

## **Demographic Transition in Taiwan**

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### **I. Introduction**

Taiwan's net reproduction rate (NRR) fell to 1.0 in 1983 and to 0.7 in 2001. In 1964 when the island-wide family planning program was promoted, the total fertility rate (TFR) was 5.10 and the net reproduction rate was 2.27. The sustained fertility decline, however, began earlier. In 1955 the total fertility rate was as high as 6.55 and the net reproduction rate was 2.82. Taiwan has completed the fertility aspect of the demographic transition in the 20 years after the initiation of intensive family planning program. Since 1984 the NRR in Taiwan has been below-replacement fertility.

This article traces major trends in fertility and nuptiality from 1965 to 2001 and then examines trends in family-size preferences and family planning. Following the introduction, the population growth patterns and the main fertility trends up to 2001 will be reviewed, and then changes in norm about family size and contraceptive practice together with the new family planning program and the population policy after the end of the fertility transition will be explored in order.

### **II. Population Growth and Fertility Transition**

#### **Growth Patterns**

Data from continuous population register and from censuses dating back to 1905 provide reasonably good information about the growth rate of Taiwan's population. Table 1 summarizes the population growth patterns and the components of change in Taiwan from 1906 to 2001. Since 1906, the population of Taiwan has grown from a little over three million to more than twenty two million in 2001. As in many other countries, Taiwan's growth stems largely from natural increase. The contribution of net immigration is rather small. The exception is during the period from 1945 to 1950 about a half million Japanese were repatriated to Japan, and 600,000 Chinese moved to Taiwan in the wake of the Communist take-over of the Mainland. This did not result in a substantial increase in the population. As can be seen from Table 1, the estimated net arrivals in the 1940s were slightly more than a half million. Since 1950, Taiwan has approximated a closed population to the extent that there has been little immigration and emigration.

The annual natural growth rate was slow from early twentieth century to 1920 (Figure 1). Thereafter, death rates moved slightly downward, but birth rates rose to above 4 percent up to the end of the Second World War. Natural increase rates amounted to more than 2 percent in most of years during 1920-1943. The drastic decline in mortality rate took place shortly after World War-II – from 18 per thousand in 1947 to 8 in 1956 and to about 6 in 2001. The high birth rate has resulted in a rate of natural increase of more than 3 percent in the 1950s and the

early 1960s. A continuous decline in birth rates began in the late 1950s up to the first half of the 1970s, until crude rate rose to 2.6 percent in 1976, because of the Dragon year effect, which is regarded as an auspicious time for births. Since then, birth rates resumed to decrease and reached a moderate level of 1.5 percent, and further to 1.2 percent in 2001. As a result, the annual growth rate was brought down around 2.5 percent in most of the 1960s and to less than 2 percent in 1970s and to only 0.6 percent in 2001.

### **Main trends in Fertility and Nuptiality**

Between 1965 and 1983 (the transition period), the total fertility (TFR) for Taiwan fell by 55 percent (as shown in Table 2 and 3). After 1983, the TFR decreased to under replacement level and has oscillated narrowly between 1.68 and 1.89 by year 2000 and then sharp decline to 1.40 in 2001.

The crude birth rate fell by much less (36 percent) than the TFR (55 percent) between 1965 and 1983 because an increase in the proportion of the population consisting of women in the prime childbearing years. In 1965, 10.2 percent of the population consisted of women 20-34 years of age. That proportion had risen to 14.0 by 1983 (Table 4).

In the sixteen years between 1985 and 2001, small up-ward shifts in the age distribution of women had begun to contribute slightly to the birth rate decline. However, the age distribution, resulting from previous high fertility, continues to account for crude birth rates remaining higher than crude death rates despite below-replacement-level fertility rates.

