

China is the world's most populous nation. About 20% of world population is Chinese, down from 30% in the 1950s. Global population trends depend, to a significant extent, on China's demographic trajectory, and the slowdown in China's population has contributed significantly to global demographic deceleration. It is not only because of its size that China's population is of interest. China's recent population history contains two of the most remarkable episodes ever observed in a human population. The first of these was the famine that followed the GLF: the largest famine of the post-World War II era, anywhere in the world; the biggest population disaster of our time. The second episode was the extraordinarily rapid reduction in birth rates during the 1970s, engineered by strict government birth control policies, that was faster and more complete than any similar fertility decline elsewhere in the world. In addition to their intrinsic interest, these two episodes have implications for the present and future of China's economy. Past demographic trends have resulted in a population today that is young and has a remarkably low dependency rate, which is favorable for growth. Those same trends dictate that in the future China will face particularly rapid population aging, which will create a significant social burden at a time when China's income is still comparatively low.

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## **7.1 THE DEMOGRAPHIC TRANSITION**

In traditional societies population growth rates are typically low. As noted in Chapter 2, China's premodern population grew for over 400 years at about 0.4% per year, and China was already the most populous country in the world by a large margin in the 1800s. In fact, this long-term growth rate appears to be near the maximum of what premodern societies can sustain. Despite the fact that birth rates are high in traditional societies, population growth is slow

**Box 7.1**

## Birth rates and total fertility rates

There are two rates most often used to describe reproductive rates. The first and simplest is the birth rate, which expresses the number of births as a percent of the total population (sometimes called the crude birth rate). This statistic has the advantage that is easy to obtain and provides information about current population growth. Population growth equals the crude birth rate minus the crude death rate. However, birth rates are sensitive to the age composition of the population; for example, the birth rate will be temporarily higher when there is a larger proportion of women at childbearing ages. The second rate is the TFR, which is calculated in order to describe the underlying behavior of the population and understand long-run trends. The total fertility rate is computed by first calculating the age-specific birth rate for women in a given year. That is, the birth rate is calculated separately for 18-year-old women, 19-year-old women, and so on. These age-specific rates are then aggregated to form a total birth, or fertility, rate of a representative woman as if she were passing through the successive years of her life according to the average pattern of all women in that year. Alternately stated, the total fertility rate expresses the number of children a woman would have during the course of her life if her fertility in each year of her life were equal to the average fertility of all the women in the population of that age during the reference year. Total fertility rates are not affected by the age structure of the population, but they are affected by changes in the timing of births. If, on average, women begin to delay births, the total fertility rate will be temporarily lowered for a period. When the total fertility rate falls below 2.1, fertility is below the replacement level, and population growth will eventually fall to zero.

because death rates are also high. It is common for traditional societies to have birth rates in the range of 30 to 40 per 1,000 and death rates fluctuating from 20 to more than 40 per 1,000.<sup>1</sup> Population is in a precarious balance. When harvests are poor or diseases strike, population shrinks. Although each adult woman has many children, many die in infancy. The total fertility rate (TFR), a measure of the total number of children a typical woman bears during her lifetime, typically hovers around 6 (Box 7.1). China remained in a pre-modern demographic pattern until after 1949. Death rates were high, and disease, crop failure, and civil war undoubtedly caused population to decline in the worst years. Between 1850 and 1950 estimated population growth was 0.3% per year, which, because of the social and economic setbacks China experienced, was even lower than the preceding four centuries. Population growth resumed after 1949, and China's first modern census, in 1953, counted 594 million people.

During the modernization process, population vital rates change in fairly regular ways. First, nutrition and sanitation improve, and as a result

1. Demographers commonly express population changes as a ratio to 1,000. A birth rate of 40 per 1,000 and a death rate of 20 per 1,000 imply a population growth rate of 20 per 1,000, or 2%.

population health increases. As a result of improved health, death rates decline. Infant mortality rates drop fairly quickly, as simple improvements in maternal care and nutrition take place and a handful of deadly communicable diseases are controlled. Initially, this decline in death rates takes place without any corresponding change in birth rates. Birth rates stay high, and might even increase at first, because better fed, healthier women are more fertile. As a result, population growth accelerates. Many babies are born to each woman, and the majority now survive into adulthood and have children of their own. Population growth rates accelerate from under 10 per 1,000 to as high as 30 per 1,000 or more, resulting in a population explosion. This type of population explosion occurred in Europe during the nineteenth century. In most parts of the developing world, however, declining death rates and the associated population explosion did not occur until after World War II. In China death rates began to decline soon after the Communist government took control in 1949. In the early 1950s rapid improvements in sanitation, more equal distribution of available food, and control of the most important communicable diseases began to drive death rates down. Birth rates remained high, and by the mid-1950s the population was growing more than 2% per year: China began its own population explosion.

