

Asia in the ageing century: Part I – Population trends



CEPAR research brief 2013/01

Summary

- *This is the first research brief in a three-part series that looks at Asia in the ageing century. This briefing sets the demographic context. With a focus on the countries of East and South-East Asia, it summarises past and projected trends and highlights the latest research in the area, including projects conducted by CEPAR researchers.*
- *In total population terms Asia's growth is expected to slow, but within 30 years it will still add one billion people to the world's population. By then, East and South-East Asia's population growth will have stabilised. The more significant change will be the region's age structure. Half of the extra one billion Asians by 2040 will be over 65. The ratio of the older (65+) to the working-age population (15-64) will more than triple in many countries of East and South-East Asia by 2050. China will by then have an older population than Australia or the United States.*
- *Driving this demographic transition are increases in life expectancy and decreases in fertility, taking place at much lower levels of development than in the west. Life expectancy in China, for example, is a mere 3.5 years less than in the United States, even though income per capita in the US is ten times that of China.*
- *The demographic dividend of large cohorts of young people was until now a boon to economic growth. There is now a window of opportunity of around a decade or so before the proportions of working-age populations across East and South-East Asia start to substantially decline. This means that now is the time to set up policies, institutions, and economic structures that will be favourable in the later stages of demographic shift, before ageing becomes a headwind hindering economic growth.*
- *Future growth will rely more heavily on that other dynamo of East Asian economic growth: higher productivity per worker as urbanisation drives farmers to factories, or, with slowing urbanisation, as technology and education raise the efficiency of existing urban (and rural) workers. Even as China's urbanisation growth slows, India and China are expected to add half a billion to Asia's urban population in the next 20 years.*
- *In addition to these trends, the brief discusses social trends and how ageing, urbanisation, and the changing social fabric are eroding traditional support systems.*
- *In parts II and III of the series, the discussion covers two areas of economic activity of particular importance to the demographic transition: the means of providing retirement income on the one hand and healthcare on the other.*
- *The overall message is clear. The Asian century will also be the ageing century – an important concept to grasp for countries, institutions, and individuals wishing to understand their place in its future.*

1. Introduction

In the next thirty years an additional one billion people will call Asia home. But an expansion in the size of Asia's population and its burgeoning economies is taking place in step with dramatic demographic changes to its age structure, urban-rural distribution, and social norms.

Different parts of Asia are at different stages of demographic shift. Most of the population growth will be in South Asia, which is also younger and still has much more urbanisation ahead of it. East and South-East Asia is expected to contribute around a quarter of the extra one billion Asians by 2040, after which point its population is expected to start declining.

Japan, for instance, has reached the future first, with an older population unparalleled in human history and one that will continue ageing and result in a shrinking population. Other nations, such as China, are still young but ageing faster than many advanced economies, including Australia and the United States. Recently, China's Vice Premier publicly said that the scale and speed of the ageing population has exceeded expectations and that "*China has not adequately prepared to respond to the ageing population*" (Government of People's Republic of China, 2012).

This is the first research brief in a three-part series that looks at ageing in Asia. The series focuses on countries in East and South-East Asia, but with contrasting comparisons to key regional countries such as India and Australia. This brief sets the demographic context. It makes use of the latest data on past and projected population, urbanisation and social trends and summarises research in the area, including highlights of work being conducted by CEPAR researchers. Population projections are based on UN estimates, using 2010 as the base year.

In parts II and III of the series, the discussion covers two areas of economic activity of particular importance to the demographic transition: the means of providing retirement income on the one hand and healthcare on the other.

2. Total population

Asia's population is still growing, and will add another one billion to the world total...

Asia is home to over four billion people and makes up 60 per cent of the world's population. It has contained the majority of the world's population for a long time. Its share of the world population was 63 per cent in 1750 (Biraben, 1980).

UN estimates suggest that one billion of the predicted 2.1 billion increase in the world's population by 2040 will be in Asia. Figure 1 shows this increase through to 2050 across various world regions. While there will be 1.16 billion more people in Asia by 2050, on a par with the expected increase in Africa, the

increase in other regions will be more modest. For example, Europe's population will increase by a mere 20 million.

