A very low fertility rate in Hong Kong: Challenges and Opportunities

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Outline

- An overview of the fertility pattern
- A critical review of dependence ratio
- Implication on health care delivery
- Opportunities and challenges
Population size refers to the mid-point of the respective years.
Population pyramid of Hong Kong 1976, 2003 and 2033
Total fertility rates of Hong Kong SAR, 1971 - 2005

Live births per woman

Replacement level (2.1)
Change in TFR, Italy, France, Japan, Singapore, Hong Kong from 1950 to 2000, prospects to 2050
Total fertility rate, HKSAR and other low fertility economies, 1971-2000


Per woman: 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0

- HK
- Singapore
- Finland
## Total fertility rates of Hong Kong and selected low fertility economies, 1995 - 2002

<table>
<thead>
<tr>
<th>Year</th>
<th>Hong Kong</th>
<th>Singapore</th>
<th>Japan</th>
<th>Sweden</th>
<th>Norway</th>
<th>Netherlands</th>
<th>Australia</th>
<th>Denmark</th>
<th>UK</th>
<th>Germany</th>
<th>US</th>
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<td>1.42</td>
<td>1.74</td>
<td>1.87</td>
<td>1.53</td>
<td>1.83</td>
<td>1.81</td>
<td>1.71</td>
<td>1.25</td>
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<td>1.66</td>
<td>1.43</td>
<td>1.61</td>
<td>1.89</td>
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<td>1.39</td>
<td>1.52</td>
<td>1.86</td>
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<td>1.78</td>
<td>1.75</td>
<td>1.72</td>
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<td>0.99</td>
<td>1.47</td>
<td>1.38</td>
<td>1.5</td>
<td>1.81</td>
<td>1.63</td>
<td>1.76</td>
<td>1.72</td>
<td>1.72</td>
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<td>1.85</td>
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<td>1.77</td>
<td>1.64</td>
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<td>2001</td>
<td>0.93</td>
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<td>1.33</td>
<td>1.57</td>
<td>1.78</td>
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<td>1.73</td>
<td>1.64</td>
<td>1.34</td>
<td>2.01</td>
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</table>
Reasons for decline of TFR

- Reduction on marital fertility rate (44%)
- Change in marital structure: (56%)
  - Increasing spinsters and late marriages
  - Increasing Cross-boundary marriages
    (China and Hong Kong)
  - Increasing age difference in marriage
Decomposition method for TFR

Definition

\[ P_i : \text{Proportion of marriage in age group } i \]

\[ \text{AMFR}_i : \text{Age-specific marital fertility rate in age group} \]
## Results for decomposition of the change in TFR

<table>
<thead>
<tr>
<th>Age group</th>
<th>$p_i$</th>
<th>AMFR</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15–19</td>
<td>5</td>
<td>-1</td>
<td>4</td>
</tr>
<tr>
<td>20–24</td>
<td>18</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>25–29</td>
<td>20</td>
<td>22</td>
<td>42</td>
</tr>
<tr>
<td>30–34</td>
<td>9</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>35–39</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>40–44</td>
<td>&lt;0.5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>45–49</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>44</td>
<td>100</td>
</tr>
</tbody>
</table>
A new measure - WTMFR

- A Weighted Total Marital Fertility Rate (WTMFR)

$$WTMFR = \sum_{i=1}^{7} w_i \times TMFR_i.$$ 

- $W_i$: Percentage of women get married in age group $i$ to all married women
- $TMFR_i$: Total marital fertility rate for women get married in age group $i$
A new measure - WTMFR

Comparison of TMFR and WTMFR

TMFR: assumes that all women get married at age twenty.

WTMFR: take the marriage percentage as weights, hence avoids the over-general assumption and has the same trend as TFR (birth outside wedlock is constant (7%) in HK)
Proportion of live births in Hong Kong by cohabiting parents, 1981-2003
Comparison of TFR, TMFR and WTMFR

Trends of WTMFR, TFR and TMFR
1976-2001
Decomposition Results for WTMFR

Proportion (%) of decline in the WTMFR attributable to change in

<table>
<thead>
<tr>
<th>Age group</th>
<th>$W_i$</th>
<th>TMFi</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15–19</td>
<td>28</td>
<td>3</td>
<td>31</td>
</tr>
<tr>
<td>20–24</td>
<td>46</td>
<td>27</td>
<td>73</td>
</tr>
<tr>
<td>25–29</td>
<td>-14</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>30–34</td>
<td>-7</td>
<td>2</td>
<td>-5</td>
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<tr>
<td>35–39</td>
<td>-1</td>
<td>&lt;0.5</td>
<td>-1</td>
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<tr>
<td>40–44</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
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<td>45–49</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>48</td>
<td>100</td>
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</tbody>
</table>
Reasons for decline of TFR

