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AUTHOR Tien, H. Yuan; And Others
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ABSTRACT

China's herculean efforts to slow the increase of its giant population appear to have worked: the annual birth rate fell from about 35 births per 1,000 in the 1950s to 20 per 1,000 in the 1990s. This bulletin examines the development and consequences of the strict population planning control measures introduced in the 1970s, and strengthened in the early 1980s. Success of these measures has led to a rapid aging of the population, a marriage squeeze, charges of female infanticide, and international approbation and censure. Meanwhile, the huge momentum of the Chinese population base has continued to add 17 million persons annually; and the total is expected to top 1.3 billion by the year 2000. The growing numbers exert considerable pressure on urban areas, as well as the country's labor force, and education and health systems. Although economic development and reforms have improved life for many Chinese, there is a widening gap between residents of rural and urban areas. In addition, industrialization, combined with China's large population, are contributing to a serious deterioration of the country's natural resources. (Ten discussion questions are included, as well as 21 figures/tables/exhibits. Contains 16 references to selected readings and 63 endnotes.) (Author)

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China's Demographic Dilemmas

Abstract -- China's herculean efforts to slow the increase of its giant population appear to have worked: the annual birth rate fell from about 35 births per 1,000 in the 1950s to 20 per 1,000 in the 1990s. This Bulletin examines the development and consequences of the strict population planning control measures introduced in the 1970s, and strengthened in the early 1980s. Success of these measures has led to a rapid aging of the population, a marriage squeeze, charges of female infanticide, and international approbation and censure. Meanwhile, the huge momentum of the Chinese population base has continued to add 17 million persons annually; and the total is expected to top 1.3 billion by the year 2000. The growing numbers exert considerable pressure on urban areas, as well as the country's labor force, and education and health systems. Although economic development and reforms have improved life for many Chinese, there is a widening gap between residents of rural and urban areas. In addition, industrialization, combined with China's large population, are contributing to a serious deterioration of the country's natural resources.

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China's Demographic Dilemmas

H. Yuan Tien is Professor Emeritus of Sociology at the Ohio State University. He has published extensively in the area of China's population trends and demographic policies. His latest book, China's Strategic Demographic Initiative, *was published in 1991.*

Zhang Tianlu is Professor at the Institute of Population Science, Beijing College of Economics, specializing in the demography of China's ethnic minorities.

China's Demographic Dilemmas

By H. Yuan Tien, with Zhang Tianlu, Ping Yu, Li Jingneng, and Liang Zhongtang

Ping Yu obtained his Ph.D. in Sociology/Demography from Cornell University. His interests focus on adolescent fertility, family planning program evaluation, and survey research.

Li Jingneng serves as Professor of Economics and Director of the Office of Population Research, Nankai University. His special interests are in the areas of economics and population.

Liang Zhongtang is Deputy Director of the Shanxi Academy of Social Sciences. A self-taught demographer, he has published in the areas of population planning and fertility and marriage trends.

Note: The views of the author do not necessarily reflect those of the contributors or the Population Reference Bureau.

The year 2000 will mark the end of the most tumultuous century in China's population history. In a country that has weathered the demographic effects of devastating famines, wars, and epidemics for millennia, the population growth and change that occurred in the 20th century have no precedent. At the dawn of this century, there were some 426 million people living in China. By the year 2000, the Chinese population is officially projected to top the 1.3 billion mark. About two-thirds of this nearly 900 million increase was added within the last 50 years, as mortality was reduced amid high fertility rates.

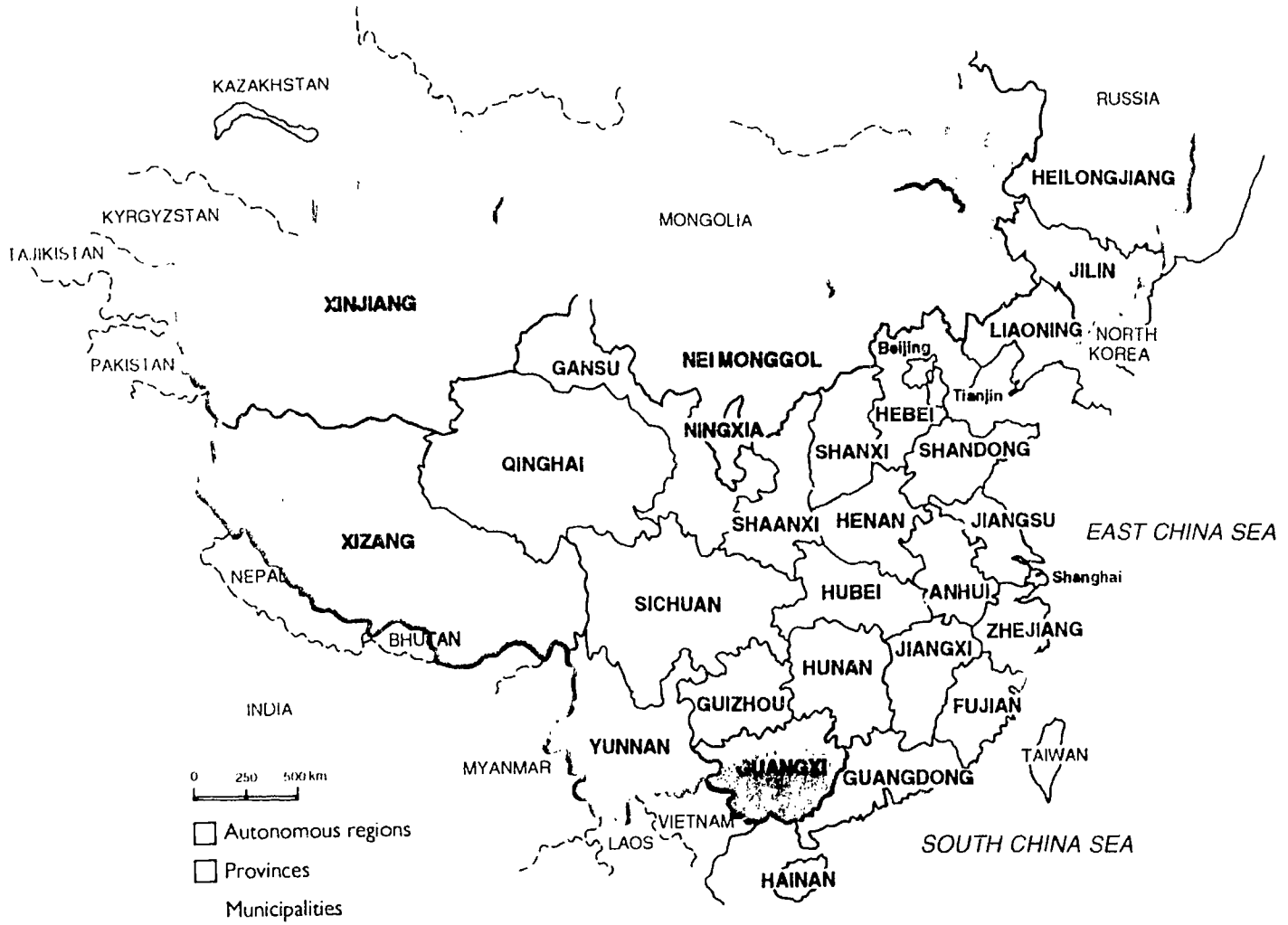
The impact of this rapid surge in "demographic affluence" sapped the Chinese government's professed faith in the virtue of a large and growing population and spurred a move to curb fertility. China's strategic demographic initiatives (here referred to as SDI)—born out of population anxieties fanned by the nation's economic aspirations and realities—were a milestone in the world's annals of population affairs.

China's population policies are comprehensive in scope and unique in thrust. The government installed a full menu of measures for curbing fertility, embracing delayed marriage, sterilization, all known contraceptive methods, and abortion. Exhortations, campaigns, monetary and material incentives, and numerous other sanctions were applied to implement the policies. All these efforts were, at first, to redirect young couples to have fewer offspring and, later, to heed the one-child-per-couple, or "minimal reproduction," policy.

The intent of this call for minimal reproduction was to keep the population from exceeding 1.2 billion by the year 2000. The tactics have proved problematic inside the country and controversial abroad for practical, political, ethical, and religious reasons. Moreover, the hoped-for population goal has become moot in light of the higher projected population total for the beginning of the 21st century. Does this mean that China's bid to control

Figure 1

The People's Republic of China, 1990



population growth has been flawed or a failure altogether? If it has failed, why and where has it foundered? If not, what has China's SDI accomplished?

The massive gain in population in recent decades has intensified old difficulties in the country's effort to raise living standards, and ignited new economic, environmental, and social concerns within the nation's borders. The major issues range from China's population carrying capacity, underemployment and unemployment in the countryside, surging urbanization, and spreading air and water pollution to mass illiteracy and education in relation to development. The national effort to slow population growth itself has added such new concerns as the effect of son preference on female infanticide and the sex ratio, the impact of a speedy fertility transition on population aging, and the implications of exempting the country's 55 minority groups from the nation's fertility control measures.

The global significance of China's demographics is likewise enormous. Whatever the size of China's total population at the dawn of the 21st century, it is certain to account for close to 20 percent of the world's projected population of 6.3 billion. China's industrialization, modernization, expanding use of natural resources, and rising consumption will increasingly disrupt the earth's ecosystem.

Population size, growth, and control are the most pressing challenges affecting China's demographic future. Old and new problems of population distribution and composition, however, are no less urgent. This *Bulletin* examines these and other issues affecting the present and future well-being of the Chinese population.

UNHCR/A. Czeda

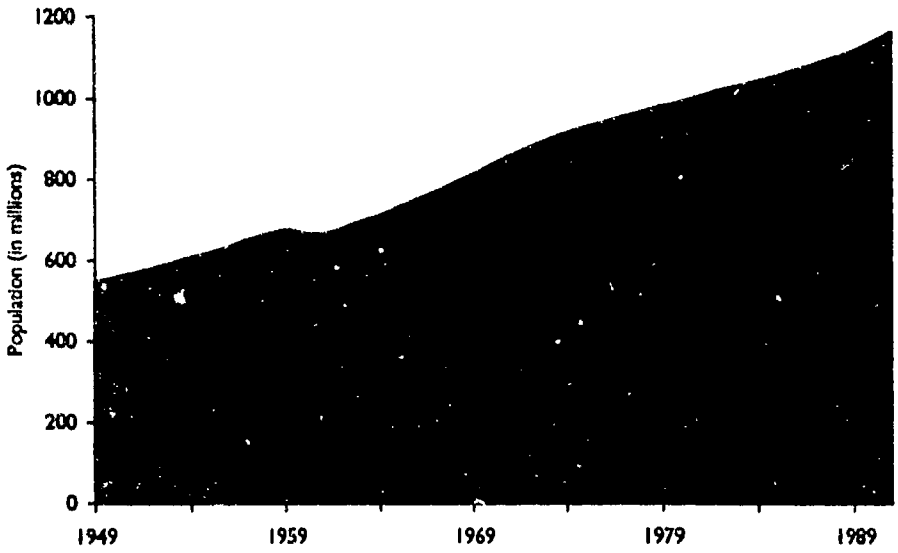
China's 1.2 billion people make up one-fifth of the world's total.

Demographic Surge During the 20th Century

China's population total first passed the 400 million mark about 1850. This landmark event had its quiet beginnings in the late 1600s as living conditions improved enough to support sustained, slow population growth over the following two centuries. But, amid internal upheavals and external incursions, demographic growth stagnated. The population hovered around 426 million as the 20th century opened.

Internecine warfare, natural calamities, and foreign invasions continued to play havoc with China's hundreds of millions during the first half of the present century. Incomplete population counts reinforce the perception of demographic stagnation. The first national census, taken in 1953 after the

Figure 2
Population Growth in China, 1949-1990



Source: National Family Planning Commission of China.

end of the civil war and the establishment of the People's Republic in 1949, recorded a larger than expected population of 583 million. Since then, there have been three additional national enumerations in 1964, 1982, and 1990.

In between the censuses, year-end population estimates appeared intermittently. The quality of these estimates suffered in part because of the 20-year neglect of demographic affairs and studies in China after 1957.

The censuses of 1953 and 1964 were limited in content and yielded only a few hand-tabulated statistics. The very existence of the 1964 census was not confirmed until 1979. But in the more open climate of the 1980s, the Third National Census in 1982 gained an international audience. Tabulations were accelerated by the computer technology China received under a financial and technical aid agreement with the United Nations Population Fund (UNFPA). The collection of the most massive amounts and varied sorts of population data ever was an internationally important success. For the first time, it produced relatively accurate information about China's population circumstances.

The 1982 census enumerated a higher population total than had been estimated by the National Statistical Bureau. It also provided the first solid basis on which to evaluate previous population estimates, and confirmed China's emergence as the world's first demographic billionaire just before the end of 1981 (see Figure 2).

The Fourth National Census in 1990 placed the total population at 1.134 billion. This new total revealed that estimates during the intercensal period once more understated China's population size. At the end of 1989, the year-end total was estimated at 1.112 billion, 21.7 million below the census total only six months later. China's population had grown faster during the 1980s than previously estimated.

The sheer enormity of the surge since 1950 is reason enough for a close scrutiny of China's newest population chapter. However, what has made this chapter most intriguing and extraordinary goes beyond the swelling numbers; it is the events and policy changes that accompanied the surge.

