

# Education and Fertility in Two Chinese Provinces : 1967-1970 to 1979-1982

*China's family planning programme has been able  
to transcend the barriers of illiteracy  
and low educational levels*

By **Ronald Freedman, Xiao Zhenyu, Li Bohua  
and William R. Lavelly\***

The rapid decline of fertility in China during the 1970s coincided with a rapid rise in the educational attainment of Chinese women. This coincidence raises questions about the role and importance of educational change in China's fertility decline, which this article attempts to answer.

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\* The authors of this article are Ronald Freedman, University of Michigan; Xiao Zhenyu and Li Bohua, both of the China Population Information Center; and William R. Lavelly, University of Washington. The East-West Population Institute (EWPI) and the Population Studies Center of the University of Michigan have provided various kinds of support for work on this project. The authors are grateful for the assistance of Gayle Yamashita of EWPI and Lois Groesbeck of the Population Studies Center.

Utilizing data from the large-scale One-per-Thousand Population Fertility Sampling Survey of 1982, which collected individual histories on reproductive behaviour and ascertained the educational attainment of each respondent,<sup>1/</sup> fertility decline is analysed in two contrasting provinces, Kaoning and Sichuan, in the period 1967-1970 to 1979-1981.

In fertility studies, education is generally recognized to be the best single indicator of individual modernity. At the aggregate level, moreover, the educational level is usually highly correlated with other major social and economic indicators of development. Thus, these data may provide evidence on the relative importance of developmental change and administrative interventions in the fertility decline, a question of special interest given the ambitious goals of China's fertility control policy.

One major theme of this article is that very large fertility declines at every educational level in the two provinces studied suggest that China's powerful family planning programme has been able to transcend the barriers of illiteracy and low educational levels. A second is that education, nevertheless, is related to reproductive levels in the rural sector both before and after the major programme effects. There are very large differences in both education and fertility between the urban and the rural sectors, so an essential third theme is related to the manner in which the urban environment affects the interrelationship of fertility and education. The article indicates that urban-rural differences in China are far larger and urban fertility levels far lower than can be accounted for by education alone.

The data come from the aforementioned One-per-Thousand Survey, carried out under the auspices of the State Family Planning Commission of the People's Republic of China.<sup>2/</sup> The sample covered 252,000 women 15-49 years old for China as a whole.

Sichuan and Liaoning differ considerably in their social and economic development. Liaoning is among the most economically advanced provinces of China, surpassing by a wide margin the levels of Sichuan using virtually any developmental indicator. Liaoning's population was 42 per cent urban in 1982 compared with 14 per cent for Sichuan, but urban composition alone does not explain the gap between the two provinces. Rural incomes per capita in Liaoning in 1982 exceeded those of Sichuan by 60 per cent (439 yuan compared with 273); adult female illiteracy and semi-literacy in rural Liaoning was 27 per cent compared with 47 per cent in rural Sichuan.

Fertility rates are computed for three-year periods in order to increase the size of the populations at risk. The analysis begins with the period 1967-1970 and ends with the last period of observation, 1979-1982. A sustained fertility decline began in the urban areas of both provinces in 1964. Sustained

rural declines began in Liaoning in 1969 and in Sichuan in 1972. Although Liaoning's rural decline began during the 1967-1970 period, its fertility was still quite high, with a total fertility rate by age (TAFR)<sup>3/</sup> of 5880.,

### Rise in educational levels

Survey respondents were asked questions concerning their educational level at the time of the Survey. In the Survey, if a respondent had any elementary school experience or reported that she could read, she was placed in the elementary category. This amounts to a liberal definition of literacy. For this article, it is assumed throughout that a woman's educational level was attained in childhood<sup>4/</sup>

In 1967-1970 in rural Sichuan (**table 1**), 70 per cent of the women of child-bearing ages (15-49 years old) were illiterate; however, progress is evident. Although 97 per cent of women 45-49 years of age were illiterate, the percentage illiterate decreased systematically the younger were the women who were sampled; for example, among those 15-19 years of age, the proportion illiterate was 50 per cent. In the prime child-bearing years, 20-29, over half were still illiterate in 1967-1970 and almost all of the literate had only elementary schooling; among young rural women 15-24 years of age, only 6-7 per cent had more than an elementary education. By 1967-1970, when Sichuan's fertility decline began, rural women still were predominantly illiterate, and those who were literate were surrounded by role models and relatives who were illiterate.

At the starting point, 1967-1970, the women of Sichuan's urban sector were much better educated than the rural women and as well educated as the women of urban Liaoning. Only 25 per cent of urban Sichuan women 15-49 years of age were illiterate. Even among the oldest (45-49), a significant number had achieved literacy before the People's Republic of China was established<sup>5/</sup> Among women under 30, there was relatively little illiteracy and a large proportion already had post-primary education.

Between 1967-1970 and 1979-1982, in both rural and urban Sichuan, educational levels rose substantially. In the rural area, this improvement still left large proportions illiterate and most of the rest with no more than an elementary education. However, in the urban sector, illiteracy had almost disappeared among women under 30, and most women under 30 had post-elementary education.

Educational levels were substantially higher in rural Liaoning than in rural Sichuan even as early as 1967-1970 (**table 2**). This was especially true for those under 30 years of age. For the older women, there was little difference

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**Table 1: Percentage educational distribution of Sichuan women  
of child-bearing age, by age, total, rural and urban, 1967-1970 and 1979-1982** \*

	Total						Rural						Urban											
	Illiterate		Elem-entary		Jr. high plus		Illiterate		Elem-entary		Jr. high plus		Illiterate		Elem-entary		Jr. high plus							
15-19	43	42	15	100	50	43	7	100	3	31	66	100	12	36	52	100	13	41	46	100	1	6	93	100
20-24	47	41	12	100	52	42	6	100	3	38	59	100	30	34	36	100	37	39	24	100	1	12	87	100
25-29	61	29	10	100	69	27	4	100	10	41	49	100	41	41	18	100	46	44	10	100	2	25	73	100
30-34	72	21	7	100	83	16	1	100	26	43	31	100	44	43	13	100	50	44	6	100	3	36	61	100
35-39	81	14	5	100	91	8	1	100	37	37	26	100	54	34	12	100	61	33	6	100	7	37	56	100
40-44	87	9	4	100	94	5	1	100	55	29	16	100	68	24	8	100	78	20	2	100	18	44	38	100
45-49	91	6	3	100	97	3	0	100	60	26	14	100	77	17	6	100	88	11	1	100	32	41	27	100
Total 15-49	64	27	9	100	70	26	4	100	25	35	40	100	42	34	24	100	47	36	17	100	8	26	66	100

\* Note: These are distributions of woman-years in these age groups during the specified periods. Similar data are available for years of marital exposure.

**Table 2: Percentage educational distribution of Liaoning women of child-bearing age, by age, total, rural and urban, 1967-1970 and 1979-1982**

	Total						Rural			Urban		
	Illiterate	Elementary	Jr. high plus	Total	Illiterate	Elementary	Jr. high plus	Total	Illiterate	Elementary	Jr. high plus	Total
15-19	12	45	43	100	19	62	19	100	0	15	85	100
1967-1970	2	24	74	100	3	35	62	100	1	3	96	100
1979-1982												
20-24	12	57	31	100	17	66	17	100	1	38	61	100
1967-1970	6	26	68	100	11	43	46	100	0	4	96	100
1979-1982												
25-29	24	53	23	100	34	54	12	100	6	53	41	100
1967-1970	11	37	52	100	18	56	26	100	0	9	91	100
1979-1982												
30-34	48	42	10	100	66	31	3	100	28	54	18	100
1967-1970	12	56	32	100	17	68	15	100	1	30	69	100
1979-1982												
35-39	71	25	4	100	90	10	0	100	49	43	8	100
1967-1970	18	53	29	100	26	57	17	100	2	46	52	100
1979-1982												
40-44	80	18	2	100	91	8	1	100	65	32	3	100
1967-1970	36	50	14	100	51	44	5	100	17	57	26	100
1979-1982												
45-49	88	11	1	100	93	6	1	100	80	18	2	100
1967-1979	64	30	6	100	84	15	1	100	42	47	11	100
1979-1982												
Total 15-49	39	40	21	100	48	42	10	100	27	35	38	100
1967-1970	15	36	49	100	21	47	32	100	6	20	74	100
1979-1982												

\* Note: These are distributions of woman-years in these age groups during the specified periods. Similar data are available for years of marital exposure.

between Sichuan and Liaoning. This indicates very high illiteracy in both provinces before the present regime and a faster course of improvement in Liaoning in the 1960s and 1970s when most of the women 15-24 years of age were educated. Those 25-29 years of age in 1967-1970 were educated just before or just after the founding of the People's Republic of China.

So, at the starting point, 1967-1970, the rural women of Liaoning were already substantially better educated than those of Sichuan. Although rural educational levels improved in both provinces by 1979-1982, Liaoning's women were much better educated. However, in neither province was rural education at the high levels usually associated with very low fertility.

### **Education and fertility in Sichuan, 1967-1970**

As early as 1967-1970, when Sichuan's TAFR was as high as 6470, a fairly strong negative relationship between education and fertility had already appeared (**table 3**). This is evident both for all women, as indicated by the TAFR, and for married women, as measured by the sum of their fertility rates at specific durations of marriage – the total marital-duration-specific fertility rate (TDFR). During this early period, the negative relationship between education and fertility had not fully emerged in Sichuan's rural sector (80 per cent of the total). Only those with more than an elementary education had lower than average fertility.

Also during the 1967-1970 period, urban fertility rates were already lower than rural rates by a very wide margin at every educational level. In fact, the rates for even illiterate urban women were lower than those for rural women with the highest education.

Urban China had already experienced a substantial fertility decline by 1967-1970, apparently induced, at least in part, by government-sponsored family planning efforts that began in 1963. This may explain why urban-rural educational differentials alone did not account for the very large urban-rural fertility differentials. Within education categories, the urban TAFRs were 32 to 46 per cent lower than those in the rural areas. Weighting the rural TAFRs by urban educational distributions results in essentially no change in the high TAFR for the total rural population.

Education affected fertility in Sichuan partly through its influence on marriage. By 1967-1970, more education already meant a lesser probability of being married at age 20-24, a prime child-bearing age at that time. Beginning in 1970, delay of marriage became an object of the national family planning programme, sometimes known by the slogan "later (marriage), longer (spacing), fewer (children)." Proportions married at age 20-24 declined rapid-

**Table 3: Total fertility rates (TAFR) and total marital-duration-specific fertility rates (TDFR) for Sichuan, by total, rural and urban, 1967-1970 to 1979-1982**

	Total		Rural		Urban	
	TAFR	TDFR	TAFR	TDFR	TAFR	TDFR
1967-1970						
Illiterate	6909	7279	7061	7451	4794 <sup>a/</sup>	5056 <sup>b/</sup>
Elementary	5794	6131	7224	7631	3913	4355
Jr. high plus	3875	4158	5331 <sup>a/</sup>	3732 <sup>b/</sup>	3556	3766
Total	6470	6980	6980	7483	3970	4541
1973-1976						
Illiterate	5393	5941	5480	6041	3118 <sup>a/</sup>	3543 <sup>b/</sup>
Elementary	4390	4996	5010	5684	2295	2672
Jr. high plus	2268	3044	3515	4718	1657	2321
Total	4719	5452	5195	5918	1914	2581
1979-1982						
Illiterate	2556	2834	2570	2849	915 <sup>a/</sup>	1602 <sup>b/</sup>
Elementary	2139	2283	2225	2364	1192	1477
Jr. high plus	1740	1918	2140	2342	1271	1461
Total	2135	2505	2320	2649	1187	1464

Notes: <sup>a/</sup> = Fewer than 100 women-years in denominator for at least one of age groups 20-24, 25-29, or 30-34; <sup>b/</sup> = fewer than 100 cases in denominator for at least one marital duration group 0-4, 5-9, or 10-14 years.

ly after 1967 - 1970 at every educational level, but the decline was faster in the higher educational groups, suggesting that education facilitated delay of marriage to some extent. However, the major educational difference in total fertility rates was still a result of differential marital fertility, because marriage was still virtually universal for those aged 25-29 and older. These statements apply both to the rural and urban sectors<sup>6/</sup>

Lower fertility for better educated women in third world countries usually results from the use of birth control at that stage of married life when couples have as many children as they want. This generally means that educational differentials in fertility should be greater the later the period of marriage

considered. This is exactly what was found in Sichuan in 1967 - 1970. After the first five years of marriage the negative relationship of education and fertility grows stronger with the duration of marriage. For example, the ratio between the fertility of illiterate women to that for women with post-elementary education is as follows for Sichuan in 1967 - 1970 at different marriage durations:

<b>Marriage duration</b>	<b>Ratio of fertility rate: illiterate/junior high school or more</b>	
	Rural	Urban
0-4 years	0.88	0.65
5 -9	1.10	1.57
10-14	1.39	2.71
15-19	1.47	3.02
20-24	5.03	9.14

Note that the gradient of the decline is much steeper for the urban than for the rural population, as would be expected.

In the urban sector, there was a monotonic negative relationship between education and fertility at all marriage durations after the first five years of marriage.<sup>77</sup> In the rural sector, it was the highest education group that was always differentiated as having lower fertility than the other two less educated groups after the first five years of marriage, but those with primary education also usually had higher fertility than the illiterate women.

What explains the positive relationship between education and fertility during the first five years of marriage, both in the rural sector and in the total population?

This beginning stage of marriage is minimally affected by the effects of post-partum amenorrhea and breast-feeding. It is unlikely that any significant number of rural women were using contraception in the early years of marriage, especially in the illiterate stratum. One plausible interpretation is that better health and nutrition of the better educated means higher fecundability. A quite different interpretation is that the better educated have a shorter first birth interval resulting from closer conjugal ties and more frequent intercourse, more prevalent among better educated couples. Perhaps this positive relationship early in marriage should not be stressed too much, since it is evident in the Sichuan rural data only for the periods 1967 - 1970 and 1970-1973. It is not found in the urban sector data for any of the periods considered, although it perhaps appeared in the urban sector earlier, when urban fertility was higher. In any case, from 1973 -1976 onward to 1979 - 1982 there is



no consistent relationship between fertility and education in the first five years of marriage.

The negative relationship between fertility and education after the first five years of marriage, 1967-1970, means that the higher the educational status, the greater the concentration of births relatively early in the marriage:

**Percentage of total marital-duration-specific fertility rate attributable to fertility at durations of marriage (in years)**

	0-4 years	5-9	10-34
Illiterate	23	25	52
Elementary	29	28	43
Junior high school	48	31	21
Total	25	25	50

The relative concentration of fertility early in marriage was much more marked at this early point in urban than in rural areas (table 4). As will be seen, the pattern of the rural sector was to follow that of the urban sector somewhat later, as fertility declined.