...but this growth is slowing, particularly in East and South-East Asia

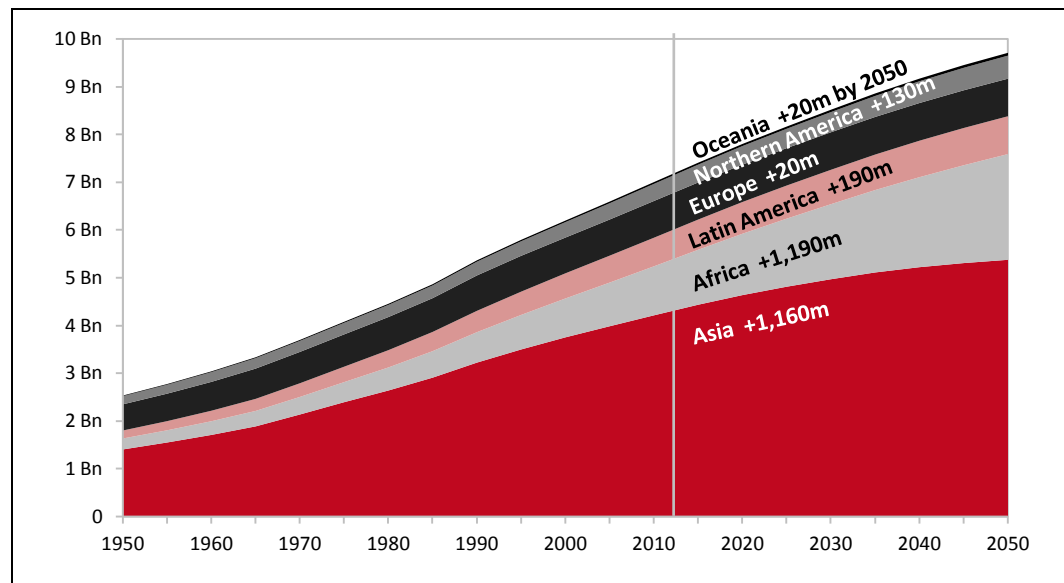
Nonetheless, population growth is slowing in all regions, particularly in East Asia. Indeed, East and South-East Asia will contribute around 240 million to the extra one billion Asians by 2040 but then its population is expected to start declining. An inflection point in population trends took place in the mid 1990s, both in the Asian continent's population and in the population of the world. Average annual population growth on the continent was approximately 3 per cent in the past 50 years but is expected to average 0.6 per cent over the next 50.

To a large extent these numbers are driven by what happens in China and India, which together are home to 2.6 billion people at present. While China's population is expected to stabilise at 1.4 billion by 2050, India is expected to add half a billion to its current population of 1.2 billion.

And in Japan the population is expected to decline

Naturally a region of this size is extremely diverse. We know for instance, that the population of Japan is estimated to decline by about 10 million by mid-century.

Figure 1. Total population trends



Source: UN (2011a)

3. Age structure of the population

What is more significant is rapid population ageing

Asia is growing decidedly older. Half of the extra one billion Asians by 2040 will be over 65. The continent's median age is moving from around 30 now to a predicted 41 in 2050. But the average hides considerable variation. Japan is the world's oldest country with a median age of 45, which is expected to increase to 52 by 2050. On the other hand, Timor-Leste is one of the world's youngest countries by the same measure: the median age is 17, which is expected to

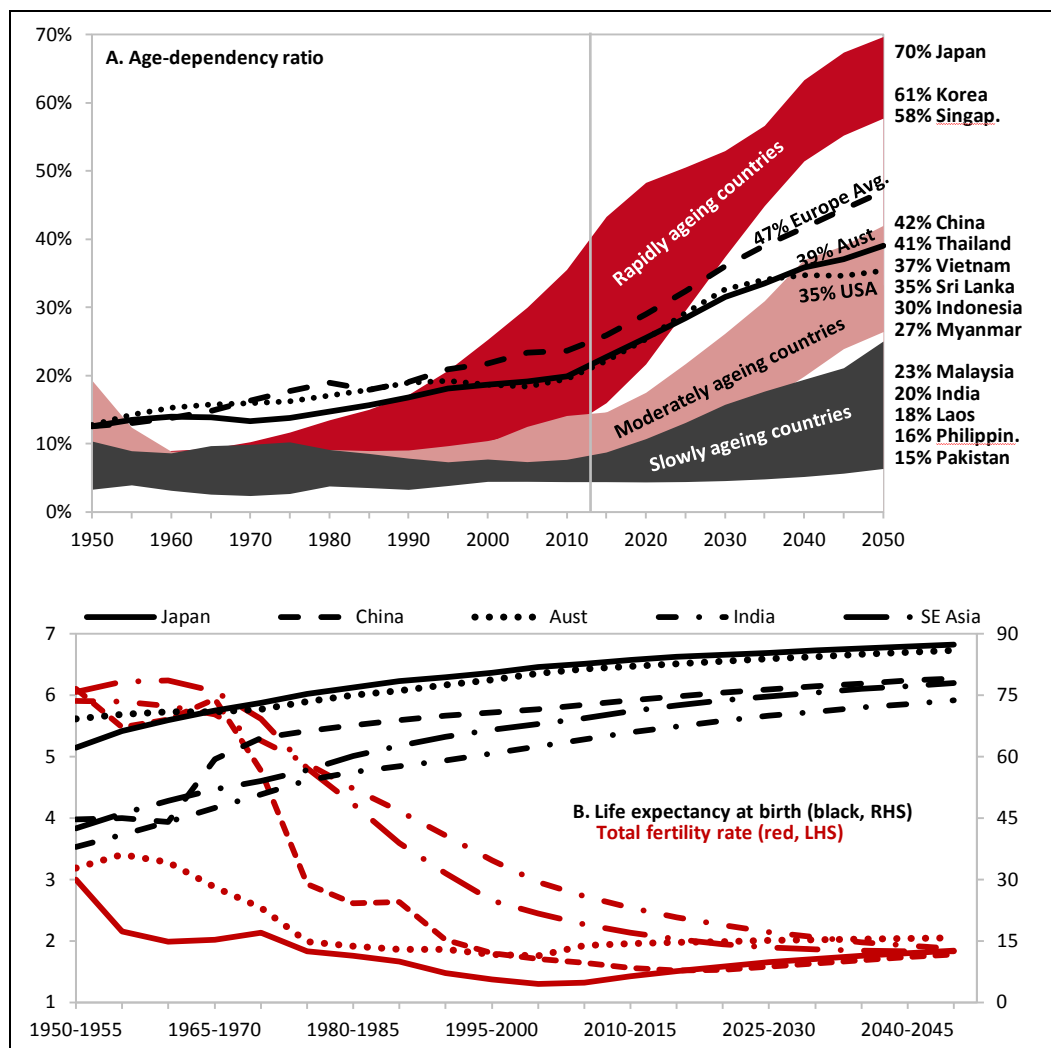
increase to just 25 by 2050. For context, Australia’s median age is currently 37, and this is expected to rise to 42 by 2050.