China's Demographic Transition

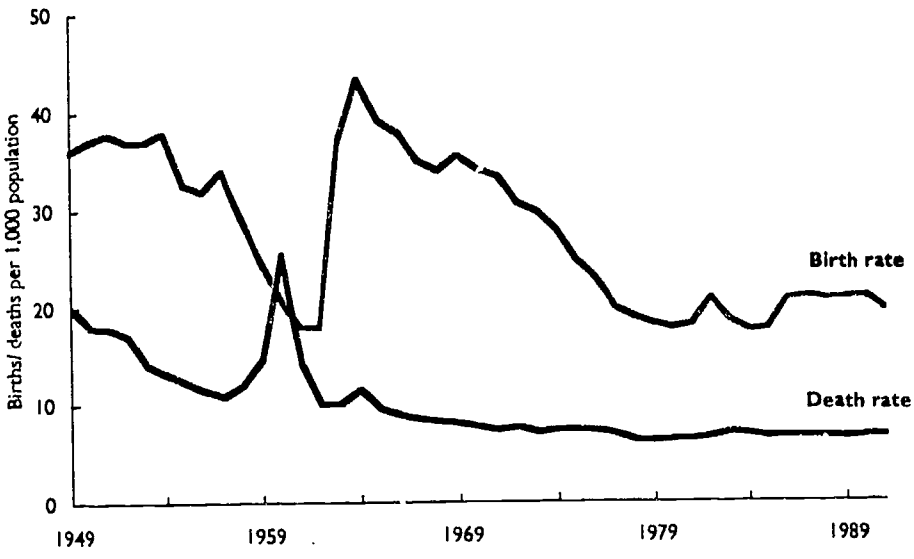
The events that unfolded since the 1950s are part of one of the fastest, if not the fastest, demographic transitions in history. Most industrialized countries underwent a fundamental shift from extremely high to low mortality and fertility rates in the 19th and 20th centuries, and many expect today's developing countries to experience the same sort of demographic transition. Characteristically, mortality rates fall first as a result of improved hygiene and living standards, followed by declines in fertility. China's demographic transition took place within recent decades, a fraction of the time it took for European and other industrialized countries to realize low fertility and mortality.

In most of the years between 1949 and 1974, the annual gain in population exceeded 2 percent. The few exceptions resulted from severe policy errors and natural disasters. Widespread famine followed the Great Leap Forward in 1958-1961, readily evident in the sharply higher death rates and plummeting birth rates in these years (see Figure 3). China's population actually declined during this period, but growth quickly rebounded after 1961 as the birth rate resumed its traditionally high levels when economic conditions improved.

Had the pace of the mid-1960s persisted, the Chinese population would have doubled to more than 1.1 billion in the mid-1970s. Because of the subsequent sharp drop in fertility, China did not reach this total until the end of 1989. Behind this 15-year postponement lay China's phenomenal demographic transition from high to low fertility. The annual rate of growth dove to and has hovered around 1.5 percent or less since the mid-1970s, making earlier growth rates appear to be from a different nation.

This slowdown in the growth rate is remarkable even though, as will be shown later, disagreement has been loud and long over its salience in relation to China's on-going economic

Figure 3
Birth and Death Rates in China, 1949-1991



Source: National Family Planning Commission of China.

development and to the nation's population carrying capacity.

China's rapid demographic transition took the world by surprise. Few had foreseen the possibility of such a quick remission in growth. Perhaps, the politics of population numbers or the scarcity of demographic data or both hindered clairvoyance in this case.

The initial reductions in mortality illustrate the new government's success in improving health and living standards. With peace restored within and medical technology borrowed from without, the shift to lower mortality—the first component of its demographic transition—quickly followed. Most of the mortality improvement was realized by the end of the 1960s. The subsequently lower rates (7 deaths per 1,000 population, or lower) largely reflect the young population age structure shaped by high fertility.

Average life expectancy at birth soared from less than 42 years in the 1950s to about 67 years by the end of the 1980s. By world standards, China's life expectancy is high given its relatively low per capita income. Infant mortality also fell sharply over the past four decades. Nearly 200 of every 1,000 babies died before age one in the early years of the People's Republic. By the early 1990s, many more newborns were surviving to adulthood. The infant mortality rate had fallen below 40 deaths per 1,000 births.

Falling Fertility

Birth rates in the high-30s and low-40s persisted for almost two decades after 1949. The sharp rise in rates after their precipitous fall between 1959 and 1961 underscores the speed with which fertility can resume its traditional level once adverse circumstances subside.

With falling death rates, continued high fertility caused the population to boom. During the late 1950s, a brief attempt was made to promote family planning in the interest of maternal and infant health. It produced only a fleeting impact, as did the next short-lived revival of family planning efforts during the early 1960s. The fits and starts in promoting fertility limitation reflected, among other things, the political tune of the day: "Revolution plus production," as Mao Zedong proclaimed in 1949, would enable China to feed and employ the country's large and growing population.[1] This authoritative pronouncement, rooted in part in an absence of understanding of demographic dynamics, helped keep fertility at the prevailing high levels.

The total population topped the 800 million mark at the end of 1969, and growth continued unabated as the crude birth rate persisted above 30 births per 1,000 population. Meanwhile, new policy measures aimed at energizing the economy, such as the Great Leap Forward and the People's Communes, failed to increase productivity or living standards. The economy stagnated, the population continued to expand, and there seemed no way out of the predicament.

These rapid twists and turns of events—and continuing efforts to develop—prompted the launching of China's SDI. As a result, Chinese fertility decelerated, plummeting nearly 50 percent between 1970 and 1979, from 34 to below 18 births per 1,000 population. No further large drops have occurred, which suggests that the limit to population planning may have been reached given China's current socioeconomic circumstances. In the 1980s, however, various revisions in population control measures, changes in the age structure, and fluctuations in age at marriage operated to lift fertility a little from the all-time lows of the late 1970s. The birth rate fluctuated around 21 during the 1980s, and the 1991 birth rate estimate was only slightly lower, at 19.7 births per 1,000.

Chinese fertility decelerated, plummeting nearly 50 percent between 1970 and 1979.

The deceleration in the reproductive cadence in China after 1970 was remarkable. China brought about the second dimension of the demographic transition, low fertility, in less time than it took to realize mortality reductions. More noteworthy, the huge slowdown in

Ethnic minorities, numbering 91 million in 1990, are exempt from the one-child-per-couple policy.

childbearing was achieved in one decade, far less than the 50 to 75 years most European countries took to accomplish their fertility transition.

In speed and scope, China's demographic transition is extraordinary even compared with other Asian countries such as Thailand, South Korea, and Japan, which have undergone rapid fertility declines since 1950. The deployment of China's revolutionary SDI is a watershed for what is the most comprehensive, determined, and successful effort ever made to regulate population growth in any modern nation.

What was the thinking behind this all-out attempt to lasso fertility? How did the efforts succeed in lowering birth rates in a society still undergoing socioeconomic development? Why did the population planning programs succeed when other government-directed programs, such as the Great Leap Forward and People's Communes failed? What can other developing countries learn from China's experience? The evolution of the Chinese approaches to and achievements in managing population affairs are what make China's newest population chapter especially engrossing.

The Struggle to Regulate Fertility

China's theories and policies toward population growth have undergone profound changes during the last three decades. The first moves to promote population planning, in the 1950s and again in the early 1960s, extolled fertility control in the name of maternal and infant well-being. China's population planning activities since the early 1970s have differed in both rationale and range from the two short-lived campaigns of the earlier years. The more recent effort was a response to the surge in numbers and concomitant difficulties. It has become an integral part of the nation's economic development plans and, as it blossomed into China's SDI, it is meant to serve the collective interest of the whole country.

The aim of the population planning efforts of the early 1970s was to slow the demographic clock to better cope with existing population-related problems. The approach to lower birth rates was embodied in the flexible *wan, xi, shao* campaign—meaning later marriage, longer spacing between births, and fewer children.

Toward the end of the 1970s, party policymakers defined new economic targets for the year 2000, lending more urgency to the population planning efforts. A demographic ceiling was identified: the population was not to exceed 1.2 billion at the end of the century. This goal and the adoption of the now renowned one-child-per-couple policy during 1978 and 1979 would not only allow the country to realize the 2000 goal but eventually to shrink the total to conform to the country's assumed population carrying capacity. Not only was the demographic clock to be stopped before midnight, but its hands were to be moved backward.

The population planning policies of the 1970s initially lacked the usual theoretical justification for such an all-out government intervention. The call for population planning stressed the need to end the intolerable state of "total anarchy" in procreation[2] which bestowed political legitimacy on population control. However, maternal and infant welfare remained the primary rationale cited in internal discussions and at international gatherings.[3]

Finally, population specialists at the newly established Office of Population Theory Research of the Beijing College of Economics fleshed out a new socialist principle of direct government intervention in family formation. The work was published as *Renkou Lilun (Population Theory)* in 1977.[4]

Under the rubric of the theory of proportionality of production and reproduction, the rationale for population planning may be summarized as follows: Human reproduction, like the production of goods and services in a planned economy, must not remain in a state of anarchy. Childbearing is not only an individual and family matter, it also affects the nation's total population size, the socialist revolution and socialist development. The dissemination of contraceptive knowledge and technology in China is more than a matter of couple-centered and couple-managed family planning in accordance with the couple's interest and inclination. It is to place childbearing in each and every household on the track of the nation's unified plan.[5]

More important, these population specialists averred, "Our nation's control

Twin baby girls assure this mother more than one child, but no sons.

of population growth ... certainly does not mean no population growth and, indeed, it does not imply population reduction.... It is only a matter of making the rate of population [growth] a little slower according to plan."[6]

These expanded rationales contained neither the idea of zero population growth nor the one-child policy and the strong incentives and sanctions to encourage compliance with fertility goals. They also proved conspicuously short on tactics of implementation. This left a vacuum which others filled by recasting the guidelines in more explicit and stringent terms. Indeed, 20 years of neglect of demographic studies had created an enormous void of expertise in demography, providing ample opportunities for new participants in population policymaking.

The Chinese birth rate had already fallen to its lowest recorded level by the time the stringent goals were adopted.

During this same period, officials were attempting to forge the nation into a powerful socialist country based on the "four modernizations" of agriculture, industry, defense, and science and technology. They further envisioned *xiaokang shuiping,* or the attainment of a "comparatively comfortable level of living," by the century's end, which called for the quadrupling of the total industrial-agricultural output between 1981 and 2000. Rapid population growth was viewed as an impediment to these economic goals, and some policymakers advocated stringent limits and stronger measures.[7]

The one-child idea at the national level emerged, interestingly enough, along with the renewed access to demographic literature from abroad as China began to open its doors in the 1970s. The notion of zero population growth (ZPG), by all accounts, was an American import.[8] Just as its simplicity had captivated many in the United States where foreign immigration was a growing demographic concern, in China it attracted various natural scientists with direct access to the highest levels of population policymaking. They may have grafted it onto China's population planning effort under the stress of meeting the 2000 goals[9] without fully ascertaining its background and ramifications. This was the likely origin of the one-child-per-couple limit and other ideas well outside the original framework "of achieving socialist planned reproduction with Chinese characteristics."

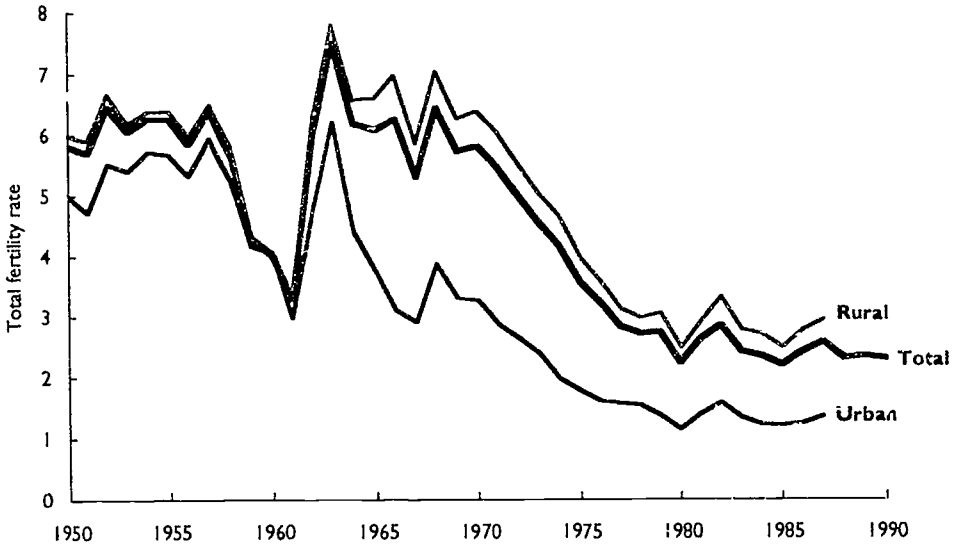
In *Population Control in China,* a volume later published in the United States, proponents of exact population goals developed the arguments in favor of minimal reproduction. The authors also included such notions as optimum population and population carrying capacity, ideas that had elicited fervent exchanges but few conclusions among scholars of diverse disciplines before World War II.[10] For China, in their reckoning of the country's population carrying capacity in terms of land resources, nutritional requirements, fresh-water resources, ecological equilibrium, and economic development, "the [ultimate] target population of 700 million cannot be said to be unfounded," and "the best way to stabilize China's population at the target level" would be to implement the one-child limit until at least the end of the century. Otherwise, "the [Chinese] population will remain a time-bomb waiting to be detonated."[11]

The Chinese birth rate had already fallen to its lowest recorded level by the time these stringent goals were adopted, as shown in Figure 3, page 6. The less stringent fertility reduction embodied in the *wan, xi, shao* campaign and of the fertility concept that "one [child] is not wanting, two are good, and three are excessive," were working. China's total fertility rate (TFR), or average number of lifetime births per woman at current age-specific birth rates, fell from 6 in the 1950s to around 3 before the start of the policy of minimal reproduction in 1979 (see Figure 4).

