Institute of Policy Studies

Scenarios of Future Population Growth and Change in Singapore (Part II)

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The IPS Demography and Family cluster embarked on a project in 2007 to study scenarios of future population growth and change in Singapore. This article highlights four possible population scenarios for Singapore over the period 2005-2050 based on different assumptions about future fertility and migration trends, as described below.[1]

As in our previous article in the March issue of *IPS Update*,[2] we ask two questions:

1) What would the future population of Singapore be like if the Total Fertility Rate (TFR) remains extremely low over the long term; and
2) What would be the likely effects of raising the TFR versus increasing immigration on the future population of Singapore?

The earlier article showed the trends and changes in the sizes of the total resident population as well as the population in three broad age bands, namely, the young (aged 0-14 years), the working age population (aged 15-64 years) and the elderly (aged 65 and above). In this article, we examine changes in the age composition of the population in terms of their relative shares in the total population, the median age of the population and the potential support ratio. It concludes with some policy implications for the future.

Scenarios

To recap, the four scenarios are:

1) TFR remains at 1.24 births per woman and there is zero net migration throughout the projection period (Constant Low Fertility, Closed Population).

[1] The Demography and Family Cluster at IPS acknowledges the contributions of Dr. G. Shantakumar and Ms. Hazel Macadangdang in generating the population projections used in this article. The information presented here are part of a set of 48 scenarios generated. Dr Shantakumar is a statistician/demographer who has retired after serving as Associate Professor in the Department of Economics, National University of Singapore. Ms Macadangdang worked under the supervision of Dr Shantakumar.

[2] The first article in this two part series which highlights the study's findings is available at: http://www.spp.nus.edu.sg/ips/docs/enewsletter/Mar2011/MT_Scenarios%20of%20Future%20Population%20Growth%20and%20Change%20in%20Singapore_010311.pdf

2) TFR remains at 1.24 births per woman and 30,000 net migrants are added annually throughout the projection period (Constant Low Fertility, Low Migration).
3) TFR remains at 1.24 births per woman and 60,000 net migrants are added annually throughout the projection period (Constant Low Fertility, Medium Migration).
4) TFR rises gradually from 1.24 to 1.85 births per woman by 2025 before stabilising at this level and there is zero net migration throughout the projection period (Rising Fertility, Closed Population).

Mortality assumptions are common for all four scenarios. These are represented by life expectancy at birth which is assumed to rise from 77.4 years in 2005 to 79.7 years in 2050 for males, and from 81.3 to 84.6 years over the same period for females. The base population used is the resident population of Singapore in 2005.

Age Composition of Population

Information on absolute numbers is important as they have implications for the planning of care and services needed and the availability of providers. However, it is also important to know the relative shares of these three main age groups over time as they give an indication of the changing burden of support.

Figures 1-4 show the shifts in the age composition of the population over time under assumptions of the four scenarios. Both the proportion of the young and the proportion in the working ages are projected to decline from their 2005 levels under all four scenarios, while the proportion of the elderly is projected to rise. This shift in the age composition towards the older ages is what demographers refer to as “population ageing”.

The median age of the population is a summary indicator commonly used to measure population ageing. This is the age which half the population falls above and below. As Figures 1-4 show, the median age is projected to rise under all four scenarios.

The extent of population ageing, however, varies under the four scenarios. The population will age the most under scenario 1, with the proportion of the elderly reaching 33.1% by 2045, from 8.4% in 2005. The median age is projected to rise from 36 years in 2005 to 54.6 years in 2050.

In-migration reduces the pace of population ageing, especially as the level of in-migration is raised. The median age in 2050 would only be 45.7 years under scenario 2 and 41.6 years under scenario 3. Raising the TFR would have a smaller effect on population ageing. Under scenario 4, the median age in 2050 would be 50.9 years and the elderly is projected to make up 30.2% of the population, compared to 23.4% under scenario 2 and 18.8% under scenario 3.