The population explosion does not continue indefinitely. Birth rates begin to decline gradually in nearly all populations we observe. What causes birth rates to decline? One factor is that families require fewer births to reach their preferred number of children, or “target family size,” because infant survival rates increase and because birth control technology improves. But the more important factor is that social changes associated with modernization lead families to prefer smaller families, and this preference translates into a smaller target family size. Social changes redefine the costs and benefits of children to the parents. As families move to cities and as women enter the (paid) labor force, the opportunity cost of the mother’s time becomes greater. The mother can contribute more to the family’s income by working outside the home, rendering it more expensive to have her stay home and take care of children. Additionally, families leaving agriculture have less use for child labor. An especially important role in declining birth rates is played by increasing levels of education, both for the mother and the children. As the child’s education becomes more highly valued, families increase their target levels of education for their children. Families begin to think of children as beings that need to be supported in school, at first for five or six years, and then, later in the development process, for 10 or even 20 years. As a result, the costs of supporting children through the end of the educational process become much greater. Families decide to have fewer, “more expensive” children, and invest more

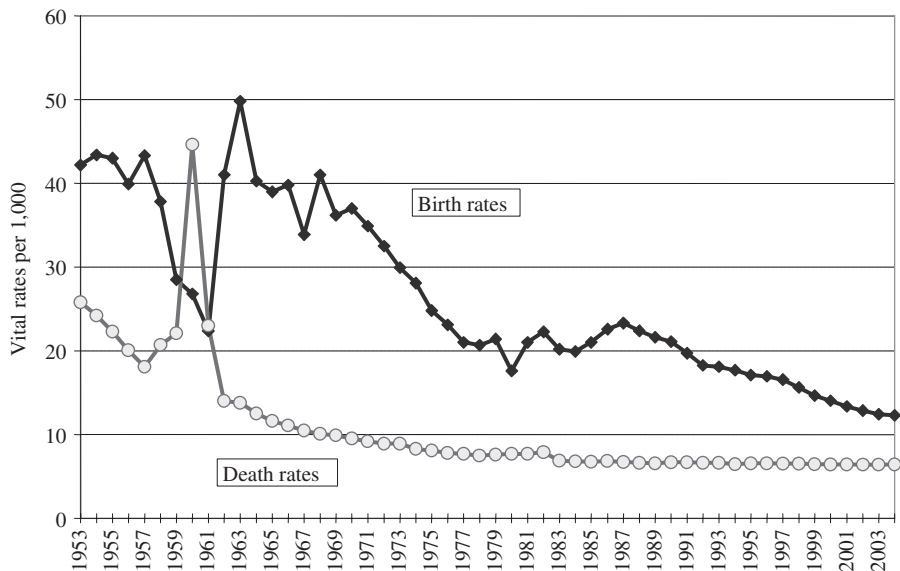
resources in each child. An increase in the mother's level of education has a major impact, because it affects fertility through a number of different channels simultaneously. Better educated mothers have a higher outside wage, and the opportunity cost of their time is higher. But better educated mothers also value the child's education more and have a better understanding of health and contraceptive issues. For all these reasons, as development proceeds families tend to have fewer children, and then try to invest more scarce time and resources in each individual child. Some say they trade "quantity" for "quality."

As a result of falling birth rates, population growth slows down, but this process can take a long time. In the European countries that experienced clearly falling death rates by the second half of the nineteenth century, birth rates fell slowly but steadily for about a century. By the late 1970s total fertility rates had fallen well below the replacement rate in many developed countries, such as Germany and Japan. Their populations continued to grow, though slowly, due to the combined effects of age structure and immigration. In 2005, Japanese population declined for the first time. This process—from low through high to low population growth—is called the demographic transition. While the demographic transition took about a century in Europe, it has proceeded more rapidly in other countries since World War II. In East Asia the demographic transition has been particularly fast. Japan and Taiwan, for example, have already completed a rapid transition to a low-birth-and-death-rate, low-population-growth equilibrium. China has also made the demographic transition under unusual circumstances and in less than 20 years.