The ideal of only one child proved controversial in China[12] and its implementation provoked strong resistance. There were strong misgivings among those at the provincial and grassroots levels about the one-child policy. Local

Figure 4

Decline in Chinese Fertility, 1950-1990



Source: Compiled by the U.S. Bureau of the Census, Center for International Research.

officials advocated sanctioning a second child after an appropriate interval. A second child provides additional labor important to parents in the countryside, particularly in the most impoverished areas. It is also a second chance to realize the aspirations of many parents for a son should their first child be a girl. The realities of real hardship and gender preference fostered covert resistance to the one-child limit, which, in turn, compounded the difficulties for local cadres in implementing population planning.

Some have also argued that economic reforms begun in 1978 may have weakened the enforcement of population policies,[13] but the effect of these reforms on actual fertility remains speculative. After 1978, the family was restored as the basic unit of production in the countryside, altering the rural infrastructure and loosening the social control of the communes. Coincidentally, the birth rate rose slightly in the early 1980s. Some interpreted this rise as a sign that peasants were having more children to bolster their family labor supply. More likely, the birth rate was pushed up temporarily by shifts in the age structure, a rise in marriages, and changes in population planning regulations. For most of the 1980s, the birth rate hovered around the level attained before the economic reforms or the one-child policy were in effect.

The impact of China's policy of minimal reproduction has been limited. The TFR never fell below a 2.5 child-per-woman average in rural areas, although it dropped to about 1.2 in urban areas. By the mid-1980s, less than one-fifth of all eligible married couples had signed the one-child certificate—a contract which granted couples and their child economic and educational advantages in return for promising not to have more than one child. Throughout the 1980s, nearly half of all reported births were second, third, or higher order births.[14] Various surveys suggested that the desire to have at least two children remained strong among Chinese couples.[15]

Acquiescing to widespread aspirations for a second child, Peng Peiyun, the head of the National Family Planning Commission, declared in 1988, "In the countryside, couples will now be allowed a second chance after an

appropriate interval should their first child be a girl." More noteworthy, as one population specialist on the staff of China's Population Information and Research Center related, "All through the years of China's sixth five-year plan (1981-1985), and at present, the great majority of Chinese peasants have all borne two children or more."[16]

Young couples in China are having fewer children than their parents' generation. The 1990 TFR of 2.3 was less than half the rates of the 1960s. Couples of reproductive age thus have adhered to the general terms of China's SDI, but simultaneously demonstrated their resilience and resourcefulness in realizing their aspirations for more than one child. One lesson to be drawn from China's experience is: To slow down the demographic clock, yes; to reverse the demographic clock, no! The actual behavior of couples thus has most poignantly set the limits to population planning under China's current socioeconomic circumstances.

Outside China, the one-child-per-couple policy has aroused strong reactions. In addition to questioning the right of a government to intervene in a couple's reproductive matters, there are strong misgivings about the reported coercion of women to have an abortion or an IUD-insertion. Others object for moral reasons to the strong role of abortion and sterilization in the Chinese population planning effort. Under intense pressure from groups critical of China's policies, the U.S. government has withheld its contribution to the UNFPA since 1985.[17]

Table 1

IUD Insertions, Sterilizations, and Abortions in China, 1971-1989 (in millions)

Year	IUDs	Sterilizations		Abortions	Total
		Female	Male		
1971	6.2	1.7	1.2	3.9	13.1
1972	9.2	2.1	1.7	4.8	17.8
1973	14.0	3.0	1.9	5.1	23.9
1974	12.6	2.3	1.4	5.0	21.3
1975	16.7	3.3	2.7	5.1	27.8
1976	11.6	2.7	1.5	4.7	20.6
1977	13.0	2.8	2.6	5.2	23.6
1978	11.0	2.5	0.8	5.4	19.6
1979	13.5	5.3	1.7	7.9	28.3
1980	11.5	3.8	1.4	9.5	26.2
1981	10.3	1.6	0.6	8.7	21.2
1982	14.1	3.9	1.2	12.4	31.6
1983	17.8	16.4	4.4	14.4	53.0
1984	11.4	5.7	1.5	8.9	27.4
1985	9.6	2.3	0.5	10.9	23.4
1986	11.4	3.0	1.1	11.6	27.1
1987	14.7	5.1	2.0	10.4	32.2
1988	14.5	4.9	1.7	12.7	33.8
1989	15.5	6.3	2.4	10.6	34.8

Note. The sums of the rows may not equal the totals due to rounding.
Source: *China Population Data Handbook* (Beijing: China Population and Research Information Center, various years).

Methods of Fertility Control

Widespread access to family planning methods was a hallmark of China's population planning program. Contraceptive use by women of reproductive age had already reached 71 percent by 1982, close to the level in most developed countries and well above the rates in other Asian countries. In Thailand, South Korea, and Indonesia, for example, contraceptive use ranged from 25 to 50 percent in the early 1980s. By 1990—still ahead of other Asian countries—contraceptive use had reportedly risen above 85 percent in China, compared with about 77 percent in South Korea, 66 percent in Thailand, and 50 percent in Indonesia.[18]

Although many other birth control methods were available, over 80 percent of Chinese using contraception in 1982 relied on one of three methods: IUD, female sterilization, or male sterilization. Abortion was the backup method. The heavy reliance on these three contraceptive methods and abortion has continued.

Between 1971 and 1989, the number of IUD insertions, sterilizations and abortions nearly tripled, from 13 to 35 million procedures (see Table 1). Male sterilizations doubled, female sterilizations almost quadrupled, and abortions and IUD insertions increased by two and one-half times. Although negative publicity about IUDs was practically nil,

it swelled and swirled around the other procedures. "Coercive planned parenthood" has been alleged internationally, with the pitch of outcries particularly high in the United States.[19] The gathering squall abroad over sterilization and abortion in China gained strength as China's own mass media disclosed evidence of improprieties committed by local planning units.

Chinese mass media and official pronouncements have treated sterilization and abortion differently. Exhortations to males to accept vasectomy became particularly frequent after the availability of a plastic plug injection technique in the 1970s enhanced the reversibility of the procedure.

In reality, the lion's share of the responsibility for birth control rests with women in China, as it does elsewhere. Tubectomies exceeded vasectomies each year between 1971 and 1989, sometimes by three or four times, as shown in Table 1. Women in all countries typically have more experience with temporary methods of birth control than men and may be more motivated to seek a permanent solution.[20] In China's case, women who were in a clinic for childbirth often were pressured by the local population planning cadres to accept sterilization. Many mothers with at least one previous birth were persuaded to undergo tubectomy on the spot. This approach meant that women (or men) who accepted sterilization generally did so after age 30 and after having borne two or more children, perhaps rendering sterilization less controversial than abortion.[21]

Although contraceptives and sterilization are used by over 80 percent of Chinese women of reproductive age, contraceptive failure and nonuse are a present-day reality. Chinese IUDs have a relatively high failure rate of 10 to 15 percent, compared with a 1 percent failure rate for most European or American IUDs. Abortion was an important backup method during China's rapid fertility transition, and, with the more stringent goals and policies of the 1980s, it has assumed an even greater role. China's population planning officials estimate that 70 percent of abortions are due to contraceptive failure.[22]

The reported ratio of abortions to births in China increased from below 200 per 1,000 live births in 1971 to 309 and 574 in 1978 and 1980, respectively, just prior to and following the initiation of the one-child measure. Since then, the reported abortion ratio has fluctuated, but has generally risen higher.

These reported ratios probably overstate the ratio of abortions to births. Local planning units are reimbursed for each abortion, giving them a financial incentive for fully reporting each procedure, while births are known to be underreported. Also, the rapid decline in live births over the past 20 years—primarily pregnancies averted through contraceptive use—may have artificially inflated the ratio. Clearly abortion was not responsible for the entire drop in births. Nevertheless, the one-child policy is associated with a substantial jump in the number of abortions. Abortion incidence in China was running about 4 to 5 million a year between 1971 and 1978. The number exceeded 9.5 million in 1980 and 10 million in all but two years during the 1980s.

Induced abortions had already exceeded 7.9 million in 1979, as the one-child measure was going into effect. In the same year, 13.5 million IUD insertions and nearly 7 million female and male sterilizations occurred. Viewing the contraceptive use and abortion figures together reveals both the scale and the nature of population planning activities. It also facilitates an assessment of the role of abortion in China's population planning effort.

Population planning programs averted an estimated 56 million births between 1970 and 1979. During the same decade, approximately 47 million abortions took place. Because a woman can have more than one pregnancy aborted in the time it takes to carry a pregnancy to term, each abortion does not prevent one birth. After allowing for

In reality, the lion's share of the responsibility for birth control rests with women in China, as it does elsewhere.

such repeat abortions, the 47 million abortions may have averted about 19 million live births, or 34 percent of the official estimate of births averted during the 1970s.[23]

The all-time high number of abortions occurred in 1983 when the proportion of men and women age 20 to 29 in the population also reached a peak, rising to nearly 17 percent of the total population from about 13 percent in the mid-1970s. This increase in the number of persons of marriageable age, together with lowered age requirements for marriage, appears to have increased abortion incidence independent of the stricter population planning efforts because an increase in the number of newly married couples leads to more first births.

Table 2
Abortion Ratios by Province, China, 1989

Province	Abortion Ratio*
Total	632
Northeast	
Heilongjiang	326
Jilin	265
Liaoning	181
North	
Hebei	860
Shanxi	387
Beijing	436
Tianjin	440
Shandong	756
Henan	954
East	
Anhui	363
Jiangsu	591
Shanghai	2,022
Zhejiang	619
Central	
Hubei	597
Hunan	609
Jiangxi	669
South	
Fujian	728
Guangdong	771
Guangxi	1,130
Hainan	736
Southwest	
Guizhou	537
Sichuan	590
Yunnan	680
Northwest	
Nei Monggol	392
Shaanxi	455
Ningxia	290
Gansu	290
Qinghai	360
Xinjiang	402

* Abortions per 1,000 live births
Note: Abortion ratios may have been affected by underreporting of births or abortions at the local level
Source: Calculated from China, *Population Planning Yearbook, 1990* (Beijing: National Family Planning Commission), p. 386, 402.

Abortion incidence has never been uniform across the country. The range of variation can be discerned from the first set of detailed statistics (see Table 2) released by the National Family Planning Commission at the end of 1990, which covers all the provinces except Xizang (Tibet).

Lower abortion ratios prevailed in the inland provinces compared with the wealthier coastal provinces. Some inland provinces include large concentrations of minorities who have been exempt from the more stringent population planning measures. With a few exceptions, abortion ratios were higher in the better-off cities and towns than in rural areas.

Increased abortion incidence has been cited by critics outside the country as justification for ending international population assistance to China. Opposition to abortion as well as to other contraceptive methods has a long history. However, relative to the past, planned parenthood now carries little if any moral or ethical stigma in most of the modern world. Induced abortion played a major role in slowing population growth in many developed and developing nations, including Japan and South Korea. Of course, Japanese and Korean women could all have undergone the procedure voluntarily. In China, on the other hand, many millions of abortions occurred under the watchful eyes of population planning personnel. The scope and thrust of China's population planning effort thus has provoked the charge of "coercive planned parenthood."

Gender Preference

A society's population portrait and an individual's demographic behavior may be analyzed in terms of mortality, fertility, migration, or marriage. These phenomena reflect life events that are intertwined: changes in any one affect the others and vice versa. When radical changes in these variables are induced under less rapidly changing socioeconomic circumstances, they impinge on traditional behavior and customs, inspiring the individual to resist or circumvent the new rules.

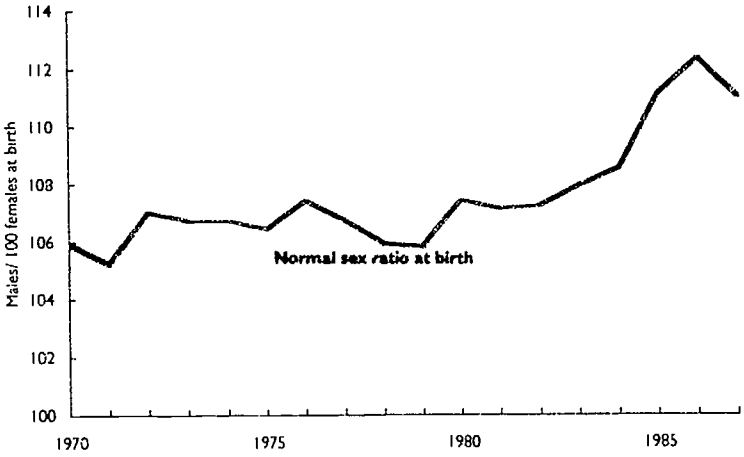
In China's case, lower mortality, the continuation of labor-intensive agriculture, the stringent restraints on residential mobility, and the sanctions to promote minimal fertility created unanticipated repercussions and new controversies.

High sex ratios at birth in China during the 1980s are a case in point. Interest in this matter grew out of the disclosures of female infanticides and a flow of stern official condemnations of the practice in the Chinese mass media. Precise figures, whether impossible to obtain or deliberately withheld, have never been provided in Chinese sources. The absence of data ignited instant curiosity, particularly in foreign circles. Discussions of the impact of the one-child policy drew further attention to the matter because of the known preference for male offspring among Chinese couples.

The 1982 census shed no light on the matter. It predated the time when female infanticide was allegedly on the rise. To ascertain the incidence of female infanticide, analysts sought indirect evidence by examining available data on sex ratios. In nearly all populations, 105 to 106 male babies are born for each 100 female babies. The presumption is that most, if not all, deviations above this level in China could indicate excess female mortality—whether from overt infanticide or the abandonment of female babies—or simply the failure of parents to report female births.

Figure 5

Sex Ratios at Birth, 1970-1987



Source: Sten Johansson and Ola Nygren, "The Missing Girls of China: A New Demographic Account," *Population and Development Review* 17, no. 1 (March 1991): 39.