**Table 4: Percentage of the total marital fertility rate attributable to specific marital duration fertility rates in Sichuan, by education and specific periods, total, rural and urban, 1967 - 1970 and 1979 - 1982**

Education	Marital duration (in years)			Total
	0-4 years	5-9	10+	
<i>Total</i>				
Illiterate				
1967-1970	23	25	52	100
1979-1982	59	24	17	100
Elementary				
1967-1970	29	28	43	100
1979-1982	69	21	10	100
Jr. high plus				
1967-1970	48	31	21	100
1979-1982	84	13	3	100
Total				
1967-1970	25	25	50	100
1979-1982	65	21	14	100

**Table 4: (continued)**

Education	Marital duration (in years)			Total
	0-4 years	5-9	10+	
<i>Rural</i>				
Illiterate				
1967-1970	23	24	53	100
1979-1982	59	24	17	100
Elementary				
1967-1970	23	23	54	100
1979-1982	67	22	11	100
Jr. high plus				
1967-1970	33	29	38	100
1979-1982	77	18	5	100
Total				
1967-1970	23	24	53	100
1979-1982	63	22	15	100
<i>Urban</i>				
Illiterate				
1967-1970	27	31	42	100
1979-1982	95	5	0	100
Elementary				
1967-1970	49	28	23	100
1979-1982	94	5	1	100
Jr. high plus				
1967-1970	55	27	18	100
1979-1982	93	6	1	100
Total				
1967-1970	46	25	29	100
1979-1982	93	6	1	100

### The major decline in Sichuan's fertility

Sichuan's fertility declined precipitously from 1967 - 1970 to 1979 - 1982 at every educational level and in both the rural and urban sectors (**table 5**). While educational differentials will be considered shortly, the most striking fact is the large declines in all educational strata. The percentage declines in

**Table 5: Percentage change in total fertility rates and total maritalduration-specific fertility rates for Sichuan and Liaoning, by total, rural and urban, 1967-1970 to 1979-1982**

	Sichuan			Liaoning		
	Total	Rural	Urban	Total	Rural	Urban
<i>Changes in total fertility rates</i>						
Illiterate	- 63	-64	-81	-50	-53	-80 *
Elementary	- 63	-69	-70	-50	-62	-52
Jr. high plus	-55	-60	-64	-48	-53	-49
Total	- 67	-67	-70	-60	-62	-53
<i>Changes in total marital duration-specific fertility rates</i>						
Illiterate	- 67	-62	-68	-55	-59	-70
Elementary	- 63	-69	66	-56	-63	-69
Jr. high plus	-54	-59	-61	-54	-58	-59
Total	- 64	-65	-68	-61	-63	-63

\* Note: Fewer than 40 woman-years in denominators of age-specific fertility rates for at least one of age groups 20-24, 25-29, or 30-34, in at least one period.

TAFR for the three educational strata were between 55 and 63 per cent for the total population, 60 to 69 per cent for the rural population and 64 to 81 per cent for the urban population.

Education played a role, but the magnitude of the declines in all educational strata and the fact that the declines were so great even among illiterate women suggest that the exceptionally powerful family planning programme in Sichuan during this period was able to transcend the barriers of low educational levels. It should be kept in mind that the profound transformation in reproductive behaviour in Sichuan occurred despite the fact that educational levels, while rising, were still low. In Sichuan during 1979 - 1982, 42 per cent of all women of reproductive age and 47 per cent of those in rural areas were still illiterate.

Much of the very large decline in fertility occurred in a short part of the period under review. Fifty-four per cent of the total fertility decline of 4335 points, from 1967-1970 to 1979-1982, occurred between 1973-1976 and 1976-1979 and 29 per cent occurred between 1970-1973 and 1973-1976. So, 83 per cent of the decline occurred in half of the 12-year period being

considered. No social or economic changes – other than the intensification of the family planning programme – are known which could account for those major declines.

The fertility declines (table 6) occurred mainly among those 15 - 19 years of age and above 30 years of age, with the result that fertility was increasingly concentrated among those between the ages of 20 and 29. For the specific five-year age groups 15 - 19 and 30-34 or older, the fertility declines ranged from 83 to 94 per cent for all women, 84 to 95 per cent for rural women and 88 to 100 per cent for urban women. Truly remarkable! For rural and total Sichuan, the declines among women aged 25-29 and older were due to declining age-specific marital fertility, while declines in the 15-19 and 20-24 age groups were mainly due to declines in the proportions married.

**Table 6: Percentage change in age-specific and total fertility rates for Sichuan, by total, rural and urban, 1967-1970 to 1979-1982**

Education	Age							TAFR
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
<i>Total</i>								
Illiterate	-66	-24	-54	-81	-90	-90	-95	-63
Elementary	-79	-27	-53	-86	-95	-97	-86-	63
Jr. high plus	-70	-53	-29	-80	-97	-100	0*	-55
Total	-83	-38	-51	-84	-92	-93	-94	-67
<i>Rural</i>								
Illiterate	-64	-24	-54	-81	-90	-91	-95	-64
Elementary	-79	-25	-55	-88	-97	-98	-78	-69
Jr. high plus	-73	-38	-22	-86*	-99*	-100*	0*	-60
Total	-84	-31	-52	-85	-93	-92	-95	-67
<i>Urban</i>								
Illiterate	-100*	-100*	-39*	-100*	-100*	-100	-100	-81
Elementary	-72	-67	-49	-98	-100	-100	-100	-70
Jr. high plus	-100	-80	-37	-79	-96	-100	0*	-64
Total	-93	-80	-39	-88	-99	-100	-100	-70

\* Note: Fewer than 40 woman-years in denominators of age-specific fertility rates for at least one of ages 20-24, 25-29, or 30-34, in at least one period.

However, in urban Sichuan the declines in marital fertility as well as in the proportions married account for the very large declines in fertility of all women at ages 15 -19 and 20-24. At ages 25-29 the marital fertility decline was considerably less in the urban than in the rural areas, because in the urban sector marital fertility was increasingly concentrated in that age group. Between 1967-1970 and 1979-1982 the proportion of the urban TAFR attributable to the age group 25-29 increased in urban Sichuan from 36 to 72 per cent.

Because of the large changes in nuptiality in the young age groups, the total marital fertility rate (TMFR) is inferior to TDFR as a summary measure of changes in marital fertility. Since TMFR assumes essentially that all women



*The decline in fertility among Sichuan women 20-24 years old during the last decade was due to a decline in the proportion*

are married throughout their child-bearing years, it gives undue weight to the small fertility declines at ages 15-19 and 20-24. TDFR indicates larger marital fertility declines than TMFR for the period of observation. As will be shown, a decomposition of the factors producing the TAFR declines gives major importance to the marital fertility decline and a minor, if significant, effect for declining nuptiality .

Although the large fertility declines at all educational levels are the most notable feature of the entire period, differentials by education did emerge in the rural sector during the period. By 1973 -1976, there was a negative fertility-to-education relationship for all women and all rural women in every age group. By then, rural elementary fertility rates were intermediate between those for illiterates and for post-elementary education in every age group but one. Marital fertility also was negatively related to education from ages 30-34 onward. The differential in marital fertility does not appear at younger ages because the better educated women in these young ages were more concentrated than others in the earliest, high-fertility marriage duration (0-4) (**table 7**). By 1979 - 1982, for those married more than five years, the monotonic relationship of education and fertility appears at all durations.

Also by 1979 - 1982, urban fertility is almost entirely concentrated in the first five years of marriage and rural fertility in the first 10 years. The extreme (93 per cent) concentration of the urban TDFR in the first five years of marriage compares with 71 per cent in Hong Kong in 1985, a level of concentration which might in itself be considered to be extraordinary.

Rural marital fertility at the crucial ages 15 - 19, 20-24 and 25 -29 was positively, rather than negatively, related to education by 1979- 1982. This positive relationship of marital fertility to education at ages 15 -29 is mainly a result of the fact that, in those age groups many women, and especially the better educated ones, were likely to be in the very early years of marriage, which are characterized by high fertility in China and Sichuan. This means, as will be seen, that high educational levels at those ages have little influence on fertility.

It was still true that, in the rural sector during 1979-1982, education and fertility were strongly negatively correlated after the first five years of marriage. However, in the urban sector, one could not speak of educational differentials by 1979 - 1982, because fertility was uniformly at very low levels in the two educational categories of consequence. There were almost no illiterate women in the prime child-bearing years in urban Sichuan by 1979 -1982.

The very large declines in fertility in all educational strata were particularly marked for women less than 20 or more than 30 years of age and for

**Table 7: Percentage distribution of marital exposure years for 1979-1982 by duration of marriage as of 1 July 1982, for education categories and selected age groups in Sichuan, by total, rural and urban**

Marriage duration (years)	Age 20-24			Age 25-29			Age 30-34		
	Illit-erate	Elem-entary	Jr. high plus	Illit-erate	Elem-entary	Jr. high plus	Illit-erate	Elem-entary	Jr. high plus
<i>Total</i>									
0-4	66	76	92	17	25	55	1	1	7
5-9	32	23	8	46	47	38	8	10	33
10-14	2	1	0	36	28	7	55	59	50
15+	0	0	0	1	0	0	36	30	10
Total	100	100	100	100	100	100	100	100	100
Number	1 993	1 867	982	5 316	5 338	2074	4 241	4 125	1 229
<i>Rural</i>									
0-4	66	76	91	16	24	49	1	1	4
5-9	32	23	9	47	48	41	8	10	24
10-14	2	1	0	36	28	10	55	57	54
15+	0	0	0	1	0	0	36	32	18
Total	100	100	100	100	100	100	100	100	100
Number	1 991	1 800	737	5 281	4 960	1 116	4 208	3 663	454
<i>Urban</i>									
0-4	100	72	94	21	35	61	6	1	9
5-9	0	28	4	36	44	34	16	15	39
10-14	0	0	2	43	21	5	62	69	47
15+0	0	0	0	0	0	0	16	15	5
Total	100	100	100	100	100	100	100	100	100
Number	2	67	245	35	378	958	33	462	775

women married more than 10 years. For women under 20 and over 30, fertility rates declined by 83 to 94 per cent. For women married more than 10 years, the declines in marital fertility were 89 to 100 per cent in specific education-duration groups. Even for women married only five to nine years, marital fertility declined by 70 per cent. Even considering specific education-duration-of-marriage subgroups, the range of declines was 82 to 100 per cent with only two exceptions. Even these exceptions (for illiterate women and those with elementary school education married five to nine years) involved declines of 47 to 68 per cent.

The move to an extreme concentration of fertility early in marriage for all educational strata is indicated by the data in **table 4**. In 1967 - 1970, the degree of concentration of fertility early in marriage was directly related to education in the urban sector, but was substantial only for the best-educated women in the rural sector. By 1979-1982 the positive relationship between concentration of fertility early in marriage and education was evident in the rural sector also among women at every level of education. By that time, almost all fertility in the urban sector was concentrated in the first five years of marriage for all educational strata. This is surely a unique phenomenon in a third world country, even for an urban sector, and notable even in comparison with developed societies. The concentration is consistent with the fact that, by 1979 - 1982, 91 per cent of all births in urban Sichuan were first births, an indication of the strength of the one-child campaign in Sichuan.

The unusual character of the Sichuan fertility decline during the 12-year period under review is indicated by comparison with Singapore and Hong Kong during the 12 -year period following 1961, when their levels and pace of economic and social development were considerably greater than that of Sichuan. At the outset of the period, both of these other Chinese populations also had high fertility. The 67 per cent decline for Sichuan over 12 years compares with declines of 50 and 38 per cent for Singapore and Hong Kong, respectively.

The period 1979 - 1982 in all of our analyses necessarily averages years of contrasting trends in nuptiality and fertility. In both the rural and urban sectors of Sichuan and Liaoning, the TAFR was at an all-time low in 1979 and 1980 and then rebounded in 1981 and 1982 as a result of a "marriage boom" with a decline in age at marriage<sup>8/</sup>

#### **Decomposition of change in TAFR for Sichuan, 1967-1970 to 1979-1982**

The overall decline in TAFRs has been decomposed for the whole period as a way of summarizing the contributions of several components to the overall decline.

Changes in marital fertility rates for specific age-education groups of married women account for most of the decline in Sichuan's TAFR between 1967 -1970 and 1979-1982. Much smaller parts of the decline are attributable to the decline in the percentage married among young women within the various age groups and to upward shifts in educational distributions. These conclusions are drawn from the following decomposition of the 1967 - 1970 to 1979 - 1982 decline in TAFR:



**Proportion of fertility decline, 1967 - 1970  
to 1979 - 1982 attributable to changes in:**

	(per cent)	
	Total	Rural
Age-marital-specific fertility rates within education categories	85	88
Percentage married in specific age- education categories	12	10
Changes in educational distributions	7	-1
Interaction	- 4	3
<b>Total</b>	<b>100</b>	<b>100</b>

The modest proportions of the declines due to rising educational levels for all of Sichuan were due entirely to the urban sector. When the rural decline is decomposed, essentially no effect of the rising educational levels is found. The explanation is that at ages 15-19, 20-24 and 25-29, which accounted for 84 per cent of the total fertility rate in 1979-1982, marital fertility was positively, rather than negatively, related to education. Therefore, the upward shift in education at those early reproductive ages acted to increase, rather than to decrease, fertility. This phenomenon almost exactly compensated for the effect of more education in decreasing fertility at older ages. While marital fertility was negatively related to education at ages 30 and over, the rates at those ages were already so low, regardless of education, that the total effect on fertility was small.

The very small role of the improving educational levels on the total fertility decline in Sichuan resulted from the unusually high concentration of fertility within a very narrow age band and within the very early durations of marriage, especially for the better educated. In another Chinese population, for example, in which education levels were rising very rapidly and to much higher levels than in Sichuan, 14 per cent of the total fertility rate decline between 1966 and 1980 was a result of changes in the educational distribution (Liu, 1983). Another measure of the extent to which TAFR has been reduced by changes in nuptiality is the degree to which TAFR falls short of TDFR. The following data are for Sichuan:

**Percentage by which TAFR was less than TDFR**

Period	Total	Rural	Urban
1967-1970	7	7	13
1973-1976	13	12	26
1979-1982	15	12	19

These data indicate that rising age at marriage had begun to affect TAFR by 1967-1970. It had an accelerated effect by 1973-1976. The relatively high figure for 1979 - 1982 averages out what must have been a large effect for 1979-1980, since age at marriage fell in 1981.1982.<sup>9/</sup> Our sample was not large enough to sustain year-by-year analysis.

Sichuan's fertility decline was not at all a result of the changes in age distribution for the period. In reaching this conclusion, it was estimated what the general fertility rate (GFR) would have been if the age distribution would have remained as in 1967-1970 but age-specific fertility changed as it did by 1979-1982. Then this rate was compared with the actual GFR for 1979-1982.

For the rural sector, the result was no net age effect. In the urban sector, the change in the age distribution produced a GFR 25 per cent higher than it would have been if the age distribution had remained as in 1967 - 1970. This was due to increases over the period in the proportions of women 20-24 and 25 -29 years of age, precisely the high-fertility age groups whose rates accounted for 92 per cent of urban TAFR in 1979 - 1982. Change in the urban age distribution thus acted to retard the fertility decline.

The net effect of the change in the age distribution for all of Sichuan was to make the 1979 - 1982 GFR 9 per cent higher than it would have been if the age distributions had remained unchanged.

### **Education and fertility in Liaoning, 1967 - 1970**

In 1967-1970, Liaoning's TAFR was still quite high (5880) in its rural sector, but it was already low enough in the urban sector (3075) that the TAFR for all of Liaoning was 4740 (**table 8**). In every educational group in both the rural and urban sectors, TAFR was lower for Liaoning than for Sichuan (compare tables 3 and 8).

For all of Liaoning and for the rural sector, there was a marked negative relationship of education to TAFR (**table 8**). There was no consistent pattern in the urban sector, but these urban patterns probably are affected by the small numbers of respondents in the young illiterate and in the older post-elementary categories.