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## 7.2 CHINA'S DEMOGRAPHIC TRANSITION

China's demographic experience is shown graphically in Figure 7.1. The solid line shows births, per 1,000, and the shaded line shows deaths. The vertical difference between the two lines is the annual population growth rate (per 1,000). Before we can direct our attention to the long-range trends shown by the figure, we must consider the extraordinary event shown in the figure. The most striking thing is undoubtedly the demographic crisis that peaked in 1960, the final year of the GLF. The graph shows clearly the surge in deaths in 1960 (above the otherwise clear trend of a declining death rate) and the collapse in births. As death rates soared and birth rates plummeted, China's population declined (see Chapter 3 for description). Demographers estimate the excess deaths from the GLF by first inter-polating a normal mortality curve, in which death rates would have declined smoothly between 1957 and 1962 in line with



**Figure 7.1**  
Vital rates

long-term trends. Excess deaths equal the area under the actual mortality curve and above the normal one: by this estimate, the crisis caused about 30 million excess deaths from starvation or aggravated disease conditions. In addition, many millions of births were deferred because of the famine conditions. The enormous quantities of demographic data published by the Chinese government since the 1982 census all clearly show the immense impact of the GLF.

We must set to one side the GLF catastrophe in order to consider the long-run trends depicted. First, the sustained decline in death rates, aside from the GLF surge of mortality, is quite impressive. This is not the only case of such a rapid sustained reduction in death rates in the world, but it is unusual because it occurred in such a large population that was still at a relatively low level of income. The causes were typical of sustained improvements in population health anywhere in the world: improved sanitation, water supplies, and pest control and vaccination programs, combined with improved nutrition, particularly for the poorest groups. In the Chinese case, the governmental emphasis on public health and preventive medicine, combined with a large network of basic-level health care workers—that is, midwives and “barefoot doctors”—made possible this substantial achievement. Estimates of life expectancy at birth increased substantially, from an estimated 41 years in the early 1950s to

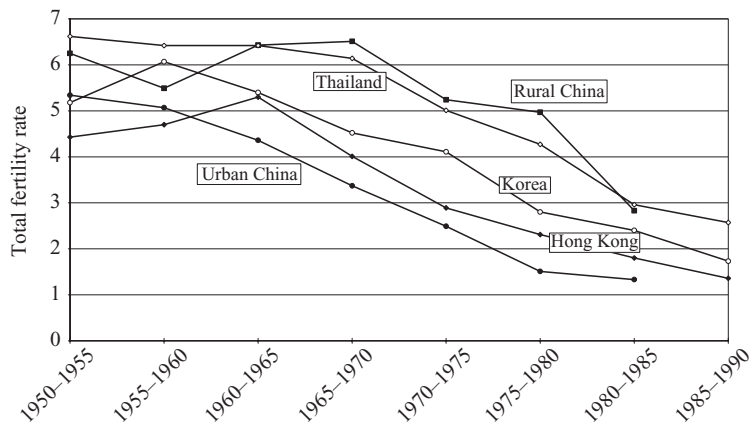
an official figure of 71 in the 2000 census (Zhang Shanyu 2003, 92; Banister and Hill 2004 adjust the official 2000 figure to 70 to account for underreporting of infant mortality).

Birth rates stayed high from the early 1950s through 1970, fluctuating in the range of 35 to 45 per 1,000 (again, leaving aside the plunge from 1959–1961). Indeed, birth rates were at their highest in 1963. This peak reflects the phenomenon of “replacement births,” wherein households that had been postponing births or had lost family members during the famine years now had an unusually large number of births as conditions improved. Overall, through 1970, China resembled most developing countries during that period. Consistently high birth rates combined with steadily declining death rates meant that the population was growing extremely rapidly. Population growth peaked in the mid-1960s at nearly 3% per year.

Up until 1970 the trends that China experienced with respect to vital rates were rather typical. But there are few precedents for the extremely rapid decline in birth rates after 1970. Between 1970 and 1977, China’s birth rate decreased by 50%. Total fertility rates dropped even more rapidly, declining from 5.8 in 1970 to 2.7 in 1978 (Table 7.1). We can recognize this decline as the ordinary process of the demographic transition, except that it occurred at a compressed and accelerated rate. The decline has been sustained through the 1990s, as total fertility rates appear to have declined well below the replacement rate. According to official Chinese data, the total fertility rate in 2000 was only 1.22, but this number has been rejected as too low by most observers (for reasons that will be discussed later). Table 7.1 shows (as China B) some alternative estimates by Retherford et al. (2005), which may still be biased downward. Regardless, there is little doubt that Chinese fertility has fallen rapidly and is now probably below replacement level.