An important way to measure the age structure of the population is to look at the age-dependency ratio: the number of those traditionally in retirement (age 65 and above) as a proportion of those who are of traditional working-age (15-64).

Some Asian countries, though younger now, will soon be older than those in the west...

By mid-century, Asia as a whole will achieve an age structure similar to that of today’s more developed regions. In Figure 2.A, countries from East, South-East Asia and South Asia are divided into three groups according to the timing, level and speed of their ageing.

Figure 2. Population ageing and its drivers



Source: UN (2011a). Note: Stated percentages in Panel A denote expected level in 2050. UN data groups Taiwan under 'Other non-specified areas', where dependency ratio increases from approx. 15% in 2010 to 67% in 2050.

Those ageing the fastest include Japan, Korea and Singapore, where the ratio of the older population (65+) compared to the working-age population (15-64) will be between 58 and 70 per cent by 2050. For Singapore, this means a quadrupling of the dependency ratio from 14 to 58 per cent in less than two generations. By

2050, these countries will have a higher level of age-dependency than the overall level in Europe, which is expected to double to reach a level of 47 per cent.

South Asia, by contrast, is ageing but at a slower rate

At the other extreme are a number of countries with much younger populations that, despite some ageing, will have an age-dependency ratio that is broadly at or below Australia's current level of 21 per cent in 2050. These countries include India, the Philippines and Pakistan.

In between are countries that, although still relatively young, will achieve a level of age-dependency similar to that expected for Australia (39%) and the USA (35%) in 2050. These include several countries in South-East Asia as well as China, which is expected to have a dependency ratio of 42 per cent in 2050.

4. Drivers of population ageing

Driving such change is the rapid increase in life expectancy...

The rise in longevity, as a result of higher material wellbeing, advances in medicine and improved access to health services, has been the main driver of the initial stage of demographic transition to an older population (Preston, 2975; Figure 2.B).

For example, key markers of China's demographic transition were visible in the 1970s when, by the end of the Mao era, it was able to achieve relatively high levels of good health at what was still a low per capita income. Life expectancy increased from around 45 years in 1950 to 74 years now – levels that developed countries took a century to reach and a change that has been described as the “*most rapid sustained increase [in life expectancy] in documented global history*” (Eggleston and Fuchs, 2012). The Chinese now have a life expectancy only 3.5 years less than that of the United States even though they have one tenth of the income per capita (UN, 2011a; World Bank 2013).

...and declines in fertility

In most cases, the next stage of the transition involved a fall in birth rates. This has been the result of a combination of factors acting to different degrees in different countries, including access to contraception, higher wages, urbanisation, a reduction in subsistence agriculture, and changes in values and social norms such as parental investment in the education of children, the status and education of women, and the availability of private and public support to allow women to combine work and raising a family (See Box 1).

Japan fertility declined earlier and further than elsewhere

In the early 1950s fertility rates in both Australia and Japan were the same at 3 births per woman. By the mid 1980s, Japan's fertility rate had dropped below the replacement rate of 2.1 and has languished at a low level ever since. Hong Kong, Korea, Japan, Macao, Singapore and Taiwan currently have among the lowest birth rates in the world at between 1 to 1.4 children per woman, and well below those seen in other advanced economies.

By contrast, countries in southern Asia currently have some of the highest fertility rates on the continent, though these too have declined from past highs. For example, India's fertility rate declined from six children per woman in the 1950s to 2.5 in the period 2010-2015. China, with its strict population policies and rapid socio-economic development, saw the same level of decline over the 15 years to 1980 as India has over the last 60 years. Precipitous drops in fertility to levels below replacement have repercussions several decades later, driving declines in the labour force, increasing the speed of population ageing, and, if sustained over several generations, can result in the shrinking of the population.

