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Analysing China's Population

Social Change in a New Demographic Era

Analysing China’s Population

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Chapter 1
China's Demography in a Changing Society: Old Problems and New Challenges

Isabelle Attané and Baochang Gu

China's most recent population census, the sixth to be organized since the founding of the People's Republic of China in 1949, was conducted in 2010.[1] Its results, which were released from late 2011 and published in early 2012, have revealed few unexpected trends. They tend to confirm a series of demographic changes that had been largely foreseen — even if sometimes underestimated — by demographers.

By and large, the 2010 census results bore out expectations. They indicate that, despite some suspicion on data quality (Zhao 2011), fertility continued to decline between 2000 and 2010, and that population ageing has significantly accelerated. In 10 years, the share of the population aged under 15 years has decreased by 6 percentage points, from 22.9 to 16.6% in 2010, while the proportion of over-60s has increased by 2.5 points, from 10.8 to 13.3%. According to the latest United Nations population prospects, the proportion of over-60s should more than double by 2035 to reach 27%, and then 33% in 2050 (UN-WPP 2012). By mid-century, with a median age of 49 years, China will be among the countries in the world most severely affected by population ageing, almost on a par with countries such as Germany (51 years), Italy and Spain (around 50 years), and not far behind those most advanced in this process, such as South Korea and Japan (53 years). In comparison, the median age of the French population will be 43 years at that time. Though these trends clearly confirm the end of the demographic transition in China, they also highlight the threat of rapid population ageing in coming decades.

[1] The five previous censuses were conducted in 1953, 1964, 1982, 1990, and 2000.

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Another fact confirmed by the 2010 census is that, despite higher fertility, ageing in rural areas is more pronounced than in urban areas[2] due to massive flows of young adults from the countryside to cities and towns. A consequence of this large-scale internal migration is China's soaring urbanization; almost half of the total population are now city-dwellers. Even if the actual magnitude of urbanization has been questioned (Chang and Brada 2006), it is nonetheless a reality that more and more Chinese people are living in urban areas. All these demographic trends, which began several decades ago but have accelerated in the recent past, have been analysed and discussed in many studies over the years. Nevertheless, the 2010 census data give more evidence of how, and to what extent, China's demographic landscape is changing.

The past half-century has been a crucial period for China's demography. In this short period of time, China has completed the demographic transition, and has become a country with low population growth, at least when compared to its major Asian neighbours such as India, Indonesia, Pakistan or Bangladesh. As a consequence, China's share of the world population is shrinking: the country accounted for 22 % of the world total in 1950 but only 19.5 % in 2010. Indeed, the United Nations are predicting that the Chinese population may never reach 1.5 billion, but will level off at 1.45 billion in 2030 before starting to decline, falling to around 1 billion in 2100 (UN-WPP 2012). China's relative decline can be attributed both to the sharp slowdown in its population growth over the past half-century, but also to sustained population growth in rival countries and continents, such as Africa, whose share of the world population rose from 9 % in 1950 to 15 % in 2010, and especially India, whose share increased from 14 % to almost 18 % over the same period.

China's population is currently increasing by around 0.6 % annually, i.e. 4 to 5 times more slowly than in the 1960s. So, while the country was gaining nearly 20 million people per year in the early 1970s, it has gained three times fewer on average each year of the past decade, at around 7 million annually. Chinese women, who were still giving birth to almost six children on average in 1970, had fewer than two from the early 1990s, i.e. almost as few as in the world's most developed countries. For mortality too, China is now in the forefront of developing countries, with a life expectancy at birth gradually approaching the European average.

Most of these demographic changes were initiated during Mao's era, but accelerated in parallel with the economic transition, which has led to profound social change. The three decades following the Communist takeover in 1949, which brought radical political and economic transformation, were marked by a quest for social equality. But equally radical was the liberal turnaround initiated by Deng Xiaoping in 1978, which resulted in a total overhaul of agricultural and industrial production. Since then, China has been moving away from its centrally planned economy towards a "socialist-type market economy", a transition that has led to unprecedented economic development. Its gross domestic product has increased by

[2] Chinese censuses distinguish between *chengshi* (cities) and *zhen* (small towns, variously translated in English as towns, townships or county towns). Together, the inhabitants of the cities and the towns are considered "urban" in contrast to the rural (*xiangcun* or *xian*) population. Some chapters of the present book refer to cities' and towns' populations separately, while other merge them into a single urban category.

about 8 % per year on average since the 1980s, while remarkable gains in labour productivity have resulted in substantial improvements in purchasing power and a decline in overall poverty (Bosworth and Collins 2008; Yueh 2008).

