

PAST AND FUTURE TRENDS OF FERTILITY IN HONG KONG

This article summarizes the fertility trend over the past two decades. A dramatic decline was noted during this period. Current fertility level in Hong Kong is very low by international standards. On this basis, fertility is projected for the coming twenty years, with expectation of a mild reversal of the fertility decline in the near future.

PAST AND FUTURE TRENDS OF FERTILITY IN HONG KONG

1. Introduction

In Hong Kong, fertility has experienced a marked and continuous decline over the past two decades. The current fertility level is very low, making it very difficult to predict its future trend. This article summarizes the past trend of fertility from 1971 to 1991 and projects its future trend in the coming twenty years.

2. Past Trends

The annual number of live births in Hong Kong stabilized at around 80 000 in the 1970's. At the turn of the decade into the 1980's, the number of births surged up for a few years, reaching at a peak of 87 000 in 1981. The number then began to decline, falling to 72 000 in 1986 and then to 69 000 in 1991. The crude birth rate, which is the number of live births occurring during a calendar year per 1 000 population, fell continuously from 20 in 1971 to 17 in 1981 and then to 12 in 1991 (Table 1).

The crude birth rate, however, is not a very good indicator of the fertility level of a population because it is affected by the changing age and sex structure of the population. Accordingly, the trend of the rate is not sufficiently indicative of the pace and magnitude of the fertility decline.

Table 1 Estimated Mid-year Population and Crude Birth Rates, 1971-1991

Year	Mid-Year population	Live births	Crude birth rate
1971	4 045.3	79 800	19.7
1976	4 518.0	78 500	17.4
1981	5 163.1	86 800	16.8
1982	5 253.2	86 100	16.4
1983	5 332.0	83 300	15.6
1984	5 385.3	77 300	14.4
1985	5 445.4	76 100	14.0
1986	5 516.3	71 600	13.0
1987	5 572.4	70 000	12.6
1988	5 609.8	75 400	13.4
1989	5 638.5	69 600	12.3
1990	5 649.8	67 700	12.0
1991	5 693.6	68 500 ⁽¹⁾	12.0 ⁽¹⁾

(1) Provisional estimates.

Age-specific fertility rates

For a better insight into the fertility decline, the trend of the age-specific fertility rates (AFR's) should be examined. The rate gives the number of live births occurring among 1 000 women in a given age group in a given year. Over the period from 1971 to 1991, the AFR's declined sharply at every age group. For the youngest age group 15 - 19, the AFR dropped 65%. For the age groups 20 - 24, 25 - 29 and 30 - 34, the reductions were equally large, being 76%, 62% and 53% respectively (Table 2). The rapid fertility decline and the current low fertility rates for women in these younger age groups were associated with two factors. First, delay in marriage. The median age at first marriage for spinsters increased significantly from 22.9 in 1971 to 26.3 in 1990. Second, postponement of low order births (i.e. first and second order births). The interval between the median age at first marriage and the median age at first birth increased from 16.5 months in 1976 to 23.2 months in 1990. In the case of the second order birth, the interval increased more markedly from 40.5 months to 61.2 months in the same period (Table 3).

Table 2 Age-Specific Fertility Rates and Total Fertility Rates: 1971-1991

Year	Age-specific fertility rates							Total fertility rate
	15-19	20-24	Age group				45-49	
			25-29	30-34	35-39	40-44		
(Live births per 1 000 women)								
1971	17	145	243	162	83	28	4	3 460
1976	17	108	189	118	48	14	1	2 480
1981	12	86	153	97	34	7	1	1 930
1982	10	80	147	93	34	6	1	1 830
1983	10	75	137	85	30	5	1	1 690
1984	8	63	124	80	28	5	-	1 520
1985	8	58	119	79	27	5	-	1 460
1986	7	48	109	76	26	4	-	1 340
1987	6	42	103	78	26	4	-	1 280
1988	6	42	108	86	29	5	-	1 360
1989	6	39	96	79	28	5	-	1 250
1990	6	38	94	76	27	4	-	1 210
1991 ⁽¹⁾	6	34	93	77	27	4	-	1 210
(Index of rate ⁽²⁾)								
1971	100	100	100	100	100	100	100	100
1976	101	74	78	73	58	51	39	72
1981	69	59	63	60	41	24	18	56
1982	59	55	60	57	41	21	16	53
1983	58	52	56	52	36	17	16	49
1984	49	43	51	49	33	17	8	44
1985	49	40	49	48	33	16	11	42
1986	41	33	45	47	32	14	8	39
1987	36	29	42	48	31	15	5	37
1988	38	29	44	53	34	17	8	39
1989	36	27	39	49	34	17	8	36
1990	35	26	39	47	33	15	8	35
1991 ⁽¹⁾	35	24	38	47	33	14	5	35

