

### 3 Trends and Regional Differentials in Fertility Transition

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In the past three decades, China has experienced a remarkable fertility transition from a level of about six children per woman down to less than two children per woman. Such an unprecedented transition in a very short period of time was, to a significant extent, initiated by a government-sponsored family-planning programme promoted under unfavourable social, economic and demographic conditions. It has enabled China to join the countries, mostly developed countries, that have achieved below-replacement fertility, and it will have profound social, economic and demographic implications for China.

There is no prevailing consensus about the relative importance of the major causes of fertility transition in China. However, the profound political, social and economic changes in the country have left a significant imprint on its demographic trends. This chapter examines the fertility trends in China since 1950, the current patterns and regional variations in fertility, and the possible social and demographic implications of a rapid fertility decline (see table 3.1).

#### Fertility Trends

The fertility transition in China can be roughly divided into six phases: a period of high fertility during the reconstruction period (1949–57); a big drop in the period of the Great Leap Forward (1958–61); a boom in the early 1960s; a rapid decline in the 1970s; a stagnation period in the 1980s; and the below-replacement fertility period after 1990 (see figures 3.1 and 3.2).

#### *Initial high fertility period (1949–1957)*

The return of peace after the foundation of the People's Republic in 1949 led to a period of high fertility with declining mortality. The crude birth rate for the country as a whole in this period was 32–8 per thousand of

**Table 3.1** Changes in crude birth rates (CBR) and total fertility rate (TFR) by residence, China, 1950–1992

Year	CBR <sup>a</sup>			TFR <sup>b</sup>		
	Total	Urban	Rural	Total	Urban	Rural
1950	37.0	—	—	5.3	5.3	5.3
1951	37.8	—	—	5.3	5.1	5.3
1952	37.0	—	—	6.0	5.7	6.0
1953	37.0	—	—	5.7	5.5	5.7
1954	38.0	42.5	37.5	6.0	6.0	5.9
1955	32.6	40.7	31.7	6.0	5.7	6.1
1956	31.9	37.9	31.2	5.6	5.4	5.7
1957	34.0	44.5	32.8	6.2	6.2	6.2
1958	29.2	33.6	28.4	5.5	5.5	5.5
1959	24.8	29.4	23.8	4.2	4.4	4.2
1960	20.9	28.0	19.4	4.0	4.2	3.9
1961	18.0	21.6	17.0	3.3	3.1	3.3
1962	37.0	35.5	37.3	6.0	4.9	6.2
1963	43.4	44.5	43.2	7.4	6.3	7.6
1964	39.1	32.2	40.3	6.1	4.4	6.5
1965	37.9	26.6	39.5	6.0	3.8	6.5
1966	35.1	20.9	36.7	6.2	3.1	6.9
1967	34.0	—	—	5.3	2.9	5.8
1968	35.6	—	—	6.4	3.8	6.9
1969	34.1	—	—	5.7	3.3	6.2
1970	33.4	—	—	5.7	3.2	6.3
1971	30.7	21.3	31.9	5.4	2.8	6.0
1972	29.8	19.3	31.2	4.9	2.6	5.4
1973	27.9	17.4	29.4	4.5	2.4	5.0
1974	24.8	14.5	26.2	4.2	1.9	4.6
1975	23.0	14.7	24.2	3.6	1.8	4.0
1976	19.9	13.1	20.9	3.3	1.6	3.6
1977	18.9	13.4	19.7	2.9	1.6	3.1
1978	18.3	13.6	18.9	2.7	1.6	3.0
1979	17.8	13.7	18.4	2.8	1.4	3.2
1980	18.2	14.2	18.8	2.7	1.8	3.0
1981	20.9	16.5	21.6	2.5	1.5	2.8
1982	21.1	18.2	22.0	2.9	2.0	3.2
1983	18.2	16.0	19.9	2.6	1.8	2.8
1984	17.5	15.0	17.9	2.3	1.6	2.5
1985	17.8	14.0	19.2	2.3	1.5	2.6
1986	20.8	17.4	21.9	2.3	1.6	2.6
1987	21.0	17.6	22.2	2.6	1.8	2.8
1988	20.8	17.4	22.0	2.4	1.7	2.7
1989	20.8	16.0	22.3	2.3	1.6	2.5
1990	20.5	13.1	22.2	2.0	1.2	2.3
1991	19.3	13.6	20.6	1.9	1.2	2.0
1992	18.1	15.2	18.8	1.7	1.4	1.8

#### Sources:

<sup>a</sup> CIPRC (1990: 16); Jiang et al. (1995: 257–9).