But the dismantling of collective structures under the reform and opening-up policy (*gaige kaifang zhengce*) launched in 1978, overturned the social organization that had prevailed in the previous decades, producing an impact that extended far beyond the economy alone. Previously, each individual had depended on the state, through his or her work unit, for all aspects of daily life. Everyone enjoyed guaranteed access to employment, housing, health, education of children, and for urban dwellers, retirement and social insurance. Gradually transferred to the private sector, these areas are now governed by the market, which makes access to them less systematic, and therefore increasingly unequal.

The liberalization of the labour market, rising unemployment and the decline of the welfare state have led to growing socioeconomic inequalities. The Gini coefficient[3] — a commonly used measure of inequality of income or wealth — rose from 0.27 in the mid-1980s to 0.39 in 2001 and 0.47 in 2012, overtaking the level of 0.4 defined as "alarming" by the World Bank. In 2001, the official government newspaper the *People's Daily* deplored that "The income gap between urban and rural areas, between provinces, between professions and individuals is becoming ever wider".[4] Even if Gini coefficients have tended to stabilize in recent years,[5] inequalities in today's China are still greater than in India or in Bangladesh (with Gini coefficients of 0.34 and 0.32 in 2010 respectively, according to the World Bank[6]).

Rising income inequalities can be considered as a normal process during economic take-off, especially in the former centrally-planned economies that used to be very egalitarian (Huchet 2003). Today, however, these inequalities extend far beyond the economic sphere, and while China's middle-class is expanding, some sections of its population have seen little improvement to their living conditions, or suffer from patent and sometimes even growing discrimination, making China's society extremely divided (Zheng and Tok 2007). Having a residence registered in a rural or a urban area, living in a city or in the countryside, in the eastern or the western part of the country, being a man or a woman, are all constituent factors of social dichotomization.

In a context of extremely rapid social and economic transition, marriage and fertility behaviours, housing patterns, access to education, to individual mobility or to the labour market are all affected by significant change: in China as elsewhere, the post-demographic transition period, with declining birth rates and increasing life expectancy, is a time of major upheaval, for individuals, families and society as a whole. As family size decreases, families focus increasingly on their children

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[3] The Gini coefficient is between the values of 0 and 1, with 0 representing perfect equality and 1 the highest level of inequality.

[4] *Renmin ribao*, 23 Aug 2001 [In Chinese].

[5] Xinhua News Agency. *Xinhua wang*, http://news.xinhuanet.com/english/china/2013-01/18/c_132111927.htm. Retrieved 25 Sept 2013.

[6] *GINI Index*. The World Bank. Available at http://data.worldbank.org/indicator/SI.POV.GINI. Accessed 11 Dec. 2013.

while the elderly, who are healthier and live longer, remain independent until later ages. In turn, not only are parental expectations much greater than ever in the past, but they are now also concentrated on just one or two children rather than many, as was the case in the past. The concentration of the various dimensions of family transmission, from both material and symbolic points of view, gives the Chinese child unprecedented value. As a consequence, intergenerational relationships are changing. The elderly are no longer the backbone of the family and interfere less in the lives of their children (Attané 2011). Along with the economic reforms and social liberalization, increasing individualization is observed, and individual roles and statuses are being profoundly altered.

In the twenty-first century, along with demographic and social change, China will have to deal with "old" problems that emerged or intensified some decades ago, such as, for instance, demographic masculinization, inequalities in access to education, endemic multidimensional poverty, massive flows of internal migrants, increasing job insecurity, and rapid urbanization. But the country will also face "new" challenges, among which the changing population age structure—in particular the unprecedented shrinkage and ageing of the labour force—and the management of population ageing, notably the need to develop new social structures and welfare benefits to compensate for families' gradual withdrawal from old-age support.