As Tables 2 and 3 indicate, during the fertility transition, major fertility declines occurred at all ages, but the declines were particularly large at ages 30-34 and older—a classical demographic transition theory pattern. Since 1983, fertility has been virtually zero at ages 40 and older. In the post-transition period, fertility has continued to fall at ages below 30, mainly because of continuing decreases in the proportions of currently married women. However, at ages 30-34 and 35-39 small increase in fertility have occurred despite the continuing declines in nuptiality at these ages, because of modest increases in marital fertility. These increases probably reflect the “making up” of births postponed because of later marriage.

The changing fertility patterns have been profoundly affected by the decline in nuptiality during and after the transition period (Table 5). The proportions currently married at ages 15-19 and 20-24 declined sharply between 1965 and 2001. The 47- percent decline at ages 25-29, while smaller than the declines for younger age groups, was particularly important because fertility was highest in this age group throughout the period under study. The proportions married at ages 40-44 and 45-49 have become largely irrelevant for fertility, since fertility was close to zero, at those ages even before 1983.

A decomposition of the birth-rate decline (as shown in Table 6) indicates that during the transition (1965-80), about two-thirds of decline in the crude birth rate was the result of declines in marital fertility and one-third is attributable to the decline in nuptiality. These effects had to overcome the pronatalist effect of the changing age-sex distribution already noted.

By striking contrast, in any period during the post-transition years, the continuing decline in nuptiality accounts for almost all of the decline in the crude birth rate, and declining marital fertility for none for it.

An important element in the increase in marital fertility at ages 15-19 and in the rate of decline of women aged 20-24 was the steady rise in premaritally conceived first births in successive marriage cohorts, from 8 percent in 1955-59 to 16 percent in 1970-74, to 33 percent by 1980-84 (Thornton and Lin, 1994: Chapter 6, Table 5).

The rising age at marriage produced by the sharply decreasing proportions of currently married women at younger ages is consistent with the idea that the continuing decline in fertility is, to some degree, a temporary period effect resulting the postponement of births by later-marrying couples who will have more of their births in their thirties than in their twenties.

Griffith Feeney (1991) provides support for this hypothesis with an analysis in which he shows that an alternative TFR based on period parity-progression ratios is significantly higher than the conventional TFR based on adding age-specific fertility rates:

Year	Conven- tional TFR	TFR based on Parity-progression ratio (Feeney)	TFR based on adjusted parity- progression ratio
1980	2.52	2.78	2.72
1983	2.16	2.48	2.39
1986	1.68	2.10	1.95
1987	1.70	2.14	1.98

The figure for 1991, if calculated from parity-progression ratios, would probably be closer to 2.0 than 1.72 (Freedman, Chang, and Sun, 1994). Similarly, the figure for 1992 throughout 1997 would be also closer to 2.0 simply because its conventional TFR is slightly higher than that of 1991. Also, if age specific marriage rates stay at the level of 1983, the conventional TFR will be 2.2-2.4 during 1992 and 1997 (Chang and Lee, 2001). However, during 1998-2001 TFR based on parity-progression ratio would be under 2.0 especially for year 2001.

In sum, for the period of the transition, the TFR decline was mainly the result of declines in age-specific rates at ages 30 and older. The declines at ages 40-plus brought fertility in these age groups essentially to zero. In the post-transition period, all of the additional decline occurred at age under 30.

### **Urban-Rural and Educational Differentials**

The fertility transition in Taiwan involved all strata of the population as defined by levels of urbanization and education. For both transitional and post-transitional periods, the percentage decline in the TFR was similar for the

large metropolis of Taipei, all cities, and urban and rural townships (as shown in Table 7). The ratio between the TFRs for the extreme categories (Taipei and rural townships) was similar between 1965 and 2000—around 0.69-.73. The ratio for 2001 is slightly higher, about .78.

During both the transition and post-transition periods, the TFRs for rural townships lagged behind those for the cities by only seven to nine years. Some combination of the diffusion of ideas and structural factors was operating powerfully. By 1990, all urbanization had TFRs below replacement level.