The sex ratios among live births in China during the 1980s, reconstructed on the basis of two nationwide fertility surveys, show a clear increase in the proportion of male babies (see Figure 5). Although fertility surveys, which ask women to remember the gender and timing of each birth, are subject to misreporting, the fact that the two different surveys produced similar results give credence to claims that girls have been "disappearing" from the reported births. The high sex ratio among live births during the 1980s is undoubtedly related to the government's population policy. Sex ratios for babies born to couples complying with local birth plans were in the normal range, while those born outside the plans were as high as 115 to 118 in the years after 1983.[21] This indirect evidence implies that more boys than normal were reported; or, to put it negatively, as many as 500,000 girls were "missing" on the average each year from 1985 through 1987.

Because some 22 to 25 million births occur annually, the exclusion of a half-million female births matters only slightly as far as the birth rate is concerned. It matters a great deal if, in light

of prior allegations, the missing girls were victims of female infanticide.[25]

There may be other plausible explanations of the high sex ratios. Given the preference for male offspring and the one-child policy, some analysts have suspected that expectant mothers could be aborting their pregnancies if they knew that the fetus was female. But gender-specific abortion is illegal, and it is unlikely that medical technology for diagnosing the gender of a fetus was ever available enough in China to have caused the great leap upward in sex ratios among live births.

Another explanation for the missing girls is that the births of girls are grossly underreported, especially those of girls given away in adoptions. Underreporting may be an outright failure to report the birth of a girl or to report it as a stillbirth prior to private adoption arrangements.

Adoptions rose sharply in the 1980s. There were over 500,000 cases in 1987 and about 400,000 per year between 1984 and 1986, compared with fewer than 200,000 before the one-child policy. The extremely low sex ratios of 27 to 36 boys per 100 girls among the adopted children are not surprising; parents traditionally are more likely to give away girls, a practice that intensified under the one-child stipulation. When the adopted children by year of adoption are added to their respective cohort of births, the sex ratio at birth comes closer to normal for the years in question. This reduces the number of missing girls by half.[26]

A significant number of unreported female babies may remain with their parents, but are never reported to the authorities. There is no direct way to determine the number of such concealed girls. The 1990 census did not reveal the whereabouts of the missing girls. It did confirm the high sex ratio among children born in the 1980s, particularly in rural areas. In urban areas, the sex ratios among children born between 1985 and 1989 were 109 for those age one or under and 107 to 108 for those ages two to four. In the rural areas, the sex ratios were 112 for ages one and under and 109 to 110 for children two to four.[27]

Another possible explanation of the skewed sex ratios is that more girls die in infancy simply because of traditional gender discrimination. Data from a large number of developed countries as well as from developing countries without strong sex preferences indicate that the internationally "normal" sex ratio among infant deaths is 130.[28] The sex ratios among infant deaths in China, as reported by women in the 1988 survey, fell consistently below 130. The average was 114 for the 1980s. This low ratio suggests that girls receive less care and attention than boys in many Chinese homes, reducing the chance of survival of girls beyond their first

Yu Xin

Girls often receive fewer family resources than boys.

birthday. More important, this gender discrimination affects girls most adversely in the poorest areas.

Sex ratios among infant deaths in China continue to be far below the 130 mark, underscoring the excess female mortality among reported births. For 1989, according to the 1990 census returns, the ratio was 100.3, and it was only 96.3 among infants who died during the first months of 1990.[29]

This phenomenon is not new. Sex ratios among infants, as reported by women in the 1988 survey, were slightly above normal during the 1960s and 1970s before the one-child policy was in effect.[30] Traditional norms and behavior die hard in many parts of present-day China, particularly in the countryside.

The one-child policy may or may not have intensified the traditional neglect of infant girls or prompted infanticide, but the higher than expected sex ratios at birth should not be linked to overt female infanticide without more direct evidence.

Whether the mystery of the missing girls is explained by underreporting of births, concealment of girls, or infanticide—or some combination of these factors—the greater vigilance, stricter surveillance, and tougher administrative supervision that some Chinese have called for[31] cannot remove the forces that drove couples to evasive behavior. The hard fact is: The lesser value placed on girls and the extent to which this guides the behavior of families caught in a perilous village existence are part of China's socioeconomic and demographic realities

Marriage

The fluctuation in the age at first marriage is another case in which the imposition of policies that go against tradition have yielded some unexpected results. Marriage has always been early and universal in China, although the age at first marriage increased after the founding of the People's Republic. China's first marriage law was enacted in 1950, raising the marriage age to 18 for women and 20 for men from ages 16 and 18, respectively, in pre-1949 years. The law's intent was to counter the pernicious effects of early marriage arranged by relatives when children were in their early teens, or even younger. The early fertility limitation script of the 1950s made no reference to late marriage as a means of family limitation, perhaps because of its neo-Malthusian overtones. The link between later marriage and lower fertility was officially sanctioned during the short-lived upsurge in birth control activities in 1956 and 1957. It was justified because of its positive impact on maternal and infant health and on the physical well-being, education, and work experience of young people.

Subsequently, *wan*—later marriage—became the first component of China's SDI. Women and men were encouraged to marry after their 23rd and 25th birthdays, respectively. By the late 1970s, provincial, municipal, and local regulations further raised marriage ages: to 25 and 27, respectively, for women and men in the cities; and to ages 23 and 25 in rural areas.

The "late marriage rate"—the percentage of marriages in a calendar year occurring to individuals older than the minimum ages cited above—eventually emerged as a performance measure of local population planning units. During 1977-1980, various localities claimed that 75 to over 95 percent of the marriages in their jurisdictions were in the *wan* category. Among women, 88 percent of all marriages in 1980 were late marriages.[32] The higher marriage age probably did slow China's population growth, and may have averted an estimated 100 million births between 1950 and 1980.[33]

Amid the reported gains in late marriages, China amended the national marriage law in 1980, setting the minimum age for marriage at only 20 for women and 22 for men. The lax requirements of the 1980 marriage law came as a surprise in light of the reported popularity of late marriage. In practice, many couples had been

Sex ratios among infant deaths in China continue to be far below the 130 mark, underscoring the excess female mortality among reported births.

marrying informally at younger ages. In relaxing age limits in the 1980 law, policymakers may have been trying to encourage more couples to marry legally by making the age limits more realistic.

Shortly thereafter, reports of a revival of early marriage created an uproar among population planning officials and in population journals. Many of those who sounded the alarm quickly blamed the less stringent minimum age requirements for marriage in the 1980 law. They also cited the harmful effects of other influences, such as remnant feudal-traditional ideologies, bourgeois liberalization, and the earlier physical maturation and socialization of youths in the midst of the "poisonous elements" of western civilization that rushed in as China opened up to the outside world in the 1980s.[51]

The so-called "early marriage" rate refers to the proportion of women who marry before their 20th birthday. This usage, while simple and convenient in policy evaluation and appraisal, ignores the vital differences between the current situation and the early marriages of the pre-1949 era. More importantly, it overlooks the customary age difference between brides and grooms, and the "marriage squeeze" phenomenon.

In all societies, age defines an individual's marriageability in the most basic way. Whether a spouse is arranged or freely chosen, the groom is generally two to three years older than the bride. An imbalance in the ratio of males to females in the prime marrying ages is often referred to as a marriage squeeze. Such an imbalance is usually caused by sharp fluctuations in birth rates—though it may have other causes, such as the heavy migration of one sex into or out of an area, or by war casualties.

Two sharp declines in the birth rate occurred in China: The first resulted from policy errors and famine experienced during the Great Leap Forward, between 1959 and 1961, and the second occurred as the population planning campaigns intensified, between 1975 and 1977. The fall in births during these years exerted a lasting impact on China's age structure, as shown by the indentations in the age pyramid depicted in Figure 6.

Young men born in China from 1956 to 1958, just before the first birth-rate dive, would normally have married women in the 1959-1961 cohort, about

Table 3

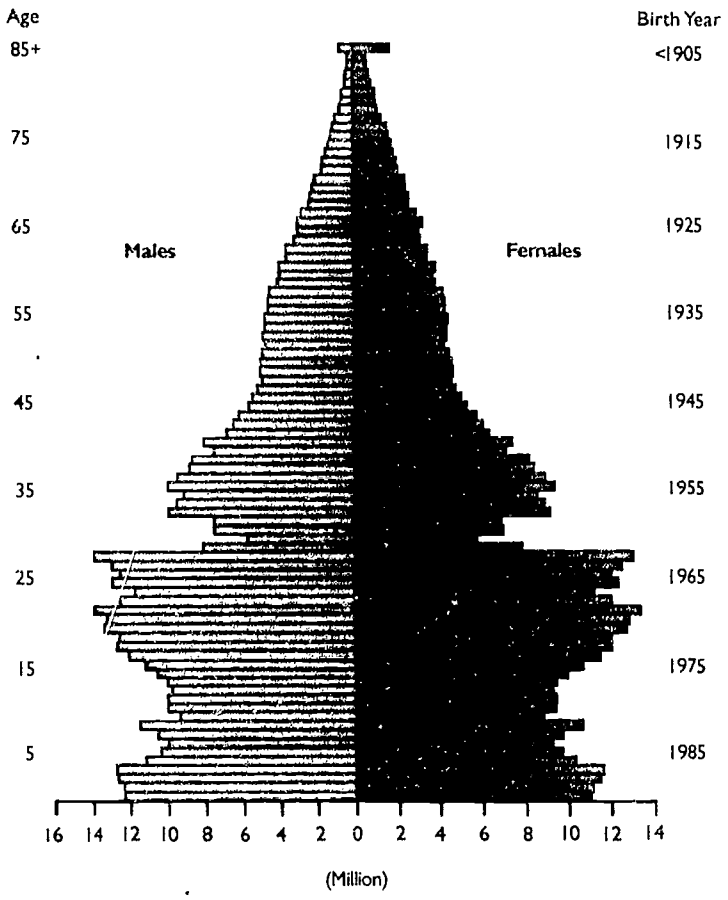
Sex Ratios of Men and Women Born 1955-1965, China and Selected Places

Age in 1982	Year of birth	Population (millions)		Sex ratio[a]	Relative sex ratio[b]				
		Males	Females	(China)	China	Shaanxi	Guangdong	Qinghai	Xingling, Hunan
17	1965		11.9		65	78	113	62	57
18	1964		12.4		43	63	84	35	28
19	1963		13.7		53	71	52	47	44
20	1962	7.7	7.9	97	94	100	58	80	85
21	1961	5.3	5.4	99	189	140	89	199	267
22	1960	7.3	7.0	105	140	108	174	148	164
23	1959	7.4	6.9	107	134	109	133	140	147
24	1958	10.1	9.3	109	109	103	108	111	104
25	1957	9.8	9.1	108					
26	1956	9.2							
27	1955	10.2							

[a] Males per 100 females of the same age
[b] Males per 100 females with males three years older than females.
Source: Calculated from the 1982 Census.

Figure 6

China's Population by Age and Sex, 1990



Source: *Ten-Percent Sampling Tabulation of the 1990 Population Census of China* (Beijing: China Statistical Publishing House, 1991), Table 4-1.

three years younger than themselves, but they far outnumbered the women born during these years (see Table 3). The ratios of the 1956-1958 cohort men to the 1959-1961 cohort women reached 134 to 189 in the nation as a whole; and were much higher in some provincial and local areas. Large discrepancies of this sort occurred throughout China because the birth rate from 1959 to 1961 amounted to at most two-thirds of the rate three years earlier, 1956 to 1958.

When the 1956-1958 cohort of men reached marriage age in 1982 to 1986, they faced a marriage squeeze that was particularly intense at the local level. The Household Registration System constrained their geographic mobility, further limiting their search for mates of appropriate ages. Many single men may have found a way out of this quandary by marrying much younger women, lowering the average marriage age for women and precipitating the early marriage outcry.

By 1982 to 1984, the proportions of women who married before 20 years of age ranged from 24 to 27 percent in the cities and 31 to 36 percent in the rural areas.[35] In contrast, the percentage of early marriages were 20 or below in

cities and 27 or below in rural areas during the late 1970s. But lower rates resumed after 1985, suggesting that early marriage was a transient phenomena, not the harbinger of a return to the tradition of early matrimony.

Given the marked fertility drops during the second half of the 1970s, another marriage squeeze is likely to occur in or shortly before 1996, affecting men born in the early 1970s, as depicted by the uneven age distribution in Figure 6. Because fertility fell much farther and faster in urban areas, city and town residents will probably be most affected.[36] Demanding that these late-marrying men postpone marriage beyond age 25 is not a viable solution; neither is the prohibition of early marriages among women. A more productive step would be to encourage the practice of contraception at the early stage of marriage.

Population Aging

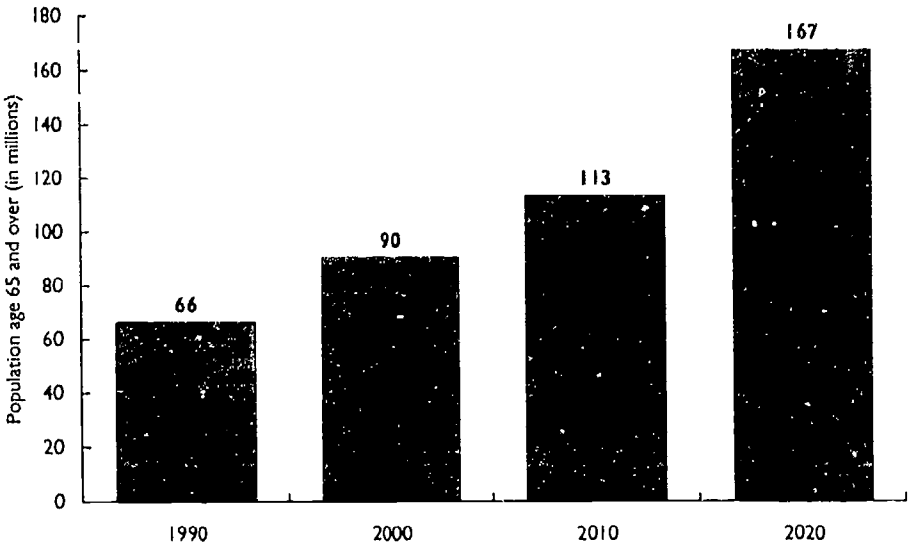
China's rapid transition to low fertility and mortality has created another kind of age imbalance, an increase in the proportion of elderly. Elderly Chinese, like infants and young adults, also have come into the limelight in the aftermath of China's rapid mortality and fertility transitions. Attention to the elderly leapt to new heights almost as soon as the one-child-per-couple policy went into effect. The concern immediately gained graphic representation: A young couple is sandwiched between four aged parents and one young offspring, creating a 4-2-1 population pyramid.