Box 1. CEPAR research spotlight: Fertility in East Asia

Developed East Asia shares the characteristic of very low fertility with Southern European and German-speaking countries. By contrast, fertility is relatively high (1.7 to 2.1 births per woman) in Nordic, English, French, and Dutch speaking countries. So what are the explanations for such a definitive cultural split?

CEPAR's Chief Investigator, **Peter McDonald**, has examined such questions in some detail (McDonald, 2008, 2009, 2011). He notes that countries from different cultural spheres and of varying fertility levels have all experienced increased education levels and labour force opportunities for women. In all cases, this has resulted in women building up human capital and delaying first births. The key difference between the two sets of countries is that women in low-fertility countries have not been making up for the late start. Many end up having one child or none.

The reason put forward relates to the support available to women to allow them to combine work with childbearing. The support can range from government policies to accommodating employers and community attitudes. In low fertility countries social institutions are such that care for children is the responsibility of families (primarily women) rather than of the state or employers. East Asian economies may have been able to adopt new economic models very quickly but they have been slow to adopt new social models.

In shaping their responses policy makers in East Asian have looked to France and the Nordic countries. McDonald argues that looking to English-speaking countries with liberal economies similar to East Asia may yield greater success. There is no silver bullet, but policies should include *"income support for families with children, affordable/quality child care and early childhood education, flexible working hours, parental leave, part-time work in one's own job and reasonable working hours"* (McDonald, 2008, p23). Importantly, reform to change social institutions must be supported by business groups, politicians and women's groups.

At these levels of fertility a country can disappear

Indeed, in the absence of longevity increases or migration, a fertility rate of 1.4 over two generations would mean that the cohort of grandchildren would be half the size of the cohort of grandparents and the population would practically disappear within ten generations. The UN projects that fertility rates in most

countries will tend toward just below 2 children per woman, but some countries have policies to increase fertility rates, such as Singapore’s ‘Marriage and Parenthood Package’ first implemented in 2001, which have met with limited success (see Table 1 for summary and Box 1 for explanations). Others have low fertility rates as an objective.

But there are both inter- and intra-national differences

While there is diversity across Asia, there is also considerable sub-national variation in demographic trends. Rural and urban populations tend to have significantly different fertility rates and life expectancy. For example, in 2000, life expectancy in rural China was about 6 years less than in urban areas (Wang and Mason, 2008). Fertility rates in Shanghai are less than half of the national rate and these same populations are now ageing faster than other parts of the country. It is estimated that nearly a third of Shanghai’s residents will be aged 60 and above by 2015 (SMPFPC, 2012).

Table 1. Fertility policy in selected countries

	Fertility: children per woman (2010-2015)	View on fertility (2009)	Policy on fertility (2009)
Japan	1.4	Too low	Raise
Korea	1.4	Too low	Raise
Singapore	1.4	Too low	Raise
Thailand	1.5	Satisfactory	Maintain
China	1.6	Satisfactory	Maintain
Vietnam	1.8	Too high	Lower
Australia	1.9	Too low	Raise
Indonesia	2.1	Too high	Lower
India	2.5	Too high	Lower
Laos	2.5	Too high	Lower
Malaysia	2.6	Satisfactory	No intervention
Philippines	3.1	Satisfactory	Lower

Source: UN (2011a, 2011b). Note: Current rates may be different to these projections, which assume some convergence.

5. Window of opportunity

The first part of demographic transition results in more workers, which can increase economic growth

Increases in life expectancy and decreases in fertility have been associated with the rising levels of per capita output seen across Asia. The phenomenon has come to be known as the ‘demographic dividend’. Rising life expectancy means that a higher proportion of each cohort is living long enough to work. At the same time, decreasing fertility means a greater proportion of younger women can also participate in the labour market (Guinnane, 2011).

The demographic dividend may have accounted for 15 per cent of China’s economic growth between 1982 and 2000 (Wang and Mason, 2008) and between one quarter to one third of the growth rates in the “East Asian miracle” (Bloom and Williamson, 1998; Lee et al., 2011; Golley and Tyers, 2012).

It provides a window of opportunity to prepare for an older population

It is important that countries take advantage of this concentration of working-age people before the population ages. It provides a window of opportunity to set up policies, institutions, and economic structures that will be favourable in the later

stages of demographic shift, when demography will result in a headwind hindering economic growth.

This opportunity is represented by the hump-shape curve showing those of working-age as a proportion of the total

The size and change of the working-age population as a proportion of the total population illustrates the scale and timing of the demographic dividend and the window of opportunity available to each society. Figure 3.A, presents this for countries grouped into three categories according to when the relative size of their working-age population reaches its peak.

Most advanced economies, such as Australia and Japan, have already experienced their peak and are now seeing their working-age population decrease. So far, the fall in Australia is only relative to the rest of the population, but in Japan the fall is both relative and absolute. The declines have been softened by increasing numbers of women joining the labour force, however, so the ratios of employment to population have actually been increasing.