**Table 7.1**  
Fertility decline in East Asia (total fertility rate)

Year	China A	China B	Korea	Thailand	Taiwan	Hong Kong
1950–1955	6.2		5.2	6.6	6.7	4.4
1955–1960	5.4		6.1	6.4	6.0	4.7
1960–1965	5.9		5.4	6.4	5.1	5.3
1965–1970	6.0		4.5	6.1	4.2	4.0
1970–1975	4.8		4.1	5.0	3.4	2.9
1975–1980	2.9	3.1	2.8	4.3	2.7	2.3
1980–1985	2.5	2.4	2.4	3.0	2.2	1.8
1985–1990	2.4	2.3	1.7	2.6	1.7	1.4
1990–1995		1.6				
1995–2000		1.4				



**Figure 7.2**  
Comparative fertility decline

Figure 7.2 shows the comparative fertility data from Table 7.1 but combines them with separate fertility rates for urban and rural China. These data show that the Chinese experience is less extraordinary than one might suppose when placed in the East Asian context. Chinese urban fertility, to be sure, drops fastest and stays lowest of the series shown, but Chinese rural fertility is the highest. The two extremes of Chinese society thus bracket the other East Asian economies. Here again, the big gap between urban and rural society (Chapter 5) is particularly salient in China. Urban society in China has many features that are associated with smaller target family size. For a low-income country, urban China displays high female labor force participation, high female educational attainment, high educational aspiration for children, good access to health and contraceptive services, and a relatively good social security system. By contrast, rural China displays none of these features. Thus social and institutional features strongly accentuate the basic urban–rural difference in target family size: in a rural setting, children can contribute to agricultural household income at quite a young age. Farm children care for pigs, goats, and chickens as young as six or seven, and start to earn their keep. Rural households have higher target family sizes, and it is not surprising to see large differences in fertility dynamics in Chinese cities and countryside.

### 7.3 THE ROLE OF GOVERNMENT POLICY

Shortly after China's first modern census in 1953, the government initiated family planning, reflecting some alarm among population officials who began

to confront the magnitude of China's population problem. This early program was modest in scope, providing contraceptive information and services on a voluntary basis. Even this small program was abandoned in the late 1950s, though, after the personal intervention of Mao Zedong. Mao argued that China's big population was an advantage and that human labor and creativity would allow people to wrest a living—and create a better society—despite limited resources. However, the disaster following the GLF convinced many in China's leadership that there was a place for family-planning policies, and Mao eventually allowed such policies to go forward. During 1962–1966 pilot programs of urban family planning were put in place to provide information about birth control.

Encouraged by the results of voluntary programs, the Chinese government launched its first all-out family planning initiative in 1971. This policy was known as *wan-xi-shao*, or later-longer-fewer, meaning “later marriages, longer spacing between children, and fewer children in total.” The legal minimum age of marriage was increased, and couples were urged to wait before having a second or third child. The policy lasted through 1978, and it was directed at both urban and rural couples. In many respects, this policy was highly successful. Total fertility rates were cut in half, from 5.8 in 1970 to 2.7 in 1978. Virtually all the reduction in fertility was the result of fewer births of third and higher order. Through 1979 the probability of a couple having a second child, given that they had already given birth to a first child, was 95% (Feeney and Yu 1987). This could be characterized as a “Two-Child, but Wait, Policy.”

The success of the later-longer-fewer policy was not sufficient to allay fears of a population crisis. Even with reduced fertility rates, population growth was set to accelerate as China's “baby boomers” reached marriage age. China's baby boomers were the large cohorts born during the 1962–1971 period (including “replacement births” after the GLF), and they were set to enter their childbearing years during the 1980s and early 1990s. China's leaders worried that continued population growth would outstrip the nation's population carrying capacity and obstruct economic development. Population “hawks” argued that it was necessary to reduce fertility rates below replacement levels, at least temporarily, in order to prevent another wave of births. Only tough measures, they argued, could break the inexorable momentum of continued population growth. Policy tightened, and in September 1980 the government formally adopted the “One-Child Policy” and a target population of 1.2 billion in the year 2000.

The One-Child Policy seeks to convince Chinese families that the most desirable number of children is one, and it provides an array of sanctions and penalties for women who have two or (especially) more than two children.



The One-Child policy was immediately controversial, particularly since the implementation was extraordinarily strict through the first five years or so. In 1983, for example, policy called for mandatory insertion of intra-uterine devices (IUDs) for women with one child, sterilization for couples with two or more children, and abortion for unauthorized conceptions. By 1984 domestic resistance and international controversy led the Chinese government to a substantial relaxation of the policy, which could be more aptly described as a “One-and-a-Half-Child Policy” after 1984. The government officially renounced forced sterilization and forced abortion. Provincial governments developed implementing legislation that allowed second children to couples if their first child was a girl and or if hardship factors were involved. The result was a significant liberalization of the policy nationwide. Since 1990 there have been further fluctuations in the strictness with which the policy is promoted nationwide.

Implementation of the One-Child Policy has been delegated to local government, and officials at the provincial level and below are evaluated, in part, on their success in lowering population growth rates in their locality. As a result, local officials are under substantial top-down pressure to control births, and they sometimes resort to actions that contravene declared central government policy, such as coercive sterilization or abortion. On the other side, local implementation has allowed significant regional variations in the One-Child Policy. In order to avoid charges that China was seeking to control the populations of non-Han ethnic minorities, the One-Child Policy was not applied to minority groups; in fact, birth rates for ethnic minorities are about double the rate of Han Chinese.