At the time (1967-1970) a monotonic negative relationship of education and fertility for total and rural Liaoning was found in almost every age group both for all women and for married women, with a few minor deviations. In the rural sector, the strong negative relationship of fertility to education among those 20-24 years of age was largely a result of the negative rela-

**Table 8: Total fertility rates (TMR) and total marital-duration-specific fertility rates (TDFR) for Liaoning, by total, rural and urban, 1967-1970 to 1979-1982**

	Total		Rural		Urban	
	TAFR	TDFR	TAFR	TDFR	TAFR	TDFR
1967-1970						
Illiterate	5738	6135	6318	6847	2734 <sup>a/</sup>	3972 <sup>b/</sup>
Elementary	4528	5089	6112	6565	3271	3995
Jr. high plus	3280	4028	4510 <sup>a/</sup>	5700 <sup>b/</sup>	2958	3667
Total	4740	5644	5880	6782	3075	3999
1973-1976						
Illiterate	3272	3946	3430	4150	1598 <sup>a/</sup>	2223 <sup>b/</sup>
Elementary	2698	3501	3055	3997	1665	2241
Jr. high plus	1839	2784	2965	3654	1399	2283
Total	2473	3519	3150	4133	1355	2280
1979-1982						
Illiterate	2880	2780	2955	2809	544 <sup>a/</sup>	1177 <sup>b/</sup>
Elementary	2260	2258	2350	2417	1565 <sup>a/</sup>	1241
Jr. high plus	1720	1839	2135	2421	1503	1500
Total	1915	2186	2245	2527	1456	1490

Notes: **a/** = Fewer than 100 women-years in denominator for at least one of age groups 20-24, 25-29, or 30-34; **b/** = fewer than 100 cases in denominator for at least one marital duration group 0-4, 5-9, or 10-14.

relationship between the percentage married and education. Therefore, marital fertility differentials at 20-24 were much smaller than those for all women 20-24 years of age. The strong monotonic relationship of fertility and education at ages 15 - 19 was of little consequence for TAFR comparisons, since even in 1967 - 1970 only 10 per cent of rural women and 1 per cent of urban women were married at those young ages.

Differentials were not much different for married women and all women at ages above 20-24, because of the very high proportions married. There was a small negative marriage differential at ages 25 -29, but even at those ages, 98 per cent of rural and 91 per cent of urban Liaoning women were married. At older ages, marriage was virtually universal.

**Table 9: Percentage of the total marital fertility rate attributable to specific marital duration fertility rate for Liaoning, by education and specific periods, total, rural and urban, 1967-1970 and 1979-1982**

Education	Marital duration (in years)			Total
	0-4 years	5-9	10+	
<i>Total</i>				
Illiterate				
1967-1970	31	26	43	100
1979-1982	61	31	8	100
Elementary				
1967-1970	37	29	34	100
1979-1982	71	21	8	100
Jr. high plus				
1967-1970	46	30	24	100
1979-1982	84	12	4	100
Total				
1967-1970	33	26	41	100
1979-1982	73	20	7	100
<i>Rural</i>				
Illiterate				
1967-1970	28	24	48	100
1979-1982	62	30	8	100
Elementary				
1967-1970	29	24	47	100
1979-1982	69	22	9	100
Jr. high plus				
1967-1970	32	29	39	100
1979-1982	76	17	7	100
Total				
1967-1970	28	24	48	100
1979-1980	68	23	9	100

Table 9 : (continued)

Education	Marital duration (in years)			Total
	0-4 years	5-9	10+	
<i>Urban</i>				
Illiterate				
1967-1970	49	20	31	100
1979-1982	100	0	0	100
Elementary				
1967-1970	42	32	26	100
1979-1982	85	13	2	100
Jr. high plus				
1967-1970	49	26	25	100
1979-1982	93	6	1	100
Total				
1967-1970	44	28	28	100
1979-1982	92	7	1	100

Liaoning's TDFR also was negatively correlated to education in 1967 - 1970 both for the rural and the total population (table 8). The steepness of the fertility differential with education increased with longer marriage duration after 10 years.<sup>10/</sup> In both the rural and urban sectors, the proportion of fertility occurring in the first five years of marriage increased monotonically with education (table 9).

Urban-rural differentials were already very large in every educational stratum in 1967-1970, whether TAFR or TDFR is considered (table 8). The highest education-specific TAFR or TDFR for the urban sector was lower than the lowest value for any rural educational stratum. There was no overlap of rates in the two sectors. It also is true that the proportion married at ages 15-19, 20-24 and 25 -29 was less in the urban than in the rural stratum in each educational group in 26 of 27 comparisons.

### The decline in fertility for Liaoning

In Liaoning, as in Sichuan, fertility fell very sharply between 1967-1970 and 1979-1982 at every educational level, whether the fertility measure is TAFR or TDFR (table 5). As for Sichuan, what is striking is the large size of the declines at every educational level rather than the differentials. For all the educational strata, the percentage decline of TAFR was between 48 and

50 per cent for all women, 53 and 62 per cent for rural women, and 49 and 80 per cent for urban women

For Liaoning's total population, most of the decline in TAFR resulted from declines in marital fertility in specific age-education categories for married women. Much smaller proportions of the declines resulted from changes in nuptialty and in educational distributions, as the following decomposition indicates:

**Proportion of decline in TAFR, 1967 - 1970  
to 1979-1982, attributable to changes in:**

	(per cent)	
	Total	Rural
Age-marital-specific fertility rates for specific age-education groups	75	82
Percentage married in specific age- education groups	14	12
Education distributions within specific age groups	11	0
Interaction	0	6
Total	100	100

The effects of increasing education in reducing fertility found in the total population is entirely a result of effects in the urban sector. As in Sichuan, they do not appear in the rural sector decomposition. Most of the total, rural and urban TAFRs for 1979 - 1982 in Liaoning were accounted for by the rates at ages 20 -24 and 25 -29 (86-87 per cent). At those ages there had been a large upward shift during this period in the proportion of the better educated (high school or higher level). But, it is also true that, at those ages, marital fertility was higher for the best educated than for others. As for Sichuan, the effect of rising education in *increasing* fertility at ages 20-29 was almost exactly compensated by its effect in *decreasing* fertility at older ages.

This same result can be seen from another point of view by considering duration-specific rates and the percentage distribution of marital exposure time by duration of marriage. In 1979-1982, as in 1967 -1970, the higher the educational level of married women, the greater was the proportion who were in the earliest duration of marriage (0 -4 years). Marital fertility was much higher at duration 0-4 than at any later duration, and at that duration it was highest for the best educated women. The high fertility of the better educated women at ages 20-24 and 25 -29 is a result of the fact that they were disproportionately recently married (**table 10**) and experiencing the high fertility of that time in their lives.

**Table 10: Percentage distribution of marital exposure years for 1979-1982 by duration of marriage as of 1 July 1982, for education categories and selected age groups in Liaoning, by total and,rural**

Marriage duration (years)	Age 20- 24			Age 25-29			Age 30-34		
	Illit-erate	Elem-entary	Jr. high plus	Illit-erate	Elem-entary	Jr. high plus	Illit-erate	Elem-entary	Jr. high plus
<i>Total</i>									
0-4	61	80	94	24	33	68	2	3	13
5-9	37	19	6	49	45	28	16	16	40
10-14	2	1	0	27	22	4	50	56	40
15+	0	0	0	0	0	0	32	25	7
Total	100	100	100	100	100	100	100	100	100
Number	269	875	804	629	2 078	2 462	1 884	2 133	1 206
<i>Rural</i>									
0-4	60	80	91	24	32	36	3	2	4
5-9	37	19	9	49	46	44	16	16	27
10-14	3	1	0	27	22	20	49	54	55
15+	0	0	0	0	0	0	32	28	14
Total	100	100	100	100	100	100	100	100	100
Number	269	844	469	623	1 887	799	683	1 763	388

For specific age cohorts, the peculiar situation of rising education not contributing to lower overall fertility was probably temporary. For any specific age cohort, as time goes on, the fertility of its better educated women will plunge as more of them are married longer. At duration 5 -9 years in 1979 - 1982, there was a strong negative correlation between education and fertility for total and rural Liaoning .

Fertility decreases rapidly with duration of marriage for all education groups. By 1979-1982, fertility was highly concentrated in the first five years of marriage in the urban sector and in the first 10 years in the rural sector. However, it is also true that large new cohorts successively are entering the child-bearing years; their flooding into the early marriage stage should have the effect of countering the negative effect on fertility of the next older cohort as it enters the later low-fertility marriage-duration categories. The effects of educational change in successive periods depend on the relative sizes of the successive cohorts as well as the degree of concentration of the better educated in younger ages and early marriage durations.

The comparison of the TAFR and TDFR for Liaoning, as for Sichuan, indicates that the effect of rising age at marriage was already evident in 1967-

1970, increased substantially by 1973-1976 and was reduced in 1979-1982, presumably as a result of the marriage boom, with a decrease in age at marriage in 1980 and 1981:

Percentage by which TAFR was less than TDFR			
	Total	Rural	Urban
1967-1970	14	12	22
1973-1976	28	22	39
1979-1982	11	9	0

In comparison with Sichuan, the nuptiality effects were much greater by 1967-1970 and 1973-1976, but somewhat less in the period 1979-1982. The extreme oscillation of the urban sector may be, at least in substantial part, due to sampling variability, since the components of the urban rates are necessarily based on small subgroup frequencies.

Liaoning's fertility decline was not a result of changes in the age distribution during the period. On the contrary, the changing age distributions had the effect of making the GFRs 12 per cent higher in the rural sector, 46 per cent higher in the urban sector and 16 per cent higher for the total population than they would have been if age distributions had remained at their 1967-1970 levels.<sup>11/</sup>

In the urban sector, large increases in the proportions 20-24 and 25-29 years of age had a strong pro-natal effect, since those were the age groups with the highest fertility, accounting for 88 per cent of TAFR in the urban sector. The smaller pro-natal effect in the rural sector occurred mainly because only the proportions at 25-29 and 30-34 years of age increased; rates for those 30-34 were lower than for those 20-24 years of age and, in general, fertility was not so strongly concentrated in the age groups where the proportions of women increased.

### **Convergence of fertility rates for Sichuan and Liaoning**

Between 1967 - 1970 and 1979 - 1982, the fertility rates of Liaoning and Sichuan converged despite the fact that educational, social and economic development remained higher in Liaoning throughout the period.

In 1967-1970, both TAFR and TDFR were substantially lower in Liaoning than in Sichuan. For the total population, Liaoning's rates were 27 per cent lower for TAFR and 19 per cent lower for TDFR. In part, the size of these inter-provincial differentials resulted from the fact that women in Liaoning were more urban and better educated. However, the 1967-1970 differentials, while



smaller, persist without exception when the comparisons are made for each of the three education groups within the rural or the urban strata. In 1967 - 1970, the lower fertility levels for Liaoning were particularly marked in the urban sector.

Between 1967 -1970 and 1979 -1982, fertility (as measured by TAFR) fell more rapidly in Sichuan than in Liaoning in both the rural and urban sectors for each educational stratum, as well as for the total population of child-bearing age. For TDFR, fertility declines were greater in Sichuan than in Liaoning at every educational level as well as for the total for all women and for rural women. In the urban sector, the picture is mixed for specific education groups. However, for all urban women, the decline was larger for Sichuan than for Liaoning.

The more rapid decline of fertility in Sichuan as compared with Liaoning is especially striking for the six years between 1973-1976 and 1979-1982, when the TAFR in Sichuan fell by 55 per cent compared with 23 per cent in Liaoning.

These major changes in fertility levels occurred despite the fact that educational differentials in fertility existed throughout the period.

The net result was that by 1979 - 1982 Sichuan's fertility levels were similar to those of Liaoning (or even lower) within the rural and urban sectors (compare **tables 3 and 8**).

The very large declines in both Sichuan and Liaoning in all educational strata and in both the rural and urban sectors have already been noted to be remarkable for such a short period, especially in such populations. The fact that Sichuan's declines were as large as or larger than those in Liaoning in specific urban and rural education groups is particularly notable in view of the fact that the general level of education and social and economic development was substantially higher in Liaoning than in Sichuan throughout the period.

It is plausible that the Government's family planning programme played a significant role in such precipitous declines across educational strata and in provinces so different with regard to variables usually associated with fertility levels. That the declines were especially large in Sichuan is consistent with the reports of family planning officials that the programme was especially well organized and intensive in Sichuan. Based on statistics compiled by family planning workers, Sichuan in 1980 ranked substantially higher than China as a whole on the proportions using contraception, the proportion of births which were of first or second parity, and the percentage of couples of first parity with a one-child certificate.<sup>12</sup> The figures for China and Sichuan probably exaggerate the level of programme accomplishment, but it is likely that the higher levels for Sichuan would persist even after downward adjustment.

The proportion of contraception comprising sterilization as of 1 July 1982 was 49 per cent for Sichuan and 29 per cent for Liaoning. The abortion ratio for the period 1979 - 1982 was 43 in Sichuan and 28 in Liaoning. (Sterilization and abortion may be considered as indicators of the strength of the programme.)

In any case, no other factors are known that could account for the sharp declines or for the convergence of the rates in two very different provinces.

### Summary

This article has examined the role of education in the sharp decline of fertility between 1967-1970 and 1979-1982 in both Sichuan, a relatively backward province of China, and Liaoning, a relatively advanced province. Initially, Liaoning had lower fertility than Sichuan at every educational level in both the rural and urban sectors. This was plausibly a result of the fact that Liaoning had higher educational levels and was considerably more advanced in economic development and in transportation and communications facilities.

The decline of fertility between 1967 -1970 and 1979 -1982 occurred in both provinces in each of the subgroups defined by the three educational levels and in the rural and urban sectors. However, in each of the six subgroups the rate of decline was greater in Sichuan than in Liaoning. The more rapid fertility decline in Sichuan compared with Liaoning is especially striking for the six years between 1973-1976 and 1979-1982, when TAFR fell by 55 per cent in Sichuan and 23 per cent in Liaoning. These major changes across educational levels occurred despite the fact that educational differentials existed throughout the period.

As a result of these rapid changes, by 1979-1982 the TAFR and TDFR in Sichuan were lower than or equal to those of Liaoning in each rural educational subgroup. The overall urban TAFR and TDFR were both lower for Sichuan than for Liaoning in 1979 - 1982 <sup>13/</sup>

The magnitude of the fertility declines in both provinces across educational strata in both the rural and urban sectors probably was in large part a result of the unusually powerful family planning programme during the period under review. Rising educational levels, lower mortality and other social changes no doubt contributed to the decline. However, it is not credible that these changes could have produced such rapid declines in such a short time-period without the influence of the family planning programme. Further, the rapid convergence of the Sichuan and the Liaoning rates between 1973-1976 and 1979-1982 suggests the validity of reports that the Sichuan programme was especially powerful and effective.

Over the entire period, 1967-1970 to 1979-1982, changes in the percentage married at young ages could account for most of the fertility decline at ages 15-19 and 20-24 with the educational differential playing a small role. But, at ages 25-29 and older, universally high nuptiality meant that marital fertility declines accounted for almost all of the fertility declines at these ages. Changes in age structure contributed nothing to the fertility decline, and in urban areas of both provinces, significantly retarded the decline.

Educational levels were rising rapidly in both Liaoning and Sichuan over the 12-year period, but ironically the effects on fertility were modest. This is due to the fact that, at the same time fertility was increasingly concentrated in younger age groups and early marriage durations, the rapid rise in female educational levels tended also to concentrate the best educated women in those same groups.