Many countries, including in the developing world, now face the challenges of population ageing and old-age support. What differs, however, in the case of China is the exceptional speed of ageing. With the rapid increase in both the proportion and numbers of older adults, China must adapt its policies and social structures to address the needs of this ageing population. The period granted by the demographic transition to achieve these adaptations is the period of "demographic dividend", during which working-age adults represent a large proportion of the total population, a situation deemed favourable to economic development (Birdsall et al. 2001; Bloom et al. 2003). In turn, economic development increases the national wealth, part of which can then be redistributed and assigned to the care of dependents. However, because the "demographic dividend" in China will be particularly fleeting, these adjustments will have to be made in a very short period of time. Moreover, despite the economic reforms launched from the late 1970s, China's economy remains largely undeveloped (Salditt et al. 2007) and the average standard of living remains relatively low (Cai et al. 2012). The challenge will thus be to ensure decent living conditions for an ever larger share of its population in the absence of a general pension system and in a context where intergenerational solidarity, the traditional mode of elder care, is compromised by the decline in family size and the sharp reduction in the number and proportion of working-age people.

The present book aims to address various defining patterns of China's demographic landscape in the early twenty-first century, some of which pose severe challenges to China's government. It is divided into three parts. Part One entitled "China's Low Fertility: Facts and Correlates", addresses a first concern relating to recent fertility trends — which are still a matter of debate, with opposing views about the need to maintain strict birth control — their causes and consequences. There is no doubt that the total fertility rate has been below the replacement level of 2.1 children per woman for around two decades, but how far below is still uncertain. In their

chapter "China's Low Fertility: Evidence from the 2010 Census", Zhigang Guo and Baochang Gu are far from adhering to the commonly expressed opinion that, due to recurrent undercounting of births, fertility has been significantly underestimated in the statistics for more than two decades. Instead, while Chinese birth control officials regard the unadjusted results of the recent censuses and annual surveys as implausible, and argue that the total fertility rate actually stands at around 1.8 children per woman, Zhigang Guo and Baochang Gu take the opposite view. They argue that the 2010 census reflects the true level of fertility, and that the birth control policy should be relaxed in order to slow down the ageing process and to remedy, at least partially, the labour shortage that is forecast for the coming decades.

Various parallel trends provide evidence of the significant decline in China's fertility. Today, in China as elsewhere, fertility is still largely dependent on marriage behaviours, and in particular on marriage timing and frequency. In their chapter "Changing Patterns of Marriage and Divorce in Today's China", Jiehua Lu and Xiaofei Wang state that while marriage has long been universal in Chinese society, things are changing and that marriage and family behaviours are gradually becoming more diversified, in urban areas especially. While conjugal bonds have long been considered as secondary in comparison to other relationships enacted by marriage ties within the extended family, they have become more valued in recent years and individual choices are given greater consideration. This chapter shows that, as part of this process of social change, first marriage is increasingly delayed for both men and women and that the age-specific proportions of unmarried people are growing. It also evidences that marriage behaviours are still influenced by various social and economic factors, such as educational levels and place of residence (rural/urban), and that divorce, which was extremely rare until recently, is now better accepted socially and therefore increasingly common.

The significant improvements in education observed in the recent decades have also clearly played in favour of a fertility decline. Qiang Ren and Ping Zhu's chapter entitled "Education in China: Uneven Progress" indicates that the overall educational levels have undergone a rapid, sustained increase since the late 1990s in the young generations, and that these improvements undeniably contribute to reshaping individual behaviours, especially those involving personal choices such as marriage and fertility. However, progress is uneven. Gaps remain, in particular between the sexes, ethnic groups, provinces, and places of residence (urban, rural), indicating that while most children are benefiting from the recent improvements in educational standards in urban areas, a significant number, notably children in remote rural areas and migrant children in cities, still lag behind in terms of human capital.