The One-Child Policy subjects all Chinese households to monitoring of fertility and births. This monitoring is much more intense in urban areas, where work units routinely track their female workers’ fertility cycles, but it also exists in rural areas. In urban areas, work units may be assigned birth quotas, and couples may sometimes have to “wait their turn” before being allowed to have even their first child. Couples who pledge to have a single child receive a “one-child certificate” that entitles them to various privileges, including preferential access to day care and schooling. After the permitted first child, couples come under various forms of pressure to limit future births.

In most rural areas, if the first child is a girl, couples are allowed to have a second child without much interference; in other areas, the original one-child principle continues to be pressed with the original urgency. If a couple becomes pregnant after their allotted one or two children, they will first be subject to pressure from local family planning workers to abort the fetus. Family-planning workers will visit the couple repeatedly, perhaps daily, trying

to persuade them to submit to an abortion. If the couple go ahead with an unauthorized birth, they will be subject to various penalties. In most provinces substantial financial penalties, equal to a household's annual income or even more, are levied on families that have a third or fourth child. If families are unable to pay, their belongings may be confiscated, or their house might even be knocked down. At the same time, peasants in many areas resist the One-Child Policy. Births are sometimes hidden, and newborn children spirited away to be raised by relatives.

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## 7.4 CONSEQUENCES OF THE ONE-CHILD POLICY

The One-Child Policy has been controversial since its inception. Proponents described it as a necessary emergency response to an immediate surge in the population at peak childbearing ages. Critics argued that the policy was neither necessary nor appropriate, and they claimed that the unanticipated consequences of the policy were too severe. Despite the strictness of the One-Child Policy, it has never been fully successful. Even during 1983, the year of maximum strictness, 19% of total births were third order and above, and in other years of the 1980s about half of all births were first children, and half were second or higher order births. Partially for this reason, China's population exceeded the original target of 1.2 billion in 2000, reaching 1.266 billion in the census that year. Some demographers have argued that a more moderate policy might actually have been more effective, by continuing to provide positive incentives for families to delay births and increasing overall compliance (Bongaarts and Greenhalgh 1985).

The One-Child Policy involves a substantial level of coercion applied by the government against the Chinese population. Yet the level of coercion varies substantially from region to region. In large cities the average voluntary target family size has probably dropped below the birth limits set by government policy. Chinese demographers have computed an implied policy total fertility rate for each province, which tells us what the TFR would be in that province if there were perfect compliance with policy. The lowest is Shanghai (1.28), and the highest is Xinjiang (2.4). However, 13 provinces have actual TFRs significantly below the policy TFR, and the difference is largest in those urban and coastal areas where the policy is most strict. The biggest difference is Shanghai, which had an actual 2000 TFR of only 0.68 (Zhang Shanyu 2003, 68–71). Thus there are significant parts of China where little coercion is required to implement the policy and other areas where there is substantial resistance. In other provinces—especially poor, rural provinces like Guizhou

**Table 7.2**  
Sex ratio (males per 100 females)

Year	At birth	Population aged 0–4
1953	104.9	107.3
1964	103.8	106.5
1982	107.6	107.0
1990	111.8	109.8
1995	116.6	118.8
2000	117.8	120.8
2003		121.2

and Jiangxi—fertility is significantly above what is theoretically permitted by policy.

The most important side effects of the One-Child policy derive from the Chinese preference for sons. The traditional cultural preference for boys is sustained by the marriage system. Girls “marry out,” leaving their home village, while boys remain in the village and often stay in the family homestead. Boys are thus more likely to contribute to the household’s income and support the parents in old age. Girls, while they may be willing to help, are at the very least some distance away, bound to a new family, and with fewer resources and less ability to assist aged parents. Thus boys are culturally and materially more valuable to many peasant households than girls. When this preference for boys collides with government-enforced birth limitation in China, the result is an extremely unbalanced sex ratio.

In most populations, more boys than girls are born. The average ratio is 106 boys for every 100 girls, with some normal variation, such that anything between 103 and 110 might be considered within the normal range).<sup>2</sup> In traditional China female infanticide dramatically skewed this ratio. In the late 1930s there were more than 120 boys for every 100 girls. Economic and social progress after 1949 brought this imbalance steadily down, so that during the 1960s and 1970s there were around 108 boys for every 100 girls at young ages (Table 7.2; see Coale and Banister 1994). However, since the early 1980s the sex ratio has again risen. Moreover, as Table 7.2 shows, the sex ratio has climbed steadily and significantly. In the 2000 census, the relative number of boys per 100 girls in the 0–4 age group was 120.8, clearly outside the normal range. These numbers imply that, given the number of boys, more than 12 million girls were “missing” in the 2000 census.