### Footnotes

1. With the exception of education, the Survey contains very little data on social or economic status. A question on occupation only distinguished the rural sector from the urban; data on nationality (ethnicity) are useful for analysis of minority regions.
2. For the official report on the Survey, see China Population Information Center (1984). The fertility data from this Survey were found to be of very high quality by Ansley Coale (1984). For a detailed presentation of age-specific and duration-specific fertility rates for all of China and for all provinces except Tibet and Taiwan, see Coale and Chen (1987).
3. Total fertility rate by age, conventionally known as TFR (per thousand women). The terminology utilized here is employed by Coale and Chen (1987).
4. Thus, explicitly discounted are the effects of adult literacy programmes.
5. A significant proportion of urban Sichuan women who were of school age during the war years apparently achieved literacy during the period. Sichuan was the seat of the wartime government of the Republic of China from 1939 to 1946. The literacy rates of women educated before and during that period may reflect the relative peace of the region as well as government educational programmes. This situation may be contrasted with that of Liaoning, which was under Japanese occupation from 1931 to 1945. Even in the four county towns in the Sichuan sample, early cohort educational levels exceed those of urban Liaoning. Liaoning's urban educational rates only surpass Sichuan's, beginning with cohorts born in 1940 and after.
6. Data, by education, on the percentage married at each child-bearing age for Sichuan and Liaoning, total, rural and urban for 1967-1970, 1973-1976 and 1979-1982, are available in unpublished tables.
7. Data, by education, on fertility rates for specific durations of marriage (0-4 to 30-34) for Sichuan and Liaoning, total, rural and urban for 1967-1970 and 1979-1982, are available in unpublished tables.
8. The sample size is too small for year-by-year analysis, especially when subdivided by education. For year-by-year TAFR and TDFR for Sichuan and Liaoning, see Coale and Chen, 1987.

9. Coale and Chen (1987, p. 4) write about China as a whole:

In China the degree to which TAFR falls short of TDFR (or, more precisely, falls short of 0.98 TDFR) is a measure of the extent to which TAFR has been lowered by changes in nuptiality. In the 1960s, TAFR was 5 to 7 per cent lower than it would have been had age at marriage been constant; but in the 1970s, TAFR was as much as 22 per cent lower than it would have been with the same marital fertility by duration of marriage and a history of constant instead of rising age at marriage. By 1981 the contribution of nuptiality change to lower fertility had been reduced by one-half of its contribution during 1977-79 as a result of the marriage boom in 1980 and 1981.

10. For the total population the negative differential begins at duration 0-4 years, but it is found neither in the rural nor urban sector at that time. It was a result of the relative concentration of low-fertility urban women in higher education levels and of high fertility rural women at lower education levels in the initial duration group.
11. The major reason for the changing age distribution in the reproductive ages in the period is change in fertility rates from the late 1940s to the early 1950s (the birth cohorts of women in their twenties in the periods 1967- 1970 and 1979- 1982, respectively). Fertility was higher in the 1950s than in the 1940s, and although fertility in urban areas was lower than that of rural areas, the increase in urban areas was far greater. The contrast for urban Liaoning was greater than for urban Sichuan, explaining the greater positive influence of age structure on fertility in Liaoning. For historical time series of fertility rates, see Coale and Chen 1987.
12. These data were made available to Ronald Freedman from unpublished records during a visit as a consultant to the State Family Planning Commission of China in 1981. They were based on reports from local areas up through the administrative hierarchy to provincial family planning headquarters and then to the national level. We know from the Census of 1982 and the One-per-Thousand Survey of 1982 that these reports exaggerated programme accomplishments and understated fertility. For examples of such discrepancies, see Freedman *et al.* (forthcoming).
13. The rates in specific educational groups were unstable because of small sample size.

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# **The Fertility of Korean Minority Women in China : 1950-1985**

*Among China's various ethnic groups,  
the Korean minority has the lowest fertility  
and mortality*

**By Jing-Qing Han, Lee-Jay Cho,  
Minja Kim Choe and Chi-Hsien Tuan \***

Between the time of the second and third population censuses of China (1964-1982), the annual growth rate of the Chinese population averaged 2.1 per cent. The annual growth rate of the Han majority was 2.0 per cent; the growth rates for all other ethnic groups were higher than the national average except for the Korean minority, whose average annual growth rate was 1.5 per cent.

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\*The authors of this article are Jing-Qing Han of the Institute of Systems Science, Academia Sinica, Beijing, and Lee-Jay Cho, Minja Kim Choe and Chi-Hsien Tuan of the East-West Population Institute, East-West Center, Honolulu, Hawaii.



*China conducts numerous activities aimed at improving the health of its citizens and their quality of life. Among the various ethnic groups that comprise the population of China, the Korean minority has the lowest level of mortality.*

The 1982 population census of China counted 1,766,204 ethnic Koreans in China, most of them residing in the north-eastern region of China (also known as Manchuria). The Korean minority ranks twelfth in population size among the numerous minority groups in China, and has the highest level of literacy and the highest proportion of workers engaged in occupations other than farming (State Statistical Bureau, 1985). A study of the demographic characteristics of different ethnic groups in China reports that the Korean minority has the lowest level of fertility and mortality (Dowdle, 1984).

The 1982 One-per-Thousand Population Fertility Sampling Survey of China did not include a sufficient number of Korean minority women to allow for a detailed study of them alone. Thus, the Family Planning Commission of Jilin province conducted a sample survey in Yanbian Korean Autonomous Prefecture of the Korean minority (referred to subsequently as Yanbian Koreans) to better understand the trend of fertility and the factors associated with fertility of that minority. The survey, conducted in April 1986, comprised 4,520 household interviews covering 18,404 persons. In those households, 4,350 ever-married women 15-71 years of age were asked about their fertility and family planning practices.

This article presents an analysis of the fertility, during the period 1950-1985, of Korean minority women residing in Yanbian Korean Autonomous Prefecture in Jilin province, where 43 per cent of ethnic Koreans in China reside. The fertility levels and trend of this group are estimated and compared with those for women in China as a whole and in Jilin province. The timing of fertility is examined using estimated fertility rates by women's age and birth order. Fertility is also examined by women's level of education. The discussion includes a comparison of the fertility of Korean minority women in Yanbian with that for all women in China and Jilin province, as well as women in the Republic of Korea.

### **Fertility in China and Jilin province: 1950-1982**

The rapid decline of fertility in China in recent years is well documented (Yu and Xiao, 1983; Coale, 1984; Coale and Chen, 1987; Tsuya and Choe, 1988). The annual total fertility rate of Chinese women declined from about 6.0 children per woman in 1955 to about 2.6 children in 1982. In addition to the dramatic decline, the fertility rate in China is also characterized by variations among different subpopulations. Regional variations as well as variations by socio-economic and ethnic group have been observed (China Population Information Center, 1984; Freedman *et al.*, 1986; Coale and Chen, 1987). In recent years regional variations have been exhibited not only in the fertility level but also in the pace of change. According to the estimates made from the One-per-Thousand Fertility Survey (table 1), the total fertility rate in the

1980-1982 period was extremely low in predominantly urban provinces (Coale and Chen, 1987). The estimates are 1.5 for Beijing, 1.4 for Tianjin and 1.1 for Shanghai. However, a number of provinces still exhibited substantially higher rates: 3.5 for Guangdong, 4.2 for Guizhou, 3.6 for Yunnan and 4.5 for Qinghai. Provinces with large proportions of ethnic minorities generally show high fertility: 3.2 for Inner Mongolia, 3.8 for Guangxi and Ningxia, and 4.0 for Xinjiang.

**Table 1: Total fertility rates in provinces of China at selected times**

Province	1955-1957	1968-1970	1980-1982
China as a whole	5.9	5.9	2.5
Beijing	5.8	3.6	1.5
Tianjin	7.6	3.4	1.4
Hebei	5.7	5.2	2.7
Shanxi	5.5	5.8	2.4
Inner Mongolia	6.4	6.1	2.8
Liaoning	6.8	4.7	1.9
Jilin	6.9	6.2	1.9
Heilongjiang	6.8	5.9	2.4
Shanghai	5.5	2.5	1.1
Jiangsu	5.8	4.7	1.8
Zhejiang	6.3	5.1	2.1
Anhui	5.3	6.7	2.7
Fujian	6.2	6.4	2.5
Jiangxi	5.8	7.1	3.1
Shandong	5.9	5.5	2.0
Henan	5.4	6.5	2.5
Hubei	6.3	6.5	2.3
Hunan	6.1	6.7	2.9
Guangdong	5.4	5.7	3.5
Guangxi	5.8	6.2	3.8
Sichuan	6.1	6.6	2.2
Guizhou	6.3	7.3	4.2
Yunan	6.2	6.4	3.6
Shaanxi	6.1	5.8	2.4
Gansu	6.2	6.8	2.7
Qinghai	4.4	6.3	4.5
Ningxia	7.2	6.6	4.0
Xinjiang	5.3	6.5	3.6

Source: Coale and Chen, 1987.



Jilin province is located in the north-eastern region of China. The region is characterized by a high level of urbanization, large-scale industries and rich natural resources (Chinese Academy of Social Sciences, 1985). The total fertility rate in Jilin during the period 1980-1982 was 1.9 (table 1). Aside from the primarily urban provinces of Beijing, Tianjin and Shanghai, Jilin was one of the few provinces with below replacement level fertility in 1982. However, during the period 1955-1957, Jilin had one of the highest total fertility rates in China at 6.9.

During the 12-year period from 1968-1970 to 1980-1982, Jilin province underwent the largest reduction in the total fertility rate of all the provinces in China.

The high level of fertility in Jilin in earlier years was probably due to the relatively higher socioeconomic conditions in the region. The fast reduction in the fertility rate in the ensuing years could also have been due to socioeconomic conditions, but suggests a very effective family planning programme in the province. In fact, the family planning programme in Jilin province is regarded as a model in China for its effectiveness (Asian Population and Development Association, 1986). Recent analysis of a survey of rural Jilin province documents the remarkable achievement of one-child fertility in 1984 (Tsuya and Choe, 1988).



*China's family planning programme has been a national policy of the highest priority since 1962; however, fertility decline has varied among the country's subpopulations.*

## Korean minority in Yanbian

Yanbian Korean Autonomous Prefecture is located in the south-eastern part of Jilin province. It borders the Democratic People's Republic of Korea to the south, the Union of Soviet Socialist Republics to the east, and Heilongjiang province to the north. Its population is 1,871,512 of which 40.3 per cent belong to the Korean minority. In 1952, the Government of China established the Korean Autonomous Prefecture in Yanbian; since then the Korean minority people have enjoyed a certain degree of regional autonomy (Wang, 1984).

**Table 2** shows the distribution of the Korean minority in China by residence based on data from the population census of 1982. Ninety-eight per cent of ethnic Koreans were residing in the three north-eastern provinces of China: Jilin, Heilongjiang and Liaoning. The Korean minority population in Yanbian constitutes 42.75 per cent of all ethnic Koreans in China.

The relatively recent migration of Koreans to the Yanbian area began in the middle of the nineteenth century when the Korean peninsula was affected by a series of famines (Wang, 1984; Im, 1987). At that time, Koreans living near the border migrated seasonally to cultivate the uninhabited land across the border, the movement fluctuating with the economic and political conditions of the two countries. Many of these seasonal migrants settled permanently in China when political conditions in China and Korea made it easier to do so.

Another large-scale movement of Koreans to the Yanbian area began in 1910. Many farmers who lost claim to the land they were then cultivating in Korea moved to Manchuria, mostly to what is now Yanbian Prefecture (Han, 1970). Among the post-1910 migrants, those motivated by economic reasons outnumbered those motivated by political reasons (Im, 1987).

**Table 2: Distribution of the Korean minority in China, 1982 census**

Residence	Population	Korean minority	(per cent)	Percentage of entire Korean minority
China	1,003,913,927	1,765,204	(0.17)	100.00
Liaoning	35,721,694	198,252	(0.56)	11.23
Heilongjiang	32,665,512	431,644	(1.32)	24.45
Jilin	22,560,024	1,104,071	(5.89)	62.55
Yanbian	1,871,508	754,576	(40.32)	42.75

*Source:* State Statistical Bureau, 1985.



*China uses mass rallies and other media in order to increase awareness of its family planning programme throughout the country.*

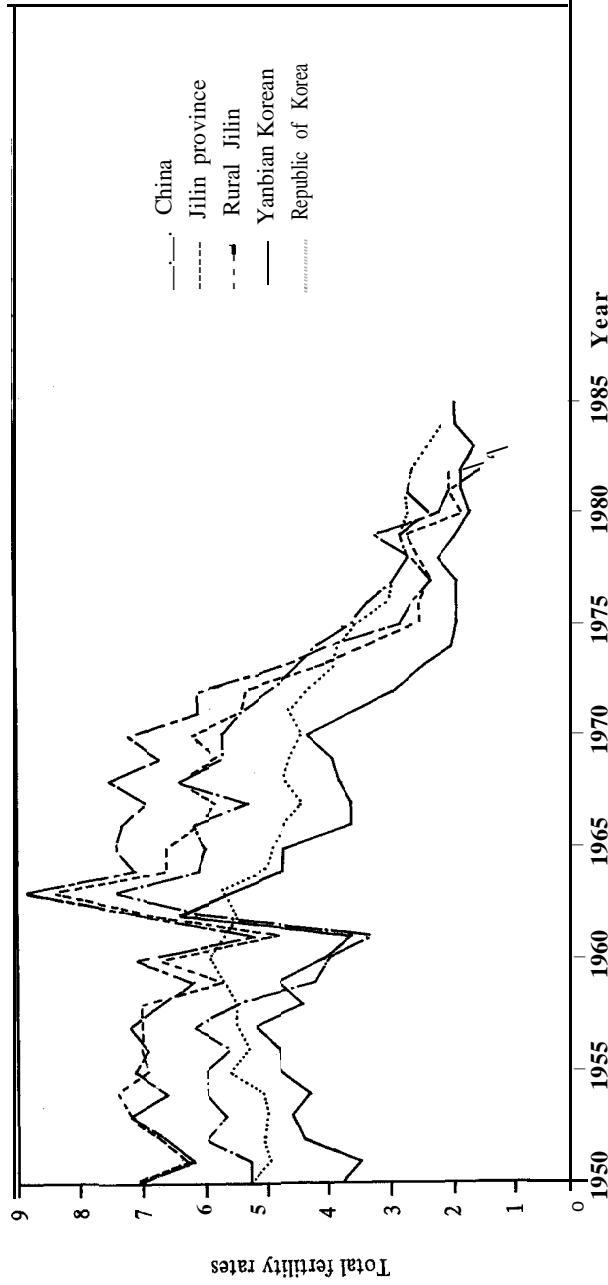
The Korean minority in Yanbian have retained their spoken and written language, and maintain Korean-language schools up through the university level (Wang, 1984; Whitaker and Shinn, 1972). The Korean community in China is also served by a number of Korean-language daily newspapers, monthly magazines and radio broadcasts (Wang, 1984).

### **Fertility of Yanbian Korean women, 1950-1985**

#### **Computational procedure**

The fertility rates reported in this article were computed from the 1986 survey using the distribution of women by their age and the number of children they had delivered at the beginning of each 12-month period preceding the survey. The procedure estimates, for each of those periods, the age-specific and total fertility rates. The total fertility rate can be partitioned into birth-order-specific rates, which make possible the examination of fertility by birth order to determine the effect of the Government's population policy which is birth-order oriented.