- Reduction on marital fertility rate (44%)
- Change in marital structure: (56%)
  - Increasing spinsters and Late marriages
  - Increasing Cross-boundary marriages
  - Increasing age difference in marriage
Age-specific fertility rates of Hong Kong, 1971-2004
Mean age of mothers by live birth order, 1981-2003
Increase in Spinster

- For the same age group 15-49
  Never married men > Never married women (76850 vs 892100)

However, due to the preference of gloom age pattern we estimate there will be about 135,000 women at marriage age can’t find the partner in Hong Kong.
A of never married Kaplan-Meier curve:

Probability of Never married Kaplan-Meier curves for females

Probability of Never married

Age
Median Age at First Marriage 1971-2004

- Age (male)
- Age (female)

Year:
- 1971
- 1976
- 1981
- 1986
- 1991
- 1996
- 2001
- 2004

Age:
- 20
- 22
- 24
- 26
- 28
- 30
- 32
Increase Cross-boundary Marriage

- Cross-boundary marriage in 2004,
  - (HK Male and HK Female: 61.37%)
  - (HK Male and Mainland Female: 33.77%)
  - 590 cases to 13126 cases in 2004
  - (HK Female and Mainland Male: 4.86)
  - 90 cases in 1991 to 1888 in 2004
Marriages composition 1991-2004

The diagram shows the number of marriages from 1991 to 2004. The years 1991, 1996, 2001, and 2004 are indicated on the x-axis, and the number of marriages is shown on the y-axis. The data is categorized into four types of marriages: MM vs MF, MM vs HKM, HKM vs HKF, and HKM vs MF. The bars represent the number of marriages for each year, with the categories shown in different colors.
<table>
<thead>
<tr>
<th>Year</th>
<th>HK Women and Mainland Men</th>
<th>Year</th>
<th>HK Men and Mainland women</th>
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<tr>
<td>1991</td>
<td>90</td>
<td>1991</td>
<td>590</td>
</tr>
<tr>
<td>1996</td>
<td>269</td>
<td>1996</td>
<td>2215</td>
</tr>
<tr>
<td>2001</td>
<td>723</td>
<td>2001</td>
<td>5169</td>
</tr>
<tr>
<td>2004</td>
<td>1888</td>
<td>2004</td>
<td>13126</td>
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</table>

Increased by nearly 21 times for 1991-2004
Increasing age difference in marriage

The graph shows the increasing age difference between males and females in marriage over years 1991 to 2004. The age difference increases steadily from 1991 to 2004, indicating a growing trend in the age gap in marital partnerships during this period.
## Number of Marriages

<table>
<thead>
<tr>
<th>Age of Groom</th>
<th>16-19</th>
<th>20-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35-39</th>
<th>40-44</th>
<th>45-49</th>
<th>50+</th>
<th>Number of Groom</th>
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<td>286</td>
<td>34</td>
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<td>2</td>
<td>0</td>
<td>0</td>
<td>1531</td>
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<td>25-29</td>
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<td>0</td>
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<td>3508</td>
<td>393</td>
<td>47</td>
<td>7</td>
<td>1</td>
<td>8046</td>
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<tr>
<td>35-39</td>
<td>6</td>
<td>146</td>
<td>894</td>
<td>1698</td>
<td>809</td>
<td>120</td>
<td>32</td>
<td>3</td>
<td>3708</td>
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<tr>
<td>40-44</td>
<td>1</td>
<td>36</td>
<td>205</td>
<td>487</td>
<td>489</td>
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<td>56</td>
<td>7</td>
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<tr>
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<td>119</td>
<td>140</td>
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<td>73</td>
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<td>50+</td>
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<td>18</td>
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<td>127</td>
<td>328</td>
<td>744</td>
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<table>
<thead>
<tr>
<th>Age of Bride</th>
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<th>20-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35-39</th>
<th>40-44</th>
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<th>Number of Groom</th>
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<td>96</td>
<td>118</td>
<td>127</td>
<td>328</td>
<td>744</td>
</tr>
</tbody>
</table>

| Total Number of Cases | 23853 |
Myths

**Ageing is no big deal:**
Speed and magnitude and 80% growth is from migrants.

**A smaller population size to Hong Kong is good:**
Yes it is only true if we can choose who is going to stay.

**Increasing fertility measures in overseas countries is useless:**
The reduction of the TFR in other countries has levelled off around 1.3 but not in Hong Kong.