(1) Provisional estimates.

(2) Index of rate is computed on unrounded figures with the rate for 1971 taken as the base (100).

Table 3 Median Age at First Marriage and Intervals between this Median Age and Median Age at First or Second Live Birth: 1971-1990

Year	Median age at first marriage for spinsters	Interval between median age at first marriage and :	
		Median age at first live birth (in months)	Median age at second live birth (in months)
1971	22.9	N.A.	N.A.
1976	23.4	16.5	40.5
1981	23.9	14.7	44.5
1986	25.3	19.6	54.2
1990	26.3	23.2	61.2

The fall in the AFR's for those women aged 35 and over was very significant, being 67% for women aged 35 to 39, 86% for those aged 40 to 44, and 95% for those aged 45 to 49. The current rates show that childbearing among women aged 35 - 39 was uncommon and among women aged 40-49 was rare (Table 2). The main factor underlying these trends was that small family had become the societal norm. The immediate result was the curtailment of higher order births which accounted for a large proportion of fertility of women aged 35 and over.

Total fertility rate

The overall changes in the AFR's in the past two decades can be summarized in the trend of the total fertility rate (TFR) in the period. The rate, defined as the sum of the AFR's represents the number of children that would be born alive to 1 000 women during their lifetime if they were subjected throughout their childbearing years to the fertility rates prevailing in a given year. The TFR declined continuously during the period, falling from 3 460 live births per 1 000 women in 1971, through 1 930 in 1981, to 1 340 in 1986 and further to 1 210 in 1991 (Table 2). When analysing this decline by birth order, it can be seen that the rates for third and higher order births decreased markedly from 1971 to 1991 whereas the rates for first and second order births only decreased moderately over the same period. As a result, the proportion of first and second order births in the TFR increased from 63% in 1976 to 84% in 1991, confirming the trend towards the small family norm (Table 4).

Table 4 Total Fertility Rates by Birth Order: 1971-1990

Year	1	2	3	4	5+	All Order
(Live births per 1 000 women)						
1971	N.A.	N.A.	N.A.	N.A.	N.A.	3 460
1976	810	730	420	230	290	2 480
1981	760	650	310	130	80	1 930
1986	580	480	190	60	30	1 340
1991 ⁽¹⁾	560	440	150	40	20	1 210
(Percentage)						
1976	33	30	17	9	12	100
1981	39	33	16	7	4	100
1986	43	36	14	4	2	100
1991 ⁽¹⁾	47	37	12	3	1	100

(1) Provisional Estimates.

Replacement fertility

The impact of fertility decline on population growth can be revealed by some indicators which describe the replacement of the population by birth. This can be achieved by considering the number of daughters available to replace their mothers. The TFR discussed earlier is closely associated with measures of reproductivity. In fact, a TFR of about 2 100 live births per 1 000 women, which was the rate for Hong Kong in 1979, will result in a generation of women which would just be able to replace itself after taking into consideration the sex ratio at birth which favours males. In Hong Kong, the sex ratio at birth averaged at 1 070 male births per 1 000 female births for the past years. Following such an average ratio there would be about 1 000 female births for a TFR of 2 100 live births, who may be said to "replace" their mothers in the population.

