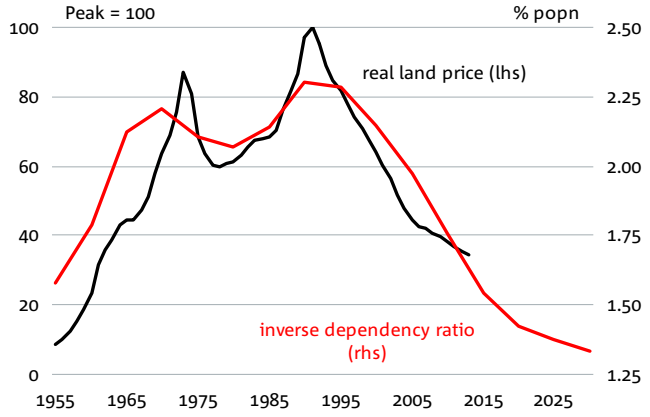
- Following the bursting of its asset price bubble in the early 1990s, and the accompanying slowdown in economic growth, inflation at first decelerated and, by the mid-1990s, turned negative. It is considered that this deflationary period has been a negative for the economy. The ongoing deflation has been partly attributed to ageing. However, it is not clear that this is the case.
- There has been a close link between demographic changes and land prices. A slowing rate of population growth, or decline, suggests a lower need for land, a commodity which is in relatively fixed supply. Land prices since the early 1990s – the low point of the dependency ratio - have declined both in absolute terms (in 2014 they were around 65% below their 1991 level) and relative to prices for goods and services (figure 18), although other factors behind the bursting of Japan's asset price bubble clearly also contributed.
- However, the decline in inflation preceded the increase in the dependency ratio (although it roughly matched the population growth slowdown) and has been broadly unchanged for over a decade, even as the demographic changes continued.
- Clearly other factors are at play. A smaller and older population will affect both demand and supply as well as the composition of activity. How the economy reacts to this and how well it switches resources to where they are needed, will have implications for prices. A run down in the savings rate as retirees fund consumption out of savings suggests that demand may be less affected than supply – possibly inflationary. However, research has identified possible deflationary channels. For example, an IMF[1] paper identified as possible channels falling land prices, Yen appreciation (including from a repatriation of foreign assets as older Japanese run down their savings), and the need for (age-related) fiscal consolidation which may depress demand.
- Even so, there are always a range of factors acting upon inflation and the central banks role is to manage this. A famous dictum in economics is that "inflation is always and everywhere a monetary phenomenon". Put another way, if a country is experiencing persistent deflation then the central bank isn't trying hard enough, Indeed the Bank of Japan has been subject to much criticism during the deflation period for its actions. However, the current head of the Bank of Japan is anything but half hearted in his attempts to end deflation and recent policy has indeed led to an increase in inflation. Even land prices are showing signs of moving up, with prices in the six biggest cities recording their first increase in over five years in late 2013 (and prices rose further in 2014).

Figure 17: CPI inflation and ageing



Sources: Econdata DX, UN, NAB.

Figure 18: Land prices and ageing



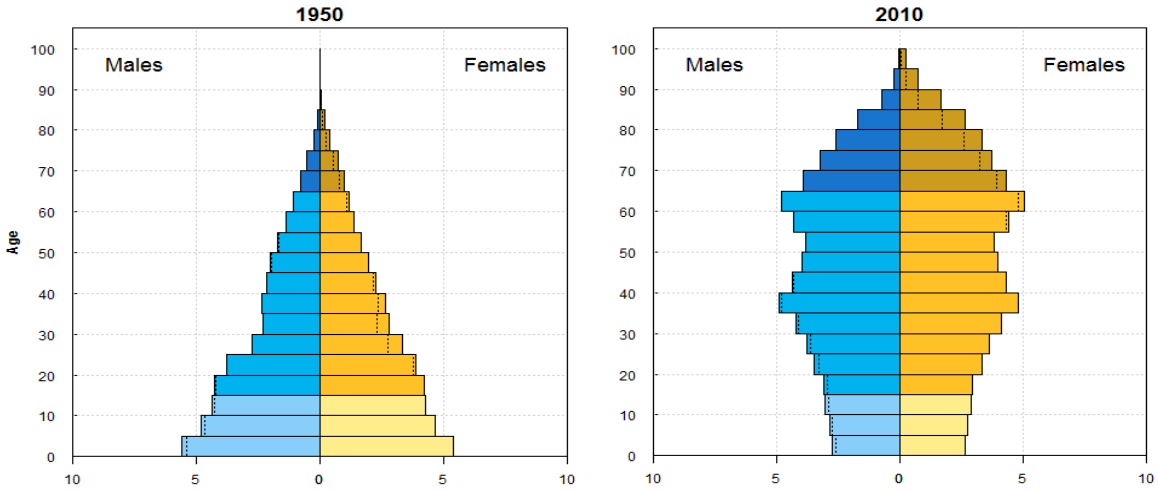
Sources: Econdata, NAB, UN. CPI ex imputed rents used to deflate land prices