As stated earlier, the significant decline in China's fertility, which is radically changing the population age structure, will have various consequences on individuals, families and society as a whole. But while ageing is as an expected consequence of the fertility decline, the demographic masculinization that results from discrimination against girls in a context of declining fertility was not a predictable event. It will nonetheless reshape the sex structure of the population in the coming decades, raising important issues, in particular for young adults reaching marriage ages, as men will significantly outnumber women. In their chapter entitled "The Male Surplus in China's Marriage Market: Review and Prospects," Shuzhuo Li, Quanbao Jiang

and Marcus W. Feldman estimate the male surplus in China's population of marriageable age and investigate the possible social and individual consequences of the increasingly male-biased sex structure. They conclude that the consequences of the male marriage-squeeze will be mainly negative, with few or no benefits for society or individuals, be they men or women.

The sex imbalance will do little to improve the situation of Chinese women, who are still lagging behind men in many aspects of their life. Isabelle Attané's chapter entitled "Being a Woman in China Today: a Demography of Gender"[7] draws up a socio-demographic inventory of Chinese women's situation in the early twenty-first century context of demographic, economic and social transition. It also draws attention to the paradoxical effects of this transition whilst taking into account the diverse realities of women's experience, as Chinese society remains, in many ways, very attached to its social and family traditions. Indeed, despite recent social and economic progress, Chinese women still do not have the same opportunities as men for social and professional achievement, and paradoxically, reduced fertility has not been accompanied by an increase in the number of working women. On the contrary, the effects of the fertility decline on women's employment have been largely counteracted by the liberalization of the labour market (that has heightened competition between men and women) and state disengagement from childcare that has pushed up the cost of raising children, notably in matters of daycare, health and education, making it increasingly difficult and costly for women to reconcile their work and family lives.

In many respects, the attitude of Chinese society towards women is ambivalent. Such ambivalence not only concerns women, but is becoming a recurring feature. Part Two entitled "Modernization, Social Change and Social Segregation" focuses on various dimensions of social inequality that have emerged or grown more acute with the transformation of the economic system, and that in some cases generate or reinforce the dichotomization of society, not to say social segregation. While China is a source of constant concern to the international community, we often forget that it is not a homogeneous entity, and that there are significant disparities between the different population groups. Indeed, being a man or a woman, an urban resident or a rural migrant, belonging to the Han majority or to a minority group, all involve distinct ways of life and unequal access to various prerogatives.

A first concern is about the population groups that have been living together for centuries, China being an agglomerate of 56 officially recognized ethnic groups. While the Han constitute the overwhelming majority, the 55 ethnic minority groups differ in their size and level of integration with the Han majority. In their chapter entitled "Are China's Minority Nationalities still on the Margins?" Dudley Poston and Qian Xiong focus on the 18 largest groups. They first outline the history of Han-minority relations, and then analyse the socioeconomic and demographic characteristics of these minority groups in comparison to the Han. They investigate their

[7] This chapter is the partial reproduction of an article published in the academic journal *China Perspectives* in late 2012 (see Attané I. 2012, "Being a Woman in China Today: a Demography of Gender", *China Perspectives*, 2012/4, pp. 5–15).

social and spatial relationships in particular, concluding that the Chinese minorities are socially different from the Han majority due to centuries of spatial segregation.

But rural migrants, who are often still physically and socially segregated in cities, are also an example of the inequalities generated by the transition of China's economic system. Indeed, while large-scale internal migration has progressively become a major feature of demographic change in China, involving the temporary or permanent movement of tens and then hundreds of millions of people, mostly from rural towards urban areas, the migrant people have seldom become socially integrated. In her chapter entitled: "Demographic and Social Impact of Internal Migration in China," Delia Davin focuses on migration flows and their impact on age and sex structure, and then considers the gender differences in migration, looking at the numbers involved, reasons for migration and types of jobs occupied by migrant people. She then not only looks at the lives of migrants in their place of migration, but also considers the impact of migration on people left behind in the villages (spouse, children, parents, etc.) with knock-on consequences for family life, gender and intergenerational relationships, the household division of labour and child-rearing.