Figure 1: Estimated total fertility rates of women in China as a whole, Jilin province, rural Jilin Republic of Korea, and of Yanbian Koreans: 1950-1985



Source: Table 3, Choe and Park, 1987.

## Trend

The trend in total fertility rates among Yanbian Koreans is given in **table 3** and **figure 1**, together with the trend for women in China as a whole, Jilin province and rural Jilin. **Figure 1** also shows the trend in total fertility rates among women in the Republic of Korea. The table shows that the fertility rates for each group have declined dramatically since 1950. Fertility trends for the four groups share other common characteristics: a sharp reduction during the period of hardship, i.e. famine and the "Great Leap Forward" (1958-1961), followed by a rebound (1962-1963); a small reduction during the early years of the Cultural Revolution (1966-1967), followed by a recovery; and a steady downward trend in the 1970s.

Some differences among the groups are also noted. The fertility rate in Jilin province was higher than the national average until about 1972, but the decline in fertility rate since 1972 has been much steeper in Jilin province than in China as a whole. The table also shows that the reduction in the fertility rate during the period of hardship was less severe in Jilin province than in China as a whole.

The fertility rate among Yanbian Koreans was substantially lower than that for women in China as a whole and Jilin province for the period 1950-1980. In fact, the total fertility rate among Yanbian Koreans was never very high. Except for the brief period after the famine of 1958-1961, the level has been around 5.0 or below. Additional differences in the fertility rate trend among Yanbian Koreans compared with the trends of women in China as a whole and Jilin may be observed. During the 1950s, the fertility rate among Yanbian Koreans showed an upward trend; the upward rebound of the birth rate after the reduction during the Cultural Revolution occurred over a more prolonged period (up to 1970) than for women in China as a whole and Jilin (up to 1968). Additionally, the rebound in fertility after the Cultural Revolution was much lower than the prevailing level before 1965. More recently, while the fertility of women in rural Jilin declined to the one-child level, the fertility of Yanbian Koreans remained at a level close to two children per woman, with little fluctuation.

It seems that the decline in fertility among Yanbian Koreans began in the 1960s, although it is difficult to pinpoint exactly when the decline was initiated because of fluctuations caused by the Cultural Revolution. By 1974 the fertility rate of Yanbian Koreans was below the replacement level. This trend is similar to that observed among the urban population of China, except that the Yanbian Korean level did not decline much below the total fertility rate of 2.0, while the total fertility rate in urban China continued to decline to a level just above 1.0 (Coale and Chen, 1987).

Table 3: Estimated total fertility rates of women in China as a whole, Jilin province as a whole, rural Jilin, and of Yanbian Koreans: 1950-1985

Year	All China <sup>a/</sup>	All Jilin <sup>a/</sup>	Rural Jilin <sup>b/</sup>	Yanbian Korea <sup>c/</sup>
1950	5.3	7.1	7.1	3.8
1951	5.3	6.3	6.2	3.5
1952	6.0	6.7	6.6	4.4
1953	5.7	7.2	7.2	4.6
1954	6.0	7.4	6.6	4.3
1955	6.0	6.9	7.1	4.8
1956	5.6	7.0	6.9	4.8
1957	6.2	7.0	7.2	5.2
1958	5.5	7.0	6.7	4.4
1959	4.2	5.7	6.2	4.8
1960	4.0	6.7	7.1	4.1
1961	3.3	4.8	5.2	3.6
1962	6.0	6.8	7.0	6.4
1963	7.4	8.4	8.9	5.5
1964	6.1	6.6	7.1	4.7
1965	6.0	6.6	7.4	4.7
1966	6.2	6.1	7.3	3.6
1967	5.3	5.8	6.9	3.6
1968	6.4	6.4	7.5	3.8
1969	7.5	5.8	6.7	3.9

1970	5.7	6.2	7.2	4.3
1971	5.4	5.4	6.1	3.6
1972	4.9	5.3	6.1	2.9
1973	4.5	4.2	4.8	2.5
1974	4.2	3.4	4.0	2.0
1975	3.6	2.5	2.8	1.9
1976	3.3	2.5	2.6	1.9
1977	2.9	2.3	2.3	1.9
1978	2.7	2.5	2.6	2.2
1979	2.8	2.7	3.2	1.9
1980	2.3	1.8	2.2	1.7
1981	2.7	2.0	2.0	1.8
1982	2.6	2.0	1.5	1.8
1983			1.0	1.6
1984				1.9
1985				1.9

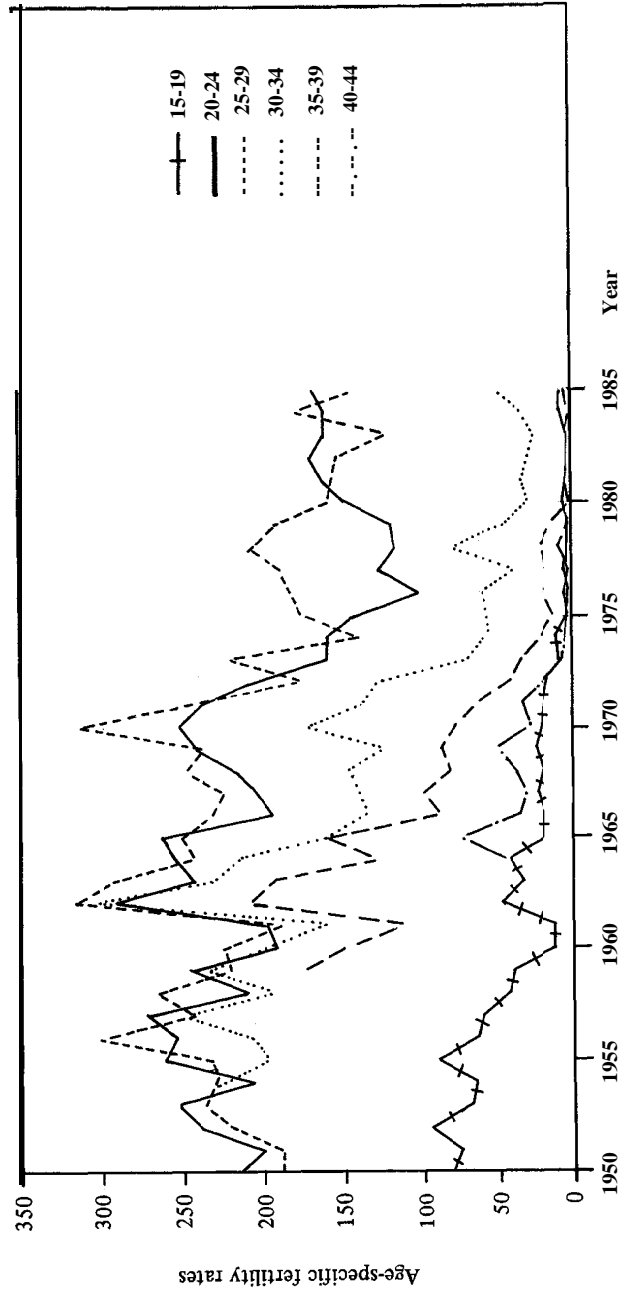
Note: Estimates for 1950-1968 TFR are based on imputed values of age-specific fertility rates at older ages.

Sources.- **a/** Rate for 12 month period centred at July 1, (Coale and Chen, 1987);

**b/** Rate for 12 month period centred at July 1, (Coale and Chen, 1987 for 1950-1979; Tsuya and Choe, 1988 for 1980-1983);

**c/** Rate for 12-month period centred at October 1, (Estimation from 1986 Survey).

Figure 2: Estimated age-specific fertility rates (per 1,000 women) of Yanbian Koreans: 1950-1985



Source : Table 4.



China's family planning programme was initiated in 1956 and in 1962 it became a national policy of the highest priority. The fertility decline of Yanbian Koreans seems to follow the 1962 campaign very closely, ahead of the Chinese women in general as well as those in Jilin province. The fertility decline proceeded without interruption, and in about 10 years, reached replacement level. In the Republic of Korea, where the national family planning programme was initiated in 1962, replacement level fertility was reached only in 1984 (Choe and Park, 1987; [figure 1](#)).

The most ambitious component of China's family planning programme, namely the one-child family policy, was not implemented strongly among national minorities, and this explains why the fertility of Yanbian Koreans did not fall much below replacement level.

### **Age pattern**

The age patterns of fertility for women in China as a whole and Yanbian Koreans are shown in [table 4](#) and [figure 2](#). Figure 2 shows that, since 1965, fertility fell at all ages, but more notably at ages above 30 and below 20. The decline in fertility at ages 15-19 is probably due to the rising age at first marriage of women. The reduction in fertility at older ages is evidence of deliberate fertility control behaviour (Coale, 1986). Even during the rebound in fertility in 1968-1970 after the beginning of the Cultural Revolution, the birth rates for women of age 35 and over continued to decline and the rebound for the age group 30-34 was quite small.

The fertility of age groups 20-24, 25-29 and 30-34 shows interesting trends. During the period 1975-1980, fertility at ages 20-24 declined while fertility at ages 25-29 and 30-34 rose. During the period 1980-1985 the pattern reverses; fertility is higher at ages 20-24 and lower at ages 25-29 and 30-34. These fluctuations in age-specific fertility can be explained by changing government policies on recommended minimum ages of marriage.

The legal minimum age for marriage was set by the marriage law of China in 1950 as 20 for men and 18 for women. Early in 1970, the Government introduced the three reproductive norms of "later (marriage), longer (spacing), fewer (children)". The norm of later marriage urged that the minimum age of marriage be 28 for men and 25 for women in urban areas, and 25 for men and 23 for women in rural areas. The effect of late marriage can be seen in the reduction of fertility at ages 20-24 and the compensating rise in fertility at ages 25-34 in the late 1970s. The next event affecting women's age at marriage was the proclamation of the new marriage law in 1980. Although the new law set higher minimum legal ages of marriage for men and women than did the 1950 law, the new minimum marriage age of 22 for men and

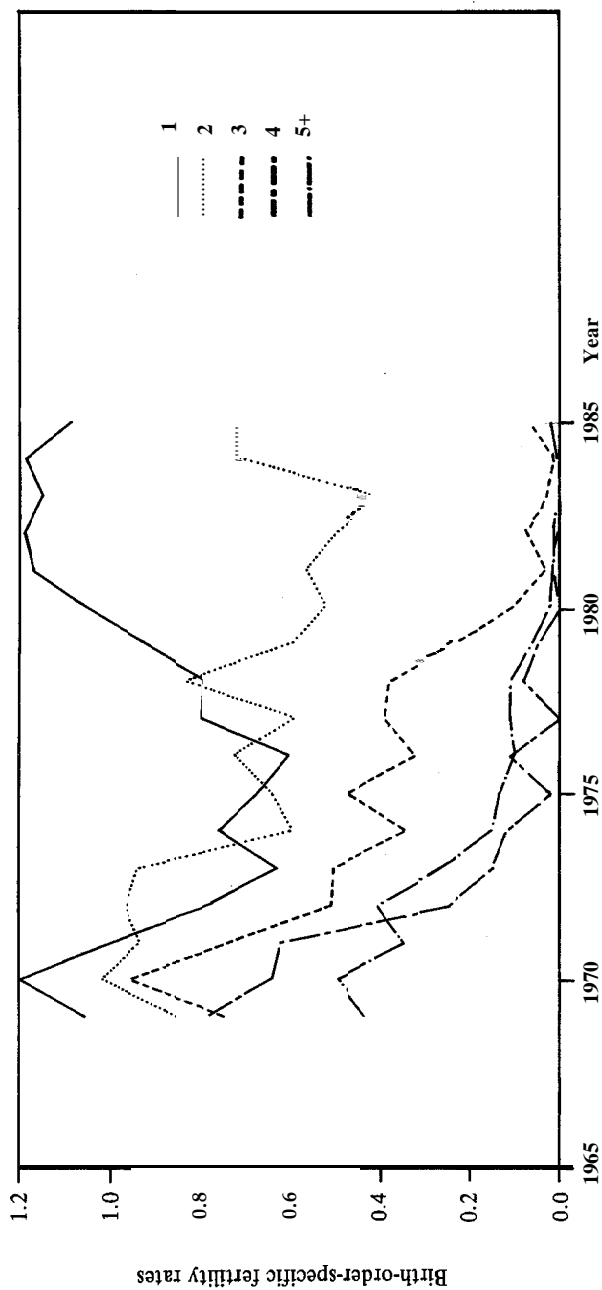
**Table 4: Estimated age-specific fertility rates (per 1,000 women) of Yanbian Koreans:1950-1985**

Year	Age group							TFR
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
1950	82	215	189					3795
1951	75	201	188					3509
1952	95	238	219					4351
1953	68	253	236					4588
1954	65	206	229	224				4304
1955	91	261	232	197				4768
1956	65	253	301	207				4830
1957	60	272	243	250				5191
1958	43	208	265	193				4387
1959	39	245	220	232	176			4808
1960	12	191	225	201	151			4107
1961	11	198	188	163	111			3575
1962	47	294	316	307	209			6357
1963	33	242	292	230	193			5522
1964	43	254	243	215	129	45		4673
1965	19	262	250	162	161	74		4702
1966	19	194	231	135	88	35		3590

1967	23	204	224	140	99	31	3639
1968	20	217	247	147	82	38	3816
1969	25	241	237	125	87	50	3874
1970	20	251	313	172	78	28	4310
1971	19	237	239	137	64	34	3647
1972	16	206	175	128	41	19	2925
1973	8	159	221	70	34	7	2496
1974	11	160	140	59	21	5	1972
1975	4	141	175	56	12	2	1945
1976	2	102	183	60	19	4	1869
1977	5	128	188	38	18	2	1895
1978	2	117	207	81	20	4	2199
1979	2	120	191	45	13	0	1866
1980	6	147	158	29	2	0	1713
1981	4	162	157	34	4	0	1803
1982	3	170	152	29	2	0	1782
1983	4	161	123	26	4	0	1587
1984	8	161	179	34	2	0	1920
1985	8	169	140	52	7	2	1890

Notes: TFRs are based on the single year age-specific rates. Total fertility rates for 1950-1968 are estimated by imputing missing age-specific fertility rates using the average age pattern of fertility in 1967-1971 as the model.

Figure 3: Estimated birth-order-specific total fertility rates of Yanbain Koreans: 1950- 1985



Source: Table 5.

20 for women failed to agree with the norm set in the early 1970s and seemed to condone marriage at earlier ages. This must have resulted in the rise of fertility at younger ages 20-24 after 1980, with a compensating fall in fertility at ages 25-34.

The most remarkable observation in the age pattern of fertility among Yanbian Koreans is that, since the mid-1970s their child-bearing has been limited virtually to a narrow age range between ages 20 and 29. From 1975 onward, 80 per cent or more of the births to Yanbian Korean women occurred before age 30.