2. In most populations boys experience slightly higher mortality rates than girls, such that the sex ratio tends to equalize as groups reach reproductive ages. In old age women outnumber men in China as in other societies.

Where are the missing girls? In some remote areas, female infanticide may persist, but most observers feel that this is not a major cause of the imbalance. Many baby girls are simply unregistered with the authorities, and not reported to census takers either. Given the penalties incurred for unauthorized births—primarily by the family, but also by local officials who are responsible for meeting birth control targets—families choose not to report births or to delay reporting as long as possible. Indeed, 12% *more* 10-year-olds were recorded in the 2000 census than newborns in the 1990 census, implying that families successfully hid children—most of whom were girls—from census takers in 1990. If a similar rate of underreporting prevailed in 2000, it could account for as much as one-third of the missing girls (Cai and Lavelly 2003). If China's increasingly mobile population has led to a higher rate of successful underreporting, the number of missing girls accounted for could even be greater.<sup>3</sup>

However, underreporting cannot fully explain unbalanced sex ratios, which have risen consistently, not only in rural areas, but also in cities where surveillance is much tighter (Zhang Yi 2004). Instead, the most important factor probably is the availability of sex-selective abortion. Since the early 1980s ultrasound machines, which can determine the sex of the baby in utero, have become widely available throughout China, including the countryside. While it is technically illegal for ultrasound technicians to reveal the gender of the fetus, such regulations are easily evaded. Indeed, diffusion of ultrasound machines has been associated with worsening gender imbalances in many Asian societies. Under pressure to limit the total number of births per family, many Chinese families appear to make the choice to limit those births to more highly valued male children. Adding to the problem is the fact that mortality rates for girls are higher than those for boys, a pattern that is again in sharp contrast to that normally observed in other societies. The skewing of sex ratios is a problem in itself; it also has severe implications for China's social development. The future scarcity of females relative to males may cause a "bachelor problem," placing a premium on brides and adding to the frustration of the rural poor who may be unable to find mates.

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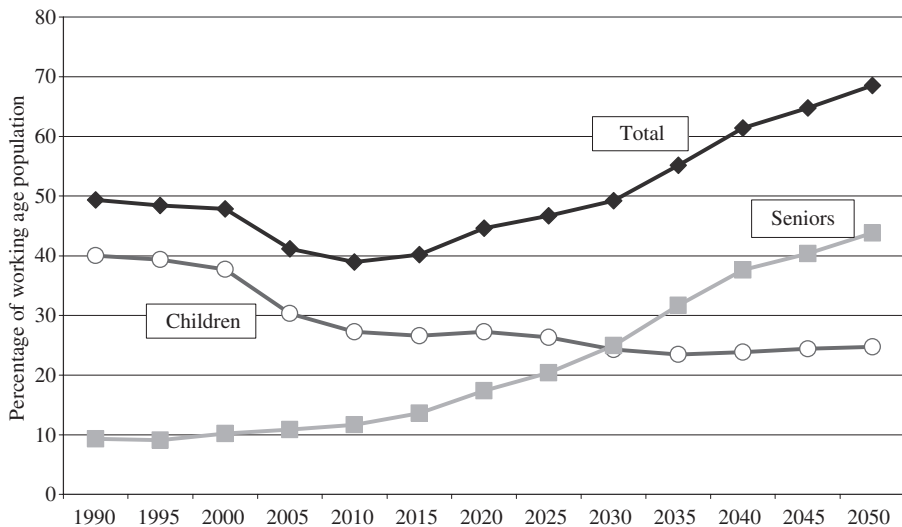
## 7.5 CHANGING AGE STRUCTURE OF THE POPULATION

The current age structure provides a window of opportunity for China's economy: China has the advantage of a young population with low dependency

3. Underreporting also implies that China's population, population growth rates, and fertility rates are all higher than official figures. Demographers in China and internationally have devoted substantial efforts to correcting official data in light of this underreporting.

rates. That is, both young and old dependents represent a relatively small share of the population. In 2000 just over 70% of the population was between the ages of 15 and 64 (compared with an average of 61.5% for all middle-income countries). Assuming consistent fertility and mortality rates, population trends can be extrapolated into the future. Figure 7.3 shows the dependent population (the sum of children and seniors) expressed as a percentage of the population of working age (15–64), that is, as a “dependency rate,” between 1990 and 2050. China’s dependency rate had already declined to just below 50% in 2000, and it dropped further to 40% in 2005. China today—from 2005 through 2015—is in a trough of its dependency rate. This trough exists because China’s baby boomers, born in the 1960s, and even the following “baby-boom echo,” born in the late 1980s, are now mainly in the workforce. The dependency rate of the young is now dropping sharply, because of the effect of the draconian birth control policies described in this chapter. At the same time, older dependents (65 and up) are not yet a large segment of the population, because China has emerged from poverty so recently and the decline in death rates that began in the 1950s is only now leading to an increased share of the elderly.