3. Future Trends

The past trends of the AFR's provide the basis for projecting future fertility. In the fertility analysis it is projected that the TFR would decline in the next few years, and then rise from 1994 onwards to around 1 460 per 1 000 women in 2001. Such a level is similar to the present level of fertility of some low fertility countries such as Germany, Japan and Denmark. After 2001, a slight fall in the fertility rates is expected when the catching-up of postponed births is over (Table 5).

Table 5 Projected Age-Specific Fertility Rates and Total Fertility Rates: 1992-2011

Year	Age-specific fertility rates						Total fertility rate	
	15-19	20-24	Age group					
			25-29	30-34	35-39	40-44	45-49	
(Live births per 1 000 women)								
1992	6	32	92	78	27	4	-	1 190
1993	6	29	91	80	28	4	-	1 190
1994	6	28	93	83	29	4	-	1 220
1995	6	28	96	86	30	4	-	1 260
1996	6	29	99	90	31	4	-	1 300
1997	7	30	102	94	32	4	-	1 350
1998	7	31	106	97	33	5	-	1 400
1999	8	33	111	103	34	5	-	1 460
2000	7	32	111	103	34	5	-	1 460
2001	7	32	110	104	34	4	-	1 460
2002	7	32	110	104	34	4	-	1 460
2003	7	31	109	104	35	4	-	1 450
2004	7	31	108	105	35	5	-	1 450
2005	7	31	108	105	35	5	-	1 450
2006	7	31	107	105	35	4	-	1 450
2007	7	31	106	106	35	5	-	1 450
2008	7	30	106	106	35	5	-	1 440
2009	7	30	105	106	35	5	-	1 440
2010	7	30	104	106	36	5	-	1 440
2011	7	30	104	107	35	4	-	1 440

SPECIAL REVIEW

The AFR's for women at the most fertile ages 25-34 would increase gradually between 1992 and 2001. Thereafter, the AFR's for women aged 25-29 would fall slightly, while those for women aged 30-34 would exhibit a small increase. For women aged 35-39, the AFR's would rise gradually throughout the projection period (Table 5). These projected trends of fertility are in line with the trend of women delaying their childbearing to higher ages.

The implications of the projected AFR's, in terms of the proportion of women remaining childless and the average number of children ever born, are examined for women in different birth cohorts. For example, of those women born in 1951, who had almost completed childbearing by now, about 10% would remain childless at the end of their reproductive ages. The percentage is projected to be 28% for those women born in 1961, who will have finished their reproductive lives by the end of the projection period (Table 6). For women born in 1951 the number of children ever born to them during their entire reproductive period is expected to average at 2.23. The corresponding figure is projected to decrease to 1.53 for women born in 1961 (Table 7). These results are considered realistic for those cohorts, in view of the dramatic fertility decline in the past and the likely continuation of the current low fertility condition despite a slight reversal of the fertility decline.

Table 6 Percentage of Women of Selected Years of Birth Having At Least One Child on Reaching Selected Ages

Mother's year of birth	Exact age						
	20	25	30	35	40	45	50
1931 ₍₁₎	16.6	57.8	81.6	90.8	93.0	93.5	93.5
1936 ₍₁₎	12.7	56.8	81.3	89.7	91.6	91.8	91.8
1941 ₍₁₎	14.0	57.2	84.0	91.6	93.6	93.9	93.9
1946 ₍₂₎	12.4	55.9	87.8	95.3	97.1	97.4	97.4
1951 ₍₂₎	7.1	43.8	77.4	87.5	90.0	90.3	90.3
1956 ₍₃₎	7.5	37.4	67.8	78.8	81.4	81.7	81.7
1961 ₍₃₎	5.8	28.9	56.0	68.3	71.5	71.8	71.8
1966 ₍₃₎	3.5	17.0	47.4	63.2	66.5	66.8	
1971 ₍₃₎	2.7	15.0	55.8	72.9	76.1		
1976 ₍₄₎	2.9	18.2	60.9	77.9			
1981 ₍₄₎	3.6	18.8	61.4				
1986 ₍₄₎	3.5	18.5					
1991 ₍₄₎	3.5						

(1) Based partly on the 1976 By-census results and partly on birth statistics.