The possible emergence of such an abnormal age structure was a hot topic among population specialists and others in China. Numerous population projections appeared and were used as evidence in the course of the debate. The various series of the projections, interestingly enough, yielded nearly identical numbers of persons age 65 and over for any given year in the foreseeable future. This reflects the general view that, with mortality already at low levels, further drops are unlikely to occur and that the size of the elderly

About 7 percent of Chinese—90 million persons—will be over age 65 by 2000.

Figure 7

Population Age 65 and Older in China, 1990-2020



Source: United Nations, *The Sex and Age Distribution of Populations, the 1990 Revision* (New York: UN, 1991), pp. 132-133.

population can be projected with a fair degree of certainty. Future fertility, therefore, will have a greater influence than mortality on population aging in China.

However, the Chinese population is not yet "aged." By international standards, a population is aged when persons age 65 or older account for more than 7 percent of the total population. Such individuals amounted to only 4.9 percent of the Chinese population in 1982. The 1990 census placed their share at 5.9 percent. Barring unforeseen changes in fertility and mortality, at least 7 percent of the Chinese population will be 65 years of age or older in the year 2000, placing China in the "aged" category.

The aging issue is of current importance because of the huge numbers involved. In 1980, the population age 65 and older totaled almost 50 million persons. Their numbers increased to about 66 million in 1990 (see Figure 7), a figure close to the combined populations of the four largest U.S. states: California, New York, Texas, and Florida. The projected annual additions to the 65 and older population will amount to 4.5 million persons between 2010 and 2030.[37]

Population aging—along with the introduction of the pension system—has swelled the ranks of the retired. In urban China, their numbers jumped to 21.2 million in 1988 from 1 million in 1964. The annual average net gain amounted to 1.6 million during the 1980s, and will reach 1.8 million during the 1990s.

Most urban retirees are covered by a pension system. On the other hand, the majority of persons age 65 and older (50 million or more) live in rural areas and still lack any old-age security protection. The most recent data indicate that only some 3.9 million individuals qualify for benefits under village-run five-guarantee schemes (that is, guaranteeing grain, fabric, medicine, old-age care, and burial). The bulk of China's elderly in the villages are actually or potentially the wards of individuals, principally their own adult children. The very real value of children as providers of old-age security is part of the socioeconomic reality that limits China's SDI.

China's Minority Populations

China's ethnic minority populations are another sociopolitical reality that has constrained the population planning policies. Among the first batch of hand-tabulated figures of the Fourth Census released in October 1990 were the number and proportion of minority nationalities. This speedy release was no coincidence. The size and growth of the country's 55 ethnic minorities have long been a top concern among China's policymakers, population planning officials, and demographers. This concern has recently intensified because of both internal and international developments.

The 1990 census placed the population of ethnic minorities at 91.2 million. Although this is only 9 percent of the total population, minorities had increased by nearly 24 million, a relative surge of 36 percent, since the 1982 census. During these eight years, the Han majority grew by 11 percent, less than one-third of the rate of increase among the ethnic minorities (see Table 4).

This surge has poured fuel on the on-going debate among population planning officials and others. Specifically, should some ethnic minorities continue to be exempt from the nation's comprehensive measures for curbing fertility?

When China's population planning effort intensified in the 1970s, all minority nationalities were exempt from it. Not only was this good ethnic politics, it also recognized the relatively high mortality and comparatively low level of economic development among minority groups. Gradually, however, fertility limitation was promoted in areas with a heavy concentration of minority populations in the late 1980s, such as Nei Monggol (Inner Mongolia) and Xinjiang. These moves were prompted by the 1982 census results that reported a minority population increase of 68 percent since the 1964 census.

By the time of the 1990 census returns, administrative measures of fertility control had already been introduced in all areas of ethnic concentrations except Xizang (Tibet). In no case, however, have the efforts been as intense as the one-child policy directed at the Han Chinese majority. The measures currently in force in different localities stipulate that the majority of the ethnic minorities can have two children, but that nomads and peasants in specific minority areas can have three children. Only under certain very special circumstances can minorities have four children.

Except for the Korean and Manchu minorities, the TFRs of all ethnic minorities were above three, and, in some cases, above five, according to the 1982 census. Some sample surveys of the mid-1980s suggested that these TFRs may be on their way down, but 1990 census data confirm that minority fertility is still very high. Nearly 16 percent of births among ethnic minorities were fourth or higher parity births in 1989, compared with only 6 percent of births among the Han majority.[38]

Higher fertility, coupled with reduced mortality, explains the surge in ethnic minority populations during the recent past. However, other forces have directly and indirectly exerted strong

Table 4

Principal Population Figures for China, 1990 and 1982 Censuses

	1990	1982
Total Population	1,133,682,501	1,008,175,288
Han	1,042,482,187	940,880,121
Minority	91,200,314	67,295,167
Sex ratio (males/100 females)	106.6	106.3
Persons per household	3.96	4.41
Percent urban	26.2	20.6
Percent illiterate/semiliterate	15.9	22.8
Educational attainment (% who have attended):		
University	1.4	0.6
Middle school	8.0	6.8
Jr. middle school	23.3	17.9
Elementary	37.1	35.2

Source: China's Fourth National Census, Release No. 1, 1990.

influence in recent times. The adoption in 1981 of *Guidelines for Restoring or Amending Ethnic Minority Status* opened the way for many to claim or reclaim minority status. Reclassification or self-reidentification swelled the ranks of many ethnic populations, particularly those of less numerous groups. Other administrative procedures and preferential treatment affecting the minority nationalities in labor recruitment, school admission, and work assignment encouraged many people to identify themselves as members of a minority.

Exemption of minorities from the one-child-per-couple limit also encouraged people to claim or reclaim non-Han ethnic heritage. The vast majority of children from inter-ethnic marriages have, on their own or on parental advice, reported themselves as minorities. Consequently, the Manchu population increased to 9.8 million in 1990 from 4.3 million in 1982, despite their low fertility. This extraordinary surge denoted an average rate of growth of 16 percent per annum, the highest among all ethnic minorities. During the same period, the Tujia group grew at an annual rate of more than 12 percent, leaping to 5.7 million in 1990 from 2.8 million in 1982.

High natural increase and broadened claims to minority status explain the massive increase in the latest census count of the minority populations. Eighteen of China's 55 ethnic minorities exceeded one million each in 1990, compared with 10 in 1964 (see Table 5). The Zhuang are the largest minority group, numbering 15.5 million, followed by the Manchu (9.8 million) and the predominately Moslem Hui (8.6 million). Other numerically significant groups are the Miao (7.4 million), the Uighurs (7.2 million), the Yi (6.6 million), and the Mongolians (4.8 million).

The minority nationalities have political and economic significance disproportionate to their numbers. The larger groups are concentrated in the strategically sensitive border areas. Recognition of their geographic concentration and of religious, cultural, and other differences, led to the establishment of the five autonomous regions of Xinjiang (62 percent minority), Nei Monggol (19 percent minority), Ningxia (33 percent minority), Xizang (96 percent minority), and Guangxi (39 percent minority), and of numerous autonomous prefectures and counties in the northwest, north, northeast, and southwest. These lie adjacent to Vietnam, India, Pakistan, Afghanistan, and Myanmar, or, more importantly, share extended borders with various republics of common religious and ethnic heritage now independent from Moscow.

Release of the 1990 census returns on the ethnic minorities helped sharpen the debate over whether to intensify

Table 5

China's Ethnic Minority Groups, 1964, 1982, and 1990

Ethnic group	Number (in 1,000s)			Percent increase
	1964	1982	1990	1982-1990
Total China	694,582	1,008,175	1,133,682	12
Total minority	45,040	67,295	91,200	36
Mongolian	1,973	3,417	4,807	41
Hui (Moslem)	4,489	7,227	8,603	19
Tibetan	2,505	3,874	4,593	19
Uighur	4,000	5,963	7,214	21
Miao	2,789	5,036	7,398	47
Yi	3,389	5,457	6,572	21
Zhuang	8,403	13,388	15,490	16
Buyi	1,352	2,123	2,545	20
Korean	1,349	1,766	1,921	9
Manchu	2,701	4,304	9,821	128
Tong	838	1,426	2,514	76
Yao	858	1,404	2,134	51
Bai	710	1,132	1,595	41
Tujia	525	2,835	5,704	101
Hani	630	1,059	1,254	18
Kazak	492	908	1,112	23
Thai	536	841	1,025	22
Li	440	818	1,110	25
Other*	7,044	3,436	5,035	-17
Undetermined	17	881	753	–

* Other ethnic groups include Lisu, Va, She, Gaoshan, Lahu, Shui, Dongxing, Naixi, Jingpo, Kirgiz, Tu, Daur, Mulam, Qiang, Pulang, Salar, Maonan, Gelo, X'be, Achang, Tajik, Pumi, Nu, Eluosi, Ewenki, Benglong, Bonan, Yugur, Jing, Tatar, Drung, and Orogen.

Source: China, *1982 Population Census of China* (Beijing: Statistical Publishing House, 1985); and China Population Information and Research Center, *China's 4th National Population Census Data Sheet* (Beijing, 1991).

population planning efforts among the ethnic minorities. The imperative of fertility reduction was accepted by the participants at a national conference on China's ethnic minorities held in Beijing in October 1991. However, conference participants were divided on how best to realize it: whether through stronger administrative measures, or through greater socioeconomic development and education in the areas of ethnic concentrations.

The issue has not been resolved. Preparations are now under way to hold a conference in late 1992 to address population planning work among the ethnic minorities. Because of the concern for "political stability, social tranquility, and national unity," it is highly unlikely that the current policy of allowing more than one, two or even three births among the ethnic minorities will be changed. The head of the National Family Planning Commission, Peng Peiyun, recently stated that "under the current international and internal circumstances, stability in policy must be maintained; there must be neither tightening nor loosening up."[39] China's ethnic minority populations are sure to increase in number and proportion for the foreseeable future.

It is highly unlikely that the current policy of allowing more than one, two or even three births among the ethnic minorities will be changed.

Population and Development

China's rapid transition to low fertility in the 1970s occurred in the relative absence of economic development. No one can know how events would have unfolded if population growth had continued unabated, or conversely, if the fertility drops had occurred earlier. Although China achieved considerable economic success in the 1980s despite its large population size, demographic factors were also at work. The effects of the growing population and changing age structure are evident in the surging urbanization, the size and quality of the labor force, the functioning of the health care system, and the expansion of the economy. The magnitude of future population growth will place continuing stress on these and other facets of Chinese life.

Surging Urbanization

While population size and growth have been the primary concern of policymakers, surging urbanization and population redistribution are close behind. In the context of China's economic development and modernization, the effects of population redistribution operate on two dimensions. Redistribution encompasses not only rural-to-urban migration, but also the outpouring of people from the agricultural sector into the industrial and service sectors. This process has involved far-reaching changes in where people live and what jobs they hold.

Urbanization would seem a simple measure of development and modernization. In China, however, the criteria used to define an urban area have been in flux in recent years for political more than scientific reasons. Driven by the notion that higher urbanization denoted a higher level of development and, hence, greater prestige, government officials reclassified numerous areas from rural to urban in the early 1980s. This action instantly pushed the level of urbanization above the 50 percent mark.

The 1990 census followed two procedures in identifying urban population. By one procedure, it reported 601.3 million persons residing in administratively defined cities and towns. On this basis, more than 53 percent of the population would be termed urban, an increase of 394.7 million since the 1982 census. But most of this increase resulted from the administrative upgrading of numerous areas from rural to urban designations.

The upgrading, which occurred mostly after 1984, followed less rigid criteria for establishing *shi* (municipalities) and *zhen* (towns). Including Beijing, Tianjin, and Shanghai—the three municipalities under the direct

Table 6

Provincial Population Data, 1990

	1990 Population[a] (millions)	% increase since 1982	1989-1990 TFR	No. of cities	Percent urban	Non-permanent residents[b]	Density[c] 1990
Total	1,134.2	12.5	2.3	456	26.2	27	118
Northeast							
Heilongjiang	35.2	7.8	1.8	29	47.2	55	78
Jilin	24.7	9.3	1.8	21	42.7	33	139
Liaoning	39.5	10.5	1.6	20	50.9	29	270
North							
Hebei	61.1	15.2	2.5	22	19.1	17	325
Shanxi	28.8	13.7	2.5	13	28.7	36	184
Beijing	10.8	17.2	1.6	1	73.1	59	644
Tianjin	8.8	13.2	1.8	1	68.6	27	777
Shandong	84.4	13.4	2.2	32	27.3	18	539
Henan	85.5	14.9	3.0	25	15.5	18	572
East							
Anhui	56.2	13.1	2.6	18	17.9	20	404
Jiangsu	67.1	10.8	2.1	25	21.2	30	654
Shanghai	13.3	12.5	1.5	1	66.2	47	2,118
Zhejiang	41.4	6.6	1.5	24	32.8	26	407
Central							
Hubei	54.0	12.9	2.6	29	28.9	22	290
Hunan	60.6	12.3	2.5	25	18.2	16	286
Jiangxi	37.7	13.6	2.6	15	20.4	24	226
Southeast							
Fujian	30.0	16.1	2.7	14	21.4	47	248
Guangdong	62.8	17.2	2.7	19	36.8	64	353
Guangxi	42.2	16.0	2.8	12	15.1	20	178
Hainan	6.6	15.7	2.9	3	24.1	44	193
Southwest							
Guizhou	32.4	13.4	3.2	8	18.9	20	184
Sichuan	107.2	7.5	1.9	23	20.2	16	188
Yunnan	37.0	13.6	2.8	11	14.7	16	94
Xizang (Tibet)	2.2	16.0	4.5	2	12.6	33	2
Northwest							
Nei Monggol	21.5	11.3	2.1	16	36.1	45	18
Shaanxi	32.9	13.8	2.8	11	21.5	22	160
Ningxia	4.7	19.5	2.8	4	25.7	28	90
Gansu	22.4	14.3	2.4	13	22.0	19	49
Qinghai	4.5	14.4	2.6	3	27.3	56	6
Xinjiang	15.2	15.9	3.4	16	31.9	48	9

[a]Population totals do not include in-migrants without official clearance and 3.2 million persons serving in the armed forces.
[b]per 1,000 residents
[c]persons per square kilometer
Sources: China Population Information and Research Center, *China's 4th National Population Census Data Sheet* (Beijing: 1991); and United Nations, "Accessibility of Contraceptives," *Asian Population Studies Series*, no. 103B (Bangkok: UN, 1991), Table 1.

jurisdiction of the central government—there are now 456 municipalities, or cities (see Table 6), and 9,322 towns, compared with 236 municipalities and 2,664 towns counted in the 1982 census.