An age structure of this sort has both tangible and intangible benefits. Recently much attention has been given to the possibility of a “demographic dividend” caused by declining dependency rates during the high-speed phase



**Figure 7.3**  
Dependency rates

of economic development in a number of East Asian economies (Mason and Kinugasa 2005). Declining dependency rates imply that the working-age population is growing more rapidly than the population as a whole, a fact which will lead to more rapid growth of per capita GDP for any given increase in productivity per worker. More generally, lower dependency rates imply higher material living standards for any given level of worker productivity. In China declining dependency rates can help explain a portion of the rapid growth in per capita GDP over the past two decades. In addition, it is plausible that a society with low dependency rates will save more and thus have more to invest. This possibility exists because, if much of household saving may be explained by “life-cycle” motives, today’s workers will set aside resources for their old age, while today’s elderly will draw down balances accumulated earlier. Thus China’s extremely high domestic saving and investment rates in recent years (Chapters 6 and 18) can be plausibly linked to the low dependency rate. Finally, less tangibly, a young population is more adaptable and able to accept the rapid social changes that have accompanied the shift to a market economy.

The persistence of fertility and mortality rates combines with the existing structure of the population to produce predictable patterns of change of the labor force. During the 1980s and 1990s the working-age population grew extremely rapidly, and of course significantly more rapidly than the population as a whole. During the 1980s the working-age population grew 2.5% annually. Moreover, population growth combined with rural-to-urban migration to fuel an even more rapid growth of the urban labor force, which has grown at above 4% per year since the 1980s.<sup>4</sup> However, as Table 7.3 shows, the growth of the labor force is now beginning to slow substantially. The labor market is just now absorbing the last huge birth cohort (the “baby-boom echo” born in the late 1980s), and future cohorts of young people entering the labor force will be those born since the 1990s, when birth control policies had fully taken hold and the size of birth cohorts was much smaller. Given the existing age structure and assuming that age-specific fertility rates remain constant, growth of the working-age population will drop off quickly and reach zero growth after 2015. Once labor-force growth drops to zero, the only source of growth of the modern labor force will be migration from agricultural employment. Table 7.3 is constructed with the assumption that rates of rural-to-urban migration will remain constant. Under this assumption, the rural labor force

4. Changes in the definition of employment adopted in 1990, as well as in the definition of urban and rural labor forces, make it extremely difficult to precisely track changes in employment in the 1980s.

**Table 7.3**  
Growth of working-age population (average annual rates, percent)

Year	National	Rural	Urban
1982–1990	2.5		
1990–1995	1.7		
1995–2000	1.4		
2000–2005	1.6	–0.1	4.1
2005–2010	1.0	–0.9	3.2
2010–2015	0.5	–1.6	2.5
2015–2020	–0.1	–2.4	1.6
2020–2025	0.0	–2.3	1.5
2025–2030	–0.2	–2.8	1.1
2030–2035	–0.7	–3.8	0.6
2035–2040	–0.8	–3.9	0.3
2040–2045	–0.5	–3.5	0.3
2045–2050	–0.6	–3.6	0.0

will begin to shrink in size rapidly, while the urban labor force will maintain slower growth for another two decades. Slower urban labor-force growth may reduce some of the pressure on urban employment, while still allowing a robust process of structural transformation to continue at least until 2020 or so. Slower growth of the urban labor force will almost surely be associated with slower overall GDP growth as well. If growth of the urban labor force drops by three percentage points between 2005 and 2025, GDP growth might also be expected to slow by a roughly similar magnitude.

Demographically, the years from 1990–2025 represent a window of opportunity, which is extremely favorable for China’s economic growth. Later on, an aging population will create substantial strains on China’s social system. Particularly after 2015, rapid aging will require an effective response as the age structure of the country will place greater burdens on those currently employed. It is estimated that the number of Chinese over 60 years old will increase from 128 million in 2000 to 350 million in 2030. This increase means that in 2030 the senior dependency rate will reach 25% and surpass the child dependency rate. As Figure 7.3 shows, dependency rates will continue to increase for a long time after 2030. Rapid population aging essentially echoes the earlier declines in fertility and mortality. In China’s case, the impact of the rapid decline in fertility is amplified by the mandatory retirement (beginning at age 60 in many sectors) of the oldest baby boomers, which will begin around 2015.