**Hong Kong can have unlimited supply of people from China, it is a city**
The supply is unstable and unreliable. Hong Kong has become less attractive in attracting migrants.

**Silver Hair Market**
It might be true twenty years later but not now.

**Fertility is going to rebound soon** NOT YET about 1/3 from non-Hong Kong residents in 2005
- Tempo effect versus Quantum effect
- Not tempo. But real Quantum effect.
- In 2001, Total Marital Fertility Rate (TMFR) was still around 2.2.
It is the speed and the magnitude of the reduction of the fertility rate,
Proportion of live births born in Hong Kong, 2001-2004

[Graph showing the proportion of live births born in Hong Kong over the years 1991 to 2003. The graph compares births within Hong Kong (BHKR), births outside Hong Kong (Outside HK), births not registered in Hong Kong (BnotHKR), and births in Hong Kong registered outside the country (BSHKR).]
Demographic Ratio (DR)

\[
DR = \frac{0 \text{ - 14 and over 65}}{15 - 64}
\]
Dependence Ratio

Dependency ratios for Hong Kong population, 1976 - 2031

Year

Children

Elderly

Total

1976

1986

1996

2006

2016

2026

0

100

200

300

400

500

600

Dependence Ratio
This positive “population effect” eases the pressure on countries to provide for the young and elderly and enabling more investment in economic and social development such as health, family planning, and education, in addition to providing women with more opportunities (United Nations, 2002, 2004)
Demographic window

- Benchmark:
  1 dependent to 2 independents
  Total dependency ratio (TDR) = 0.5

- When the population’s TDR shifts below 0.5, it gives a golden opportunity for the community to improve the quality rather than the quantify of the population.
Window closes earlier when the age truncating for total dependency ratio changed.
Change in young ratio <15, ageing ratio 65+ & total dependency ratio in Hong Kong, from 1950 to 2000, prospects to 2050

Change in labour participation rate, by age and sex, Hong Kong, from 1985 to 2001 and prospects up to 2019

Source: General Household Survey 1985-2001, Hong Kong Census and Statistics Department
Implications: Health

Figure 4: Hospital patient days needs index, HKSAR, 2000-2029
Health (continue)

Age distribution of patient days utilisation, HKSAR, 2000-2029 (Yip and Law, 2003)

Year


0-14 15-64 65+

0% 20% 40% 60% 80% 100%
Fig. 4.2: Projected patient days, population at working ages and patient days to adult ratios, HKSAR, 2001 - 2031 (Yip and Law, 2003)

- **Patient days per adults**
- **Population (15 - 64)**
- **Patient days**

Year:
- 2001
- 2006
- 2011
- 2016
- 2021
- 2026
- 2031

Population/ Patient days (million):
- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Patient days per person at working age:
- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
Health Care implications

- **Sources of Support:**
  - Family members support: decreasing
  - Government support: Increasing
  - Health Care Protection account: The existing cohort of those aged 40 or above might not have enough.
Migration: slow down ageing
The difference between the proposed and the official projection

Comparison of official projection and new projection, HKSAR, 2000-2029
Three-fold challenges

- How to revert the low fertility:
- Replacement Migration:
- Healthy Population:
Low fertility

- About 60% reduction is due to change of marital distribution rather than the reduction of marital fertility.
- Promoting fertility, CS suggested to have three. However the married one on average have 2 already.
- Engage the newborns from Mainland born mothers in Hong Kong.
- Family friendly work practice including longer maternal or paternal leave for parents, child care facilities, tax reduction and shortening of working hours.
Replacement migration

- About more than 80% of the population growth from migration.
- The new comers rejuvenate and inject new blood into the community.
- They are not coming and not very stable (38100 one-way permit holders in 2004; 55,000 in 2005).
- Impact on the labour force: postponement of the retirement age.
- Successful experience in Shanghai about 30% are newly migrants
Healthy Population

- Life-long health promotion and practice
- Healthy lifestyle.
- Prevention: to prevent unnecessary health cost: for example, abortion, smoking and attempted or completed suicides
YIP, P.S.F. and LEE, J. (2002). The impact of the changing marital structure on the fertility rate of Hong Kong SAR. Social Science and Medicine, 55, 2159-2169.