### Birth-order-specific rates

**Table 5** and **figure 3** show the trend of total fertility rates partitioned into birth orders. For convenience, they are referred to as birth-order-specific total fertility rates. Under a stable condition of constant birth-order-specific

**Table 5: Estimated birth-order-specific total fertility rates of Yanbian Koreans:1969 - 1985**

Year	Birth order					TFR
	1	2	3	4	5+	
1969	1.058	0.854	0.744	0.436	0.782	3.874
1970	1.200	1.017	0.952	0.499	0.642	4.310
1971	1.003	0.936	0.734	0.348	0.626	3.647
1972	0.788	0.966	0.516	0.407	0.248	2.925
1973	0.632	0.939	0.511	0.265	0.149	2.496
1974	0.759	0.600	0.345	0.151	0.117	1.972
1975	0.674	0.648	0.472	0.132	0.019	1.945
1976	0.608	0.726	0.324	0.101	0.110	1.869
1977	0.803	0.593	0.390	0.109	0.000	1.895
1978	0.796	0.836	0.378	0.111	0.078	2.199
1979	0.917	0.603	0.234	0.062	0.050	1.866
1980	1.054	0.528	0.108	0.023	0.000	1.713
1981	1.171	0.570	0.032	0.015	0.015	1.803
1982	1.189	0.502	0.073	0.013	0.005	1.782
1983	1.149	0.407	0.031	0.000	0.000	1.587
1984	1.186	0.715	0.013	0.006	0.000	1.920
1985	1.088	0.716	0.067	0.019	0.000	1.890

fertility rates for many years, these rates would be equal to the proportion of women ever giving birth of specific orders. For example, in China, almost all women have at least one child, and if the birth-order-specific fertility rates have not been changing for many years, the first-order total fertility rate for each calendar year would be a number very close to but less than 1.0 and would not change from year to year.

When births of a given order are bunched into a short period, the birth-order-specific total fertility rate can be greater than 1.0. These rates are very sensitive to temporal changes in birth-order-specific components of fertility and therefore can be used to examine the effect of family planning policies that are specific to birth orders, as are the policies in China.

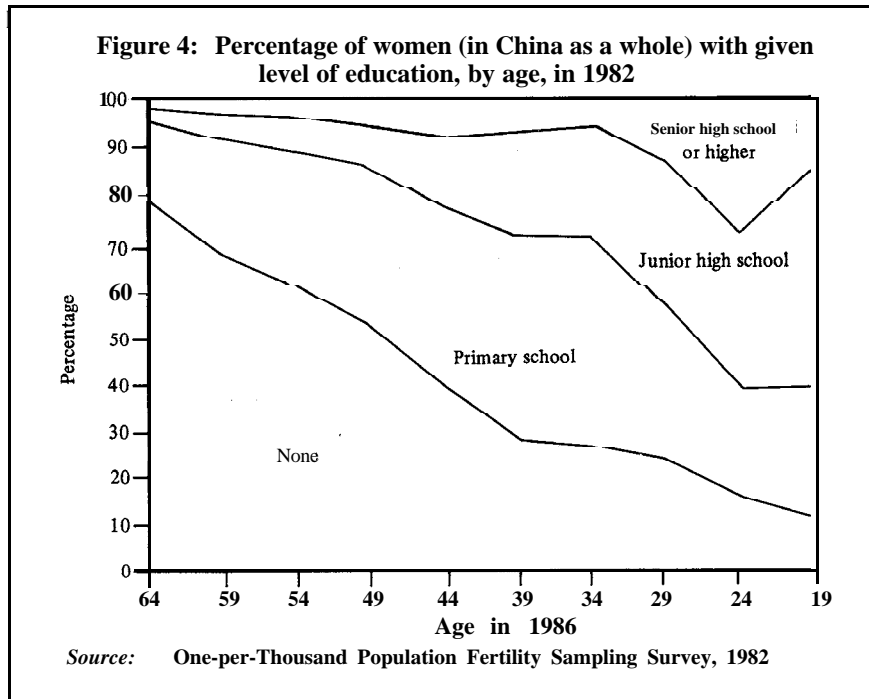
It may be observed that fertility rates of order three and higher began to decline rapidly in the early 1970s, shortly after the three reproductive norms advocating fewer births were introduced. The second-order total fertility rate shows a slight downward trend with some fluctuations, with a 1974-1985 average of 0.623. The first-order total fertility rate shows the most fluctuations, most likely due to the fluctuations in age at first marriage, with a 1974-1985 average of 0.950.

The extremely low level of the first-order total fertility rate during the period 1974-1978 and of the second-order total fertility rate during the period 1980-1983 must be due to women's response to the three reproductive norms of 1972 encouraging later marriage.

The sudden change to later age at marriage would result in a small number of new marriages, and in turn, in a low level of the first-order total fertility rate one or two years later, followed by a low level of the second-order total fertility rate a few years later. As the norm of later marriage stabilized, the first-order total fertility rate approached 1.0 in the late 1970s.

The new marriage law of 1980, which effectively condones marriage at younger ages, resulted in a bunching of marriages of young women reaching marriageable age and those women of slightly older ages who had been postponing their marriage. The effect of this bunching on fertility is revealed soon afterwards, with the first-order total fertility rate at a level substantially above 1.0 after 1981. The rate falls again to a value close to 1.0 in 1985 after the new norm of age at marriage stabilizes again.

The current birth-order-specific total fertility rates indicate that virtually all Yanbian Korean women have at least one child, a majority have two children, and few women have more than two children.



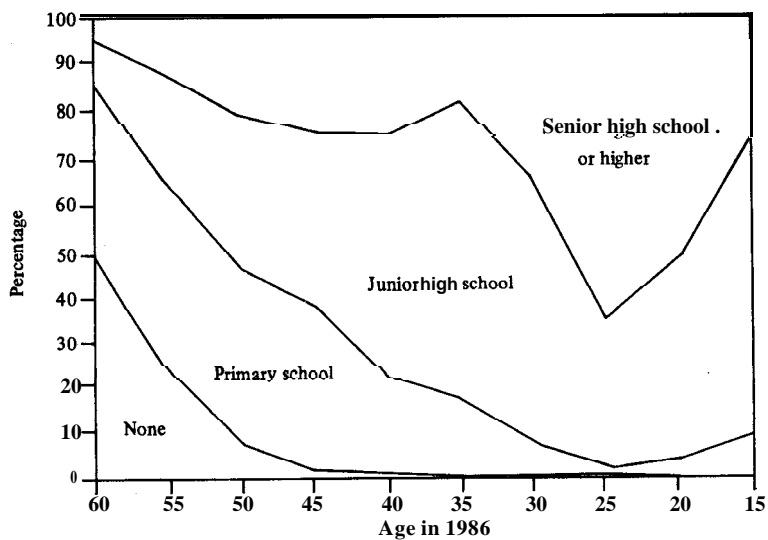
### Education and fertility

Yanbian Korean women have substantially higher levels of education compared with average women in China (compare figures 4 and 5). The 1982 One-per-Thousand Fertility Survey reports that 13.4 per cent of the women aged 15-49 had education beyond the junior high school level. The comparable figure for Yanbian Korean women as determined by the 1986 fertility survey is 32.7 per cent.

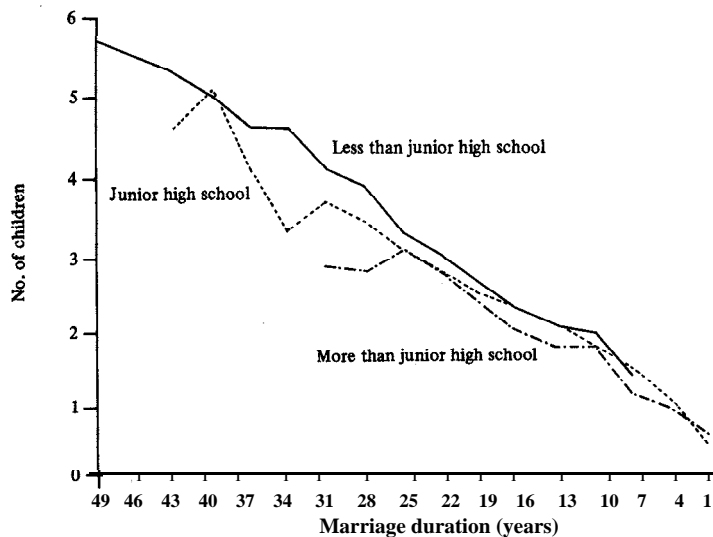
It could be argued that the low level of fertility among Yanbian Koreans is due to the higher proportion of women in the group with more education who usually have a lower level of fertility (Cochrane, 1979). The One-per-Thousand Fertility Survey found a strong negative relationship between fertility and women's education. In the Republic of Korea, fertility has also been found to have a strong negative relationship with women's education (Retherford and Cho, 1981; Cho, Arnold and Kwon, 1982).

To determine whether such an argument is valid, the differential fertility of Yanbian Koreans by their level of education is examined. For this purpose,

**Figure 5: Percentage of Yanbian Korean women with given level of education, by age, in 1986**



**Figure 6: Average number of children ever born, by marriage duration and by women's level of education (Yanbian Koreans)**





the average number of children born to women with different levels of education are compared. The average number of children born is used instead of the total fertility rate because the number of women in the survey is not large enough to allow reliable estimation of age-specific fertility rates for women with different levels of education. In addition, the study of fertility by women's education based on data from the One-per-Thousand Fertility Survey was made using the average number of children born.

**Table 6** shows the average number of children born by women with different levels of education for selected ages of women. It shows relatively small differences in fertility for women with different levels of education. The differences in the average number of children are generally small, being about 0.5 children between women with some senior high school education and women with less than a junior high school level of education (see also [figure 6](#)). The differences are much larger among Chinese women at about 1.5 children (Zhao and Sun, 1984). Therefore, it may be concluded that the

**Table 6: Average number of children ever born to women classified by level of education and age, Yanbian Koreans, 1986**

Age of women (Years)	Women's education		
	Less than junior high school	Junior high school	Beyond junior high school
18-20	*	0.4	*
21-23	*	0.6	0.5
24-26	*	1.0	0.9
27-29	1.4	1.4	1.1
30-32	1.7	1.8	1.4
33-35	2.3	1.9	1.7
36-38	2.5	2.3	2.0
39-41	3.0	2.6	2.1
42-44	3.3	2.8	2.6
45-47	3.6	3.2	3.0
48-50	4.2	3.3	2.9
51-53	4.3	3.6	3.6
54-56	4.9	4.3	*
57-59	5.1	4.5	*
60+	5.5	5.6	*

Note: \* = Number of women is fewer than 15.

average low fertility of Yanbian Koreans is not due simply to a larger proportion of women with higher education and lower fertility. All women have low fertility regardless of their level of education.

### **Summary and discussion**

In addition to sharing the trend of fertility of Chinese women in recent years, the fertility of Yanbian Korean women during the period 1950-1985 is characterized by:

- A relatively low level of fertility, the total fertility rate rarely exceeding 5.0;
- An upward trend in the 1950s;
- Relatively small effect of hardship during the period 1958- 1960;
- Relatively prolonged effect of the Cultural Revolution in the late 1960s;
- Early beginning of decline starting in the 1960s;
- Fast and steady decline from the mid-1960s to mid-1970s, the total fertility rate changing from 4.8 in 1965 to 1.9 in 1975;
- Replacement level or slightly lower fertility since 1975, with small fluctuations; and
- Small differentials in fertility by women's level of education.

In summary, the Yanbian Koreans began and completed the fertility transition much earlier than the rest of China. This is a remarkable achievement for a minority group in China given the less stringent government family planning programmes for minority groups. In comparison, the fertility transition in the Republic of Korea took about 20 years, reaching replacement level fertility only in 1984. In addition, substantial differences in fertility among women with different levels of education persisted in the Republic of Korea until quite recently (Cho, Arnold and Kwon, 1982).

What explanations can be given for this early and rapid decline in fertility among Yanbian Koreans? Coale (1973) summarized the preconditions for sustained decline in marital fertility to be (a) the perception of fertility as a matter of choice by potential parents; (b) the perceived advantage of reduced fertility; and (c) availability of effective techniques of fertility control.

Three factors play a major role in explaining the early and rapid fertility reduction of Yanbian Korean women. First, as members of the Korean minority group, they have characteristics different from other women in China.

They have high levels of literacy and education and thus are likely to favour the small family norm and to consider fertility a matter of choice. The migrants may also be a selected group of people who put less value on traditional norms and who are willing to accept new norms.

Second, they live in communities with a high concentration of Koreans and are served by their own language schools and mass communication systems. Once the small family norm had been accepted by some "elite" families, those factors would help to spread the new norm to the rest of the Korean women at a pace faster than that in typical Chinese communities.

Third, the family planning campaign of the Chinese Government provided a new set of norms and necessary techniques for fertility control. When the family planning campaign of 1962 was launched, the Yanbian Korean community must have been ready to accept the small family norm. When the more ambitious family planning programmes were launched in the 1970s, the Koreans who had already begun the fertility transition could complete it at a very rapid pace.

A condition usually associated with rapid fertility decline, but not found among Yanbian Koreans, is rapid economic progress. The fertility transition of Yanbian Korean women shows that rapid economic progress is not essential to a rapid decline in fertility if other conditions are favourable.

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# The Aging of China's Population : Perspectives and Implications

*China must take the aging  
of its population into account  
in socio-economic planning*

By Quanhe Yang\*

Since the late 1970s, China has been making strong efforts to accelerate the pace of modernization. Because the Chinese Government considers poor economic development and rapid population growth to be the main obstacles to modernization, it has emphasised both of those aspects.

For economic development, it implemented economic reform from the late 1970s, particularly in the rural areas through the "responsibility system".

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For population growth, the Government has increasingly emphasized population control, especially the one-child family policy since 1979. However, China will soon face a very rapid increase in its elderly population and the entire population structure will change rapidly. China will soon experience a special transitional period, a period of socio-economic development accompanied by a dramatic demographic change.

Policy makers and demographers in China are gradually becoming cognizant of the implications of current population policy, particularly the one-child policy, for the eventual aging of the country's population. This article reviews briefly the changes in the status of the elderly, explores the changes in magnitude of the older segment of China's total population, and their social and policy implications.

### **Status of the elderly in traditional China**

China has been predominantly an agrarian society, with the property and agricultural practices of different regions organized through kinship ties and loosely co-ordinated by a centralized administration (Levy, 1949). For thousands of years, Chinese peasants lived on their land and had quite stable lives unless disturbed by severe natural disasters or civil disturbances (Fei Xiaotong, 1948). Under these circumstances, personal experience rather than formal education was the main source of knowledge, and old people were considered as symbolic of wisdom. Within the family, age was the key determinant of authority; various roles regulated interaction between age groups. Filial piety was justified in part as reciprocation for the sacrifices made by parents during child-rearing (Cherry and Magnuson-Martinson, 1981; Yin and Lai, 1983). With advancing age, work responsibilities diminished; however, the ethic of filial piety, which includes prestige and material support for the elderly, particularly old men, typically was upheld by the clan and the community (Levy, 1949).

Although the high status of the elderly in traditional China was largely the result of socio-economic conditions and the traditional culture, the demographic fact of high mortality may have also contributed to the status of the elderly. The Chinese proverb, "to live to age 70 is rare in all ages", may reflect rather high mortality in the past.

The status of elderly women was generally lower than that of males in traditional China. Although older women were accorded some status by their age, by bearing sons, by acquiring daughters-in-law and by mourning the death of their husband's parents, their status was in jeopardy with the death of the husband (Cherry and Magnuson-Martinson, 1981).

## **Socio-economic changes**

By the turn of the century, the age hierarchy was being undermined. Many young people had begun to acquire new skills which provided a modicum of independence in an emerging social order, encouraging a broader rebellion against the traditional institutions. These changes were fostered by a group that had hitherto been in an inferior position in the age hierarchy and forced society to grant more consideration to the young (Tien, 1977; Cherry and Magnuson-Martinson, 1981; C.K. Yang, 1965).

In general, the ideology promulgated since the establishment of the People's Republic of China has had a considerable influence on the traditional attitudes towards age, because youth formed a dynamic element in the establishment of the new regime and then in spreading its doctrines and policies. Younger people also assumed roles of political importance.