Many Asian countries are now at the top of this hump. The window of opportunity will thus close within about a decade

A large number of Asian countries, including China and most of South-East Asia, are currently at the top of this hump and for them the window of opportunity to prepare for an older population will close within the next decade. Countries in South Asia will see that window closing within the two decades.

For the middle group, the next decade will be critical. In an influential paper, Bloom and Williamson (1998) made estimates of GDP growth attributable to demographics between 1965 and 2025, predicting that demographic influences will reduce GDP growth by 0.14 to 0.44 percentage points in the second half of the period. This is something the Chinese government is acutely aware of and noted publicly when China first lowered its GDP growth target in 2012 to a seven-year low of 7.5 per cent (Government of People's Republic of China, 2012).

On the other hand, countries in South Asia are projected to gain from their demographic changes. As their working-age populations grow they are expected to benefit from the onset of a demographic dividend.

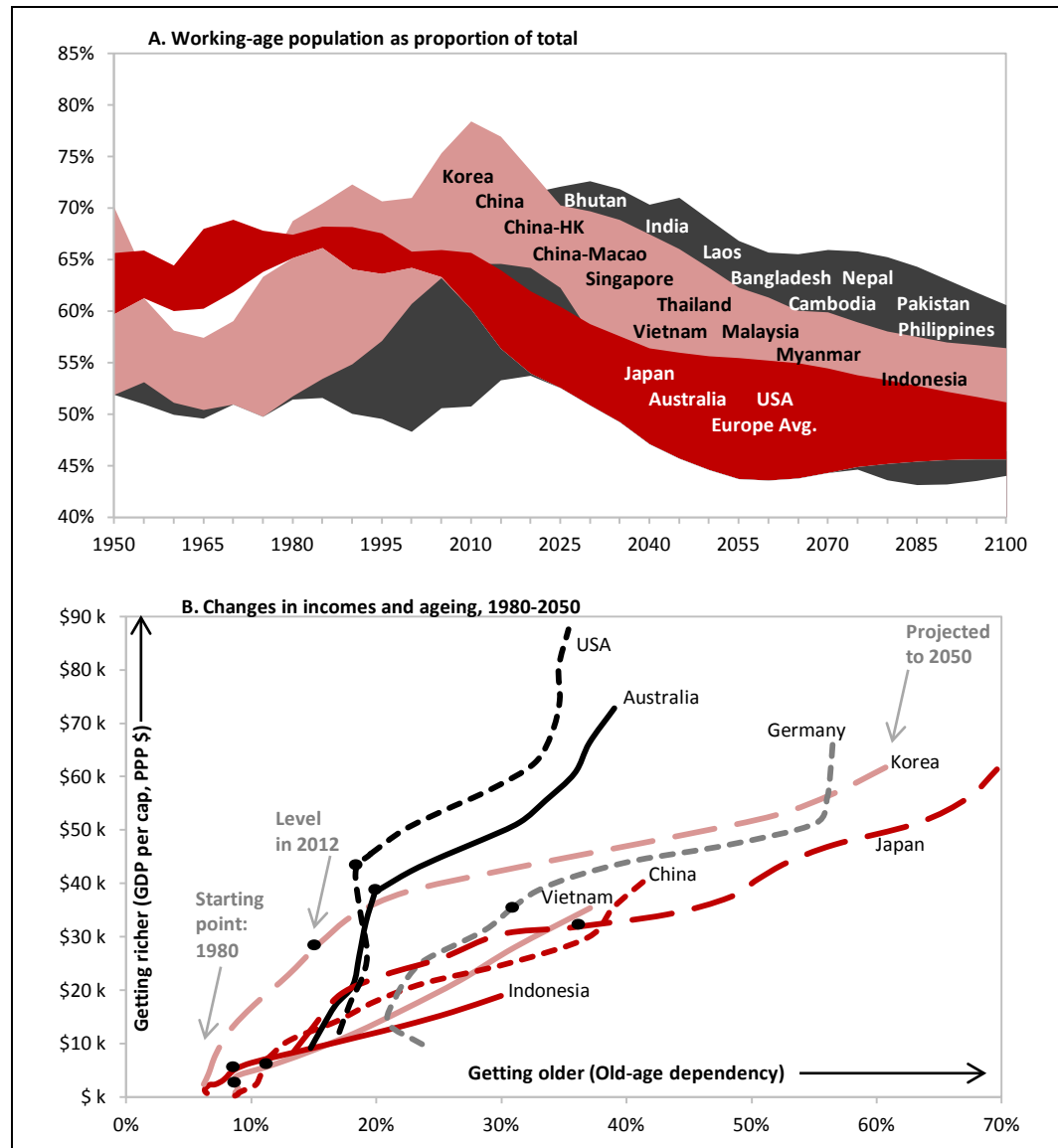
The speed of ageing means these countries may grow old before becoming rich

A key difference between advanced countries and the emerging Asian nations, and one that makes it all the more important to capitalise on the demographic dividend, is that the speed of demographic transition in the latter means that many risk growing old before they become rich.

