

**Too Many Males:  
Marriage Market Implications of Gender Imbalances in China**

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**Introduction**

This paper deals with the demographic destiny of the People's Republic of China. Since the 1960s China has experienced a dramatic and extremely rapid fertility transition from around 6 children per woman in the early 1960s to around 1.7 children per woman in the year of 2001 (Figure 1). This rapid fertility transition has resulted in a dramatic and remarkable demographic occurrence in the numbers of boys and girls born each year. In every year beginning in 1980 to the year of 2001 (the latest year for which we have data), many, many more Chinese boys have been born than Chinese girls. These excess Chinese boys have already been born, so the demographic destiny of the country has already been determined. This has important and relevant implications for China's marriage markets starting in the first decade of this new century. We estimate that there will be more than 23 million boys born between 1978 and 2000 in China who will not be able to find

Chinese brides. We turn now to a consideration of the cause of this demographic shift, namely, China's demographic dynamics since 1950 that culminated in a dramatic fertility transition. Then we consider the demographic occurrence of many more boys being born each year than girls and discuss its implications for the destiny of China.

### **Population Growth in China and the Transition from High to Low Fertility**

China is now completing its demographic transition from high rates of fertility and mortality to low rates. The country is in the third phase of the transition, that of low fertility and mortality rates. Since the early 1960s, China has experienced a pronounced and rapid decline in its fertility, to a level in 2001 of 1.8 children per woman (see Figure 1; we have also included in the figure China's East Asian neighbors of Taiwan and South Korea, for comparative purposes). In this section we trace the history of population dynamics in China since Mao Zedong and the Chinese Communist Party assumed control in 1949.

When Mao Zedong and the Chinese Communists took over China in 1949, relatively little attention was paid to the size and growth of the population. In fact, Aird (1972) has characterized the early years of the People's Republic as a period of doctrinaire Marxism. But when the initial results of the 1953 census became available in 1954, there was anxiety expressed about the size and growth trends of the country, and by the summer of 1956 a birth control campaign was underway. Zhou Enlai, in a report to the People's Congress in August 1956, demanded that "health departments disseminate propaganda and take effective measures for birth control" (Aird, 1972: 237). But with the introduction in 1958 of communes and the Great Leap Forward, China began to reverse

its new birth control policy: "A large population was once more regarded as advantageous, and the vicious attacks on Malthusians, 'rightists' and 'bourgeois economists' who championed birth control again shifted into high gear" (Orleans, 1972: 40).

The Great Leap Forward, initiated in 1958, was designed to "involve a revolutionary struggle against nature to realize the great potential of agriculture by maximizing the advantages of the collective economy" (Aird, 1972: 278). It had a short life because in 1959 China suffered an economic crisis and famine (Ashton et al., 1984), resulting in the premature death of at least 30 million people. The fertility decline from the mid-1950s through the early-1960s resulted from the "national hard times" (Chen, 1984: 45) and the famine experienced in China during and immediately after the Great Leap Forward. Coale noted that in addition to "famine-induced subfecundity," the fertility decline was due also to the "disruption of normal married life" (1984, 57).

During the two years from 1961 to 1963 the TFR increased markedly, from 3.3 to 7.5 (Figure 1). According to Chen, this occurred in conjunction with the economic recovery in China (1984: 45). Coale added that this increase also "resulted from the restoration of normal married life, from an abnormally large number of marriages, and from the unusually small fraction of married women who were infertile because of nursing a recently born infant" (1984: 57). These years of the early to mid-1960s were the period of China's "baby boom." China experienced in the early 1960s the same kinds of growth experienced in the U.S. after World War II. China's "baby boom" was of a shorter duration but of a significantly higher magnitude. China's TFR peaked at 7.5 in 1963. At the height of the U.S. "baby boom" in 1957, the TFR was but 3.7.

In early 1962 China resumed its second family planning program, one mainly encouraging family size limitation. The campaign lasted until 1966. With the introduction then of the Great Proletarian Cultural Revolution, birth control work was interrupted, and the focus in China on family planning programs was minimal.

The Chinese initiated in 1971 their third family planning campaign, the *wan xi shao* program. These three Chinese characters stood for the three slogans of the campaign: *later* marriages, *longer* intervals between children, and *fewer* children. Indeed the fertility declines in the 1970s (see Figure 1) reflect the general success of this campaign (Chen, 1984). Fertility fell from 5.4 in 1971 to 2.7 in 1979.

However, the large numbers of children born during China's "baby boom" in the 1960s caused Chinese leaders in the mid-to late 1970s to become concerned about demographic momentum and the concomitant growth potential of this extraordinarily large cohort. Banister has written that at this time the Chinese government was "discovering the existence and usefulness of the field of demography" (1987: 183), and the leaders were cognizant of the demographic momentum built into the population's current age structure. They hence approved the "one child is best" norm and intensified their already strong family planning program by launching in 1979 the One-Child Campaign. This fourth program (which is really an extension of the third) was undertaken so that, in the words of then Vice-Premier Chen Muhua, "the total population of China will be controlled at about 1.2 billion by the end of the century" (Tien, 1983).

The principal goal of the fourth campaign is to eliminate all births above two per family, and to encourage most families to have no more than one child, especially those in the urban areas. The policy is not enforced stringently among the country's minority

populations (Poston and Shu, 1987; Poston, 1993), and a number of exceptions are permitted among the majority Han. The program involves a series of inducements that are many and varied; they touch upon virtually all aspects of people's social and economic lives, including their salaries, sustenance, health facilities, employment, and education (Sardon, 1985).

Between 1980 and 1982 fertility increased slightly to 2.9, and then fell back to 2.2 in 1985; by 1986 it had risen again to 2.4. The increase between 1980 and 1982 was due in part to the implementation of China's new Marriage Law of 1981. This law raised the legal age at first marriage to 22 years for males and 20 years for females; previously, according to the Marriage Law of 1950, the legal ages for males and females were 20 and 18 years, respectively (Gu, 1988). Ironically, this stipulation of the new Marriage Law of 1981 resulted in an unanticipated increase in the number of first marriages, with a corresponding increase in the fertility rate. This occurred because although the 1950 Marriage Law allowed males and females to marry at ages 20 and 18, most provincial-level marriage policies required men and women to be quite a few years older; most provinces required males to be at least 25 and females 23. With the passing of the new 1981 Law, many couples used these new age at first marriage stipulations as a justification for earlier marriages, and China experienced a slight marriage-boom (Coale, 1984; Poston, 1986).