Internal migration is indissociable from urbanization, one of its major drivers in today's China. The urbanization process also generates various forms of inequality, as all Chinese people cannot equally access the comparative benefits usually associated with urban life. In his chapter entitled "China's Urbanization: A New 'Leap Forward'?", Guixin Wang uses the concept of "semi-" urbanization to describe the particularities of the Chinese context, where, due to the rigid household registration system (or *hukou* system), rural migrants in cities have to go through two distinct stages (a first stage of "centralization" followed by a second stage of "citizenization") before having a chance to benefit from the same rights and prerogatives as their urban-native counterparts. Guixin Wang then adopts a critical view of the government strategy that consists in making cities the most important actors in economic development, to the detriment of rural areas, and argues that sustainable urbanization calls for more balanced development between urban and rural economies, and the necessary integration of rural migrants into urban life.

Together with the household registration system to which it is closely linked, housing allocation is one of the systemic factors that perpetuate and even accentuate social inequalities and social segregation in China. In their chapter entitled "Urban-Rural Housing Inequality in Transitional China", Yanjie Bian and Chuntian Lu review the recent reforms in the housing allocation system and argue that while housing is a substantial dimension of quality of life, it is also an important constituent of inequality in both rural and urban China. Access to home ownership, now increasingly common in urban areas, and to home amenities (such as tap water, independent toilets, heater shower, etc.) is uneven, however, and still largely determined by factors such as educational level, occupation, migration status, etc. Yanjie Bian and Chuntian Lu then conclude that market mechanisms, which have triggered a significant increase in housing prices, are becoming a driving force for housing inequality in today's China.

As a result of these growing socioeconomic inequalities, China's society is increasingly divided, and many Chinese people therefore still have little or no access to the benefits of economic development. To address these new social disparities and conflicts, the Chinese government introduced in 2006 the concept of "harmonious society" (*Hexie shehui*) as an objective for the country's future socioeconomic development (Chan 2009). But this highly commendable objective may be severely challenged by further demographic changes. Indeed, while China's economic boom in the past two decades is, of course, partly due to reforms in the production system that have greatly improved labour productivity, it has also benefited from an extremely favourable demographic situation: a "demographic dividend" which has made hundreds of millions of working-age adults available to the economy while the economically dependent population — i.e. children (aged below 15 years) and the elderly (aged 60 or above) — have represented less than 40 % of the total population since the mid-1980s. But this demographic dividend, which is by definition a transient state, is disappearing, in parallel with the increase in life expectancy and the acceleration of population ageing, and this could exacerbate the social inequalities that the goal of "harmonious society" is designed to tackle.

There is no doubt that the inequalities threatening social cohesion represent a major challenge to the Chinese government's objective of achieving a "harmonious society". Solving these problems will be all the more difficult, entrenched as they are in an increasingly unfavourable population structure. Part Three entitled "Changing Age Structure, Labour Force and the Older Population" therefore addresses what will probably be the greatest challenge in the coming decades: the shrinkage of the working-age population that will accompany population ageing. As stated earlier, China has undergone considerable demographic transformations in its recent past and, along with the sharp decline in fertility from the 1970s, the reversal of the age-pyramid in the coming decades will increasingly result from the decline in mortality.

In their chapter entitled "Mortality in China: Data Sources, Trends and Patterns", Zhongwei Zhao, Wei Chen, Jiaying Zhao, and Xianling Zhang address the important issue of mortality in the context of epidemiological transition. They first indicate that while China has continued to lower its mortality in the recent decades, there are still very few detailed studies on how this has occurred or on how mortality has evolved in comparison to other countries. They explain this paradox partly by the fact that mortality studies in China have long been overshadowed by those on fertility. A lack of knowledge and limited accessibility of some mortality data are also factors at play. In a near future, however, things will change. Indeed, with the stabilization of fertility at a low or very low level with little chance of rebound, and rapid population ageing, there will be increasing demand from both the government and civil society for knowledge of mortality patterns as part of an effort to understand overall living conditions in China. As a consequence, research on mortality will logically take precedence over that on fertility. Zhongwei Zhao, Wei Chen, Jiaying Zhao, and Xianling Zhang start with a review of China's major data sources on mortality, on the purposes of data collection and the methods used. Their chapter then examines China's recent mortality decline, the differentials between urban and

rural areas, and changes in major causes of death. The authors conclude their chapter by stating that, along with the rapid increase in the number and proportion of old people, the absence of generalized and efficient medical insurance programs and the negative health impacts of social and income inequalities may represent major obstacles for raising the longevity of the Chinese people. They also suggest that, for the same reasons, there may be little improvement in the population health status, in particular among the more socioeconomically disadvantaged groups.