1. Anderson D., Botman D., Hunt B. Is Japans Population Aging Inflationary, WP/14/139, August 2014

Pervasive effects on the economy's structure

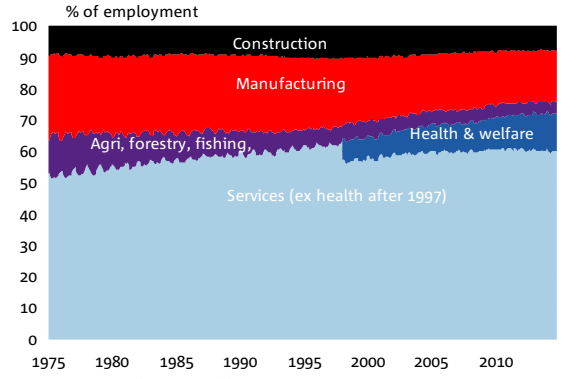
- Aside from these big macro impacts, demographic changes will affect many aspects of the economy (which will affect social structures as well).
- This can be seen very clearly in the labour market, which has long been characterised by a seniority based pay structure. This may have worked well many decades ago when there were relatively few older workers, but this has now been turned on its head. Moreover, this approach was also matched with mandatory retirement (typically 60) discouraging workforce participation by older workers.
- Aging will also change the mix of goods and services demand by households, and therefore the mix of activity. In particular, it is likely to reinforce the normal trend towards services and away from goods. These trends can be seen in the employment industry mix, with the share of employment in manufacturing, construction and agriculture declining, while services employment is rising, particularly in the health and welfare services sector.
- Population decline also has consequences for construction (although ageing, as it tends to reduce average household size, may mitigate this). Some regional towns will also likely suffer large population falls.
- The need for resources to move from one sector to another places a premium on labour market flexibility, putting pressure on the concept of lifetime employment with a single company. Moreover, parts of the service sector in Japan are highly regulated and not particularly productive. The rise in structural unemployment in Japan has been attributed, in part, to demographic factors.

Figure 19: Seniority-based wage system may have made sense in 1950, less practical now



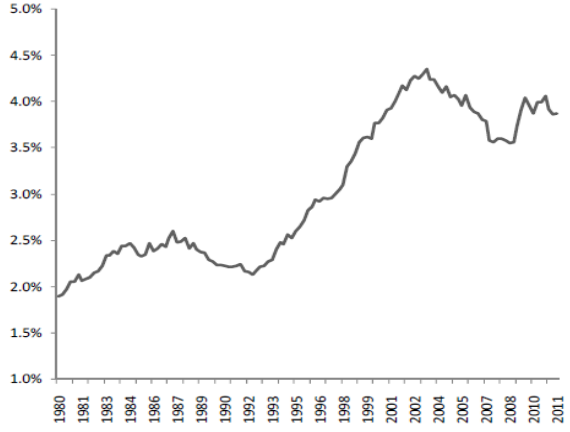
Source: United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, Volume II, Demographic Profiles (ST/ESA/SER.A/345)

Figure 20: Employment shares by sector



Source: Ministry of Internal Affairs & Communication, NAB

Figure 21: structural unemployment



Source: Katagiri M., Economic Consequences of Population Aging in Japan: Effects Through the Demand Structure: Discussion Paper No.2012-E-3, Bank of Japan

Where to from here?

- Concerns over the rate of population growth are not new. Over two hundred years ago Thomas Malthus was predicting population growth would exceed the ability of food production to keep up. More recently, declines in the fertility rate in Japan in the 1950s– supported by government programs - were called a 'miracle' given the concerns over over-population.
- However, there is no obvious pre-set level of population that is ideal. Most nations are far wealthier than they were in Malthus' day and, due to technological change and innovation, this is likely to continue at least on a per head basis. The ageing of society has not only been driven by declining fertility rates, but also by increased life expectancy, itself a major positive development.
- The challenge for Japan, and other countries that experience simultaneous population decline and ageing, is the resulting adjustment that is required to economic and social structures.
- Japan is slowing evolving to meet these new challenges – increasing the participation of women in the workforce has been a theme of the current (and previous) governments, including through expanding childcare. Traditional labour market approaches are changing even if slowly (the seniority based pay system is weakening, with more importance being placed on performance). Adjustment will not always occur smoothly or without problems – there is a large dichotomy between 'regular' and 'non-regular' workers with the latter growing most rapidly (including many female workers). This dual workforce arrangement – while it increases flexibility and facilitates entry to the workforce for many - is itself seen as a problem and a brake on productivity.
- More fundamentally, rising dependency ratios might give the impression of an ever increasing burden but this can be misleading. These ratios are based around pre-set definitions of what constitutes working age. However, if, as society ages, the ability to work longer also increases then the 'burden' should rise by less. Part of the problem arises from rules about retirement age – e.g. as part of the pension system – which discourage older people from remaining in the workforce and the difficulty of changing these rules. The risk is that adjustments are not made in time – a risk highlighted in Japan by its already very poor budget and fiscal position.
- Given the underlying population dynamic, 'Abenomics' rightfully stressed the importance of structural reform. With the population declining and the workforce under even greater pressure, Japan will only be able to lift its growth rates by increasing its pace of productivity growth. So far the pace of reform under Abenomics is generally regarded as slow, although how the authority that comes with the government's recent big election win is used (e.g. to push through politically difficult reforms) remains to be seen.
- Lastly, it is worth noting that a declining population and workforce also means that benchmarks normally used to assess economic performance are not that useful. Declaring a recession after two quarters of negative GDP growth when the trend growth rate is minimal means that there will be lots of headlines of 'recession in Japan' even if things are going along okay; growth in GDP per capita may be a better measure of the economic cycle.

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