By 1987 the total fertility rate increased to 2.6. This increment was due in part to a relaxation of China's "one child per couple" policy. These days, China seems to be allowing more and more couples, particularly those in the rural areas, to have a second child. But the policies from the late 1980s into the 1990s were sometimes implemented

more stringently, and sometimes less stringently, resulting in slight increases in the late 1980s, and then decreases in the 1990s, leading to the current TFR of around 1.8.

It is the dramatic decline in the TFR mainly since the mid-1960s and the 1970s that has resulted in many, many extra baby boys, compared to baby girls, being born in China every year since the 1980s. This demographic occurrence has determined China's future. It is its destiny.

As of 2001 there were still many more baby boys being born in China than baby girls, and there is no indication that this abnormal trend will end in the years of this new decade. We address in the next section the main effect of China's fertility transition, that is, that many more baby boys are being born in China since the 1980s compared to baby girls, and its effect on China's marriage market .

### **The Sex Ratio at Birth in China**

Most societies have sex ratios at birth (SRBs) of around 105, that is 105 boys are born for every 100 girls. This so-called biologically normal level of about 105 is likely an evolutionary adaptation to the fact that females have higher survival probabilities than males. Since at every year of life males have higher age-specific death rates than females, around 105 or so males are required at birth for every 100 females for there to be about equal numbers of males and females when the groups reach the marriageable ages.

Figure 2 shows time-series data for the sex ratio at birth for China and for the United States, from 1980 to 2001. (We have included in Figure 2 China's East Asian neighbors of Taiwan and South Korea, for comparative purposes). The U.S. shows an invariant pattern, with an SRB of just about 105 for every year. This kind of stability over

time at around 105 is what one should see if there were no human interventions operating to disturb the biology. In contrast, whereas in 1980 China had an SRB only slightly above 107, it began to increase in the late 1980s, reaching a value of 115 by 1990. By the year of 2000, the China SRB was just under 120. The SRB reported for 2001 (the latest year for which we have data) is 118. Since the early 1980s, China's SRBs have been significantly above normal levels.

We may distinguish between the sex ratio at conception (the SRC), referred to as the primary sex ratio, and the sex ratio at birth (the SRB), referred to as the secondary sex ratio. If there are no human interferences with the biological processes, the SRB depends on the factors that produce the SRC. However, if human activities such as sex selective abortion are introduced, these are interventions that will influence only the SRB, and not the SRC. What do we know about these sorts of interventions?

China, along with Taiwan, South Korea and a few other countries, have been reporting abnormally high SRBs since the 1980s (Arnold and Liu, 1986; Gu and Roy, 1995; Goodkind, 1996; 2002; Kim, 1997; Poston et al., 1997; Eberstadt, 2000). Research indicates that the SRBs are even higher for higher order parities (Arnold and Liu, 1986; Poston et al, 1997).

What are the immediate causes of these abnormally high SRBs? China and the other East Asian countries just mentioned are all showing, in varying degrees of importance, the same kinds of intervention leading to abnormally high SRBs, namely, prenatal sex identification followed by gender-specific abortion (Hull, 1990; Johansson and Nygren, 1991; Chu, 2001; Banister, 2002).



But why would Chinese and some other East Asian peoples resort to an intervention that would produce higher than biologically normal SRBs? We have mentioned that the immediate cause is China's dramatic fertility decline. Why would a rapid fertility reduction in China lead to abnormally high SRBs?

One reason is that China (along with Taiwan and South Korea) has a Confucian patriarchal tradition where son preference is strong and pervasive (Arnold and Liu, 1986; Gu and Roy, 1995; Kim, 1997; Park and Cho, 1995; Poston et al, 1997). When birth rates are low or are on the decline, and "where a strong preference for sons over daughters is already part of the culture, SRBs tend to be higher" (Poston et al, 1997: 59).

As we noted in the previous section, birth planning policies, as well as social, economic and industrial transformations in China, have been responsible for the fact that the number of babies born per woman has fallen to below replacement levels, and has done so quickly (Poston, 2000). Couples now have fewer children than they had just a couple of decades ago, and this is because of fertility policies and newly emerging social norms and mores. However, the deeply-rooted cultural influences of son preference still make it important for many families to have at least one son. Therefore, strategies and interventions are sought by many to ensure that they will have a son (Gu and Roy, 1995; Zeng, et al, 1993).

In China since the late 1980s, ultrasound technology enabling the pre-natal determination of sex has been widely available. There is little evidence of female infanticide causing the high SRBs (Zeng et al., 1993; Eberstadt, 2000: 228; Chu, 2001; Banister, 2002). These human interventions that disturb the SRB, it is hypothesized, are

mainly due to norms and traditions among Chinese families to have sons, within a more recent policy as well as normative context to have fewer births.

Are the reported SRBs for China the true values of the SRB? If this question were asked about SRBs in South Korea or in Taiwan, we would answer in the affirmative.

Birth registration in both countries is near 100 percent, and moreover, the two countries do not have birth planning policies limiting the number of children a couple may have.

In China the situation is more problematic. The higher than biologically normal sex ratios at birth in China are being registered in the context of a birth registration system that is nowhere near 100 percent complete (Eberstadt, 2000: 228; Goodkind, 2002). Given the incomplete registration system, most of the reported SRB data for China are based on data from other sources, including sample surveys and censuses. But these reported SRB data are often higher than SRB data for the same years collected in 945 Chinese hospitals in 29 provinces covering over 1.2 million birth records (Zeng et al., 1993; Goodkind, 2002). The hospital SRB data are complete, but are they representative of the SRBs in the country as a whole?

The hospitals may be reporting SRB data that are biased downwards. As Goodkind (2002: 4) has noted, “this could occur if the hospitals tended to be located in (urban) areas where son preferences are less strong and sex-selective abortion less common. ... A second potential bias ... could occur if parents choosing sex selective abortion were more likely to have their births away from hospitals.”

On the other hand, the national SRB data may be biased upwards, because of the underreporting of the births of girls. The underreporting of female births is acknowledged

to occur because if parents do not report the births of girls, they are usually able to avoid the penalties that would be imposed under the one-child policies (Goodkind, 2002: 4).

Some demographers have been unsure about whether the national, often survey-based SRB data were more valid than the more limited, often urban-based hospital SRB data (Goodkind, 2002). Data from the 2000 census, however, provide an SRB value for the year of 2000 of 119.9 (State Council and State Statistical Bureau, 2002). This value, although high, is much more consistent with the trends in the SRB based on the national-level data than those based on the hospital-level data. Accordingly, we are inclined to favor the national-level SRB data over the hospital data. First, the SRB data based on the 2000 census, unlike the SRBs for earlier years based on surveys, are virtually 100 percent complete. Second, it is more difficult in census reporting in China to underreport (i.e., hide) a newborn baby girl than is the case in the more selective and less representative surveys. However, more research is needed from China to allow us to learn about the true levels and patterns of the SRB in China.