Using a second set of criteria, the National Census Office placed the total population of cities and towns in the 30 provinces, autonomous regions, and municipalities at 296.5 million. This lower figure excludes city and town

residents outside the jurisdiction of their administratively established districts and street or neighborhood committees (wards). By this calculation, 26 percent of China's population lived in urban areas in 1990. This figure, according to the census officials, "objectively reflected the present level of urbanization in China."[40]

The second calculation indicated a much smaller, but still substantial, increase of nearly 90 million in the urban population in the eight years since the 1982 census. The extent to which this rise resulted from administrative upgrading of areas cannot yet be calculated.

Using either definition, China experienced a striking increase in urbanization over the past decade, raising the concern of policymakers. The current urban situation differs considerably from that of 1949 to 1979, the first three decades of the People's Republic. During that period, only a little over one-third of the increase in urban population was due to migration from rural areas; nearly two-thirds of the growth stemmed from natural increase within the urban population itself.[41] The eight-year intercensal period between 1982 and 1990, in contrast, registered not only greater absolute gains in urban population, but also greater contributions from in-migration.

Aside from the impact of administrative reclassification, the surge reflected the mounting population movement following the decollectivization of agriculture and economic deregulation across the country after 1978. Population gains in China's two leading metropolises demonstrate the effects of these reforms.

Beijing, the capital, reported a 17 percent increase in population, and Shanghai, a 13 percent rise, between 1982 and 1990. During the same period, the rate of natural increase (births minus deaths) was nearly 8 percent in Beijing and 5 percent in Shanghai. In-migration accounted for the lion's share of the cities' growth.

The volume of internal migration in recent years can only be guessed. One factor that confounds accurate estimation is the resident status of persons based on the Household Registration System (HRS). The HRS, established in the late 1950s, has become an integral part of China's two-tier rural-urban socioeconomic system (see Box 1).

Provincial population increases between 1982 and 1990 varied considerably, from a low of 7 percent in Zhejiang to a high of 20 percent in Ningxia. The level of urbanization also varied considerably, from 13 percent in

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In-migration contributed most to Shanghai's growth in the 1980s.

Box 1

China's Household Registration System

China's household registration system (HRS) was instituted in urban areas in the early 1950s and later expanded to rural areas. The system was originally created to provide a continuous record of births, deaths, migration, marriage, and changes in household composition. Except during the Great Leap Forward (1958-1961) and the Cultural Revolution (1966-1970), the HRS has recorded Chinese population changes every year since its inception. The quality of the data has been sporadic, but they provide the most complete national information available for many of the early years.

The system—under the control the Ministry of Public Security since the mid-1950s—has also become an integral part of China's two-tier rural-urban socioeconomic system. Although the HRS was originally designed as a population register, it has evolved into an powerful bureaucratic mechanism, loaded with administrative, distributive, punitive, and social control functions with ominous ramifications for the individual almost exclusively by reason of birth rather than merit.

For the individual of rural birth, rural residency constitutes a formidable barrier to educational, employment, and marriage opportunities. City residents, in contrast, receive considerable government subsidies in rice, cooking oil, housing, medical care, and transportation, as well as pensions and other entitlement programs. A migrant from the countryside to the city can never qualify for these subsidies no matter how long he lives in an urban area.

Changing the HRS into an authentic population register rather than a means of enforcing policies poses a dilemma for the Chinese government. Freeing rural residents from the constraints of the HRS could unleash a pool of valuable talent. However, although the subsidies to official urban residents are being gradually reduced through price increases and wage adjustments, it is unlikely the government could afford to offer these same benefits to the unofficial urbanites. Also, rapidly scaling back the HRS is likely to accelerate rural-to-urban migration and complicate urban development.

Xizang (Tibet) to 73 percent in Beijing. Because fertility is higher in rural areas all over China, the more rural provinces had slightly higher population growth.

The more urban provinces tended to have more non-permanent residents per 1,000 permanent residents. These non-permanent residents are most likely to be migrants who moved to cities and towns from the countryside. Many may intend to stay but cannot obtain legal resident status.

Because of the many difficulties involved in altering one's resident status under the terms of the HRS, many urban in-migrants simply do not report their presence. The failure to register has been particularly prevalent among those leaving the countryside after agricultural decollectivization and the emergence of the market economy.

The convergence of the various demographic and economic forces consequently has given rise to what Chinese officials and demographers label as "floating population," a catch-all category which includes construction workers, itinerant craftspersons, hawkers of clothing and consumer wares, peddlers of farm produce, and young rural women and men seeking service jobs in private households. No precise estimates of the floating population are available, but authorities have placed

Urban growth was accompanied by a labor force shift toward industrial employment.

the number at 60 million on an average day.[42] There is yet no way to ascertain the length of their stay, but a huge proportion of them—and their children—may well stay in the cities for good. A recent report showed that at least 33.8 million people migrated from their hometowns to other cities, counties, or towns between 1985 and 1990.[43]

Urbanization has brought little change in China's regional population distribution. Seventy-one percent of the total population in 1990 lived in the 15 provinces (Jilin, Liaoning, Hebei, Shandong, Jiangsu, Zhejiang, Fujian, Guangdong, Guangxi, Hainan, Sichuan, Hubei, Hunan, Jiangxi, and Anhui) and 3 municipalities (Beijing, Shanghai, and Tianjin) along the coast and the Yangzi River. This heavy concentration of population in coastal and maritime provinces further accentuates the pattern of past decades, if not centuries. China's newly created economic free zones and special economic zones (SEZ) are all on the coast (see Box 2). Coastal provinces and municipalities account for 305 of the 456 cities of municipal status in 1990.

Jobs and Workers

The surging urbanization of recent years has been accompanied by large shifts in the ways in which people earn a living. As of 1989, 90 percent of workers were engaged in primary or material production (agriculture and industry), 3 percentage points less than in 1978. Correspondingly, 10 percent of workers were employed in non-material production (such as commerce and trade, transportation, and postal- and telecommunications).[44]

Fundamental changes have occurred in China's economy since the start of the 1978 economic reforms. The developments reflect a sizable reduction in agricultural employment, from 71 percent of the work force in 1978 to 60 percent in 1990. Industrial employment, 18 percent in 1978, increased amid the exodus from the agricultural sector, but not at a commensurate pace. Retrenchment or redirection of government investments during the reform years produced ups and downs in industrial employment. In 1990, 22 percent of workers were in industry. In

Box 2

China's Entry Into the Global Economy

The economic reforms introduced in 1978 had far-reaching implications for the countryside, where three-fourths of Chinese live. The restoration of the family as the main unit of agricultural production, the gradual relaxation of price controls, and creation of owner-directed enterprises, have been transforming rural life.

But the major impact of these reforms may lie in the phenomenal economic growth in China's maritime provinces. These areas form a wedge for China's entry into the global economy and provide the most visible signs of modernization. To implement China's "opening to the outside world," economic free zones were established in a growing swath of cities along the coast. In these areas, bureaucratic restrictions were relaxed or eliminated to attract foreign capital. But the strongest incentives for foreign investment—and most impressive growth—have been in the five special economic zones (SEZs) created in South China: Shenzhen, Zhuhai, and Shantou in Guangdong Province, Xiamen in Fujian Province, and Hainan, China's island province.

These South China provinces—which have a combined population of nearly 100 million—were the logical location for these experiments in market economy. They had been the primary actors in international trade before the establishment of the People's Republic; and the people of Guangdong Province have close familial and linguistic ties to the residents of neighboring Hong Kong and Macao.[1] By the time the British Colony of Hong Kong is returned to China in June 1997, the economy of Guangdong will already be integrated with that of Hong Kong.

Guangdong Province has enjoyed the fastest economic growth in East Asia over the past 15 years, comparing well with so-called Asian Tigers such as Hong Kong, South Korea, and Singapore, and Small Tigers such as Thailand. Numerous Asian companies, along with European and U.S. firms such as Peugeot and Proctor and Gamble have been attracted to Guangdong and the SEZs by the low cost and high productivity of the workers and advantageous regulations. Some 2 million Guangdong residents are employed by Hong Kong-owned factories. Industrial output—principally of clothes, shoes, and toys—rose by 15 percent per year in Guangdong during the 1980s. Exports from the province accounted for one-third of China's total exports in 1990.[2] The Hainan and Fujian SEZ have also scored huge economic successes.

Wealth has brought cellular telephones, crowded restaurants, imported consumer goods, and other signs of modern urban life to these once sleepy coastal cities. Guangdong reportedly has the highest standard of living in China. While the economic growth and modernization of this area may have widened the gap between the lives of urban and rural, and inland and coastal, residents, they are probably harbingers of the future. Superhighways, airports, and ports are already under construction—and more are planned—to enable China's coastal regions to catch up with other Asian nations and become Asia's next Small Tiger.

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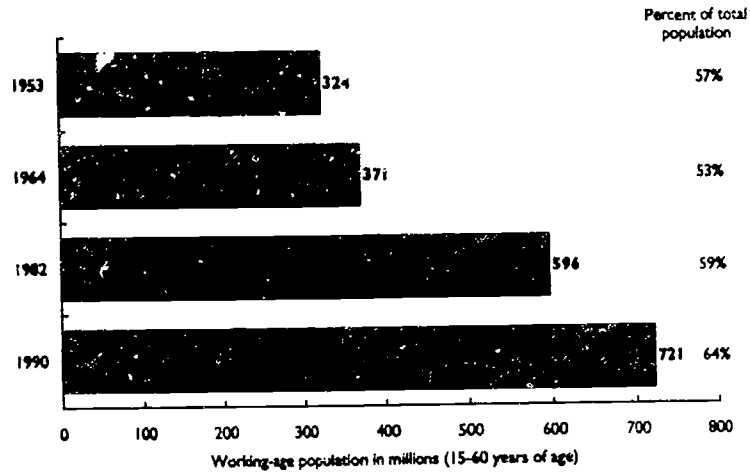
Figure 8
Working-Age Population in China, 1953-1990



Source: *Statistical Yearbook of China* (Beijing: China Statistical Press, 1985), pp. 600-605; and *Ten-Percent Sampling Tabulation of the 1990 Population Census of China* (Beijing: China Statistical Publishing House, 1991), Table 4-1.

Peng Yu

Education has become nearly universal at the primary level.

contrast, employment in the tertiary sector (trade, commerce, construction, and service occupations) increased steadily between 1978 and 1990, growing from 12 to 18 percent of the work force.

The size, growth, and skills of China's work force continue to present serious challenges to the government. The 1990 census placed persons of working age (15-60 years) at 721 million, or 64 percent of the population, registering an intercensal growth of 22 percent since 1982 (see Figure 8). Persons of working age will probably number 770 million by 2000, increasing China's potential labor force by 5 million each year until the end of the century.[45]

China's demographic surges in the 1950s and 1960s have produced a young labor force. The median age of the work force was 31 in 1990. Eighty percent of the working-age men and women were under age 45. The demographic momentum created by the high birth rates of the past continues to increase the working age population. The number of 15-year-olds entering the labor market reached 21.7 million in 1990, more than twice the number (10.1 million) in 1953. The flow of new workers will stay high for quite some time, exceeding the number of available jobs. In 1990, there were an estimated 11 million unemployed in the country—500,000 more than in 1989.[46] However, this probably underestimated the situation because it did not include the invisible unemployed—surplus or idle workers—in offices and factories.[47]

The lack of jobs continues to be serious in large cities. In 1982, while the national unemployment rate was 5.5 percent, the rate reached 8.3 percent in Beijing and 7.7 percent in Shanghai.[48] The number of those "waiting for job assignment"—the euphemism for the unemployed—exceeded 5.8 million in the urban areas, according to the 1990 census. More than 80 percent were 15 to 24 years of age.

In rural areas, the decollectivization of agriculture has revitalized production but rendered superfluous more than 140 million former workers in the communes and production brigades. Another 170 million may become so by the end of the century.[49]

The job situation has a brighter side. Opportunities in trade, commerce, and service occupations have mushroomed following the economic deregulation of

recent years. Between 1977 and 1985, nearly 12 million small-scale individual businesses came into existence, employing 18 million people.[50]

Efforts to improve the rural job situation have focused on sideline occupations, low technology industries, and small town developments. By 1985, the number of people employed by various rural enterprises totaled 60 million. It is estimated that rural industries and enterprises will be able to employ 180 million people, or 40 percent of the rural labor force by the year 2000.[51] Whether this will ease the pressure to leave the rural areas for the cities remains to be seen.