<sup>b</sup> Coale and Chen (1987: 24–9); Feeney et al. (1993: 483, 486); Jiang et al. (1995: 222–4).

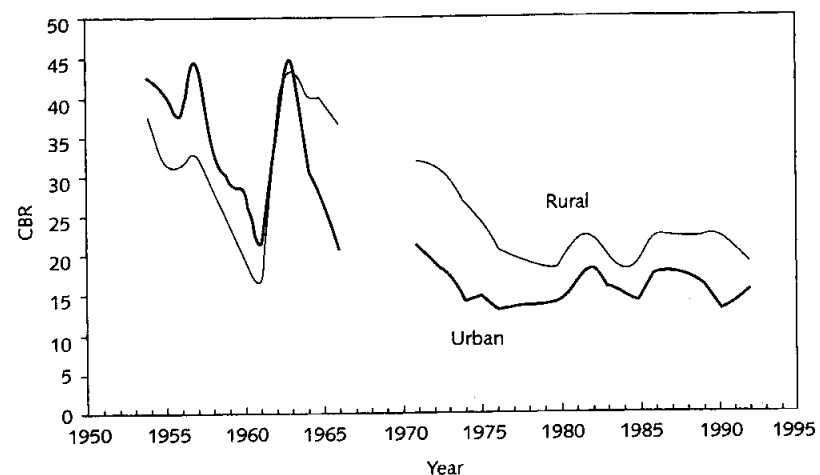


Figure 3.1 Changes in crude birth rate (CBR), 1950–1992

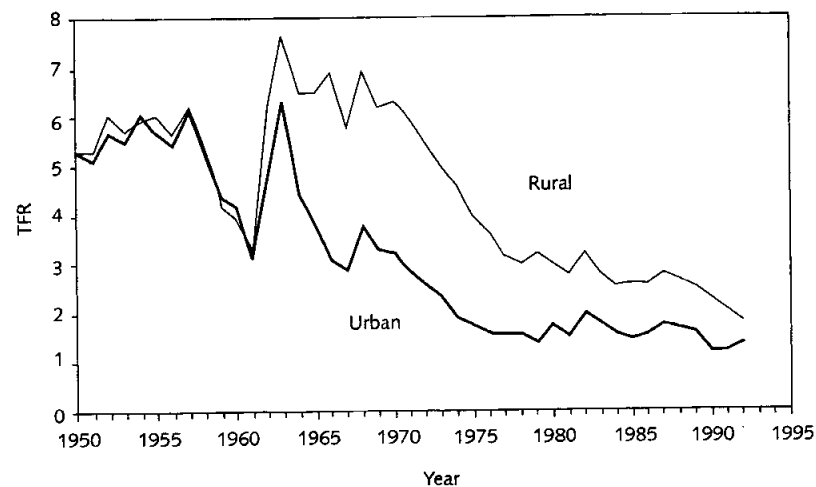


Figure 3.2 Changes in total fertility rate (TFR), 1950–1992

the population and the total fertility was around six children per woman. There was little urban–rural differential in fertility (figure 3.2). Therefore, the difference in birth rate between the urban and rural areas (figure 3.1) was mainly caused by the difference in population age structure.

#### *The Great Leap Forward (1958–1961)*

During this period, mainly due to policy errors and a nationwide natural calamity, China experienced a large drop in fertility and a large number of excess deaths (Peng, 1987). The crude birth rate dropped from 34 in 1957 to only 18 in 1961 while the total fertility rate dropped from 6.2 to 3.3.

#### *Post-famine recovery (1962–1970)*

In this period, the birth rate and the total fertility rate reached a peak in 1963, as high as 43 and 7.4, respectively, because of compensatory child-bearing after the big drop in 1958–61. Fertility remained high thereafter except in urban areas where it started to decline very rapidly. Urban–rural differentials in fertility first appeared and increased rapidly in this period.