We noted earlier that the SRB is biologically normal at about 105 because this excess number of males per 100 females at birth pretty much guarantees that there will be near equal numbers of males and females when the groups reach the marriageable ages. For decades, the U.S. has had a balanced sex ratio at birth of around 105 (see Figure 2). Figure 3 shows sex ratios in the U.S. for the year of 1999 for every 5-year age group. The sex ratio is around 105 at age 0 and drops to near 100 for the ages 20-29, when men and women typically marry.

Abnormally high SRBs, however, will disturb this balance. This demographic change of many more baby boys born than baby girls in China since the early 1980s is

China's demographic destiny. This means that starting around 20 years after 1980, i.e., around the year of 2000, and continuing until around 2020, there will be many more extra boys of marriage-age seeking females to marry, who will be unsuccessful in their courtship pursuits. How many excess Chinese boys will there be in China who will be unable to find Chinese brides?

For every year from 1978 to 2001, we have taken data on China's total population size, the crude birth rate, and the sex ratio at birth, and have calculated the numbers of males and females born every year; these are shown in Figure 4. Using "l(x)" data from China life tables for males and for females based on 1989-90 death data (Huang and Liu, 1995: Tables 2-6-1 and 2-6-2), we next survived the boys born each year to age 22, and the girls born each year to age 20. These are the minimum ages at first marriage permitted by China's Marriage Law of 1981 (see discussion in the previous section). For each year starting in the year of 2000 through the year of 2021, we have subtracted the number of females survived to age 20 from the number of males survived to age 22. Given an approximate two year difference in the ages of males and females at first marriage, each year the females age 20 will comprise the pool of potential brides for the males age 22.

The numbers of marriage-age males and marriage-age females appearing in the year of 2000 were born in 1978 (males) and in 1980 (females). We estimate a surplus in the year of 2000 of more than 341,000 males. In the year of 2002 the male surplus is estimated to be almost 1.7 million. In the years of 2011, 2012 and 2013, the numbers of excess males are estimated to be 2.3, 2.7, and 2.1 million, respectively. Of interest is the fact that our calculations for the years of 2001, 2002, 2006 and 2007 indicate that there

will actually be deficits of males. Figure 5 shows the numbers of excess males of marriageable age for each year from 2000 to 2021.

In all, between the years of 2000 and 2021 we estimate a total surplus of males of more than 23.5 million. If the boys born in China in 1978 decide to marry when they are 22, they will seek girls to marry who are age 20 and who were born in 1980; this bride-search process will have begun in the year of 2000. Based on the data shown in Figures 4 and 5, we estimate that there will be over 23.5 million surplus boys looking for wives between the years of 2000 and 2021. And there will not be enough Chinese women in the marriage market for them to marry.

We obtained another estimate of the number of excess marriage-age males by changing the ages at which the males and females would marry. Rather than using the minimum legal ages Chinese males and females are allowed to marry, as in the above calculations, we used instead the “encouraged” ages for males and females to first marry, which are 23 for females and 25 for males (China Population Information and Research Center, 2003). Extending the marriage ages by three years for both males and females only reduces minimally the number of surplus males from 23.5 million to 23.3 million. Were we to extend further the ages at first marriage to the late 20s, or even to the early 30s, these adjustments also would not change the numbers of excess males by very much. This is so because not many males, or females, die while in their 20s or early 30s.

We should add that this excess number of marriage-age males is not due entirely to the high sex ratios China has experienced since the early 1980s. It turns out that even if China were to have maintained a balanced sex ratio of 105, it would not have been balanced enough because it would have produced over 9 million extra boys, survived to

age 22, than there would be girls, survived to age 20, for them to marry. In the latter decades of this last century China needed a sex ratio at birth of around 103, or even lower, for the numbers of marriage-age males and females to be about equal two decades later. China has experienced a mortality revolution since the 1960s that now enables more than 95 percent of newborn males and females to reach their marriage ages.

No matter to which ages we survive the males and females, there will be a tremendously large excess number of marriage-age males, from 22 to more than 23.5 million, who will not be able to find women to marry who are 2 years younger than they. This will be a particularly difficult situation because it will occur in a society where virtually everyone is expected to marry, and where marriage is nearly universal. What will these many millions of young men do when they cannot find brides? In the final section of our paper we explore some of the implications of these numbers of millions of excess males for China's destiny.

### **Implications**

Our analysis indicates that the unbalanced sex ratios in China since the 1980s has resulted, and will result, in the existence between 2000 and 2020 of over 23.5 million more marriage-age males than marriage-age females. Some Chinese are aware of the emergence of these boys who will not be able to find brides. The excess boys are known in Chinese as *guang guan*, standing for "bare branches" or "bare sticks" (Hudson and den Boer 2004). But few Chinese know what will happen to the *guang guan*. Eberstadt (2000: 230) cites an essay published in 1997 in the Chinese magazine *Renmin Luntan* that predicted that "such sexual crimes as forced marriages, girls stolen for wives, bigamy,

visiting prostitutes, rape, adultery ... homosexuality ... and weird sexual habits appear to be unavoidable.” In this final section of our paper we entertain some of the implications of this excess number of young males who will not be able to find China-born Chinese brides to marry. We first inquire about some historical experiences in China and other countries at other times. What does history report about situations when earlier populations were faced with large numbers of excess males?

In past centuries there are several instances of national and subnational populations having excess numbers of males. What have these countries and populations done to handle the large numbers of extra males? May China learn anything from these historical experiences so to be able to adapt to its many millions of *guang guan*?

One result of the excess numbers of males has been a rise in the authoritarian nature of a region’s political system. This has typically occurred because of the perceived need to deal with the threat of increased violence in a society with too many unattached men. Authorities have endeavored to reduce their numbers through physical force directed at them, or instigated among them, or through some form of relocation effort (Hudson and den Boer 2002, 2004).

Authorities in the past have also recruited excess males into dangerous law enforcement and military occupations, or into large-scale public works projects, often in remote regions, both of which were characterized by higher than average mortality rates. Governments have also used the extra males in the development of unexplored territories; they have also encouraged the males to migrate to other countries. A final solution, especially relevant in those instances where the excess males were of low socioeconomic status, was for the authorities to ignore their in-group violence, and even to encourage

divisions among them that led to increased violence and self-destruction (Hudson and den Boer 2002).