In a novel way, Figure 3.B plots estimates of GDP per capita and the age-dependency ratio for selected countries between 1980 and 2050. The GDP projections are based on estimates related to each country's (Cobb-Douglas) production function, which accounts for changes in capital and in the labour-force, augmented to include changes to human capital (PWC, 2011). The chart shows that many East and South-East Asian countries will reach a much older age structure at a given level of GDP per capita than has been or is likely to be the case in countries such as Australia and the US.

Of course there are many factors that will influence the rate of economic growth. For example, levels of participation are important and one challenge will be to reduce the growth-slowing effect of an increasing burden of chronic disease relating to high-fat and calorie-rich diets, reduced physical activity, and elevated levels of smoking among males. Some also point to the ‘second demographic dividend’ as one where the old, through longer, healthier, and more productive lives, will benefit society more than was previously expected.

Figure 3. Window of opportunity



Source: Authors' calculations; PWC (2011); World Bank (2013); UN (2011a). Note: Black dots represent 2012 position.

6. Urbanisation & migration

The other big demographic change relates to urbanisation

The other big demographic change – also a driver of GDP growth – has been the rapid increase in urbanisation. Many East and South-East Asian countries, particularly China, have been able to take advantage of greater amounts of labour moving from farms to factories, which act as a motor for their industrial revolutions.

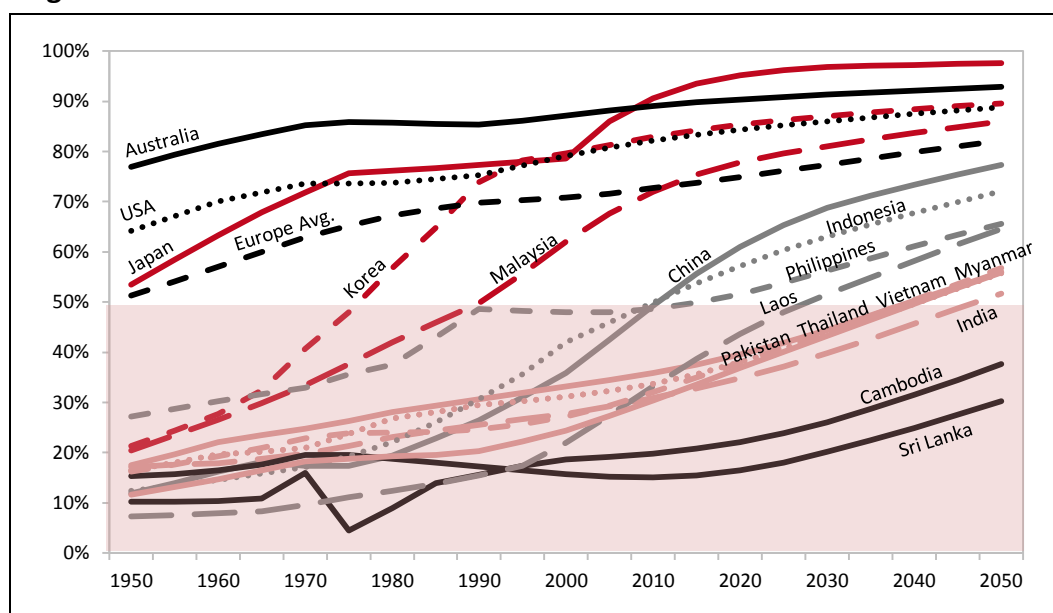
The pace of urbanisation has also been rapid

Though now slowing, the process has some way to go

Past and projected trajectories are presented in Figure 4. Advanced countries, and some emerging economies such as Malaysia, already have high levels of urbanisation. China, which has urbanised very rapidly and currently has just over 50% of its population living in cities, is expected to continue the transition from a rural to an urban society for some time to come. As this process slows, China could encourage rural migration by restructuring its system of household registration. India is urbanising at a more gradual rate – it is projected to hit 50% urbanisation in the 2040s. Given the size of Asia, the percentages translate to extremely large numbers of people. India and China are expected to add approximately half a billion to Asia’s urban population in the next 20 years.

The two demographic shifts described above are not unrelated. Urban centres not only boast higher incomes; they also allow greater access to health services, education, and social networks – factors known to be associated with longer lives (Quinn, 2008). In advanced countries, about 80% of older people already live in urban areas. By 2050, approximately a quarter of urban populations in less developed countries are expected to be over 60 (UNFPA, 2007).

Figure 4. Urbanisation



Source: UN (2012)

International migration is also significant, and may in future involve more skilled migration

Asia’s economic dynamism is reflected in a high level of international labour mobility. In South-East Asia for example, Indonesia, the Philippines and Vietnam have traditionally been labour exporters; Malaysia and Thailand have been both labour importers and exporters; and Hong Kong and Singapore have been primarily labour importers. Based on bilateral migrant stocks (people born in or nationals of another country) in 2010, East and South-East Asia countries were the source of 25 million migrants and the destination for 13 million, nine million of whom were migrants within East and South-East Asia (World Bank, 2012).