The total fertility rate was already strongly correlated negatively with wife's education when such data first available in 1966 (presented in Table 8). The 54-percent decline from 1966 to 1983 for all women was considerably greater TFR declines for specific educational groups, because increasing educational level within all age groups decreased fertility at each age in addition to the effects of continuing declines in age-education-specific fertility rates. But the TFRs for specific education groups were not necessarily affected by such shifts in educational distributions within age groups (Freedman, Chang, and Sun, 1994).

The educational differentials in fertility increased from 1974 onward, as measured by the ratio between the TFRs for college graduates and those for junior-high-school graduates. The replacement-level fertility for all women reached by 1983 was a result of below-replacement-level fertility for senior high and college graduates, while rates were higher for less educated. By 1991, only the relatively few women with no more than primary-school education had fertility above the replacement level.

From our previous analysis (1956-91), Freedman, Chang, and Sun (1994) have pointed out four aspects of ideas. In terms of their words, they are shown as follows:

1. The age-sex structure that changed mainly as a result of the fertility decline had important effects that differed during and after the fertility transition. During the transition, the age structure became more favorable to higher numbers of births and, therefore, tended to retard the decline in the birth rate. However, now that fertility has declined to replacement level and below, the proportion of the population who are women of prime childbearing age has begun to decrease, with a depressing effect on birth rates. Nevertheless, zero population growth is still decades away, because the transformation of the age distribution to that associated with a low-fertility period takes a long time.
2. A rising age at marriage, a major demographic correlate of development, had an important effect in reducing birth rates and the TFR, secondary only to the major declines in marital fertility during the fertility transition. In few years since the end of the transition, with at least a temporary end to marital fertility decline, the rising age at marriage has been the major proximate cause of the further fertility decline.
3. The postponement effect of the rising age at marriage on period fertility was present throughout the transition and beyond. However, this effect, not a subject of much attention in Taiwan during the transition, became increasingly important and visible when fertility fell to and below replacement levels, because an increasingly large proportion of all births became an increasingly

large proportion of all births on a cohort basis because this effect was no longer masked by the much larger effect of permanent reductions of births at higher parities. The net result of these processes, as replacement levels are approached, is to produce very low conventional TFRs, probably exaggerating the amount by which cohort fertility will be below replacement levels. This effect is not a certainty, because many of the postpone births probably will not be made up.

4. The rapid rise in educational levels in Taiwan had major impacts on fertility, evident both in declining age-education-specific fertility rates and in the increasing numbers of women who became subject to the lower fertility characteristics of the higher educational strata. Furthermore, education, through its influence on rising age at marriage, affected both the levels and trends in fertility. Through their effect nuptiality, rising education levels have been important in producing the postponement effects. The result is exceptionally low period TFRs for higher educational strata.

The above points are still effective for trends up to 1997. However, during 1998-2001, the point 3 may not be true in the sense that cohort fertility would be under-replacement fertility simply the conventional TFRs are much lower than that of 1991.

### **III. Trends in Family-Size References and Family Planning, 1965-98**

#### **The Data**

The sample surveys on which the following analyses are based were conducted by the Taiwan Provincial Institute of Family Planning in 1965, 1970, 1976, 1980, 1985, 1991, and 1998. The data for the 1970 and 1976 surveys were included in prior published reports and have been omitted from the tables in this article to conserve space. All survey were based on probability samples of currently married women of childbearing age. Response rates on the surveys were 93 percent or higher before 1980. 87 percent in 1980 and 1985, 91 percent in 1991 and 85 percent in 1998.

In the preceding articles about Taiwan trends (see note 1, Freedman, Chang, and Sun, 1994), the survey based part of the analyses was restricted to married aged 22-39, for whom the largest body of comparable data was available. The present analyses also are in this age range.