Among the historical cases one could cite to illustrate how instability of the social order was caused by excess males in the population are well-known episodes in China and in Portugal. During the 19<sup>th</sup> century in China, the Nien Rebellion in northern China's Shandong Province originated in part due to harsh social and environmental conditions. A resulting famine prompted many in the population to choose female infanticide as one way to secure their families, resulting in sex ratios averaging 129 males for every 100 females (Perry 1980). These excess males, more than 100,000 strong, finding themselves without wives and in a region entrenched in economic and social hardship, organized and turned to criminal activity. At the height of their revolution they controlled a part of Shandong Province containing 6 million people. It took the ruling Qing dynasty seventeen years to overthrow them (Hudson and den Boer 2002, 2004; Wiseman, 2002: 2A).

Portugal, during the Middle Ages, also experienced ill effects caused by a high sex ratio that was produced by primogeniture. Unlike the China case just described, Portugal's excess males came from both low and high status groups. Government policies were affected because organized groups of these excess males generally supported uprisings against the government when they were promised valued resources. Expansionist policies were also established that relied on these males to colonize neighboring territories, with these policies sometimes encouraged by the recruits themselves who saw opportunity in new areas. Many of the excess Portuguese males were sent off to invade North Africa (Hudson and Den Boer 2002; Wiseman, 2002: 2A).



Evident in these and other similar initiatives was the desire to harness and/or squelch the potential energies generated by an excess number of unattached males in the society in the hope of limiting the harmful social dynamics that would have occurred.

Of the various scenarios that could occur in China in the next few decades as the country's demographic destiny caused by over 23.5 million excess males begins to be realized, some are more probable than others. We do not believe that China will have an easy time adapting and adjusting to their excess males, the *guang guan*. While it is true that throughout history, especially in Western Europe, "bachelorhood was an acceptable social role, and the incidence of never-marrying bachelors in the total population was high" (Eberstadt, 2000: 230; Hajnal, 1965), China and its East Asian neighbors throughout their thousands of years of history have never been so characterized, and are not so today. We agree with Eberstadt (2000: 230) who has noted that "unless it is swept by a truly radical change in cultural and social attitudes toward marriage in the next two decades, ... China (is) poised to experience an increasingly intense, and perhaps desperate, competition among young men for the nation's limited supply of brides."

China could well turn to a more authoritarian form of government. In such a scenario, the country's slow progress toward democracy could be stalled if not halted. If 100,000 excess males in Shandong Province were a thorn in the side of the Qing rulers for seventeen years during the 19<sup>th</sup> century, imagine the level of a rebellion that could be instigated by over 23.5 million Chinese bachelors.

China could modify the magnitude of the potential unrest of the *guang guan* by dispatching them to public works projects thousands of miles away from the big cities. There are several huge construction projects currently underway in China, all of which

could benefit from a young male labor force. The natural gas pipeline from the western provinces to Shanghai, the railroad to Tibet, and the Three Gorges Dam are but three projects with locations in rural and isolated areas where many of the bachelors could be sent. There is also historical precedent for dispatching Chinese to the countryside. In 1960 at the end of the Great Leap Forward (1958-60), nearly 14 million city residents were systematically and involuntarily shipped to the rural areas and remained there for years. During the Cultural Revolution (1966-76) many millions more young unmarried males and females, as well as intellectuals, were involuntarily sent to the countryside to work with, and “learn from,” the peasants, and their stays often lasted for a decade or more (Fairbank, 1992: chapters 19 and 20; Thurston, 1987).

Portugal sent their extra males off to wars in North Africa. With many, many millions of *guang guan* in China's big cities, all within 20 years of age, bellicose Chinese leaders might be tempted to “kill two birds with one stone”; they could reduce the tensions caused by the bachelors in the cities by sending this excess manpower to pick a fight with, or participate in an invasion of, another country. And what better country with which to engage in such activities than their “renegade” province, Taiwan, located less than 100 miles across the Taiwan Straits from the southern province of Fujian. It is instructive to recall that there will be more bachelors in China in the next two decades than there are females in Taiwan.

China is already co-opting young and poor unmarried males into the People's Liberation Army and into the paramilitary People's Armed Police. Indeed many of the armed personnel who participated in the crushing of the Tiananmen pro-democracy movement and rebellion in 1989 were poor, uneducated, unmarried males from isolated

rural areas of China. In the next few decades there will be many millions more of such males available for these and similar kinds of activities.

One solution to the problem which we deem to be very unlikely would be the immigration to China of Chinese women from Hong Kong, Singapore, Indonesia, Thailand and other countries with large numbers of Chinese peoples (Poston et al., 1994; Poston, 2003). Chinese women from other countries would of course enlarge the pool of wives for the Chinese men in China. While there is ample evidence within China of marriage migration in which brides from provinces hundreds and thousands of miles away in-migrate to other provinces for the purpose of marriage, there is very little, if any, evidence of brides immigrating to China from other countries to marry Chinese men (Yang, 1991; Xu and Ye, 1992; Davin, 1998; Fan and Huang, 1998). Compared to the more than 30 million overseas Chinese in the diaspora, China is a poor country, and most of its *guang guan* are/will be poor rural workers; most of the bachelors will not be able to afford “mail order brides” (Eberstadt, 2000: 231; Dean, 2000). And even if this kind of marriage immigration were to occur, which is unlikely, it would need to be of a substantial magnitude to even begin to offset the gender imbalances of marriage-age males that are expected in China in the first two decades of this new century. And, of course, if this immigration did occur, it would cause shortages of many millions of females in the areas of origin. So if China were to gain brides, other countries would lose them.

Polyandry would be another possibility (see Cassidy and Lee, 1989). Although some might think this to be an unlikely scenario, there is limited evidence of its existence

currently among some of China's minority populations (Zhang, 1997; Johnson and Zhang, 1991). But we deem it unlikely throughout China.

An even less likely solution would be increases in levels of homosexuality. This is an unlikely alternative because most scientific evidence on the origins of homosexuality argues in favor of a biological foundation, that is, persons are born with a homosexual orientation (LeVay, 1991, 1996; Masters et al., 1994; Pinker, 2002; also see Stein [1999] and Murray [2000] for other views and arguments). It is not at all likely that when Chinese males are unable to find females to marry that as an alternative to (heterosexual) marriage they will turn to homosexual relationships. On the other hand, homosexual behavior in China, which today is greatly restricted, may become more acceptable, so that closeted Chinese homosexuals will be freer to openly declare their orientation.