Support Ratios

A main concern over population ageing is the provision of financial and other support services for the old. Such support is likely to come from the population in the middle age band through taxes, the provision of physical and emotional care, and the like. In this regard,

it is just as important to pay attention to the changing proportion of the population in this age group as it is to the changing share of the elderly.

As mentioned, the population of working ages is projected to form a declining proportion of the total population. The declines are larger if the population is closed (scenarios 1 and 4) than if it is open to immigration (scenarios 2 and 3).

Figures below show the population composition by age group and the median age in the four scenarios.

Figure 1: Median Age and Proportion of Population by Age (Scenario 1)

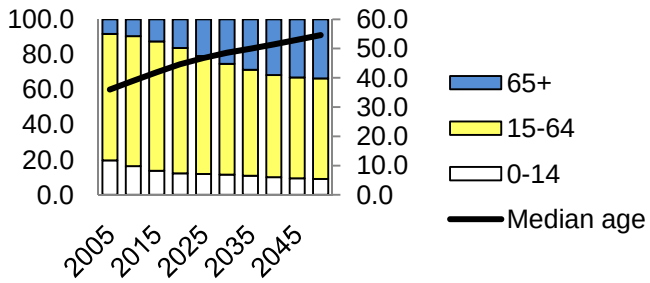


Figure 2: Median Age and Proportion of Population by Age (Scenario 2)

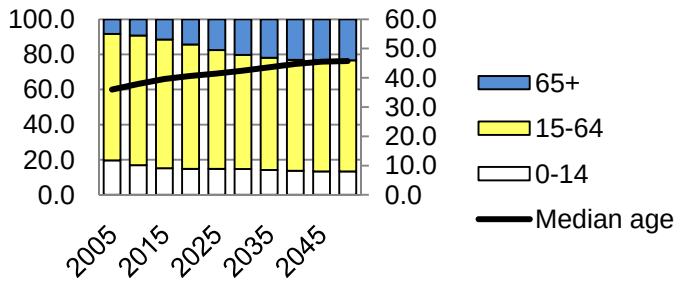


Figure 3: Median Age and Proportion of Population by Age (Scenario 3)

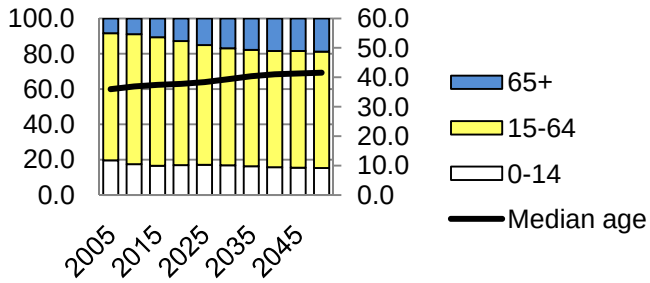
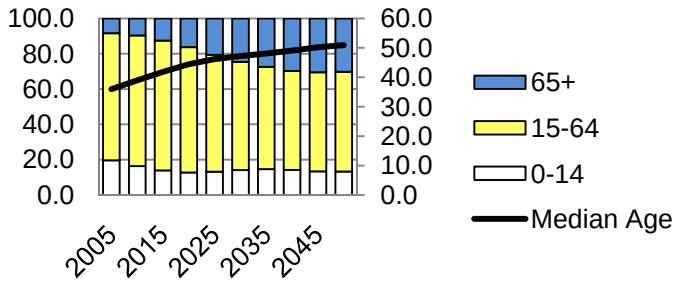
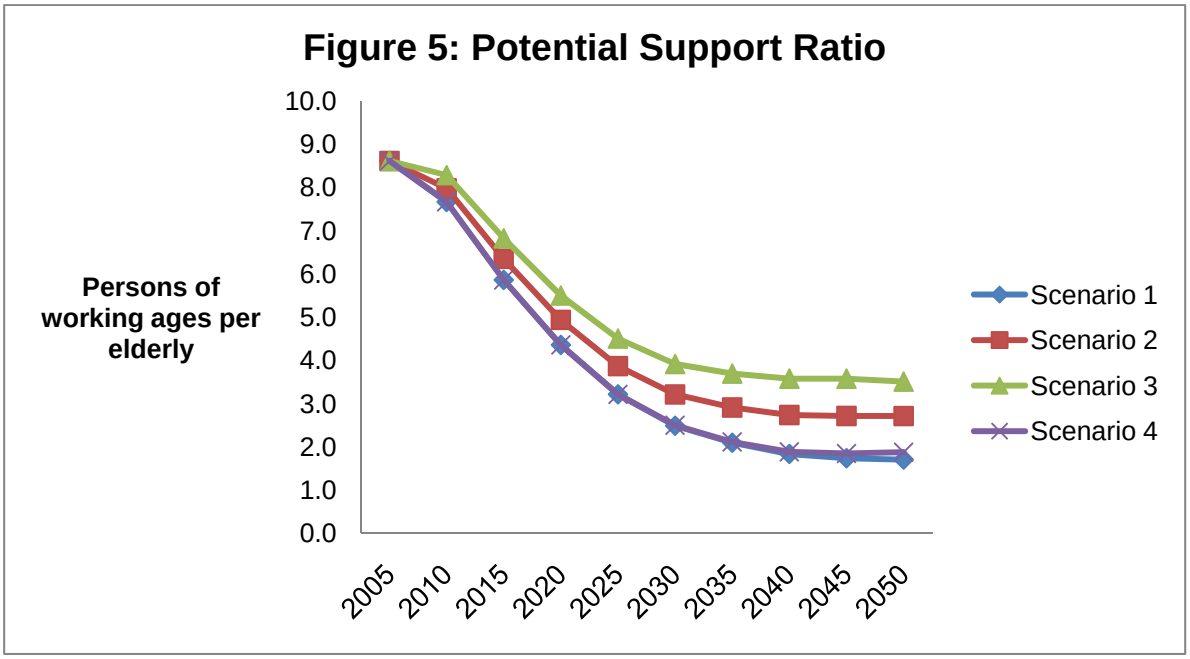