This said, maintaining the population in good health will be crucial for China's government in the coming decades. Of particular concern will be the need to ensure a healthy labour force in order to maximize efficiency. Increasing labour productivity by improving the health of the workforce (Tompa 2002) — especially in activities where productivity is sensitive to health status — could be one way to compensate, at least partially, for the decline in the working-age population.

As stated above, the fertility decline and the increase in average life duration have significantly modified the age structure of China's population in the recent past. But the change will be even more profound in the coming decades, leading to a total reversal of the age-pyramid within a century: in 1950, 34.3 % of China's population was aged below 15 and 7.5 % was aged 60 +. But in 2050, these proportions will be 14.7 % and 32.8 %, respectively (UN-WPP 2012). Starting from 2010, one consequence of the changing age structure will be a gradual decline in the working-age population (which will shrink by around 25 % between 2010 and 2050), leading to a structural shortage of labour supply. In his chapter entitled "Dwindling Labour Supply in China: Scenarios for 2010–2060", Michele Bruni raises the central question of whether China can make up for the unprecedented reduction in its working-age population by relying exclusively on increased labour productivity, on the delocalization of production, and possibly on other measures such as the abolition of the household registration system and of the one-child policy, and a postponement of the legal age of retirement. Interestingly, he advances the hypothesis that no matter what measures are taken, they will be insufficient to alleviate the labour shortage, and China's government may have no choice but to resort to mass international immigration.

In this context of demographic upheaval, another key issue which has been widely discussed is that of old-age support (Cai et al. 2012; Jiang 1995; Pei and Pillai 1999). This issue will be of concern in urban China, where fertility decline has been earlier and sharper. But it will also pose severe challenges to both the welfare system and civil society in rural China where, despite higher fertility, internal migration—that overwhelmingly involves rural young adults leaving their village to settle in cities—is mechanically accelerating the de facto ageing of the rural population, as demonstrated in Delia Davin's chapter. As a consequence, the traditional mechanism of old-age intergenerational support is no longer sustainable, and the care for the rural elderly is becoming a dilemma, as they can rely on neither children nor — contrary to most of their urban counterparts — retirement pensions and social security. In their chapter entitled "The Economic Support System and Changing Age Structure in China", Sang-Hyop Lee and Qiulin Chen provide insight into some important features of the recent changes in intergenerational resource allocation

in China. They point out that reallocations to children are currently much larger than those to the elderly because there are many more children than older adults. But the population is ageing rapidly, so reallocations are shifting progressively from the young to the old.

The extremely rapid demographic transition in China since the mid-twentieth century, along with the transition of the economic system, has changed not only Chinese society, but also family and individual behaviours. The future of China is uncertain. To retain its place in the forefront of world economic powers it will have to overcome many obstacles. One of them will be to adapt its economic structures to demographic change by becoming less labour-intensive and by offering a more qualified labour supply (Attané 2011). Another challenge will be to provide future generations with decent living conditions, and thereby enable them to acquire sufficient cultural and social capital. Only then will China be in a position to address its widening socioeconomic inequalities, and to reach the objective of a "harmonious" society.

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Part I
China's Low Fertility: Facts and Correlates

Chapter 2
China's Low Fertility: Evidence from the 2010 Census

Zhigang Guo and Baochang Gu

2.1 Introduction

After four decades of strict birth control, the rapid growth of China's population has been curbed. According to the official figures, the total fertility rate dropped below replacement level in the early 1990s, and has continued to decline since then, remaining at a very low level since the early 2000s. This long-lasting low fertility is therefore expected to have significant consequences for China's demographic future, especially in terms of the decline in working-age population and the acceleration of population ageing.