The most likely possibility, of course, is that these Chinese bachelors will never marry and will have no other choice but to develop their own lives and livelihoods. They will re-settle with one another in "bachelor ghettos" in Beijing, Shanghai, Guangzhou, Tianjin and other big cities in China, where commercial sex outlets would likely be prevalent. There is also historical precedent behind this expectation. In the 19<sup>th</sup> century many thousands of young Chinese men immigrated to the United States to work in the gold mines and help build the railroads. When the work projects were completed, many stayed in the U.S. and re-settled in Chinese bachelor ghetto areas in New York, San Francisco and a few other large U.S. cities (Lee, 1960; Kwong, 1988; Zhou, 1992). The sex ratios of the Chinese in these areas were extraordinarily high. In 1850 the sex ratio of the Chinese living in San Francisco was almost 40,000 (787 males and a mere 2 females) (Tsai, 1986: 2). In 1900, the then very small Chinatown in New York City had a sex

ratio of over 11,000 (about 4,000 men and only 36 women). In the same year, the state of New York had a Chinese sex ratio of almost 5,000 (7,028 men and only 142 women) (Zhou, 1992: 34, 44).

And if these men do not marry, research suggests that they will be more prone to crime than if they were married (Mazur and Michalek 1998; Horney, Osgood, and Marshall 1995; Sampson and Laub 1990). This possibility has alerted some to the potential increases in crime in China's future, and perhaps political ramifications, resulting from these excess males (Hudson and Den Boer 2002, 2004). This potential for high levels of criminality is based on criminological research and historical insights. The research has shown that banditry, violence, and revolutions are likely to occur in areas with large numbers of excess males (Hudson and Den Boer 2002, 2004). This is a real implication of China's demographic destiny.

No one, of course, knows what this excess number of young Chinese males will do. We have entertained some possibilities. The only fact we know for certain is that there have already been born in China over 23.5 million more baby Chinese boys than there will be Chinese girls for them to marry. These "bare branches," the *guang guan*, are China's demographic destiny. Their presence is now beginning to be felt in China's marriage market and will continue to be felt, at least until 2020, perhaps longer.

### **References**

Aird, John S. 1972. "Population Policy and Demographic Prospects in the People's Republic of China." In *People's Republic of China: An Economic Assessment*, A Compendium of Papers Submitted to the Joint Economic Committee, Congress of the

United States, 18 May (92nd Congress, 2nd Session), Washington D.C.: U.S. Government Printing Office.

Arnold, Fred, and Zhaoxiang Liu. 1986. "Sex Preference, Fertility, and Family Planning in China." *Population and Development Review* 12: 221-246.

Ashton, Basil, Kenneth Hill, Alan Piazza, and Robin Zeitz. 1984. "Famine in China, 1958-61." *Population and Development Review* 10: 613-645.

Banister, Judith. 1987. *China's Changing Population*. Stanford CA: Stanford University Press.

Banister, Judith. 2002. "Recent Population Trends and Issues in China." Paper presented at the annual meetings of the Australian Population Association, Sydney, October.

Cassidy, M. L., and G. R. Lee. 1989. "The Study of Polyandry: A Critique and Synthesis." *Journal of Comparative Family Studies* 20: 1-11.

Chen, Shengli. 1984. "Fertility of Women during the 42-Year Period from 1940 to 1981." Pp. 32-58 in China Population Information Center, *Analysis on China's National One-per-Thousand Sampling Survey*. Beijing: China Population Information Center.

China Population Information and Research Center. 2003. "Encouraged Ages for First Marriages." <http://www.cpirc.org.cn/policyfp.htm> (in Chinese) (accessed 1-30-2003).

Chu, Junhong. 2001. "Prenatal Sex Determination and Sex-selective Abortion in Rural Central China." *Population and Development Review* 27: 259-281.

Coale, Ansley J. 1984. *Rapid Population Change in China, 1952-1982*. Washington D.C.: National Academy Press.

Davin, D. 1998. *Internal Migration in Contemporary China*. Basingtone, England: MacMillan Press.

Dean, Jason. 2000. "Where the Boys Are." *The Wall Street Journal* (October 23).

Eberstadt, Nicholas. 2000. *Prosperous Paupers & Other Population Problems*. New Brunswick, New Jersey: Transaction Publishers.

Fairbank, John King. 1992. *China: A New History*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press.

Fan, C. Cindy, and Youqin Huang. 1998. "Waves of Rural Brides: Female Marriage Migration in China." *Annals of the Association of American Geographers* 88: 227-251.

Goodkind, Daniel. 1996. "On Substituting Sex Preference Strategies in East Asia: Does Prenatal Sex Selection Reduce Postnatal Discrimination?" *Population Research and Policy Review* 22: 111-125.

Goodkind, Daniel. 2002. "Recent Trends in the Sex Ratio at Birth in East Asia." Paper presented at Conference on Chinese Populations and Socioeconomic Studies: Utilizing the 2000/2001 Round Census Data. Hong Kong: Hong Kong University of Science and Technology, June 19-21.

Gu, Baochang, and Krishna Roy. 1995. "Sex Ratio at Birth in China, with Reference to Other Areas in East Asia: What We Know." *Asia-Pacific Population Journal*. 10(3): 17-42.

Gu, Jiantang. 1988. "Marriage and the Family." Pp. 129-149 in China Financial and Economic Publishing House, *New China's Population*. New York: Macmillan.

Hajnal, J. 1965. "European Marriage Patterns in Perspective." Pp. 101-143 in D.V. Glass and D.E.C. Eversley (editors), *Population in History*. London: Edward Arnold.

Horney, Julie, D. Wayne Osgood, and Ineke Haen Marshall. 1995. "Criminal Careers in the Short-Term: Intra-Individual Variability in Crime and its Relation to Local Life Circumstances." *American Sociological Review* 60: 655-673.

Huang, Rongqing, and Yan Liu. 1995. *Mortality Data of China*. Beijing: China Population and Information Research Center.

Hudson, Valerie M., and Andrea M. den Boer. 2002. "A Surplus of Men, a Deficit of Peace." *International Security* 26: 5-38.

Hudson, Valerie M., and Andrea M. den Boer. 2004. *Bare Branches: Security Implications of Asia's Surplus Male Population*. Cambridge, Massachusetts: The MIT Press.

Hull, Terence H. 1990. "Recent Trends in Sex Ratios at Birth in China." *Population and Development Review* 16: 63-83.

Johansson, Sten, and Ola Nygren. 1991. "The Missing Girls of China: A New Demographic Account." *Population and Development Review* 17:35-51.

Johnson, Nan E., and Kai-Ti Zhang. 1991. "Matriarchy, Polyandry, and Fertility Amongst the Mosuos in China." *Journal of Biosocial Science* 23: 499-505.

Kim, Doo-Sub. 1997. "The Pattern of Changing Trends and the Regional Difference in the Sex Ratio at Birth: Evidence from Korea and Jilin Province, China" *Korea Journal of Population and Development* 26: 19-4.