Labour migration in the region has grown six per cent annually but flows are likely to intensify over the next decade as demand for skilled workers increases and the average East and South-East Asian worker is endowed with more years in education and professional expertise. The ILO (2011, p113) believes that “*with ageing populations and shrinking workforces, Asia’s high-growth economies will compete for home-grown talent – which may increasingly opt for higher paid jobs and better working conditions in Europe and the United States*”. Inter-regional regulations in ASEAN are already easing labour migration frictions.

Australia and New Zealand are examples of countries with extensive experience of migration policy, particularly relating to skilled migration, which has also allowed them to temper population ageing. This option may be less desirable given the population densities of some Asian countries and unlikely to be effective given the scale of Asia, where migrants will also be older on average.

7. Social changes

Along with economic and demographic development, families are also changing

The demographic shifts have been accompanied by a number of social trends with profound implications. For example, among educated women, there has been a greater inclination to prioritise career development and independence over marriage. Many are delaying marriage or not marrying at all. Also, their investment in education and higher salaries increase the opportunity cost of withdrawing from the labour force to rear children. This, in turn, compounds issues related to low fertility.

For example, as has happened in the West, Asians are marrying less

Figure 5.A shows trends in the proportion of 35-39 year old women who have never married. In 1970, 6 per cent of this age group in Japan and Australia had never married. By 2005 the figures increased to 18 per cent and 22 per cent respectively. The reasons given often revolve around the relative disadvantage of marriage to women. For example women’s economic activity has increased but on average, Japanese women still spend 3.5 more hours of their day doing unpaid work compared to men. The average OECD gender difference is 2.5 hours (OECD 2011).

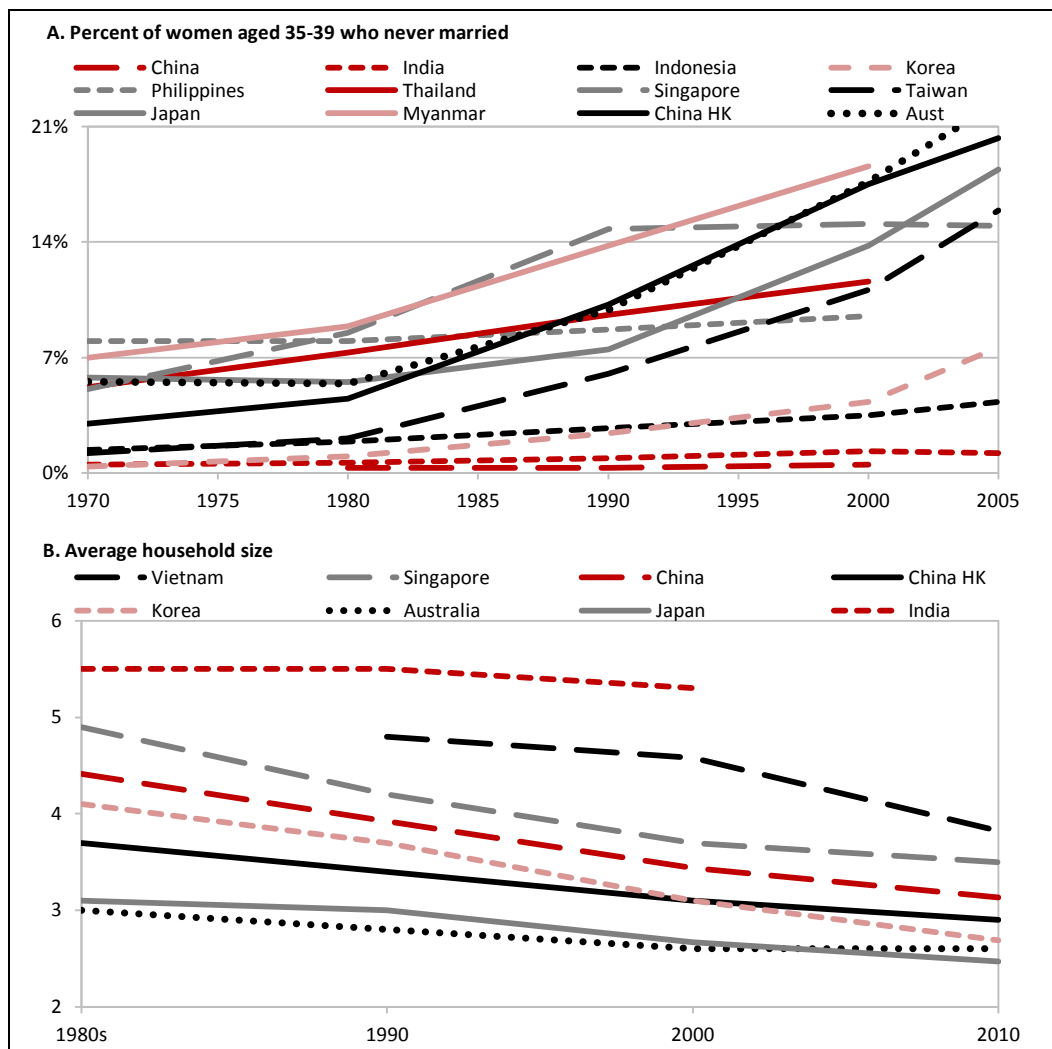
But unlike in the west, this translates to fewer children