#### *Rapid fertility decline (1971–1979)*

In this period, the Chinese government introduced a national family-planning programme that promoted a policy of later birth, longer spacing, and fewer births (Wan, Xi, Shao). China's fertility transition was most remarkable in this period. The total fertility rate declined sharply from 6 in 1970 to 2.8 in 1979, an unprecedented drop of over three children per woman in less than nine years. Urban–rural differentials in fertility decreased to some extent, but remained fairly large throughout this period.

#### *Stagnation period (1980–1989)*

In spite of the one-child policy introduced in 1979 and various family-planning campaigns, fertility decline slowed down after the rapid decline observed in the 1970s. Both the crude birth rate and the total fertility rate experienced significant fluctuations during this period, around a level of 20 per thousand and 2.5 children per woman, respectively.

#### *Below-replacement fertility period (1990–)*

Fertility declined further and reached the below-replacement level (2.1) around 1991. Fertility in the urban and rural areas started to converge. However, the deterioration in the quality of demographic data in recent years has led to considerable disagreement and speculation about the recent fertility trend and its causes (Feeney and Yuan, 1994; Nygren and Hoem 1993; Zeng, 1995).

For a developing country such as China with a relatively low level of socio-economic development, the achievement in reducing fertility is remarkable. China is now far ahead of the rest of the developing world and very close

to the developed countries in achieving low fertility. Although there is no prevailing consensus about the exact contribution of the main causes of China's fertility transition, the rapid fertility transition is generally attributed to: a strong and persistent commitment by the government to the control of rapid population growth, socio-economic development, and significant social and institutional changes (Peng and Tu, 1992).

Under the guidance of the central government, local governments at all levels have developed population plans that suit the local socio-economic conditions. Local resources have been mobilized and effective organizational arrangements, such as the family-planning-target responsibility system and the implementation of provincial family-planning regulations, have been made to meet the target of population control. The government's efforts in family planning have made an important contribution to success in birth control, although they have at the same time caused a great deal of concern among the international community.

At the same time, socio-economic development has also brought about a reduction in fertility. In the past four decades, especially after the economic reforms introduced in the late 1970s, there have been marked changes in the demand for children and the attitude towards childbearing. These changes have established a favourable context for the rapid decline in fertility.

China's demographic transition has benefited a great deal from the tremendous social reform in the last 40 years. The traditional familial role and function have been weakened and altered since the foundation of the People's Republic, and the costs and benefits of children have been changed too. Since 1949 China has achieved marked success in mass education. The illiteracy rate has dropped further in the recent years, from 22.8 per cent in 1982 to 15.9 per cent in 1990. This improvement in education has challenged the traditional value system, which hindered demographic transition. It has facilitated the diffusion of new ideological and behavioural norms, including those on birth control, and played an important role in China's fertility transition. All these changes have undermined the traditional pro-natal culture that put great importance on the continuation of the family line.

### Fertility Patterns and Regional Differentials

The age patterns of fertility in China, by birth order, can be characterized as follows: early, universal and highly concentrated first births; relatively early and common second births; and low and late incidence of high-order (third and above) births (figure 3.3). Women give birth for the first time around the age of 22-3; over 90 per cent of women have had their first child before the age of 28, with an extremely low proportion remaining childless. Second birth is still fairly early, around age 25. According to the period parity progression analysis (table 3.2), about 99 per cent of the women in China will give birth at least once in their lifetime, three-

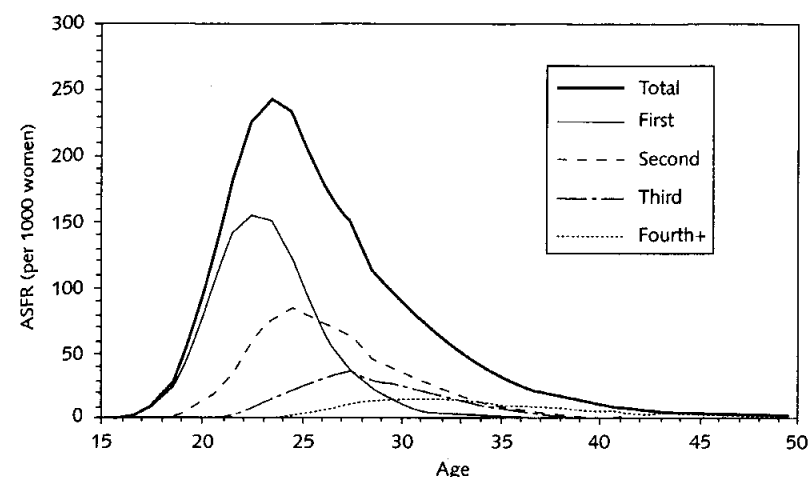


Figure 3.3 Age-specific fertility rate (ASFR) by birth order, 1989, whole China

Table 3.2 Period parity progression ratios (PPPR) by residence, China, 1989

Residence	PPPR			
	0 → 1	1 → 2	2 → 3	3 → 4
China	0.99	0.74	0.44	0.33
Cities	0.99	0.50	0.32	0.27
Towns	0.99	0.80	0.44	0.34
Counties	0.99	0.92	0.50	0.33