Kwong, Peter. 1987. *The New Chinatown*. New York: Hill and Wang.



Lee, Rose Hum. 1960. *The Chinese in the United States of America*. Hong Kong: Hong Kong University Press.

LeVay, Simon. 1991. "A Difference in Hypothalamic Structure Between Heterosexual and Homosexual Men." *Science* 252: 1034-1037.

LeVay, Simon. 1996. *Queer Science: The Use and Abuse of Research Into Homosexuality*. Cambridge, Massachusetts: MIT Press.

Masters, William H., Virginia E. Johnson, and Robert C. Kolodny. 1994. *Heterosexuality*. New York: HarperCollins Publishers.

Mazur, Allan, and Joel Michalek. 1998. "Marriage, Divorce, and Male Testosterone." *Social Forces* 77: 315-330.

Murray, Stephen O. 2000. *Homosexualities*. Chicago: University of Chicago Press.

Orleans, Leo A. 1972. *Every Fifth Child: The Population of China*. Stanford CA: Stanford University Press.

Park, Chai Bin, and Nam-Hoon Cho. 1995. "Consequences of Son Preference in a Low-fertility Society: Imbalance of the Sex Ratio at Birth in Korea." *Population and Development Review* 21: 59-84.

Perry, Elizabeth J. 1980. *Rebels and Revolutionaries in North China, 1845-1945*. Stanford: Stanford University Press.

Pinker, Steven. 2002. *The Blank Slate: The Modern Denial of Human Nature*. New York: Viking Press.

Poston, Dudley L., Jr. 1986. "Patterns of Contraceptive Use in China." *Studies in Family Planning* 17: 217-227.

Poston, Dudley L., Jr. 1993. "The Minority Nationalities of China." Pp. 483-495 in *Proceedings of the International Population Conference, Montreal, 1993*.

Liege, Belgium: International Union for the Scientific Study of Population.

Poston, Dudley L., Jr. 2000. "Social and Economic development and the Fertility Transitions in Mainland China and China." *Population and Development Review* 26 (Supplement): 40-60.

Poston, Dudley L., Jr. 2003. "Overseas Chinese." In G. McNicoll and P. Demeny (editors), *Encyclopedia of Population*. New York: Academic Press, forthcoming.

Poston, Dudley L., Jr., Baochang Gu, Peihang Liu, and Terra McDaniel. 1997. "Son Preference and the Sex Ratio at Birth in China." *Social Biology* 44: 55-76.

Poston, Dudley L., Jr., Michael Xinxiang Mao, and Mei-Yu Yu. 1994. "The Global Distribution of the Overseas Chinese Around 1990." *Population and Development Review* 20: 631-645.

Poston, Dudley L., Jr., and Jing Shu. 1987. "The Demographic and Socioeconomic Composition of China's Ethnic Minorities." *Population and Development Review* 13: 703-722.

Sampson, Robert J., and John H. Laub. 1990. "Crime and Deviance over the Life Course: The Salience of Adult Social Bonds." *American Sociological Review* 55: 609-627.

Sardon, Jean-Paul. 1985. "Planification Familiale et Pratiques Contraceptives en Chine." *Population* 40: 774-779.

State Council and State Statistical Bureau. 2002. Population Census Office Under the State Council and Department of Population Statistics, State Statistical Bureau.

*Tabulation on the 2000 Population Census of the People's Republic of China*. Beijing: China Statistical Publishing House.

Stein, Edward. 1999. *The Mismeasure of Desire: The Science, Theory, and Ethics of Sexual Orientation*. New York: Oxford University Press.

Thompson, Kenneth. 1976. *Auguste Comte: The Foundation of Sociology*. London: Thomas Nelson and Sons Ltd.

Thurston, Anne F. 1987. *Enemies of the People: The Ordeal of the Intellectuals in China's Great Cultural Revolution*. New York: Alfred A. Knopf.

Tien, H. Yuan. 1983. "China: Demographic Billionaire." *Population Bulletin* 38 (2): 1-42.

Tsai, Shih-Shan. 1986. *The Chinese Experience in America*. Bloomington, Indiana: Indiana University Press.

Wiseman, Paul. 2002. "China Thrown Off Balance As Boys Outnumber Girls." *USA Today* (June 19): 1A-2A.

Xu, Tianqi, and Zhendong Ye. 1992. "Analysis of Female Immigrants in Zhejiang." *Renkou Xuekan (Population Journal)*: 2: 45-48 (in Chinese).

Yang, Qifan. 1991. "The Phenomenon of Southern Women Marrying to the North and its Advantages and Disadvantages." *Renkou Xuekan (Population Journal)*: 5: 51-55 (in Chinese).

Zeng, Yi, Ping Tu, Baochang Gu, Yi Xu, Bohua Li, and Yongping Li. 1993. "Causes and Implications of the Recent Increase in the Reported Sex Ratio at Birth in China." *Population and Development Review* 19: 283-302.

Zhang, Tianlu. 1997. "Marriage and Family Patterns in Tibet." *China Population Today* 14: 9-12.

Zhou, Min. 1992. *Chinatown: The Socioeconomic Potential of an Urban Enclave*. Philadelphia: Temple University Press.