#### **Trends in Preferred Number of Children**

The mean preferred number of children decreased monotonically from 4.0 in 1965 to about 2.7 in 1980 and then to 2.4 in 1991 and 1998 (as shown in Table 9). In previous reports, it was pointed out that the preferred family size decreased slowly in the 1960s, compared with the rapid increase in contraceptive use. We interpreted this to mean that the preferred number of living children was not much lower than in earlier periods, but that rapidly falling child mortality had motivated many women to practice contraception to avoid childbearing beyond their desired number of children (Chang et al., 1981; Freedman et al., 1964; Freedman and Sun, 1969).

When the TFR reached 2.1 in about 1983, the preferred number of children was still above replacement level for all age group. In either 1991 or 1998, eight or sixteen years later, was still true, although the figure 2.3 for women in their twenties might well be below replacement, if one could adjust for the fact that the women in those cohorts who marry later probably will want and have fewer children than those already married. Analyses in a report (Chang et al., 1987) and in an earlier study by Jejeebhoy (1981). indicated that on a cohort basis, desired fertility tended to decrease with age. There is no reason to expect that preferences will increase as younger cohort age.

As Table 10 illustrates, the mean preferred number of children decreased both during and after the transition period for every urbanization stratum. Similar declines occurred among all educational strata during the transition, but in the post-transition period, such declines occurred only among the less educated. By 1998, the 2.3 children preferred by those in large cities and by those with more than a junior-high education would certainly be below replacement level if adjustment could be made for those in childbearing years who marry later. The differentials in preferences, like those for fertility, are greater for education than for urbanization levels.

### **Contraceptive Practice**

As far as contraceptive use is concerned, in 1965, when the first island-wide survey was undertaken, 28 percent of married women aged 22-39 in Taiwan as a whole had ever used any form of contraception. By 1985, ever practice of contraception reached 90 percent, or saturation level. In 1991 or in 1998, the contraceptive practice rate is similar to that of 1985. Also, either urban-rural differentials or educational differentials in contraceptive practice disappeared by 1985. (Table 10). Starting from 1980 the current use of contraception is about 80 percent.

## **IV. Taiwan's New Population Policy**

A recently announced population policy (1992) for Taiwan is translated as: "Since 1984, the net reproduction rate has been below the replacement level. If the downward trend continues, the population of Taiwan area will reach the stage of "zero population growth" soon and turn into a "negative growth" quickly. This means a decrease in young population and an increase in aging population which will lead to different sorts of social problems, such as the lack of labor force and high dependency ratio. Therefore, the future policy should promote a reasonable growth of the population. The new policy aims to keep the guideline of "two children family", but advocates the increase of the marriage rate and birth rate of married women to maintain the net reproduction rate at the replacement level."

No special pronatalist incentives are proposed. In fact, there is one move in the opposite direction, repealing a subsidy for birth and education of children of government employees beyond the second.

The policy statement covers a wide range of other recommendations and includes moral injunctions on such matters as reproductive health, "strengthening

the welfare and rights of women,” “making good use of labor potential of the elderly, women, the disabled, and poor people.” It also deals in some detail with population distribution and the quality of population and of family planning services.

An important measure for pushing up the NRR is to raise the marriage rate through strengthening educational campaign for the youths. Since 1989, educational activities on marriage, sex and population matters have been organized for the youths through various channels to improve their understanding of and to help them develop desirable attitude toward sex, family, marriage and childbearing. In addition, counseling, referral and follow-up services have been available to infertile couples based on their wishes, and physical, mental and economic conditions in the Taiwan’s new family planning program (Chang, 1994).

## **V. Prospects for the Future**

The latest population projections in Taiwan (Executive Yuan, 2002) indicate that the medium fertility assumption is to increase TFR from 1.4 in 2001 to 1.6 in 2021 and then leveling off. The assumption sounds plausible because in view of our previous conclusion that the present cohorts of childbearing age could well end up with TFRs higher than 1.4 because of a postponement effect.

