

How demography will transform aviation: a very long-term view

Adam Pilarski, senior vice-president at Avitas, writes that China's ageing population is already having an impact on growth, and it will get worse.

Forecasting in our industry deals with very short-term predictions. The aviation business is extremely sensitive to short-term developments. Oil price movements, an outburst of an epidemic or an aircraft crash can have a substantial impact. Hence, most of the forecasting work deals with very short-term developments, such as what will the ticket bookings be next quarter.

A forecast of how many people will utilise an airport in 50 years' time deals with a totally different set of parameters, statistical techniques and objectives. If a forecaster misses long-term trends the newly built airport may be partially empty in a few decades, usually a long time after the forecast's author has retired. Short-term misses may lead to bankruptcy.

Long-term planning starts with the major determinant of growth in air traffic – the economy. A major factor here is demography: the size and composition of the population. These factors are quite stable. The proportion of women of childbearing age that determines population growth would have been determined a few decades previously. We have known for the past 20 to 30 years how many women aged 20 to 30 years old would be alive today. Using Japan as an example, let us look at its demographic developments for the past century.

In 1920, the population of Japan was about 55 million, growing steadily. The age distribution was quite stable: children (ages 0 to 14) comprised about 37% of the total, old people (aged 65 and over) about 5%, while the remainder ("workers") was about 58% of the total. That changed after the Second World War. The birth rates began to fall continuously, leading to a drop in the proportion of children, slumping to 12% today versus 37% a century ago. At the same time, life expectancy was increasing: the proportion of retired folks has risen from 5% to 29% today. The economic implications of such developments are tremendous. The share of working age population initially was rising because there were proportionally fewer children added to the total. The proportion went from 58% to 70%.

Short-term thinking leads some to believe that the best way to increase income per person is to have fewer



Our author at the *Airfinance Journal* Dublin 2019 conference.

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children which is exactly the logic the Chinese government used to institute its one child policy in about 1980. The idea was that one less child being born (with the same income) must necessarily result in increased income per person. In the longer term, though, fewer children leads eventually to a smaller labour force. Coupled with longer life expectancy this must lead to lower economic growth. The working age population in Japan is 59% now, down from 70% three decades ago. And from now on the number of retirees will continue growing but the number of workers joining the labour force will not.

The outcome was quite predictable. The Japanese economy grew by more than 9% annually in the 1960s, reaping the benefits of a larger proportion of working age people with fewer children to support. But the lack of children led to an eventual lack of workers entering the market. So, in the past three decades the economy grew by

less than 1% a year. This led to Japanese air travellers growing by double digits in the 1970s and less than 1% annually since the year 2000. These profound changes took a long time to take effect and reversing them in the short term will not be possible unless Japan dramatically changes its immigration policies.

A number of countries faced similar circumstances as Japan (South Korea, Singapore, etc). They experienced lower birth rates leading initially to a higher proportion of working age population, increases in GDP per person and very robust traffic growth. That was inevitably followed by slowing growth in new workers leading eventually to lower economic and traffic growth.

For example, South Korea's demographic transformation saw old people outnumbering children in 2017, continuing long-term trends (there were almost 15 children per retiree in 1950). Economic growth responded to these demographic changes, dropping from 9.3% annual growth between 1970 and 2000 to half that level (4.5%) since then.

The relevance to our industry concerns the future impact of China because it is the second-largest economy and aviation market in the world. In 1985, Chinese carriers flew seven million passengers, which today has grown to well over 600 million. This long-term growth has been implicitly incorporated by the world's airlines, manufacturers and financiers in planning their own future. However, China's demographic transformation trails that of Japan. We project that the old will surpass the young only by 2030 (in Japan this happened in 1997). Nevertheless, the underlying demographic changes mentioned are already occurring and have reduced economic growth from solid double digits to maybe 6% currently. The Chinese government had realised these facts and abolished its one child policy but possibly too late because demographic changes are notoriously slow.

Recognising the inevitable, but much delayed, consequence of demographic changes, it is hard to believe that China will not follow Japan's history in the coming decades. It behoves us to pay attention to these long-term developments for planning our future in aviation. ▲