As early as 1980, when the one-child policy was enforced, the Central Committee of China's Communist Party (CCP) had anticipated rapid demographic ageing and pledged to take preventive measures, among which the possibility of relaxing the birth control policy "after thirty years" (CCP 1980). In 2000, however, the Central Committee of the CCP and the State Council issued the "Decision on the strengthening of population control and family planning to stabilize the low fertility rate", which was reiterated in 2006 (CCP 2000; CCP 2006). It was not until 2012 and the 18th national congress of CCP that the official discourse began to change. It now calls for "adhering to the basic national family planning policy, improving the quality of births, and gradually perfecting population policies to promote a long-term and well-balanced development of the population", with the notable omission of any further reference to the need to "stabilize low fertility" (Hu 2012). This change in the official discourse is clearly linked to the concomitant release of the results of China's sixth national population census conducted in 2010 (NBS 2011; PCO 2012), which, among other results, revealed acute population ageing, occurring even faster than expected.

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This chapter first looks at the reasons behind this poor understanding of the population situation, and defends the hypothesis that official figures have recurrently over-estimated fertility. It will then examine in greater depth the recent fertility trends and patterns as they appear from the available sources, focusing in particular on the recent postponement of marriage and childbearing. This will be followed by a discussion of the reliability of the 2010 census data and, in particular, of the plausibility of widespread under-reporting of births, a hypothesis still largely supported by Chinese officials.

2.2 Recent Official Population Estimates

The 2010 population census indicates that on 1 November 2010, the total population of China was 1.34 billion, among which 16.6 % were children (aged 0–14 years), 70.1 % were working-age adults (aged 15–59 years) and 13.3 % were elderly people (aged 60 years and over), with 49.7 % of Chinese now living in urban areas (cities and townships). These census results underline trends that appear to be more pronounced than was anticipated by the previous official population plans, i.e. fertility reduction, population ageing and urbanization. If we consider that these census results are reliable, as discussed later, they suggest that the population estimates made in past decades were seriously inaccurate and misleading, in particular those related to fertility.

Inset 2.1 Sources of National Demographic Data in China

In China, three state agencies collect demographic data at the national level: the Ministry of Public Security (*Guojia gong'an bu*), the National Bureau of Statistics (*Guojia tongji ju*) and the National Health and Family Planning Commission (*Guojia weisheng he jihua shengyu weiyuanhui*), formerly the National Population and Family Planning Commission.

The Ministry of Public Security provides vital statistics (*huji*) based on the household registration system. The National Bureau of Statistics is responsible for the organization of population censuses (*renkou pucha*), intercensal population sample surveys (*renkou chouyang diaocha*), and annual surveys on population change. Since the founding of the People's Republic of China in 1949, six population censuses (1953, 1964, 1982, 1990, 2000 and 2010) and three intercensal sample surveys (1987, 1995 and 2005) have been organized. The National Health and Family Planning Commission provides independent statistics delivered annually, both at the national and provincial levels, and also regularly organizes national surveys on fertility, birth control and reproductive health (1982, 1988, 1992, 1997, 2001, and 2006) describing, among other features, the conditions of fertility and reproductive health of Chinese women.

I.A.

Table 2.1 Unadjusted and adjusted population figures for 2000, 2005 and 2010

	10th five-year population plan (2001–2005)			11th five-year population plan (2006–2010)		
	Population in 2000 (millions)	Population in 2005 (millions)	Difference (millions[2])	Population in 2005 (millions)	Population in 2010 (millions)	Difference (millions)
Unadjusted data	1,265	1,308	43	1,308	1,340	32
Figures used or obtained in the projections	1,283	1,331	48	1,308 (No adjustment)	1,360	52
Difference (in million)	18	23	–	–	20	–

Sources: PCO (2002, 2012); NBS (2007a); NFPC (2001); NPFPC (2006)

In fact, almost all national population censuses and surveys conducted in the past twenty years reported a very low total fertility rate (TFR). But these results were always considered unreliable because flawed by serious under-reporting of births, in line with the prevailing attitude among both the relevant political authorities and most Chinese scholars, who refuse to acknowledge the possibility of a very low fertility rate in China. The census and survey figures were therefore adjusted using indirect estimation methods which increased the number of births and raised the TFR to about 1.8. Such adjustments have been taken for granted in most of the recent official population projections formulated by the relevant government departments, leading to a systematic underestimation of the ageing process and to misleading population forecasts, as in the research report on China's national strategy on population development (NPDS 2007).