In addition, there continues to be some reasons to expect a leveling of the fertility decline for a while and then an increase in TFRs. The average age at first marriage for females was as high as 26 years old in 2002. It is expected that there will be a slowdown of the increase in age at first marriage. As this result, the total fertility will be fluctuate around 1.4 for several years. Also, there is still very little evidence of the preference for one child that has become so marked in Western societies. Even among young wives, only 6 percent indicated a preference for one child in 1998. Therefore, it is expected that Taiwan’s TFR will increase in the near future.

**TABLE 1. POPULATION AND THE COMPONENTS OF CHANGE, TAIWAN AREA  
1906 to 2001**

Time Period	Population (in thousands)				Average annual growth rates in preceding year(%)		
	Total Popula- tion	Change in Period	Component		Total in period	Component	
			Natural Increase	Net Arrivals		Natural Increase	Net Arrivals
1906	3,047						
1910	3,219	172	132	40	1.37	1.05	0.32
1920	3,673	454	414	40	1.32	1.20	0.12
1930	4,592	919	837	82	2.22	2.02	0.20
1940	5,981	1,389	1,287	102	2.63	2.43	0.20
1950	8,141	2,160	1,609	551	3.05	2.27	0.78
1960	11,349	3,208	3,109	99	3.29	3.19	0.10
1970	14,708	3,359	3,284	75	2.57	2.51	0.06
1980	17,805	3,097	3,145	-48	1.93	1.96	-0.03
1990	20,352	2,547	2,578	-31	1.34	1.36	-0.02
2000	22,216	1,864	1,943	-79	0.92	0.96	-0.04
2001	22,339	123	133	-10	0.60	0.64	-0.04

Source: 1906 to 1940 from Taiwan 51 Years Statistical Abstracts(Chinese). 1950 to 1970 from Adjustment for Registered Population in Taiwan Area, The Economic Planning Council, Executive Yuan and Ministry of the Interior, March 1976. The data for 1970-2001 from the Taiwan-Fukien Demographic Fact Book, Ministry of the Interior.



**Table 2. Fertility rates, Taiwan 1965-2001**

Type of rate	Value								
	1965	1970	1980	1983	1985	1990	1995	2000	2001
Crude birth rate	32.1	27.2	23.3	20.6	17.9	16.6	15.4	13.8	11.5
Total fertility rate (per woman)	4.83	4.00	2.52	2.16	1.89	1.81	1.78	1.68	1.40
General fertility rate	152	120	91	79	68	62	55	48	41
Age-specific fertility rate for all women by age									
15-19	36	40	33	26	20	17	17	14	13
20-24	261	238	180	154	129	100	86	72	61
25-29	326	293	200	174	158	159	148	132	106
30-34	195	147	69	62	56	68	82	90	75
35-39	100	59	16	13	12	15	20	24	21
40-44	41	20	4	2	2	2	2	3	3
45-49	6	3	1	0	0	0	0	0	0
General fertility rate for married women	225	162	152	130	113	105	96	90	76
Age-specific fertility rate for married women by age									
15-19	390	502	670	623	604	682	754	898	914
20-24	447	473	453	412	383	393	408	475	443
25-29	368	332	253	225	210	294	253	266	226
30-34	210	158	77	71	64	82	103	122	104
35-39	109	64	17	15	14	17	24	30	27
40-44	47	22	4	3	2	2	3	4	3
45-49	8	4	1	0	0	0	0	0	0

Source: Taiwan and Taiwan-Fukien Demographic Fact Book (Taipei Ministry of Interior, Republic of China, relevant years.)