In rural areas, the elderly rely primarily on their children for financial support (Table 7.4). Males are much less likely to be dependent on their children than are females, but this is mainly because they are forced to continue working as long as they are able. By contrast, most city dwellers are already

**Table 7.4**  
Primary source of support for population 60 and over, 2004

	Working	Pension or insurance	Children
Urban men	8%	80%	12%
Urban women	4%	59%	38%
Rural men	43%	12%	46%
Rural women	23%	4%	73%

out of the workforce and receiving pensions after 60 years of age. Whether or not the elderly are financially dependent on their children, most live in the same household with them. In rural areas only 9% of those aged 60 and over do *not* live in multigenerational households, while in urban areas 26% live independently. Indeed, children are legally obligated to care for their parents in their old age. This traditional reliance on children will face severe strains as a result of China's declining birth rate. By 2030 the average 65-year-old urban dweller will have only one child, and the average rural resident of that age only 2.3 living children.

Rural and urban areas both face difficult challenges in dealing with future aging. Rural areas are arguably at a disadvantage. Rural elders are usually not covered by the pension plans that are commonplace in urban areas, have a lower overall income, and will have higher dependency rates caused by the outflow of working-age youths to urban areas. These three factors result in the rural elderly being more dependent than urban elderly on their own income and financial transfers from their children. In the cities, however, most workers enjoy some kind of promised pension after they retire. However, until the early 1990s all of China's pension liabilities were unfunded, meaning that the pensions of currently retired persons were paid from the tax payments of current workers, and nothing had been set aside for future retirees. Since the 1990s the Chinese government has struggled to set up a functioning and funded pension system, and reforming the pension system has become an important issue (covered in Chapter 8). In this respect, China resembles many other countries that are struggling with the implications of population aging for social security and pension programs. But there is one important difference. Most of these other countries are developed countries that grew rich first, and then grew old. China will grow old before it has had the opportunity to grow rich.



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## 7.6 CONCLUSION

The One-Child Policy has shaped China in many important ways and has had important impacts on its economic development. The One-Child Policy forced China through the demographic transition at an accelerated pace and created an exceptional demographic window of opportunity for growth during the reform era. At the same time, the One-Child Policy is responsible for the exceptional severity of problems that will challenge policy-makers in the immediate future. The One-Child Policy will cause the number of retirees and the future elderly dependent ratio to increase particularly quickly, exacerbating future demographic strains. The One-Child Policy has led to serious gender imbalances that may ultimately lead to discontent and further problems. In addition, the One-Child Policy has led to “the collapse of a credible government birth reporting system” (Wang Feng 2005).

The increasing burdens associated with the One-Child Policy have led to a new wave of criticism of the policy (Peng Xizhe 2005). From the beginning, critics argued that less coercive alternatives to the One-Child Policy could be equally effective in the long run, particularly given the rapid reduction in fertility already observed during the 1970s (Bongaarts and Greenhalgh 1985). Indeed, the high tide of the “demographic crisis” that the One-Child Policy was designed to avert has already ebbed, as the number of women at peak childbearing age has been declining since the early 1990s. If the One-Child Policy were to be relaxed some time in the next 10 to 20 years, a modest increase in the birth rate would help to ameliorate the trend toward an aging population. Even today, new families in urban China are frequently being created from the marriage of two “only children,” and these families have the right to have two children under existing rules. A rapidly urbanizing and developing Chinese society perhaps no longer requires the extreme measures of the One-Child Policy.

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## BIBLIOGRAPHY

### Suggestions for Further Reading

Peng Xizhe (2004) and Wang Feng (2005) are two short and outstandingly clear discussions of the issues relating to the One-Child Policy today. Many articles in *Population and Development Review* contain accessible discussions of Chinese demography; see especially Johnson (1994) and Coale and Banister (1994).

## Sources for Data and Figures

Figure 7.1: Banister (1987), updated from U.S. Bureau of the Census.

Figure 7.2: Johnson (1994).

Figure 7.3: U.S. Census Bureau, International Division.

Table 7.1: Johnson (1994), Retherford et al. (2005) for China B.

Table 7.2: Population Census Office, as reported in Cai and Lavelly (2003, 15), except 2003 reported in Zhang Yi (2004). 1995 and 2003 from One Percent Sample Survey.

Table 7.3: Through 2000, *SYC* (2005, 188); projections by U.S. Census Bureau, International Division.

Table 7.4: Population Statistics Yearbook 2005: 106–113.

*Age structure*: World Development Report (1994, 210). The 1996 Projections of the Chinese population are from U.S. Bureau of the Census, International Data Base. I am indebted to Loraine West for providing the data and taking the time to explain it thoroughly.

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