In particular, the marriage law of 1950 contained several features that diminished parental authority. Absolute parental authority was replaced by reciprocity between parents and children; the legal interests of children were protected and free-choice marriage gradually replaced the arranged marriage.

Furthermore, the elimination of private property and the land reform of the 1950s also had a negative effect on parental authority; the control of family wealth as a powerful resource for parents disappeared.

Also, the mass education system provided more opportunities for younger people to know about the outside world, receive more information and accept more scientific methods of production etc., all of which considerably reduced the value of empirical knowledge. The State also emphasized patriotism over filial piety and tried to shift the centre of loyalty from the family to the Communist Party (Yin and Lai, 1983).

As for China's job assignment policy, this often transfers young people away from their families. The policy is particularly serious for the elderly who live in urban areas because, even if the aging couple has more than one child, they may well be in distant places and unable to provide physical support for their parents.

## **Demographic policy and economic reform**

Since 1976, China has experienced another major socio-economic change, with two important issues closely related to changes in the status of and support for the elderly. One is China's demographic policy, especially the one-child family policy, and the other is economic reform in general and the "responsibility system", in particular in rural areas.

### **The one-child family policy**

In 1979, China introduced the one-child policy, which has a major impact on the kinds of support system parents expect to foster. This policy, which eliminates the tendency towards large families, affects the system of social security that depends on children's support of elderly parents (Goldstein and Goldstein, 1986).

With the continuation of the one-child policy, in the extreme case, there may exist more and more family structures characterized by one grandchild by being shared by potentially four grandparents. When more children are sharing the cost of supporting the elderly, the burden may not be great; however, if one couple has to support four grandparents, who, in addition, may live longer in the future, the cost may be excessive. Furthermore, the heavy family burden may create some inner-family conflicts and worsen inter-generation relations.



*When this only child in Sichuan province becomes an adult, he and his future wife - also likely an only child - may have to help support four to eight grandparents.*



From the demographic point of view, it is clear that the coming generations of the elderly in China will face a different situation, particularly with regard to family structure.

### **Economic reform**

Economic reform serves a dual purpose for the elderly. On one hand, it creates some difficulties for the elderly; on the other hand, it provides more opportunities for them to live on their own.

In the rural areas, the economic reform is known as the production responsibility system. Because it places a premium on intensive labour in the fields so as to produce surplus crops that individual families can sell, it is likely to by-pass the elderly who no longer have the stamina to spend long hours in the field. In addition, the proliferation of small-scale light industry, which is also an integral part of the new economic reform, is geared particularly to the absorption of young people in rural areas. The older peasants are unlikely to participate in these two major sources of economic activity in rural areas.

The economic reform also brought about a considerable rise in the family standard of living. For example, per capita income in rural areas increased from 133.6 yuan in 1978 to 395.0 yuan in 1985 (State Statistical Bureau, 1986). It also created some conflicts within families about how to spend the income; the older generation tend to save for the future while the young like to spend it quickly. This has increased, to some extent, the "generation gap" (Fei Xiaotong, 1986).

On the positive side, older people are also assigned land. While some of them may not be able to work in the fields, most of them could do something for the maintenance of the land. In addition, owing to the shortage of cultivated land in many rural areas, many families could plough much more land than they have, so some separated families have merged with their parents, thus strengthening family ties (Fei Xiaotong, 1986). Furthermore, the system also strongly encourages the cultivation of small private plots and the private raising of livestock. Produce from such enterprises can then be sold in the numerous free markets that have mushroomed in the cities, towns and larger villages. Such enterprises have traditionally occupied elderly peasants and have often helped to contribute substantially to household income (Davis-Friedmann, 1983). With the official change in economic policy, such activities have achieved an even greater importance and enable the aged to play an important role in raising the rural standard of living as well as bringing about the economic independence of the aged (Goldstein and Goldstein, 1986).

In urban areas, the economic reform resulted in an increase in the price index; for example, it increased from 135.9 in 1978 to 178.5 in 1985 (State

Statistical Bureau, 1986). Pensioners, unlike the those currently employed who have bonuses and floating wages, have a fixed pension; however, with the increase in prices, they may have a feeling of insecurity about the future.

On the positive side, the economic reform provided some opportunities for the elderly to work on their own, such as to open a small private business (small restaurant, tea house, shop etc.) and be reemployed. In some cities, the local government also provided the elderly with some jobs, such as milk delivery, neighbourhood telephone services, traffic control or litter prevention. More and more old people's clubs have been established in the bigger cities and some cities even established old people's colleges (Ding Yao-lin, 1986).

### **Increased welfare**

Although some socio-economic changes and policies have indirectly affected the status of the elderly, China has also initiated programmes designed specifically to assist them (Ganschow, 1978; Treas, 1979; Davis-Friedmann, 1983 ; Goldstein and Goldstein, 1986).

Legally, the position of the elderly is defined by the Constitution of 1982: "children who have come of age have the duty to support and assist their parents" (Chinese Documents, 1983). Failure to meet obligations of respecting the elderly and helping children is punishable under China's Criminal Code (Beijing *Review*, 198 1).

State budget expenditure through the Ministry of Public Health has increased steadily since the 1950s, reaching a total of 3,881 million yuan in 1981. In nominal terms, per capita expenditure increased by three quarters between 1977 and 1981, from 2.22 yuan to 3.92 yuan.

More specifically, in urban areas, there are two major government health insurance schemes. The first is Government Health Insurance, which was introduced in February 195 1. The insurance provides free out-patient and in-patient health services to government employees, college teachers and students. There are currently about 18 million primary members of this government insurance scheme, accounting for about 1.8 per cent of the population. The second is the Labour Insurance Scheme, also introduced in February 1951. The latter scheme entitles primary members to free lifetime health care. In 1981, there were about 117 million people covered by the Scheme; they represent about 12 per cent of the total population. In the rural areas, the Rural Co-operative Insurance System began in 1968. The coverage of this system reached a peak of 85 per cent of the brigades in 1977, but has since declined substantially to only 69 per cent in 1980.

There were about 1.4 million "barefoot doctors" and 2.6 million health workers in rural China in 1981 (Prescott and Jamison, 1986). It is quite probable that the health system of China contributed greatly to the country's mortality decline. In 1950, the death rate was 18 per thousand; it declined to 6.6 per thousand in 1985.

China's retirement policies, although designed to apply to the rural as well as urban population, are adhered to much more closely in urban areas. Male factory workers and cadres retire at age 60, female workers and cadres retire at age 55 years. After retirement, they receive 75 to 100 per cent of their original wage, and most of them are covered by government health schemes. China had 16.4 million retirees at the end of 1985, accounting for 13.6 per cent of the country's total population employed by the State. In 1985, the Government paid a total of 14,560 million yuan for the retirees, each person getting an average of 875 yuan a year. While formal retirement programmes for the rural elderly in general are still rare, they exist in some prosperous villages (Zhang Chunyuan, 1986).

There are old people's homes for the childless elderly in both urban and rural areas. Most of the childless in urban areas live in old people's homes. In 1986, there were 25,600 homes for the elderly in rural areas, and these accommodated 289,000 elderly people (Xinhua, 1986). In the rural areas, the childless elderly have also been promised "five guarantees": food, clothing, medical care, housing and burial expenses.

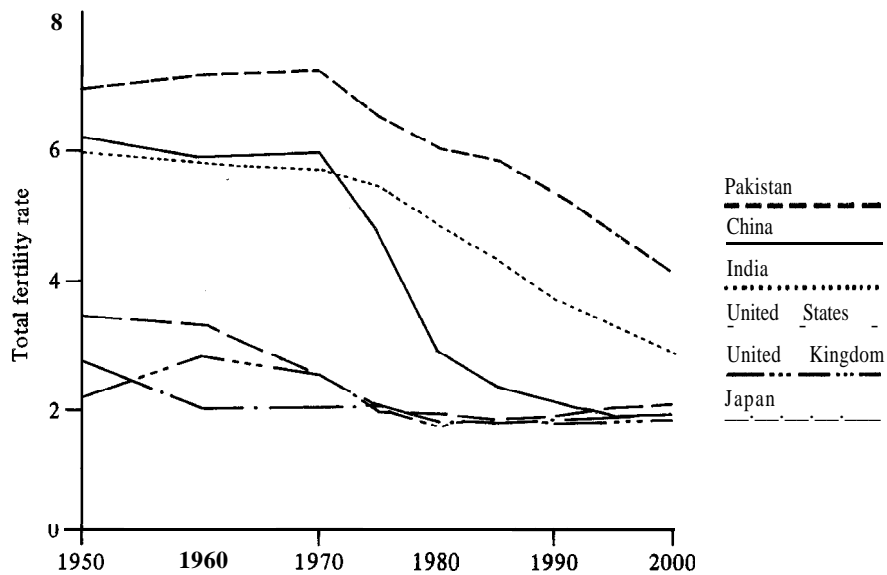
In summary, since 1949 China has undergone a series of government-induced socio-economic and ideological changes, which have produced some factors reducing the status of the elderly and other factors increasing their welfare. If the status of the elderly is defined in terms of the authority or power of the elderly and the respect and care they receive, it may be true that the elderly have lost significant control over their children's marriage and future jobs. Within the family, they have lost significant control of family resources or income; children listen less to elderly people's advice about how to spend family income and how to arrange production etc. (Parish and Whyte, 1978; Cherry and Magnuson-Martinson, 1981; Davis-Friedmann, 1983 ; Fei Xiaotong, 1986). In turn, these changes have affected respect for the elderly in both the family and community, sometimes leading to family conflicts (Xu Yali, 1983; Pan Yunkang and Pan Naigu, 1983). However, support for the elderly is defined by the Constitution; so respect for the elderly is probably less adversely affected than is their authority. Perhaps care-giving or familial support of the elderly is the least adversely affected aspect in China. Many surveys on aging have shown that not less than 70 per cent of the elderly live with their children, and the percentage is higher in rural areas (Zhu Zhiming et al., 1984; Fei Xiaotong, 1986; Zhang Chunyuan, 1986; Institute of Population Economics, 1986).

## Underlying population dynamics

Although the increasing proportion of the elderly in the population is often associated in the public mind with an improvement in the expectation of life, demographic analysis has shown that declining fertility is the most influential factor in the population aging process, with decreases in mortality playing a secondary role (Lorimer, 1951; Coale, 1956; United Nations, 1986). Thus, whether a country has a youthful or aging population structure depends to a major extent on the degree to which it has made the transition from high to low levels of fertility.

China has undergone a tremendous demographic transition since the 1970s. The distinguishing feature is that the Government increasingly emphasized population control, and by the year 1979, it announced the one-child family policy. The total fertility rate (TFR) of China dropped from 5.8 in 1970 to 2.2 in 1980 and to 2.1 in 1984. The figure shows the TFR of China and some selected countries, 1950-2000.

**Figure: Total fertility rate of China and selected countries, 1950-2000**



Source: United Nations, World population prospects: Estimates and projections as assessed in 1984. (ST/ESA/SER.A/98), 1986.

**Table 1: Expectation of life at birth in China and selected countries, 1950-2000**

Year	China	United States	United Kingdom	Japan	India	Pakistan
1950	40.8	69.0	69.2	63.9	38.7	38.9
1960	49.5	70.0	70.8	69.0	45.5	44.4
1970	59.6	70.4	71.4	71.1	48.0	45.5
1975	63.2	71.3	72.0	73.3	50.3	46.5
1980	65.8	73.2	72.8	75.6	52.9	48.0
1985	67.8	74.3	73.7	76.9	55.4	50.0
1990	69.4	75.0	74.5	77.2	57.9	52.1
1995	70.7	75.7	75.2	77.5	60.4	54.3
2000	71.9	76.3	75.8	77.9	62.9	56.3

*Source:* United Nations, World population prospects: Estimates and projections as assessed in 1984. (ST/ESA/SER.A/98), 1986.

It is apparent that the TFR of China has declined dramatically since the 1970s. Within a relatively short period (early 1970s to early 1980s), the TFR pattern of China joined the pattern of the more developed countries. One of the important consequences of the sudden fertility decline will be the rapid increase of the aged segment of the total population in the near future.

**Table 1** shows the expectation of life at birth in China and selected countries, 1950-2000. The change in mortality as a secondary factor in the aging process also plays a role in the aging of China's population. It can be seen that from 1950 to 1980, the expectation of life in China increased from 40.8 to 60.8 years, more than 10 years higher than that of India and Pakistan. Jointly with rapid fertility decline, a rapid increase in the aging of the population can be clearly envisaged.

### Current situation of population aging

According to the 1982 census, out of a total population of 1,003 million, 76.5 million persons (7.6 per cent of the total) were 60 or more years of age. As for the total population of China, about 80 per cent of both elderly males and females live in rural areas, with just under 14 per cent in cities and 5 per cent in towns. Within each of these residence categories, only slight variations exist in the proportion of the total population that the elderly constitute. **Table 2** shows the elderly population of China, by urban and rural residence, age and sex.

**Table 2: China's elderly population, by urban and rural residence, age and sex, 1982**  
(in thousands)

Residence and age (years)	Males		Females	
	No.	Elderly as a percentage of total population	No.	Elderly as a percentage of total population
<b>Urban</b>				
All ages	108 021	100.0	98 288	100.0
50-59	9 048	8.4	7 430	7.6
60-69	4 678	4.3	4 576	4.7
70-79	1 882	1.7	2 473	2.5
80+	360	0.3	692	0.7
<b>Rural</b>				
All ages	407 257	100.0	390 348	100.0
50-59	29 975	7.4	28 257	7.2
60-69	19 203	4.7	20 165	5.2
70-79	8 050	2.0	10 561	2.7
80+	1 405	0.4	2 593	0.7

Source: Derived from the 1982 Population Census of China, Beijing, 1985.

**Table 3** shows the marital status of the aged by age and sex in 1982. Among the 76.5 million elderly, more than half are currently married. The proportion of currently married males is considerably higher than that of females, i.e. 69 per cent compared with 41 per cent. The next largest group is the widowed, consisting of about 43.6 per cent of all elderly persons. It is clear that females are more likely to be widowed, especially at older ages. Overall, the proportion of females who are widowed is twice as large as that of males. Those who never married and the divorced, account for less than 3 per cent of the total elderly population; for those two categories, the proportion among females was substantially lower than among males (all figures for females are less than 0.6 per cent).

**Table 4** gives the age-specific mortality rates in 1982 of the elderly by urban and rural residence, age and sex. From **table 4** it may be seen that for all age groups, the rates for the urban elderly are consistently lower than for the rural elderly. For all age groups, the age-specific mortality rates of males are consistently higher than those of females. Urban females have the lowest mortality rates, followed by rural females and urban males. Rural males have the highest mortality rates. This trend is related to the differentials in socio-economic development between urban and rural areas in China. For example,

**Table 3: Marital status of China's elderly, by age and sex, 1982**

Age group (in years)	Total	Never married		Currently married		Widowed		Divorced	
		No.	%	No.	%	No.	%	No.	%
<b>Males</b>									
50-59	38 956	1 161	3.0	33 721	87	3 288	8	786	2.0
60-79	33 759	865	2.6	23 852	71	8 513	25	530	1.5
80+	1 763	46	2.6	658	37	1 044	59	14	1.4
All 60+	35 522	911	2.6	24 510	69	9 557	27	544	1.5
<b>Females</b>									
50-59	35 613	76	0.2	29 271	82	6 096	17	169	0.6
60-79	37 702	113	0.4	16 668	44	20 774	55	147	0.5
80+	3 278	10	0.4	235	7	3 029	92	4	0.3
All 60+	40 979	123	0.4	16 903	41	23 803	58	151	0.5
Total 60+	76 501	1 034	1.4	41 412	54.4	33 360	43.6	695	0.9

Source: 1982 Population Census of China, Beijing, 1985.