Table 3. Percentage declines in fertility rates, Taiwan, 1965-1983, 1983-2001, and 1965-2001

Type of rate	1965-1983	1983-2001	1965-2001
Crude birth rate	-36	-44	-64
Total fertility rate	-55	-35	-71
General Fertility rate	-48	-48	-73
Age-specific fertility rates			
15-19	-28	-50	-64
20-24	-41	-60	-77
25-29	-87	-39	-67
30-34	-68	21	-62
35-39	-87	61	-79
40-44	-95	50	-93
45-49	-83	0	-100
General marital fertility rate	-42	-41	-66
Age-specific marital fertility rate			
15-19	60	47	134
20-24	-8	8	-0.9
25-29	-39	0.4	-39
30-34	-66	46	-50
35-39	-86	80	-75
40-44	-94	0	-94
45-49	-100	0	-100

Source: same as Table 2

Table 4. Age distribution of women as a percentage of total population,  
Taiwan, 1961-2001

Age	Percent of total population									
	1961	1965	1970	1975	1980	1983	1990	1995	2000	2001
15-19	4.0	4.4	5.8	5.8	5.5	5.0	4.3	4.5	4.2	4.0
20-24	4.1	3.6	4.0	5.3	5.3	5.1	4.6	4.1	4.4	4.4
25-29	3.6	3.5	3.1	3.6	4.8	4.8	4.7	4.3	4.0	4.0
30-34	3.2	3.1	3.0	2.8	3.2	4.1	4.5	4.5	4.2	4.1
35-39	2.7	2.7	2.6	2.7	2.5	2.5	4.0	4.0	4.3	4.3
40-44	2.1	2.2	2.3	2.4	2.4	2.4	2.7	3.8	4.1	4.1
45-49	1.8	1.7	1.9	2.1	2.1	2.1	2.1	2.5	3.6	3.7
Total (15-49)	21.5	21.2	22.7	24.6	25.7	26.0	27.0	28.0	28.5	28.5

Source: Taiwan and Taiwan-Fukien Demographic Fact Book (Taipei: Ministry of Interior, Republic of China, relevant years).

Table 5. Percentage of women currently married, by age group, Taiwan area

Age	Women Currently married			Percent Change		
	1965	1983	2001	1965-1983	1983-2001	1965-2001
15-19	9.2	4.1	1.5	55	63	84
20-24	58.3	37.2	13.9	36	63	76
25-29	88.8	77.3	47.0	13	39	47
30-34	92.8	88.3	72.0	5	18	22
35-39	91.5	91.3	79.1	-	13	13
40-44	88.0	91.8	80.4	4	12	9
45-49	83.3	90.0	80.1	8	11	4

Source: Same as Table 2

Table 6. Decomposition of changes in crude birth rates and percent changes in crude and standardized birth rates, Taiwan, 1965-2001

Rate	Rate changes					
	1965	1980	1985	1990	1995	1990
	-80	-85	-90	-	-	-
				2000	2000	2001
Crude birth rate						
Beginning of period	32.13	23.35	17.92	16.62	15.36	16.62
End of period	23.35	17.92	16.62	15.53	13.84	11.54
Change in crude birth rate due to :						
Age Structure	7.84	2.46	-0.67	-1.77	-0.69	-1.81
Percent married	-4.58	-1.48	-2.67	-4.44	-2.51	-5.08
Marital fertility	-10.49	-3.70	2.03	4.07	1.99	1.66
Interaction	-1.55	-2.71	-0.01	-0.64	-0.31	0.14
All factors *	-8.78	-5.43	-0.30	-2.78	-1.52	-5.09
Per annum change in crude birth rate due to :						
Age structure	0.52	0.49	-0.13	-0.18	-0.14	-0.16
Percent married	-0.31	-0.30	-0.53	-0.44	-0.50	-0.46
Marital fertility	-0.70	-0.74	0.41	0.41	0.40	0.15
Interaction	-0.10	-0.54	-0.01	-0.06	-0.06	0.01
All factors *	-0.59	-1.09	-0.26	-0.28	-0.30	-0.46
Crude birth rate, end of period, standardized for age and marriage, beginning of period and marriage, beginning of period	21.64	19.95	20.68	20.69	17.35	18.28
Average annual change	-0.59	-1.09	-0.26	-0.28	-0.30	-0.46
Crude birth rate standardized birth rate	-0.70	-0.74	-0.41	0.41	0.40	0.15
Percent decrease per year						
Crude birth rate	1.84	4.67	4.07	1.68	1.95	2.77
standardized birth rate	2.18	3.17	2.29	-2.47	-2.60	-0.90

Discrepancies are due to rounding. source: Taiwan and Taiwan-Fukien Demographic Fact Book (Taipei: Ministry of Interior, Republic of China, 1965-2001).