In Australia lower rates of marriage have had a much smaller effect on fertility: 34% of births are to unmarried women (ABS, 2010). But in Japan, having children outside of marriage is less culturally acceptable: only 2% of births are to unmarried mothers. The result is fewer children overall. As shown in the chart, these types of trends have not affected China and India so far. But a different type of demographic issue relating to marriage arises in China. The unprecedented increase in the proportion of male to female births means that over 10% of men in cohorts born between 1980 and 2000 are expected to grow old without ever having married (Ebenstein and Sharygin, 2009).

This affects the pattern of family formation...

A combination of independent unmarried living, fertility declines and high levels of internal migration has meant that families and households have been getting smaller across East and South-East Asia (Figure 5.B).

Figure 5. Social trends accompanying demographic shift



Source: Jones (2010); National Statistics Offices

...which can undermine traditional sources of support

Changes in family formation have a knock-on effect on the structures of support that will be available to older people. Evidence suggests that in most countries overall financial transfers are still from older to younger people. But as societies reach advanced stages of the demographic transition and their welfare systems become more comprehensive, this pattern of transfers is likely to switch, as it has in Japan and Germany (Lee and Mason, 2011).

In Asia 74 per cent of people over the age of 60 still live in households with children and/or grandchildren (UN, 2005). Such cohabitation has complex interdependencies and impacts (See Box 2) but the support structures that they do convey are increasingly strained by smaller family units, the prevalence of double- or single-income households, increasing geographical mobility, and an ever greater proportion of older people.

Box 2. CEPAR research spotlight: Interdependencies of cohabitation

As society ages, parents may allocate more resources to older relatives at the cost of children in the household, particularly where social safety-nets are absent.

CEPAR Associate Investigator, **Elisabetta Magnani**, with other colleagues (Magnani et al., 2012), looked at the impact of care-giving responsibilities on the educational outcomes of the household's children in Indonesia.

The results suggest that in some situations there is indeed a diversion of resources away from children that affects their school performance. This is the case where wages that adult children can earn are low compared to the cost of formal care. Children's school performance also suffers where community norms assign bequest on the basis of care provided to the elderly, particularly where assets owned by the elderly are significant. It suggests that policies supporting care need to be sensitive to interactions between economic and cultural factors.

CEPAR Research Fellow, **Shiko Maruyama**, has also looked at questions of cohabitation of elderly parents with their adult children. In Johar and Maruyama (2011) he investigated the drivers of cohabitation in Indonesia. The findings suggest that while parental needs are important, the decision to cohabit is influenced to a larger extent by the private gains and costs of adult children. In fact, it appears that cohabitation is more likely among healthy parents with greater wealth. The results challenge the perception that elderly parents can rely on their children even in a society with traditionally strong family support.

Maruyama's more recent work (Maruyama, 2012; Johar and Maruyama, forthcoming) has tracked cohabiting families in Japan and Indonesia over time to find that there is a negative impact of cohabitation on parental health. Taking account of issues related to sample selection and causality, the results suggest that the survival rate of cohabiting elderly parents in Japan and Indonesia would be 1.7 and 2.7 percentage points per annum higher if they lived independently. Interestingly, this is not the case for parents who are socially active. The papers argue that cohabitation could worsen parental health because living with their children may mean that parents don't invest enough in their own wellbeing.

8. Conclusion

This research brief considered demographic challenges relating to population, urbanisation, and social institutions in East and South-East Asia. Above all, the final stages of the demographic transition will define this as the ageing century as well as the Asian century. Responses will require the introduction of new and strengthening of existing policy, institutions and economic structures. Parts II and III of this series discuss actions falling under two broad topic areas: the provision of retirement income and of healthcare ■

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The ARC Centre of Excellence in Population Ageing Research (CEPAR) brings together researchers, government and industry to address one of the major social challenges of this century. It aims to establish Australia as a world leader in the field of population ageing research through a unique combination of high level, cross-disciplinary expertise drawn from Economics, Psychology, Sociology, Epidemiology, Actuarial Science, and Demography.

CEPAR is one of 13 centres that commenced in 2011 under the Australian Research Council's Centres of Excellence program. It is a global research centre with international university partners, and is supported by the Australian Government, the NSW Government and industry leaders. Our mission is to produce research that will transform thinking about population ageing, inform private practice and public policy, and improve people's wellbeing throughout their lives.

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