(2) Based partly on the 1976 By-census results, partly on birth statistics and partly on projections.

(3) Based partly on birth statistics and partly on projections.

(4) Based entirely on projections.

Table 7 Average Number of Children Ever Born to Women of Selected Years of Birth Up to Selected Ages of Mother

Mother's year of birth	Exact age						
	20	25	30	35	40	45	50
1931 ⁽¹⁾	0.24	1.34	2.95	4.29	4.82	4.95	4.95
1936 ⁽¹⁾	0.18	1.16	2.50	3.31	3.67	3.73	3.73
1941 ⁽¹⁾	0.21	1.28	2.53	3.19	3.41	3.44	3.44
1946 ⁽²⁾	0.20	1.20	2.36	2.86	3.00	3.02	3.02
1951 ⁽²⁾	0.09	0.75	1.64	2.08	2.21	2.23	2.23
1956 ⁽³⁾	0.09	0.58	1.26	1.66	1.80	1.82	1.82
1961 ⁽³⁾	0.07	0.42	0.94	1.34	1.50	1.53	1.53
1966 ⁽³⁾	0.04	0.23	0.70	1.19	1.36	1.38	
1971 ⁽³⁾	0.03	0.18	0.71	1.23	1.41		
1976 ⁽⁴⁾	0.03	0.19	0.73	1.26			
1981 ⁽⁴⁾	0.04	0.19	0.72				
1986 ⁽⁴⁾	0.03	0.19					
1991 ⁽⁴⁾	0.03						

(1) Based partly on the 1976 By-census results and partly on birth statistics.

(2) Based partly on the 1976 By-census results, partly on birth statistics and partly on projections.

(3) Based partly on birth statistics and partly on projections.

(4) Based entirely on projections.

The fertility decline in Hong Kong was dramatic, in terms of its pace and magnitude in the past two decades, compared with the experience of other developed countries. In some of the low fertility countries, when fertility fell to a low level very much below replacement, a reversal of the declining trend occurred, suggesting the occurrence of catching-up of some postponed births. This phenomenon was observed in Denmark, the Netherlands and Sweden in the early 1980's (Table 8). In Hong Kong, TFR was 1 210 in 1991 indicating that the fertility level was currently too low to sustain a further continuous decline. Catching-up of postponed births would be highly probable and would most likely lead to a temporary reversal of the declining trend. This is the rationale underlying the projected future trend of fertility.

Table 8 Total Fertility Rates of Selected Countries: 1971-1990

Country	1971	1976	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
	(Live births per 1 000 women)											
Hong Kong	3 460	2 480	1 930	1 830	1 690	1 520	1 460	1 340	1 280	1 360	1 250	1 210
Singapore	3 040	2 110	1 720	1 710	1 590	1 610	1 620	1 450	1 640	1 980	1 790	N.A.
Japan	2 190	1 850	1 720	1 760	1 790	1 800	1 740	1 720	1 690	1 660	1 570	1 530
West Germany	1 920	1 450	1 440	1 410	1 330	1 290	1 280	1 350	1 370	1 410	N.A.	N.A.
Denmark	2 040	1 750	1 440	1 430	1 380	1 400	1 450	1 480	1 500	1 560	N.A.	N.A.
Netherlands	2 360	1 630	1 560	1 500	1 470	1 490	1 510	1 550	1 560	1 550	1 550	1 620
Finland	1 700	1 720	1 650	1 720	1 740	1 700	1 640	1 600	1 590	1 700	1 710	1 790
Sweden	1 980	1 690	1 630	1 620	1 610	1 650	1 730	1 790	1 840	1 960	2 020	2 140
Switzerland	2 050	1 550	1 550	1 560	1 520	1 530	1 520	1 530	1 520	1 570	1 560	1 590
England & Wales	2 370	1 710	1 800	1 760	1 760	1 750	1 780	1 780	1 820	1 840	1 810	1 850
Australia	2 870	2 060	1 940	1 940	1 930	1 880	1 890	1 870	1 850	1 840	1 850	1 910