**Table 7. Total fertility rates for Taipei, cities, and urban and rural townships, 1961-2001**

Year	Total	Taipei	Cities	Townships		Taipei/ rural ratio
				Urban	Rural	
1961	5.59	4.70	4.90	5.62	6.15	0.73
1965	4.83	3.85	4.18	4.80	5.36	0.72
1968	4.33	3.53	3.83	4.33	4.81	0.73
1983	2.16	1.66	1.92	2.33	2.42	0.69
1990	1.81	1.47	1.65	1.91	1.99	0.74
1991	1.72	1.37	1.54	1.84	1.94	0.70
1995	1.78	1.42	1.62	1.95	2.03	0.70
2001	1.41	1.30	1.27	1.56	1.67	0.78

Source: Taiwan and Taiwan-Fukien Demographic Fact Book ( Taipei Ministry of Interior, Republic of China, relevant years.)

**Table 8. Total fertility rates and percent decline in fertility by wife's education, and ratio of TER for college graduates to junior-high-school graduates, Taiwan, 1996, 1974, 1983, and 1991**

Year	Total <sup>a</sup>	Educational attainment			College graduates	Ratio of college to junior-high-school graduates
		Primary-school graduates	Junior-high-school graduates	Senior-high-school graduates		
1966	4.68	4.60	3.02	2.78 <sup>b</sup>	2.50 <sup>b</sup>	na
1974	2.94	3.45	2.46	2.27	2.11	.86
1983	2.16	2.83	2.47	1.86	1.64	.66
1991	1.72	3.56	2.10	1.39	1.21	.58
Percent decline						
1966-83	-54	-39	-18	-33	-35	
1983-91	-20	26	-15	-25	-26	
1966-91	-63	-23	-31	-50	-52	

Source : See Freedman, chang, and sun ( 1994 )

na=Not available.

=Not applicable.

<sup>a</sup>Includes self-taught literate and illiterate and less than primary-school graduates not school graduates not shown separately, because numbers were very small in later years.

<sup>b</sup>Estimated from available combined rate of 2.60 for senior-high-school and college graduates from 1974 ratios.

Table 9. Mean preferred number of children among women aged 22-39, by wife's age and number of living children, Taiwan, 1965, 1980, 1985, 1991, and 1998

Variable	Mean preferred number of children				
	1965	1980	1985	1991	1998
<b>Wife's age</b>					
22-24	3.7	2.6	2.3	2.3	2.4
25-29	3.8	2.6	2.5	2.3	2.3
30-34	4.0	2.9	2.6	2.4	2.4
35-39	4.3	3.1	2.9	2.6	2.5
Total	4.0	2.8	2.6	2.4	2.4
<b>Wife's age 22-29</b>					
<b>Number of living children</b>					
0	3.7	2.4	2.1	2.1	2.2
1	3.6	2.4	2.2	2.2	2.1
2	3.6	2.6	2.3	2.3	2.4
3	3.8	2.9	2.8	2.7	2.7
4	4.1	3.2	3.3	2.9	3.3
5+	4.7	3.8	2.8	3.0	4.0
Total	3.8	2.7	2.4	2.3	2.3
<b>Wife's age 30-39</b>					
<b>Number of living children</b>					
0	2.7	2.3	1.8	2.0	1.9
1	3.2	2.3	2.0	2.1	2.0
2	3.2	2.4	2.2	2.2	2.3
3	3.7	2.9	2.8	2.7	2.8
4	4.1	3.4	3.3	3.0	3.3
5+	4.6	3.6	3.4	3.1	3.1
Total	4.2	3.0	2.7	2.5	2.4