Source: Tu (1993a: 4).

quarters of the women who give birth once will go on to give birth a second time, but the progression ratio is much lower at higher parity. Parity progression ratios are highest in the counties (rural areas) and lowest in cities.

Significant regional differentials in fertility also exist in China. Table 3.3 shows significant variations in the total fertility rate (TFR) and mean age at childbearing among the 30 provinces in mainland China. The TFR is far below the replacement level in the two municipalities (Beijing and Shanghai) while it is still above 3 in provinces with a high proportion of minority populations (Guizhou, Xinjiang and Xizang). There is a strong association between fertility and the proportion of urban and minority

**Table 3.3** Total fertility rate (TFR) and selected indicators by province, China, 1990

Region	TFR (1989)	MC (1989)	Population (millions)	Urban (%)	Minority (%)	GNP (RMB)	e(0)
China	2.25	26.1	1,115.1	26.2	8.0	1,410	69.3
Beijing	1.19	26.4	10.8	73.1	3.8	4,407	73.6
Shanghai	1.26	25.7	13.4	66.2	0.5	5,406	75.3
Zhejiang	1.43	25.1	40.5	32.8	0.5	1,839	72.5
Liaoning	1.54	25.5	39.6	50.9	15.6	2,455	70.9
Tianjin	1.60	26.0	8.7	68.7	2.3	3,361	72.8
Heilongjiang	1.71	24.9	34.3	47.2	5.7	1,576	68.2
Sichuan	1.79	25.3	105.2	20.3	4.6	923	67.2
Jilin	1.81	25.4	24.8	42.7	10.2	1,524	68.5
Inner Mongolia	1.91	25.7	20.8	36.1	19.4	1,188	67.0
Jiangsu	2.00	25.5	67.2	21.2	0.2	1,968	72.3
Shandong	2.11	27.0	82.4	27.3	0.6	1,458	71.3
Fujian	2.31	25.0	30.1	21.4	1.5	1,384	70.3
Hubei	2.39	25.8	53.8	28.9	4.0	1,338	67.6
Gansu	2.40	25.4	22.5	22.0	8.3	995	67.6
Hebei	2.40	26.4	59.4	19.1	3.9	1,289	71.8
Hunan	2.41	25.3	59.5	18.2	7.9	1,073	67.3
Shanxi	2.45	26.3	27.7	28.7	0.3	1,263	69.6
Jiangxi	2.49	24.9	37.6	20.4	0.3	1,002	66.8
Anhui	2.49	25.9	55.2	17.9	0.6	1,051	69.9
Yunnan	2.57	26.1	36.2	14.7	33.4	853	64.0
Guangdong	2.59	27.0	62.1	36.8	0.6	2,131	73.1
Qinghai	2.67	27.4	4.4	27.4	42.1	1,363	61.9
Shaanxi	2.69	26.4	31.9	21.5	0.5	1,075	68.4
Guangxi	2.71	26.8	41.9	15.1	39.1	847	69.3
Hainan	2.75	27.5	6.3	24.1	17.0	1,331	72.3
Henan	2.89	27.3	84.6	15.5	1.2	1,011	70.3
Ningxia	2.90	26.3	4.6	25.7	33.3	1,209	68.3
Guizhou	3.04	27.2	32.2	18.9	34.7	757	65.2
Xinjiang	3.04	28.4	15.1	31.9	62.4	1,498	65.1
Xizang	4.31	31.5	2.2	12.6	96.3	—	59.9

Sources: Tu (1993b: 7); Lu and Gao (1994: 55-6).