Figure 4: Median Age and Proportion of Population (%) by Age (Scenario 4)





What is perhaps more significant is the ratio of the working age population (the potential providers of support) to the elderly. Figure 5 shows that the number of persons of working ages per elderly is projected to decline from 8.6 in 2005 to only 1.7 by 2045-2050 under scenario 1. Raising the TFR to 1.85 has little effect. However, in-migration would ameliorate this decline, with the potential support ratio in 2050 being 2.7 under scenario 2 and 3.5 under scenario 3.

Conclusion

The age structure of the population is expected to change. The increased proportion of older Singaporeans has implications for income support, living arrangements and health and social services.

The ongoing review of current policies together with the introduction of further proactive policies to cater to the needs of the elderly population remains a prudent strategy. However, for the longer-term, the question of population decline in Singapore remains. The continued low fertility regime discussed in the March issue suggests that the working age population 15-64 would continue to decline as a result of falling births if the population is not augmented by migration. This development has economic and reproductive implications. The shrinking of this age group not only suggests a smaller tax base, it also represents a shrinking pool of potential parents. The latter situation would result in fewer births and further perpetuates the shrinking of the population.

For the foreseeable future, it is unlikely that the population can be maintained at current levels just by relying on births. Even if the TFR rebounded to replacement level (2.1 births per woman) immediately, the current demographic situation is unlikely to correct itself instantly. This is because the current low birth numbers have modified the age structure 30 years down the road that in turn would influence the number of births. Even if fertility levels

are high then, it would take several decades before population numbers return to a favourable range.

What then is the solution? It would mean policy makers practicing a forward looking view towards the situation. As the decision to have children remains a personal one, a quick turnaround to the demographic situation may not be achieved. By adopting a more forward-looking and flexible policy framework that involves encouraging marriage and procreation among the resident population together with a managed immigration policy, this would work towards achieving optimal results under the prevailing conditions. This would be the most feasible approach until natural increase is able to correct the current situation brought about by decades of low fertility.

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If you have comments or feedback, please email ips.enews@nus.edu.sg

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