The short-term successes in labor force absorption have been encouraging, though far from sweeping. To Chinese officials and labor specialists, the long-term remedies lie in upgrading the skills of the young work force, increasing productivity, and boosting economic development.[52]

Education

The quality of China's growing labor force is a major concern for policymakers. The low educational and skill levels of Chinese workers are a drag on China's aspirations to become a major player in the world economy. While China is attempting to expand educational opportunities throughout the country, the generally low literacy levels of adults and the constantly expanding school-age population are major impediments to achieving an educated work force.

Student enrollment and educational levels have shown remarkable improvements in recent decades. In 1989, some 232 million students were enrolled in schools of all types in China, compared with 203 million in 1975, just prior to China's four modernization decision. The expansion encompassed large increases at the university level and in technical-vocational and adult education. The number of institutions of higher learning increased to 1,079 in 1989 from 675 in 1980. Their enrollment rose by 82 percent to 2.1 million. In 1989, some 5 million students were enrolled in agricultural, vocational, and technical schools; and 37 million were receiving instructions in adult schools of all types (see Table 7).

Education at the primary level has become nearly universal, reaching an estimated 97 percent of children. But only 70 percent of the primary school graduates go on to junior high school and only a little over one-third of these students continue on to senior high school. No more than 2 percent of persons ages 20 to 24 go on to the universities, compared with 5 percent in developing countries in general.[53]

Table 7

Schools and School Enrollment in China, Selected Years, 1975-1989

Level	1975	1980	1985	1989
		Number of schools		
Institutions of higher learning	387	675	1,016	1,079
Secondary schools				
Regular	123,505	118,377	93,221	89,575
Technical	1,326	2,052	2,529	2,940
Vocational	887	1,017	1,028	1,044
Agricultural	na	3,314	8,070	9,173
Primary schools	1,093,317	917,316	832,309	777,244
Kindergartens	171,749	170,419	172,262	172,634
Schools for the blind and deaf	246	292	350	483
		School enrollment (in 1,000s)		
Total enrollment	**203,228**	**216,014**	**217,318**	**232,088**
Institutions of higher learning	501	1,144	1,703	2,082
College new admissions	191	281	619	597
Secondary schools				
Regular	44,661	55,081	47,060	45,540
Technical	405	761	1,013	1,493
Vocational	302	482	558	685
Agricultural	na	454	2,295	2,823
Adult schools[1]	na	na	15,533	36,613
Primary schools	150,941	146,270	133,702	123,731
Kindergartens	6,200	11,508	14,797	18,477
Schools for the blind and deaf	27	33	38	47

[1] Including students in adult institutions of tertiary, secondary, and primary learning
na: not available
Source: *Statistical Yearbook of China 1990* (Beijing: China Statistical Press, 1990), pp. 703, 706-708.

Budgetary constraints, continuous waves of new students, and the shortage of qualified teachers make further educational expansion unlikely for the foreseeable future. Full-time faculty members in institutions of higher learning doubled between 1981 and 1988, reaching nearly 334,000. Many, if not most, were recent university graduates. Primary and secondary school teachers numbered approximately 9 million in 1988. An estimated 1.8 million additional teachers will be needed to realize China's current plan to universalize education below senior high school.[54]

The educational level of the adult population has improved over the past decade thanks to literacy campaigns and expanded student enrollments since the 1970s, but it remains limited. In 1990, 16 percent of Chinese over age 16 were illiterate or semiliterate (unable to read or write more than a few characters), down from 23 percent in 1982. Two-thirds of these were women. Some 37 percent of adults had at least attended elementary school, but only 8 percent had gone as far as middle school, and only 1.4 percent had attended university. This was only a slight improvement over educational achievement in 1982, as seen in Table 4, page 22.

Table 8

China's Health Care Resources, Selected Years, 1975-1989

	1975	1980	1985	1989
	Medical personnel (in 1,000s)			
Total	2,594	3,535	4,313	4,787
Senior physicians	293	447	602	1,023
Junior physicians	356	444	473	321
Practitioners of Chinese medicine	229	262	336	370
Nurses	380	449	569	512
Other[a]	1,336	1,932	2,333	2,562
	Medical facilities (in 1,000s)			
Hospitals	62	65	60	62
Hospital beds	1,764	2,184	2,487	2,867
Beds/1,000 persons	1.74	2.02	2.14	2.33

[a] Including physicians trained in Chinese and Western medicine, pharmacists, and primary level health workers.

Source: *Public Health Yearbook of China 1990* (Beijing: People's Health Press) pp. 453-454.

Health Care

Economic reforms, surging urbanization, population growth, and aging have had a fundamental impact on China's health care system. China's expressed goal has been to provide "basic health care for all by the year 2000." The country has already succeeded in expanding both medical personnel and facilities (see Table 8). Improved care and prevention programs have virtually wiped out such diseases as smallpox, cholera, malaria, typhoid, and scarlet fever; have reduced infant mortality to below 40 deaths per 1,000 births; and raised the life expectancy at birth to 67 years. Further reductions in mortality, however, may be thwarted by demographic, economic, and political factors.

China's medical services operate within a three-tier system. At the bottom are the village and township health clinics that provide care for more than 70 percent of the population. Their staffs consist primarily of the 1.2 million "barefoot doctors" (now called country doctors) who are paramedics with extra training in first-aid, hygiene, contraception, and basic preventive medicine. Such clinics exist in about 88 percent of China's 743,000 villages. The number of clinics and country doctors declined in the 1980s because decollectivization of agriculture cut off a major source of funding—the village production brigades. Users fees and contributions by village industries have been insufficient to pay for basic rural health needs. Only 40 to 45 percent of the rural population were covered by an organized cooperative medical system in 1984, compared with 80 to 90 percent in 1979. Because about 80 percent of Chinese births occur in rural areas, this erosion of services could mean lower quality health care for China's next generation.

Some 47,500 township medical health centers, with an average of 15 beds and 18 doctors each, made up the middle tier of China's health care system in 1989. The top tier consisted of

2,200 county hospitals, with an average of 175 beds and 211 formally trained doctors each. These hospitals located in county seats and large cities are the only ones that receive funds from the national government.[35] Urban patients, particularly the 126 million persons enrolled in the system of free medical care for government employees and workers, receive heavily subsidized care from the government.

The cost of medical care for individuals in the public sector and in the state-owned enterprises has skyrocketed, as it has in other countries. Between 1978 and 1990, the cost shot up more than 600 percent, to $4.2 billion. During these same 12 years, China's gross national product only doubled.

The soaring expenditures stem from the rising cost of medicine, wastes and abuses in medical prescriptions, and the growing number of persons entitled to free medical care. China's rapid transition to low mortality satisfied the universal desire for longer lives. However, increased longevity, along with modernization, ushers in the problems associated with population aging, including rising medical costs for society, the family, and the individual.

The Economic Picture

China's demographic changes over the past two decades must be viewed in relation to the drastic economic shifts that occurred during this period. China's gross national product (GNP) increased by leaps and bounds during the 1980s. The total jumped to $427 billion in 1989 from approximately $120 billion in 1980.

China's proclaimed goal for the century's end was to attain *xiaokang shuiping*, or a comfortable living standard, for the nation as a whole. This called for the quadrupling of the country's total industrial-agricultural output between 1981 and 2000. By 1989, the mid-point in the period in question, considerable progress toward that goal was obvious. By that year, all but two of the indices of output and consumption shown in Table 9 were at least double the levels of 1978, the base year for the indices.

Table 9
Selected Economic Indicators for China, 1980 and 1989

	1980	1989	Average annual growth 1980-1989 percent
Total output index[a]			
Agricultural	109	188	6.3
Industrial	119	361	13.2
Consumption index[a]			
Urban residents	117	207	5.1
Rural residents	117	215	7.0
Income per head (net)[b]			
Urban residents	¥439.0	¥1,260.7	-
Rural residents	191.3	601.5	
Consumption expenditures per head			
Total		¥700.0	
Urban residents		1,404.0	
Rural residents		518.0	-

[a] 1978=100 (base year)
[b] ¥1.00 = US$0.18 in 1991
Source: *Family Planning Yearbook 1990* (Beijing: National Family Planning Commission 1990).

Both the GNP and total personal income rose at an annual average rate of more than 9 percent during the 1980s. The industrial sector led all others in expansion, reporting an average growth of more than 13 percent per annum. The agricultural sector also advanced, but at only half the pace. Tertiary employment increased its share of output in the GNP from 16 percent in 1980 to over 22 percent in 1991.[36]

Recent industrial and agricultural gains have already raised living standards. Overall consumption has increased by an annual average of 6.6 percent. The pace of gain among rural-agricultural residents has been a little higher (7 percent) than that among the non-agricultural urban population (5 percent). Life in China is better, and the relative improvement has been slightly greater for those living in rural than in urban areas.

Life in the countryside has benefited from the rapid proliferation of rural non-agricultural enterprises engaged in

the processing of agricultural products and in commodities manufacturing. Ministry of Agriculture figures show that their total production nearly doubled between 1978 and 1990, from $91 billion to $180 billion; and a growing percentage of these commodities are sold abroad. Such rural enterprises now employ 22 percent of China's rural work force—nearly 93 million people.[7]

The Chinese people enjoy access to a greater variety of consumer goods. The increases in durable goods alone were remarkable during the 1980 decade (see Table 10). The number of bicycles, which are the equivalent of cars in American households, jumped to 328 from 77 per 1,000 population between 1978 and 1989. Television sets rose from nearly zero to 149 per 1,000 population in one decade. Most impressive, the number of washers and refrigerators soared from absolute zero in 1978 to 78 and 23 per 1,000 population, respectively, by the end of the decade. Other leading consumer goods, such as watches, sewing machines, radios, cameras, and electric fans, also registered substantial gains.

The per capita consumption of rice, pork, beef and lamb, eggs, poultry, seafood, sugar, cooking oils, liquor and wine, cotton and synthetic textiles, and cigarettes all showed either marked or modest increase. The daily average food intake has reached 2,637 calories, according to a United Nations estimate.

Indeed, for many in China, the 1980s were a period of rapid economic expansion. Their level of living had already progressed a long way toward *xiaokang shuiping* before the start of the eighth five-year plan in 1991. Another doubling in production may be expected by 2000.

While living standards are improving on the national level, extreme poverty persists in numerous areas throughout China. Inland and remote provinces in western China lag far behind those along the coast in eastern China. As of 1986, almost a third of the country's counties were officially identified as "poverty counties." These 664 counties are located mostly in the mountain and arid plateau regions. The annual per capita income among their residents amounts to only 50 percent of the 1986 national average of $199.00. Nearly 20 percent of the population may be below the poverty level by this definition—or in Chinese terms, still unable to reach the level of *wenbao* (warmth and bare essentials).

There are no precise figures on the number of people hovering just above the poverty line in recent years. Relative poverty probably engulfs additional hundreds of millions of people. Nor are there more recent figures on the number of persons who remain below the line in 1992. The tardiness in releasing poverty data is in sharp contrast to the speed with which China disseminates huge amounts of information whenever gains have occurred in the economy.

Despite persistent poverty and signs of deteriorating health care in rural areas, the lot of China's 1.2 billion population has markedly improved, though the road to *xiaokang shuiping* for all remains long and difficult.

How can the rapid and widespread achievements of the last dozen years be explained? No similar growth occurred

Table 10
Availability of Selected Consumer Items, 1978 and 1989

Item	Per 1,000 population 1978	1989
Sewing machines	35	122
Watches	85	501
Bicycles	77	328
Electric fans	10	156
Washers	–	78
Refrigerators		23
Televisions	3	149
Radios	78	236
Cameras	5	19

Source: *Family Planning Yearbook 1990* (Beijing: National Family Planning Commission, 1990), p. 429.

during the 1950s and 1960s when the size of the population was only half that of the 1980s. What is the relationship between population size and economic development in this most populous nation on earth?

Most of the recent economic gains have been attributed to policy changes that reduced government control of businesses and industries, increased the importation of foreign technology and capital, and allowed prices to fluctuate with market conditions. However, all these explanations highlight the economic-political variables to the exclusion of China's momentous demographics. This exclusion incites speculation about whether a large and growing population materially obstructs real economic growth.

It could also be argued that had the country's population planning been initiated earlier, in the 1950s and 1960s, the level of economic development would have been higher than it has been. Similarly, had fertility control been in place earlier, the total population would now be smaller and the standard of living would be higher in per capita terms. But these are hypothetical arguments. The population total now is much larger than it would or could have been had China's demographic initiative started earlier. Notwithstanding the tardy start in fertility curbs and the deafening population explosion, the pace and scope of economic growth have demonstrably surged during the 1980s and are moving vigorously ahead in the 1990s.

Environmental Degradation

Rapid demographic growth generates difficulties of all sorts in a poor and backward economy, primarily providing sufficient food, employment, housing, health care, and the like. Besides these issues of daily existence and well-being, as the saying goes, to populate is to devastate. The larger the base population, the more widespread is its environmental impact in terms of reclamation of wastelands, deforestation, or accelerated soil erosion. Additionally, and more importantly, economic development and modernization exert a far more insidious and injurious impact on the environment. For example, urbanization and industrialization—with inadequate sewage and treatment facilities—have already polluted most of China's rivers and produced a serious shortage of drinking water in urban areas. The municipality of Beijing is projected to have a shortfall of 500,000 cubic meters of water daily by 2000, equal to about two-thirds of its current supply. Groundwater levels have already fallen sharply in the region, causing serious land subsidence in some areas of Beijing.[58]

Modernization and population growth have also intensified solid waste disposal problems. Plastic and styrofoam litter the urban landscape and follow the railroad tracks from one end of China to the other.