Note: MC is the mean age at childbearing.

populations at the aggregated level (table 3.3). Provinces with a high proportion of urban population and a low proportion of minority population have achieved low fertility. It reflects the fact that deliberate fertility control was first adopted by the Han population and started in urban and coastal areas, then gradually adopted by other minority populations and diffused to rural and inland areas. It also reflects differences in the family-planning policy and its implementation between Han and minority populations and

**Table 3.4** Selected indicators of the patterns of fertility, China, 1989

Indicator	Fertility patterns					
	I	II	III	IV	V	All
TFR	1.2	1.8	2.4	2.8	4.3	2.2
Mean age at childbearing	25.8	25.7	25.9	27.2	31.3	26.1
Mode age at childbearing	23	23	23	24	26	23
No. of provinces	2	9	13	5	1	30
Population (millions)	24.2	429.7	472.0	202.4	2.2	1,130.5
Urban population (%)	69.3	31.1	20.5	24.2	12.6	26.2
Minority population (%)	2.0	4.9	9.5	11.5	96.3	8.0

Source: Tu (1993b: 8).

between urban and rural areas. However, we should also note the considerable heterogeneity in degree of urbanization and ethnic composition of the population among provinces with a similar fertility.

A cluster analysis of the age-specific fertility schedules of the 30 provinces in China identifies five major patterns of fertility (table 3.4). Table 3.4 presents the estimated parameters of the fertility schedules along with a few demographic indicators for each cluster and for the country as whole. Cluster I consists of the 2 largest metropolitan cities with the lowest TFR (1.2-1.3) and has a population of 24.2 million (2.1 per cent of the total population); Cluster II consists of the 9 provinces with a TFR below the replacement level and has a population of 429.7 million (38.0 per cent). Clusters III and IV consist of 13 and 5 provinces with a TFR between 2 and 3 and which have populations of 472.0 million (41.8 per cent) and 202.4 million (17.9 per cent), respectively. And Cluster V consists of only Xizang (Tibet) which has the highest TFR (4.3) in the country and a population of 2.2 million (0.2 per cent).

The five clusters represent a wide range of fertility patterns at successive stages during the transition from high to extremely low fertility (see figure 3.4). The fertility schedule of Cluster V is characterized by a high overall level that spreads over a wide range of ages, representing a population with a weak deliberate fertility regulation. But the fertility schedule of Cluster I is characterized by an extremely low level of fertility that is heavily concentrated in a narrow age range, representing a population with extremely strong deliberate fertility regulation. Childbearing becomes more and more concentrated as the overall fertility level declines.

### Concluding Remarks

In spite of the remarkable achievement in socio-economic development in the past four decades, China was still relatively backward in terms of

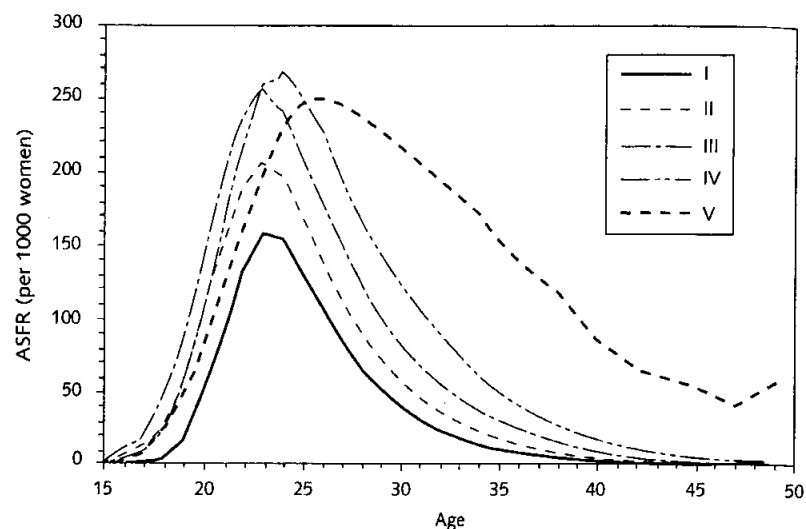


Figure 3.4 Age patterns of fertility, China, 1989

economic development when the fertility transition started. Therefore, it is expected that keeping China's fertility below the replacement level will require a continued effort in implementing family-planning policy, promoting socio-economic development, and developing and implementing other policies that encourage low fertility. While it is expected that China will continue its strong effort to control population growth and that the government sponsored family-planning programme will still have a strong influence on future fertility trends, whether China can successfully achieve its planned population goals in the future will also rely heavily on socio-economic development. The progress of China's political and economic reforms, as it leads to an increasing population mobility and changing government functions, will pose challenges to the existing family-planning programme. But at the same time, it will facilitate changes in people's lifestyle, fertility preferences and childbearing behaviour leading to fertility control on a voluntary basis. Therefore, economic development, modernization and the voluntary participation by the Chinese people in family planning will be the crucial factors determining future fertility trends in China.