**Table 10. Preferred number of children and percent who ever practiced contraception for married women aged 22-39, by selected modernization indicators, Taiwan, 1965-98(selected years)**

Modernization indicator	Preferred number of children							Percent ever practiced contraception						
	1965	1970	1976	1980	1985	1991	1998	1965	1970	1976	1980	1985	1991	1998
Education														
None	4.1	4.0	3.4	3.2	3.1	3.0	2.4	19	51	78	83	89	90	90
Primary	3.9	3.8	2.9	2.9	2.8	2.7	2.7	32	54	73	81	91	93	89
Junior high	3.6	3.3	2.6	2.7	2.5	2.5	2.6	51	71	80	80	89	92	91
Senior high+	3.2	3.0	2.3	2.4	2.2	2.2	2.3	60	79	78	85	90	90	89
Urbanization														
Rural township	4.2	3.9	3.2	3.0	2.8	2.6	2.5	21	48	73	79	70	71	90
Urban township	3.9	3.8	3.1	3.0	2.9	2.5	2.5	26	54	72	79	90	92	90
Small city	3.8	3.6	2.7	2.7	2.5	2.4	2.3	32	62	78	86	91	92	92
Large city	3.7	3.5	2.7	2.6	2.4	2.2	2.3	43	69	81	85	91	91	87
Total	4.0	3.8	2.9	2.8	2.6	2.4	2.4	28	56	76	82	90	91	90

## References

- Chang, Ming-Cheng, Ronald Freedman, and Te-Hsiung Sun. 1981.  
“Trends in fertility, family size preferences, and family planning practice:  
Taiwan: 1961-80.” *Studies in Family Planning* 12, 5: 211-228.
- Chang, Ming-Cheng, Ronald Freedman, and Te-Hsiung Sun. 1987.  
“Trends in fertility, family size preferences, and family planning practice:  
Taiwan, 1961-85.” *Studies in Family Planning* 18, 6 Part 1: 320-337.
- Chang, Ming-Cheng. 1994.  
“Demographic change and family planning in Taiwan.” Paper presented in the  
on Health Care in the 21<sup>st</sup> Century, May 18-20, 1994, Taipei, Taiwan.
- Chang, Ming-Cheng and Mei-Hui Lee.. 2001.  
“Fertility trends in below-replacement levels in Taiwan.” *Journal of  
Population Studies*, No. 23 (in Chinese)
- Executive Yuan, Manpower Planning Department, Council for Economic Planning  
and Development. 2002. “Projections of the Population of the Taiwan Area,  
Republic Of China.” Taipei: Manpower Planning Department.
- Executive Yuan, Republic of China. 1992. “Implementation of population policy.”  
(in Chinese.) Taipei: Executive Yuan, Republic of China.
- Feeney, Griffith. 1991. “Fertility decline in Taiwan: A study using parity  
progression Ratios.” *Demography* 28, 3: 467-479.
- Freedman, Ronald, John Y. Takeshita, and Te-Hsiung Sun. 1964.  
“Fertility and family planning in Taiwan: A case study of demographic  
transition.” *American Journal of Sociology* 70, 1: 16-17.
- Freedman, Ronald and Te-Hsiung Sun. 1969. “Taiwan: Fertility trends in a  
Crucial period of transition.” *Studies in Family Planning* No. 44:15-18.
- Freedman, Ronald, Ming-Cheng, and Te-Hsiung Sun. 1994.  
“Taiwan’s transition from high fertility to below-replacement levels.”  
*Studies in Family Planning*, 25, 6: 317-331.
- Jejeebhoy, Shireen J. 1981. “Cohort consistency in family size preferences:  
Taiwan, 1965-73.” *Studies in Family Planning* 12, 5:229-232.

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