**Figure 1.**  
**Total Fertility Rates: China, Taiwan, and South Korea, 1950-2001**

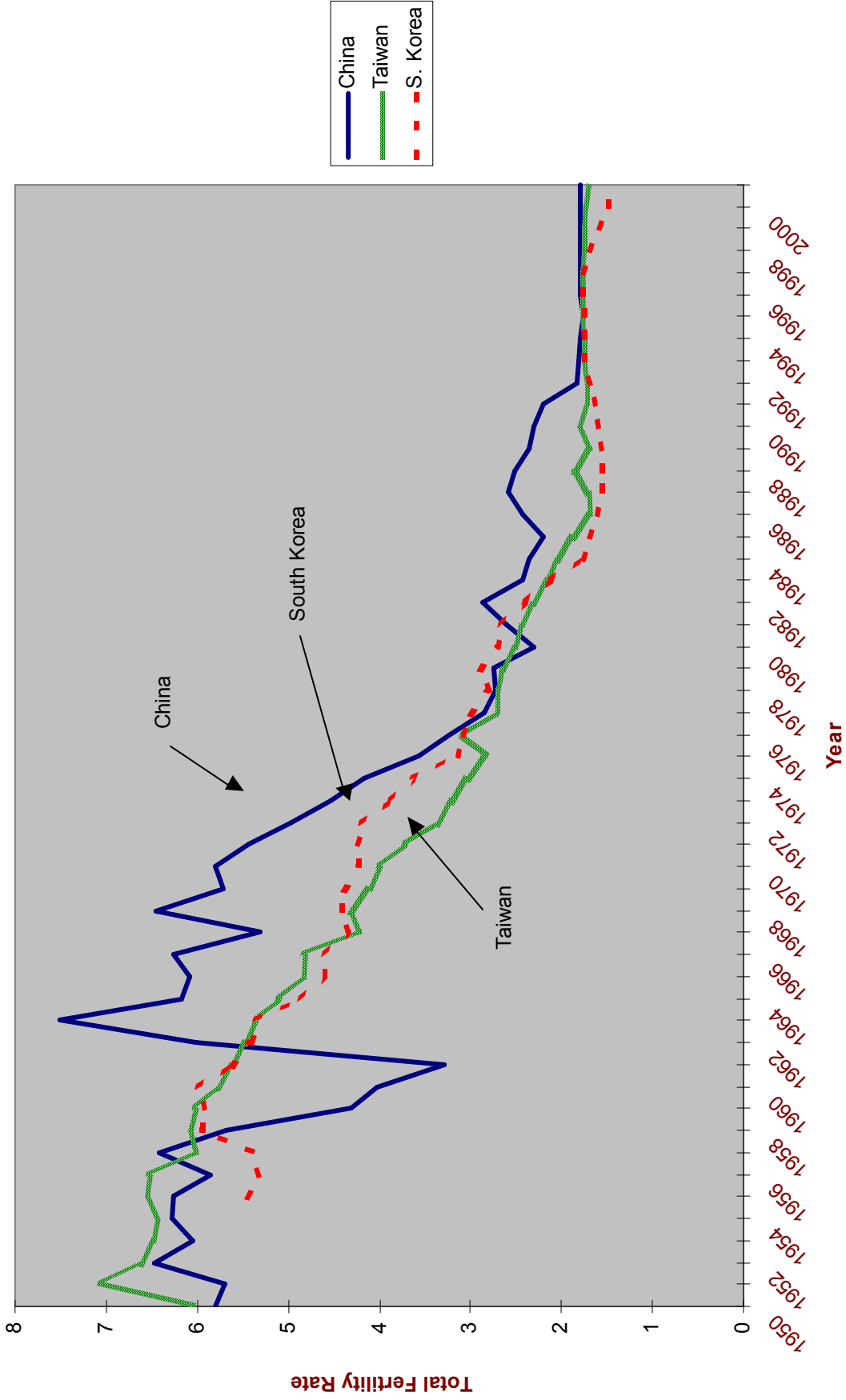




Figure 2.  
Sex Ratio at Birth: Taiwan, Mainland China, South Korea, and the United States,  
1980-2001