With the unprecedented fertility decline to a level significantly below the replacement, rapid population ageing will be inevitable and China will face a severe conflict between the need to slow down its population growth and the need to avoid too rapid population ageing (Tu, 1995; Zeng and Vaupel, 1989). If the current fertility trend continues, the proportion of population

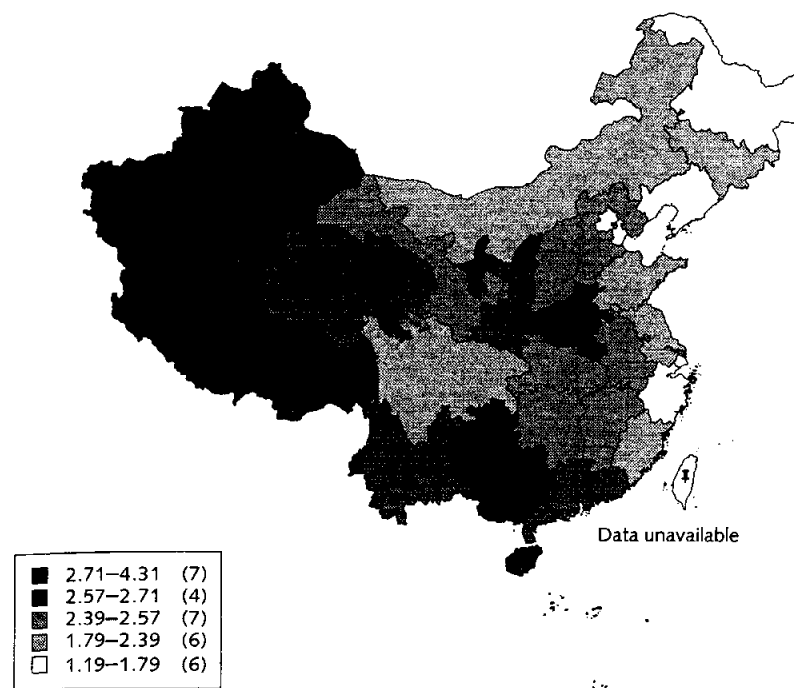


Figure 3.5 Total fertility rate by region, China, 1989

Source: As table 3.3.

aged 65 and over will increase from 5 per cent to 7 per cent in less than 20 years and from 7 per cent to 14 per cent in less than 26 years. For the proportion of population aged 65 and over to increase from 7 per cent to 14 per cent, it took France 115 years, Sweden 85 years, Germany and the United Kingdom 45 years, and Japan (the country with the most rapid pace of population ageing observed so far) 26 years. Therefore, China's population will age at a speed unprecedented in the world, if the currently predicted trends in fertility and mortality hold. Although it will in the short run experience a sharp decline in its dependency burden due to declining child dependency, it will eventually face an extremely high elderly and total dependency burden. It is very likely that China will face a severely aged population before it has had sufficient time and resources to establish an adequate social security and service system for the elderly (Tu, 1995).

The rapid decline in fertility will also have significant impact on the future size and structure of Chinese families. The impact of rapid fertility decline on their structure and dependency ratio is quite similar to its impact on the age structure and dependency ratio of the population as a whole, but with much greater fluctuations over time and an imbalance in the dependency burden among different generations (Tu, 1995). Therefore, China will face a serious challenge in controlling fertility but maintaining a reasonable family size and structure. Strict control of fertility will lead to a sharp reduction in family size and dependency burden in the short run, but it will eventually give the next generation an extremely heavy dependency burden. For single-child families, family kin such as sisters, brothers, uncles and aunts will simply disappear and the roles and positions of the remaining family kin will undergo significant changes. That will have profound and unpredictable social, economic and cultural implications (Zhou, 1996). Currently it is therefore of great importance to pay attention to some of the negative impacts of strict fertility controls and to search for effective solutions.

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