**Table 4: Age-specific mortality rate (ASMR) of China's elderly, by urban and rural residence, age and sex, 1982**

Residence and age (in years)	Males			Females		
	No. (1000)	Death	ASMR	No. 1000	Death	ASMR
<b>Urban</b>						
50-59	9 048	81 754	9.0	7 430	51 071	6.9
60-69	4 678	126 637	27.1	4 576	84 736	18.5
70-79	1 882	130 570	69.4	2 473	120 105	48.6
80+	360	54 059	150.2	692	84 329	121.9
<b>Rural</b>						
50-59	29 975	347 039	11.6	28 257	237 808	8.4
60-69	19 203	569 872	30.0	20 165	429 591	21.3
70-79	8 050	587 487	73.0	10 561	584 619	55.4
80+	1 405	228 789	162.8	2 593	347 841	134.1

Source: Derived from the 1982 Population Census of China, Beijing, 1985.

in 1982 there were about 12 doctors per thousand population in the urban areas and just under three doctors per thousand population in rural areas (Liu Zheng, 1986).

Among females aged 60 years or more in 1982, 85.1 per cent of urban females and 97.1 per cent of rural females were illiterate or semiliterate. The literacy rate of males was higher than that of females, especially among urban males. The proportions of illiterate and semi-literate were 39.7 per cent for urban males and 64.4 per cent for rural males (State Statistical Bureau, 1985).

### Some international comparisons

**Table 5** shows the expected percentage change in the proportion of the elderly population of China and selected countries, 1980-2025. It is apparent that China has the largest number of elderly of any country in the world. In 1980, China's elderly accounted for 19 per cent of the world's elderly population; by the year 2025, it could increase to about 25 per cent, so that of every four elderly persons in the world, one will be in China.

Another distinguishing feature of China's aging population is the fast change in the percentage of the elderly population. From the year 2000 to

**Table 5: Expected percentage change in the proportion of the elderly population of China and selected countries, 1980-2050**

Country/ area	1980		2000		2025		Percentage change	
	No. (1000)	%	No.	%	No.	%	1980- 2000	2000- 2025
World	381 206	8.6	608 693	9.9	1 171 375	14.3	2.4	4.3
Developed	173 325	15.2	234 563	18.4	329 533	23.6	3.2	5.2
Developing	207 880	6.3	374 130	7.7	841 842	12.4	1.5	4.6
China	73 644	7.4	131 741	10.5	283 980	19.3	3.1	8.8
United States	35 849	15.7	42 800	16.0	73 509	23.6	0.3	7.6
United Kingdom	11 272	20.2	11 461	20.3	14 386	25.7	0.1	5.4
Japan	15 021	12.9	27 134	20.9	34 294	26.0	8.0	5.1
India	44 604	6.5	81 368	8.4	177 543	14.5	1.9	6.1
Pakistan	3 988	4.6	6 698	4.8	17 254	8.2	0.2	3.4

*Source:* United Nations, World population prospects: Estimates and projections as assessed in 1984, (ST/ESA/SER.A/98), 1986.



**Table 6: Total dependency ratios, old age dependency ratios and index of aging in China and selected countries, 1980-2025**

Country	Total dependency ratio			Old age dependency ratio			Index of aging		
	1980	2000	2025	1980	2000	2025	1980	2000	2025
<b>China</b>	72	53	62	14	16	31	21	44	99
<b>United States</b>	62	59	74	25	24	38	70	73	116
<b>United Kingdom</b>	69	63	77	34	33	46	96	107	139
<b>Japan</b>	57	64	77	20	34	45	55	114	144
<b>India</b>	82	64	53	9	11	18	17	28	68
<b>Pakistan</b>	98	73	55	9	9	14	10	12	30

*Source:* Derived from United Nation, World population prospects: Estimates and projections as assessed in 1984, (ST/ESA/SER.A/98), 1986.

2025, China will face possibly the fastest increase in the world in the proportion of its elderly population; it may increase from about 10 per cent to about 20 per cent in 25 years. It took the United Kingdom of Great Britain and Northern Ireland about 60 years to reach this same increase and could take the United States of America about 70 years. Even rapidly aging Japan will take about 30 years to reach a similar percentage. Presumably, India and Pakistan would take a longer time than China, because the fertility decline in those countries is much slower than in China.

**Table 6** shows the estimated and projected total dependency ratios, old age dependency ratios and index of aging of China and selected countries for the period 1980-2025. From **table 6** it can be observed that the total dependency ratio (the percentage of those 60 or more years of age and those 0-14 years of age to those in the 15-59 year-old age group) will decline until the year 2000. The primary reason for this is China's rapid fertility decline. During this period, 1980-2000, the proportion of elderly in the population will increase, while the proportion of those aged 0-14 years will decrease. This is clearly indicated by the index of aging (the percentage of those 60 or more years of age to those in the 0-14 age group).

The changing pattern of China's total dependency ratio more or less follows that for the more developed countries. For countries such as India and Pakistan, with relatively higher fertility and slower fertility decline, the ratios consistently decline from 1980 to 2025.

The old age dependency ratio (the ratio of those 60 or more years of age to those aged 15-59 years), changes only slightly between 1980 and 2000 in China. All other countries except Japan show a similar pattern. But from

the year 2000 to 2025, the ratio for China almost doubles, from 16 to 31. By 2025, the index of aging is expected to be 99. By then, the proportions of the elderly and youths under 15 years of age will be almost equal. Viewed in terms of social and economic planning, the burdens placed on society to provide general and health care for and maintenance of an elderly population are very different from those generated by the needs of the young.

As previously mentioned, in 1982, 43.6 per cent of the elderly population were widowed (33.4 million people); 2.4 per cent of them either never married or were divorced (about 1.7 million people). Of this population 69 per cent are women. As the total elderly population is expected to increase quickly in the next few decades, the number of people on their own is expected to increase. Thus, isolation and loneliness among the elderly could become an important social problem in China.

With regard to the distribution of the elderly population, because the birth and death rates of China's population declined earlier among the provinces along the coast and in the bigger cities, this distribution is uneven. For example, the percentage of the elderly in Shanghai reached about 11 per cent in 1979, and the percentage of the elderly in Jiangsu and Heilongjiang provinces in 1982 was about 20 per cent higher than the national average. The percentage of the elderly among the provinces of western China is usually lower than the national average. Furthermore, the percentages in rural and urban areas are also different, the percentage being slightly higher in rural areas. In 1975, the percentage of elderly in rural areas was 7.2 per cent and in urban areas 6.8 per cent. In the 1982 census, the corresponding figures were 7.8 and 7 per cent (Hao Jian-wei, 1984).

### **Implications of aging**

In conjunction with China's economic reform, the estimated rapid increase in the absolute and relative number of persons 60 or more years of age could significantly affect the course of the country's development. The expected rapid transition of the entire population structure may also involve significant resource reallocation in view of the country's centrally planned economy.

### **Planning for the elderly**

China's total dependency ratio is expected to fall until the early years of the next century; some studies describe this period as a "golden age" for China's socio-economic development (Tian Xueyuan, 1984; Wang Wei, 1986a). But if the dramatic shifting of the entire population structure and the expected increase in the absolute number of the total labour force (15-64 years old) are taken into account, the situation may not justify such optimism.

Firstly, during this period the proportion of the elderly population is expected to increase rapidly and the Government will have to face an unprecedented situation, because socio-economic plans for an elderly population would be very different from those for a relatively young population:

Secondly, in 1982 there were about 617.4 million people in the working age group (15-64 years) in China; 513.5 million of them were working and 75 per cent of those were in the rural labour force. Among the population in the working age group, there were about 3.4 million urban youths "awaiting jobs". By the year 2000, the total population of working age is expected to increase to 865 million, so the Government will have to provide more job opportunities for younger people (State Statistical Bureau, 1986).

Thirdly, some studies on China's aging population show that the Chinese elderly, especially the professional retirees, are more active than Western retirees (Sher, 1984; Population and Economics Institute, 1986); many of them are willing to participate in some social and economic activities. Thus, the Government would probably be expected to provide more job opportunities for the elderly as well in the future. Taking these changes into consideration, the Government will face a rather special transition period for socio-economic planning in the coming few decades.

### **Health care**

As previously mentioned, there are major government health schemes in China, which cover all State employees in urban areas; moreover, most peasants have access to rural clinics. But health services are still at a far from satisfactory level for the elderly. For example, in urban areas the elderly have to go to specified clinics or hospitals regardless of geographic location; sometimes this results in emergency treatment being delayed. Also, the medical services provided by clinics or hospitals are very time-consuming, taking hours or even a day for one to obtain routine medical services. Thus, instead of going to a clinic or hospital, many older people prefer to stay at home when they have what they consider to be mild diseases, even though those diseases could sometimes become serious if they are not diagnosed and treated early (Zhu Zhiming *et al.*, 1984; Institute of Population Economics, 1986). This helps to explain why so many elderly people in China practise *taiji* (shadow-boxing) and *gigortg* (deep-breathing exercise), which are believed to be effective in slowing the aging process and preventing chronic disease.

Furthermore, the percentage of ill elderly people in China's population is quite high; the Shanghai Aging Sample Survey (1985) showed that one fourth of the elderly have some sort of disease, and 3 per cent of them are afflicted by various levels of senility. The Beijing Aging Sample Survey (1985)

also showed that 75 per cent of the elderly have some disease and about 24 per cent of them have poor health. However, there are not enough physicians and facilities to treat their medical and psychological problems (Ding Yao-lin, 1986, Institute of Population Economics, 1986).

In the rural areas, the problems of health care for the elderly are even more serious. Most of the rural clinics are qualified only for primary health care; in any difficult or complicated cases of illness (heart disease, respiratory and pulmonary disease, cancer etc.), the patients must travel to the nearest city hospital. Sometimes it is extremely difficult to get a hospital bed and the medical services are not free except for those elderly people without children.

### **Living arrangements and family support**

Most elderly Chinese people prefer to live with one of their children, especially a son. The family remains the primary source of economic support for the elderly, particularly in rural areas (Fei Xiaotong, 1986; Zhang Chunyuan, 1986; Greenhalgh and Bongaarts, 1986). In the coming few decades, the Chinese Government may have to alter gradually its one-child policy to allow for two children with spacing (Wang Wei, 1986b; Greenhalgh, 1986). The Chinese Government currently proposes the "three-in-one" support system for the elderly, which means that the family is still the primary care-giver, the collective and State serve as a supplementary care-giver and gradually will increase the level of assistance to the elderly through the establishment of an old age insurance system in urban areas and the expansion of the pension system in rural areas. However, in the near future, most of the elderly, especially in the rural areas, will be cared for mainly by their families. How much the burden or responsibility of caring for them can be transferred from the family to the collective or State depends on the awareness of the importance of caring for the elderly and the socio-economic development of China.

### **The widowed, divorced and unmarried**

In 1982, about 45 per cent of the elderly, i.e. approximately 35 million people, were widowed, divorced or unmarried. Of this number, 69 per cent are women. The numbers in these categories are expected to increase as the total number of the elderly increases. If the proposition is accepted that most elderly people do not want to live alone and that they live more happily with a marriage-partner, remarriage among the elderly would be one of the solutions to improve the welfare of at least some of them (Mckain, 1972; Troll *et al.*, 1979; Treas and Van Hilst, 1976). However, this possible solution may be hard to practise in China, because some traditional ideas prevalent in society

are still unfavourable to the remarriage of the elderly, especially elderly women. It is not uncommon for some elderly people to meet strong opposition from their children, relatives and friends when they announce their intention of finding a partner who could help and support them in their old age. Some children have pressured their remarried parents so much that these elderly couples had to get a divorce shortly after their marriage (*Beijing Review*, 1987). Since the Chinese Government has a strong influence on people's lives through mass campaigns, it may be desirable for the Government to use this method to encourage remarriage of the elderly and to persuade the younger generation not to interfere with their parents' remarriage.

### Retirement

Among China's 16.4 million retirees in 1985, about 19 per cent were retired from State institutions, and the rest of them were from factories, mines and other enterprises. Retirees from State institutions get pensions from the State; the others are paid by their original working units. While some prosperous and newly established such units have fewer retirees or could afford more increases in living allowances as the price indices increase, some older



*Because the retirement age for women is 50-55 years and life expectancy is over 70 years, some adjustment in the age of retirement may have to be made in the future*

and less prosperous ones, such as enterprises with a larger number of retirees, may not be able to do so. For example, in 1985 the Chinese Government increased the pension of retirees from State institutions by 17 yuan per month; other enterprises were supposed to followed suit. While some 'could increase pensions by well over 17 yuan per month, others paid no increase at all (Institute of Population Economics, 1986). If the rapid increase in price indices during the economic reform are taken into account, the uneven income distribution among retirees could seriously affect some of the elderly.

Some studies have suggested that the retirement age should be more flexible, especially for females. China's expectation of life at birth for males was about 68 years in 1982, and for females it was more than 70 years, but the retirement age for females is 50 or 55 years. Therefore, the Government may want to adopt a policy of deciding the retirement age according to a person's ability (Institute of Population Economics, 1986).

### Conclusion

Although any attempt to forecast the direction of future socio-economic changes in China is fraught with uncertainty because the situation in China is still fluid, the rapid increase in the size of China's aging population in the near future is probably one of the few exceptions. Therefore, the Government must take the aging of its population into account in socio-economic planning.

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### Correction

A placement error in vol. 2, No. 4 of this *Journal* : The last paragraph on p. 39(-40) should have been placed after the third paragraph on p. 42 and the last three paragraphs under the **Summary** on p. 41 should have formed the last paragraphs under the subtitle **Path model for Moors** on pp. 39-40.



## Fertility Transition

The importance of fertility transition in Asia begins with the magnitude of its influence on the world population growth. Asia constituted 58.2 per cent of the world's population in 1985. Because it is likely to remain in excess of 55 per cent well into the first quarter of the next century, Asia will continue to dominate the global population phenomena and its growth. In particular, China and India have a dominant role in influencing the Asian demographic situation, because together they comprise the majority of the region's total population.

In terms of fertility decline, China's experience is unprecedented in the demographic history of Asia. Even though in recent years there is some evidence that the fertility trend of China has changed somewhat, China's experience may still offer a model for other developing countries to follow, especially since China is at a relatively early stage of socio-economic development. Thus, China's lessons become increasingly important for policy makers and planners in the third world.

To increase the level of understanding about the current stage of Asia's fertility transition, a seminar highlighting this topic will be held at Bangkok from 28 to 31 March 1988. Organized by the Committee on Comparative Analysis of Fertility and Family Planning of the International Union for the Scientific Study of Population (IUSSP) and the Institute of Population Studies of Chulalongkorn University, the four-day meeting will be divided into seven sessions.

Besides overview papers on the timing and the nature of the fertility transition in Asia, other will be presented on the regional differentials within large Asian countries, cross-national differences, country studies on social change and fertility, the consequences of rapid fertility decline and, in a special session on Thailand, issues concerning its demographic transition.

While the emphasis of the seminar will be on the experience of fertility transition in the major subregions of Asia, substantial attention will be focused on the Chinese experience. The copyright papers presented at the seminar will be published as proceedings by Oxford University Press.