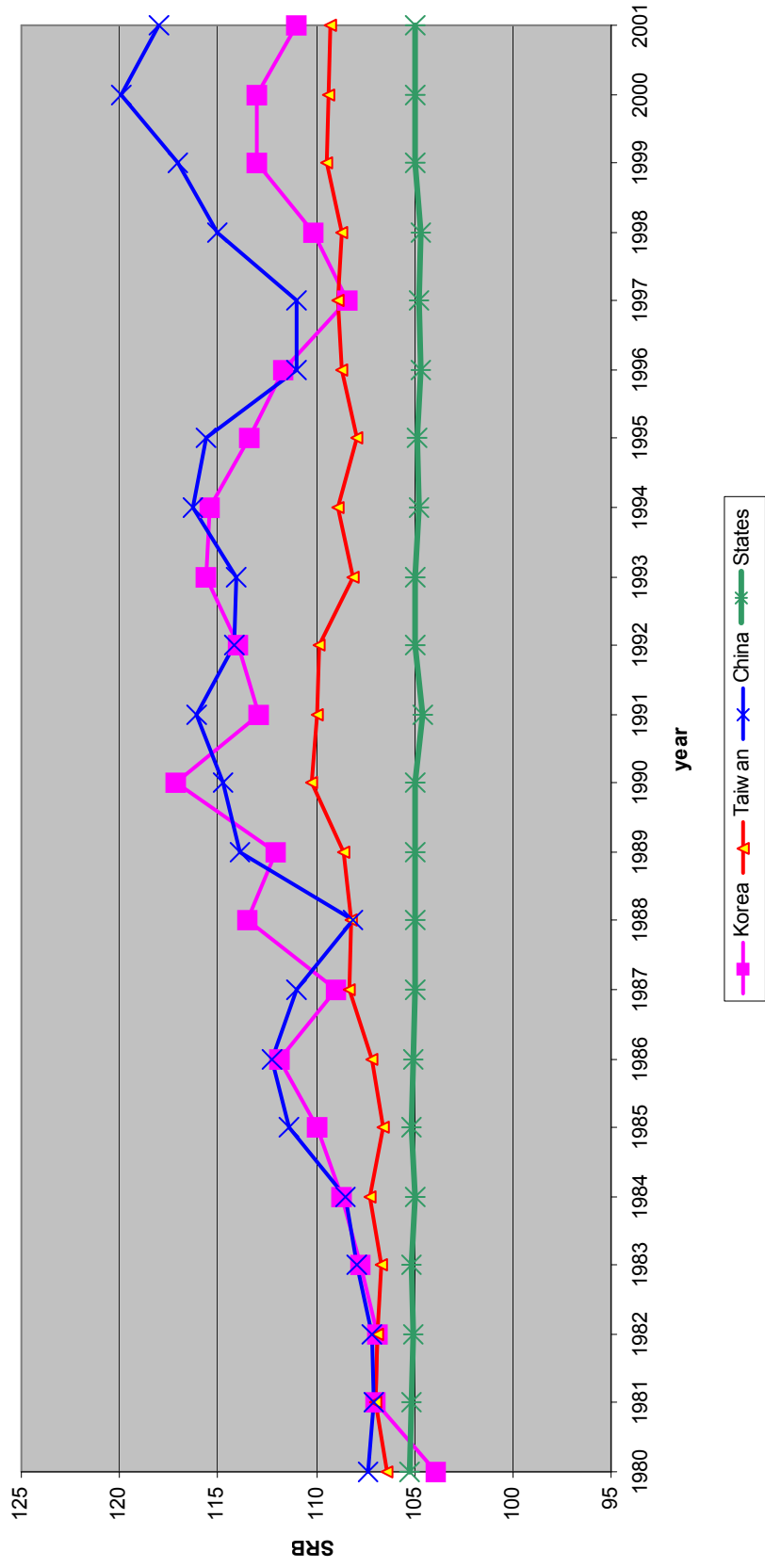




Figure 3

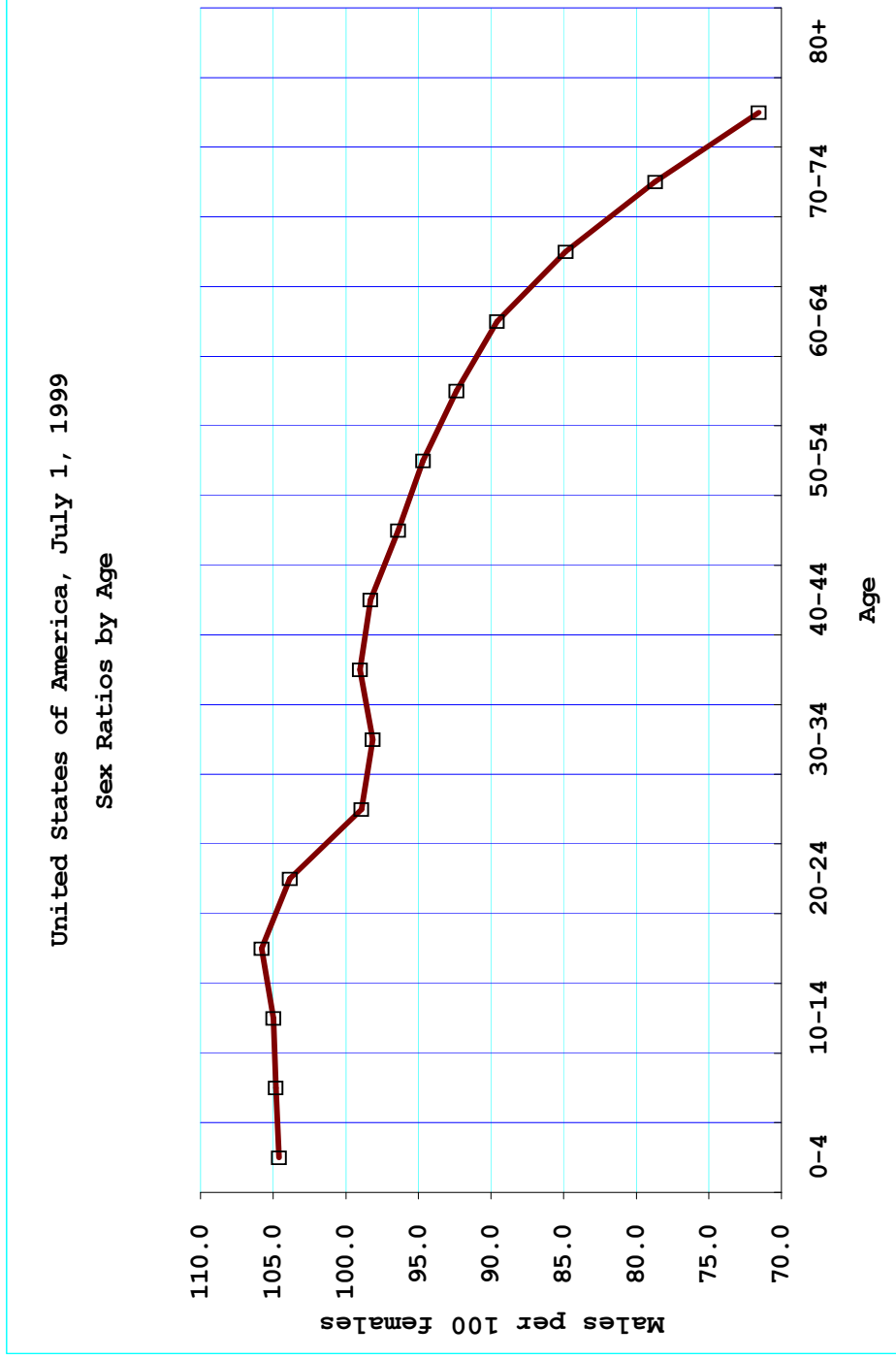


Figure 4.  
Males and Females Born in Mainland China,  
1980-2001

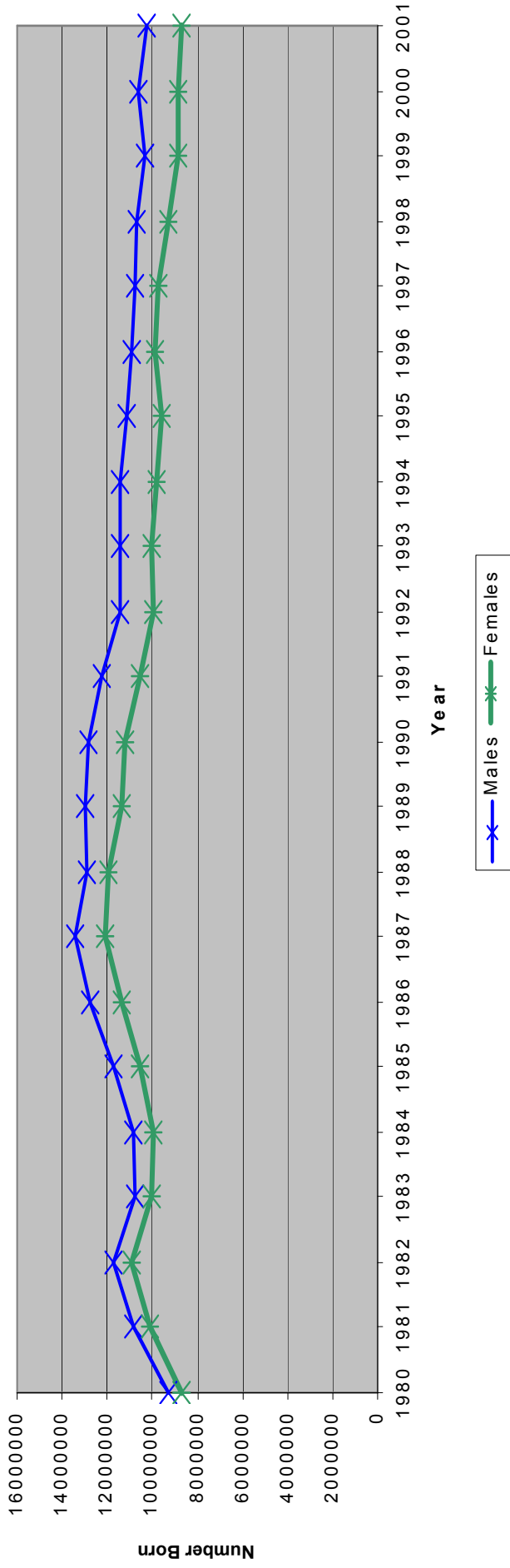


Figure 5.  
Number of Excess Males at Marrying Age of 22:  
Mainland China  
2000-2021