The larger the base population, the more widespread is its environmental impact.

Population, Development, and Land

The growing population base, land degradation, and industrial expansion have caused a decline in the per capita supply of agricultural land. Recent estimates place arable land in China at about 14 percent of the country's 9.6 million square kilometers. The total area under cultivation amounts to 135 million hectares (one hectare = 2.47 acres), and there remain no more than approximately 500 million *mu* (one acre = 6 *mu*) that may possibly be reclaimed for agricultural purposes. On a per capita basis, cultivated land has dropped to 1.8 *mu* in 1988 from 2.7 *mu* in 1949, even though the overall amount of land under cultivation increased from 1.6 to 2.0 billion *mu* between 1952 and 1988. The supply of arable land per head may drop to 1.6 *mu* or less by the year 2000.

Pasture lands, now situated almost exclusively in northern China, are estimated to cover 310 million hectares. Of these, only two-thirds can be effectively used to raise livestock. Only about one-fifth of the pasture land provides high quality fodder.

On a per capita basis, the amount of arable land in China has declined dramatically.

China's forests also are dwindling. Only 13 percent of China's land was under the cover of foliage in 1989, down from 15 percent in 1974.[39] Moreover, ecological abuses of past millennia, such as "slash and burn" agriculture and denuding woodlands for fuel wood, have turned vast areas into deserts in northern and northwestern China. Land degradation is spreading eastward and southward, robbing the country further of agricultural and pasture lands. Some 120,000 square kilometers of China now are permanent deserts and another 15,800 square kilometers are being menaced by spreading sands.

Although China's finite land resources are threatened by the expanding population and economic development, the stress has been eased by improved agricultural and related output in recent decades. Of course, population growth accelerates demand for residential space and, other things being equal, encroaches on arable land. The growing competition for land for economic development, the continuing urbanization, and population growth accentuate the need for effective land-use management.

Soil degradation in China reflects both natural forces and the errors of past centuries, but it has been accelerated in no small measure by more recent policies. To increase the land available for grain production, various post-1949 measures prompted indiscriminate clearing and cultivation of forests and grasslands. This misunderstanding of the dynamics of the ecosystem was responsible for lasting damage to the soil.

Just as China's policymakers' understanding of demographic trends emerged belatedly, their ecological enlightenment surfaced only in the mid-1970s. Since then an increased appreciation of ecological issues has stimulated efforts to restore forest and pasture lands, to protect existing forests and grasslands against encroachment, and to broaden reforestation efforts.[40] Legislation to formalize these steps

emerged in the 1980s, resulting in a comprehensive Environmental Protection Act.

Pollution from Energy Sources

Although there was already heightened ecological concern by the start of the eighth five-year plan in 1991, China's ecological circumstances remain critical. China needs to increase its energy consumption as the population and economy grow, yet China is still heavily dependent upon energy sources that denude forests and pollute the air. The annual consumption of timber as fuel decreased by 8 percent between 1988 and 1990, according to the Ministry of Forest. Nevertheless, because of the shortage of alternative fuels, nearly one-third of China's annual total timber consumption goes up in smoke, used for household cooking and heating. This is the main reason why the timber consumption still outstrips forest growth in one-third of the 30 provinces, municipalities and autonomous regions.

In urban areas, cooking and heating depend on coal and a small amount of natural gas. Although this spares some timber land, air pollution from coal burning has more serious health effects. Air pollution is being compounded by increased use of coal in industry as the country develops economically.

Coal-burning generators account for 80 percent of the electrical power generating capacity. Plans are under way to increase annual coal production (1 billion tons in 1990) by an additional 20.8 million tons and to raise electric generation by another 86.2 million kilowatts. Neither increase will meet China's industrial and civilian needs in the decades ahead. Furthermore, increased coal burning will not only contribute to respiratory and other health problems within China but to depletion of earth's protective ozone layer. China ranks just after the United States, the former Soviet Union, and Europe in the volume of emissions of carbon dioxide from fossil fuels.[6]

Perhaps new technologies or other fuel sources can both satisfy the country's growing industrial and civilian needs and provide cleaner air. The replacement of the existing 6,000 steam locomotives, which consume 15 million tons of coal annually, with diesel engines would reduce emissions but it is a costly and lengthy step. There is no evidence of a substantial increase in China's output of crude oil in the near future. Nuclear power generation is in its infancy in China. The proposed damming of the Three Gorges of the upper Yangzi River to produce electricity, which gained official approval in March 1992, remains controversial. Besides the immediate flooding of valuable arable tracts and the eventual displacement of 1 million or more people, the dam's long-term impact on the adjacent and downstream areas would be substantial and possibly disastrous.

None of the known solutions to China's dependence on coal is risk-free, nor can they furnish more than a token of the energy that is needed. The burning coal will not soon, if ever, be extinguished and air pollution continues to be China's leading environmental hazard.

A systematic, effective, and complete environmental clean-up is an ideal beyond realization at present. In the long run, as the country develops further economically, China may be in a better position to redress the situation and to afford adequate safeguards against environmental hazards. However, few developed nations have effectively tackled pollution problems within their borders. Neither will China's many environmental issues be easily or quickly resolved. Ecological intelligence and management, not unlike the issue of population itself, are matters of politics, economics, and ideology.

A systematic, effective, and complete environmental clean-up is an ideal beyond realization at present.

The Future

Dida, wubo, renduo—"vast territory, abundant materials, and massive populace"—long has epitomized China's circumstances in the minds of

many. *Renduo* bears the double message of achievement and apprehension. China's demographic affluence, as the saying explicitly means, holds great potential for economic growth: More hands mean greater accomplishments. Simultaneously and implicitly: More mouths entail greater consumption and other difficulties.

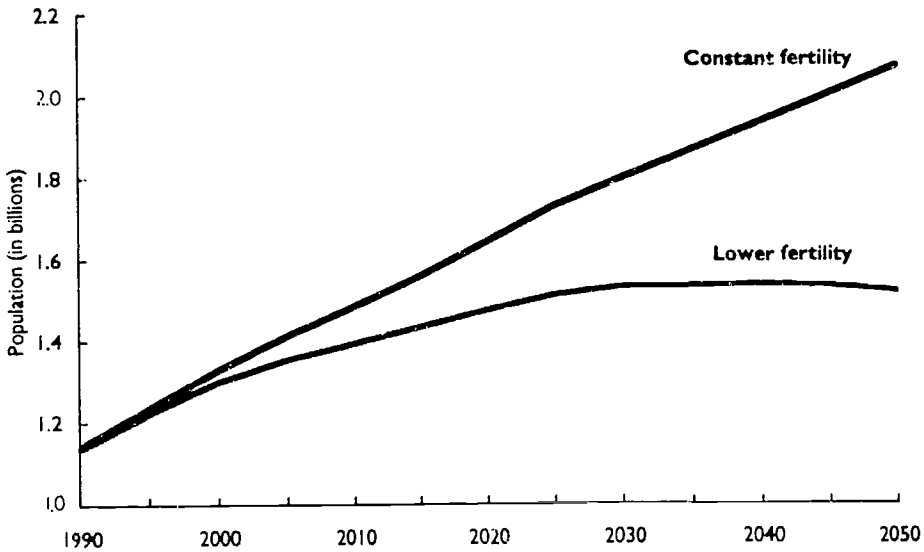
Renduo trenchantly sums up both China's past faith and the present fear in population numbers. Ironically, the present fear is expressed in ways that acknowledge the finite availability and relative scarcity of land and resources, tempering belief in *dida* and *wubo*. These fears have also been voiced alongside fervent articulations of the serious consequences of depleted resources and environmental pollution, and of the need for the current generation to control fertility for the sake of the generations to come.

The perspectives on *dida, wubo, renduo* thus have changed. The party and government have come to believe in population planning. A plethora of economic, political, international, and environmental factors are shaping the pace and breadth of China's population policies. Because of these policies, a rapid transition to low fertility has occurred. However, the specific population ceiling of 1.2 billion originally set for the year 2000 remains elusive. While the TFR among urban women has generally been below 1.5 throughout the 1980s, the TFR among their more numerous rural sisters has hovered around 2.8, always remaining well above the one-child goal.

China's fertility realities are at variance with the country's population planning goals, and China's age structure would prevent meeting the original population ceiling even if the fertility fell further. During the eighth five-year plan (1991-1995), women in the peak childbearing ages of 20 to 29 years will increase by 16 percent because of the high fertility two to three decades ago, prompting a modest baby boom. Even if the current population planning measures are strictly implemented, the national TFR would be 1.6, and an additional 17 million people would be added to the population each of those five years. The century-end population total will be probably be close to 1.3 billion (see Figure 9).

Figure 9

Projection of China's Population, 1990-2050



Source: United Nations. *World Population Prospects 1990* (New York: UN, 1990); and unpublished data.

The official target for 2000 has been raised to 1.294 billion but Chinese officials concede that even this will be difficult to achieve. In order to stay below this number the TFR must fall from 2.3 in 1990 to 2.1 in 1995 and below 2 by the century's end.[62] Under this scenario, China's population would reach about 1.6 billion by 2050, assuming no increase in the TFR.

If, during the next 10 years, fertility cannot be further reduced from the 1990 TFR of 2.3, the Chinese population will rise above 1.3 billion by 2000, top the second billion mark in 2050, and continue to grow unabated for decades thereafter.

It would be foolhardy to do more than conjecture about the size of the Chinese population half way into the 21st century. Nor would it be prudent to venture an opinion on when the Chinese population will stop growing. Evidence inside China allows no indulgence in this regard.

Many European and other developed nations have had below-replacement fertility (a TFR below about 2.1) for decades. But their demographic transitions evolved not only under a much longer time table, but under very different social, economic and political situations. Until early in the 20th century, the argument for limiting childbearing in the United States and Europe was to lessen the burden of excessive fertility on the individual, most particularly among the poor. Demographers labeled this a neo-Malthusian transition. As a social movement, neo-Malthusianism emerged against a backdrop of high fertility, encouraging "limited parenthood" or "having fewer children." One-child families or childlessness were not part of the message.

In time, controlling fertility emerged as a sophisticated, positive means to allow couples to pursue other life goals. Couples' fertility preferences consequently became more varied and more specific, including not just fewer children, but also only one child, even no children. One-child families and childlessness had become more common in the United States and parts of Europe before World War II. Although interrupted by the post-war baby boom of the 1950s and 1960s, below replacement TFRs eventually became widespread across post-war Europe and the United States.

Below or near replacement fertility rates are not a continuation of the neo-Malthusian transition. Their emergence has been quite appropriately acclaimed the second demographic transition.[63] Having fewer children was the main mechanism of change in earlier transitions. The second demographic transition entailed having only one child or none at all.

Such fertility preferences and behavior at the individual level grew out of rapid changes in socioeconomic conditions; in geographic and social mobility; in attitudes toward sex, marriage, and the family; and in beliefs about gender equality, extra-familial careers, and motherhood. In short, the ideas of having only one or no children gained ascendancy in an urban-industrial-ideological milieu that bears little resemblance to the backdrop of the previous, so-called neo-Malthusian transition.

Nor do the present socioeconomic conditions in China's vast countryside—beliefs about sex, marriage, and the family, and ideas of gender equality—resemble the situation in developed countries now practicing minimal reproduction and childlessness. Herein lie the limits to China's strategic demographic initiative.

China's recent economic gains make it clear that a large and growing population may not be of itself an obstacle to economic development. This observation does not endorse the view that larger populations stimulate growth. Rather, it emphasizes that China's national well-being may be contingent upon a balanced mix of demographic regulation and economic deregulation and related reforms.

"Opening up to the outside world" has received greater emphasis in recent

China's fertility realities are at variance with the country's population planning goals.

reforms, especially in urban areas. Opening up has meant not only importation of capital, technology, and information, but also travel by individuals beyond national borders. Only a relatively small minority—in particular residents of major cities along the coast—have profited from these changes.

The great majority of the Chinese population in the countryside could also benefit from an "opening up to the outside," if that entailed allowing freer movement from crowded villages for educational and employment opportunities. Accelerated rural development and modernization may thus be facilitated, broadening the possibility of further or second fertility transition.

Development and modernization alone may not lower fertility. Nor is it likely that government policies alone can slow or stop the growth of the Chinese population. The difference between having fewer children and having a single child is enormous, not just in quantitative terms, but also in the quality of life. The way to a more satisfactory demographic future may best be paved by ensuring greater and more equitable educational and economic opportunities for all Chinese.

Greater and more equitable educational and economic opportunities are the key to a brighter future.

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Discussion Questions

1. Discuss the unique cultural, demographic, social, and economic factors that characterize China's population. How have these characteristics affected the success of the strategic demographic initiative (SDI)?

2. Construct a chronology of China's population initiatives since the 1950s.

3. How much influence has the international community played in the shaping of China's population policies and the implementation of these policies?

4. Discuss the plausibility of the explanations given for the high sex ratios shown in China, since the implementation of the one-child policy.

5. Consider the implications of China's population size and structure for future policy decisions concerning aging, labor force, marriage, and minority populations.

6. Assess the impact of increased consumption in China on the global environment.

7. Compare China's demographic transition experience and age/sex structure with other developing countries and developed nations. Do you think that other nations can provide a model of possible future trends for China? What is the likelihood that China's SDI would be a model for reducing population growth in other countries?

8. Appraise the implications of "opening up to the outside world" for China and the global community.

9. The authors raise the argument, "...had the country's population planning been initiated earlier, in the 1950s and the 1960s, the level of economic development would have been higher than it has been." Do you agree?

10. China's population was about 1.17 billion in 1992 and projected to grow to 1.3 billion by 2000. This projection suggests that China will exceed the 1.2 billion ceiling originally set for 2000 in the SDI. Discuss the factors that have contributed to China's inability to attain this goal?

Prepared by Kimberly A. Crews

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