For instance, the 10th Five-year Population Plan (2001–2005) (NFPC 2001) used the official TFR of 1.8 to elaborate population estimates and adjusted the population observed at the 2000 census (1,265 million) by + 17 million (to reach a total of 1,283 million), reflecting the Chinese government's lack of confidence in the census data. On this basis, this Plan projected a total population of 1,331 million for 2005 (Zhuang and Zhang 2003). But it appeared later that this projected figure was well above that revealed by the 2005 Nationwide 1 % Population Sample Survey which found a total of just 1,308 million, a difference of 23 million (Table 2.1). While the 10th Five-year Population Plan called for population growth between 2000 and 2005 to remain below 56 million, the apparent growth (i.e. the difference between the adjusted figure of 1,283 million for 2000, and the unadjusted figure of 1,308 million for 2005) was much lower, at only 25 million. Even when comparing the unadjusted results, the growth between 2000 and 2005 was just 43 million. Such a discrepancy provides evidence that the adjusted population used as the basis for these projections, and in particular the fertility assumptions, were not very realistic.

In the 11th Five-year Population Plan (2006–2010), the population used as a basis for the projections was the unadjusted figure obtained from the 2005 Nationwide 1 % Population Sample Survey, but the fertility rate was again assumed to be 1.8

children per woman. According to these projections, the population would therefore have reached 1,360 million in 2010 (NFPC 2006). However, the total population reported at the 2010 population census was 1,340 million, a difference of 20 million (Table 2.1). Thus, while the average annual population growth was expected to be around 10 million, it in fact reached only around 6 million. Again, significant discrepancies appear between the projected population and the unadjusted census data, again questioning the accuracy of the assumptions used for the projections.

2.3 Fertility Estimates

While the Chinese government has based its statistics on a TFR of 1.8 children per woman since the mid-1990s with no empirical evidence to justify it, most of the other recent available data, including those from the population censuses, the annual surveys on population change conducted by the National Bureau of Statistics (NBS), and the surveys conducted by the National Population and Family Planning Commission, all reveal a much lower TFR which plateaus at around 1.3–1.5 children per woman (Fig. 2.1). In 2010, the 6th census revealed an even lower TFR, of only 1.19 at the national level. Even when taking into account a possible underestimation of fertility at the 2010 census due to under-reporting of births, back-projections indicate nevertheless that the TFR in the preceding years was well below the official figure of 1.8 (Guo 2011; Zhu 2012; Wang et al. 2013). These results indicate that China is now among the very few countries in the world with "lowest-low" fertility, together with Japan (around 1.3 in 2015), Republic of Korea (1.3), the Russian Federation (1.4), Spain (1.4) and Germany (1.4) (UN-WPP 2012). Considering the size of China's population (still 19% of the world population in 2015) and its overall level of socioeconomic development, these results are somewhat alarming and point up the urgent need for a reassessment of the actual situation.

Figure 2.1 provides a comparison of the TFRs as they appear, or are reconstructed, from the most recent available sources. They are all consistent with the results of the back-projections based on the 2010 census data. Indeed, they all indicate that China's TFR dropped below replacement level in the early 1990s, and then remained at around 1.4–1.5 in the following 15 years. The only exception is the survey conducted in 2006 by the NPFPC, which provides a comparatively high TFR, close to the official figure of 1.8 children per woman. Even though the results of this survey are inconsistent with those from the other available sources, they nonetheless served as an argument for the government to advocate a strengthening of the family planning programme so as to maintain fertility at a low level by all means (CCP 2006). Even after several Chinese scholars had questioned the reliability of the 2006 survey results and argued that fertility was overestimated due to sampling bias (Guo 2009; Zhao and Guo 2010), this survey nonetheless continued to be used as justification for the official figure of 1.8, and therefore contributed to maintaining uncertainty about actual fertility trends. Nevertheless, as demonstrated below, the

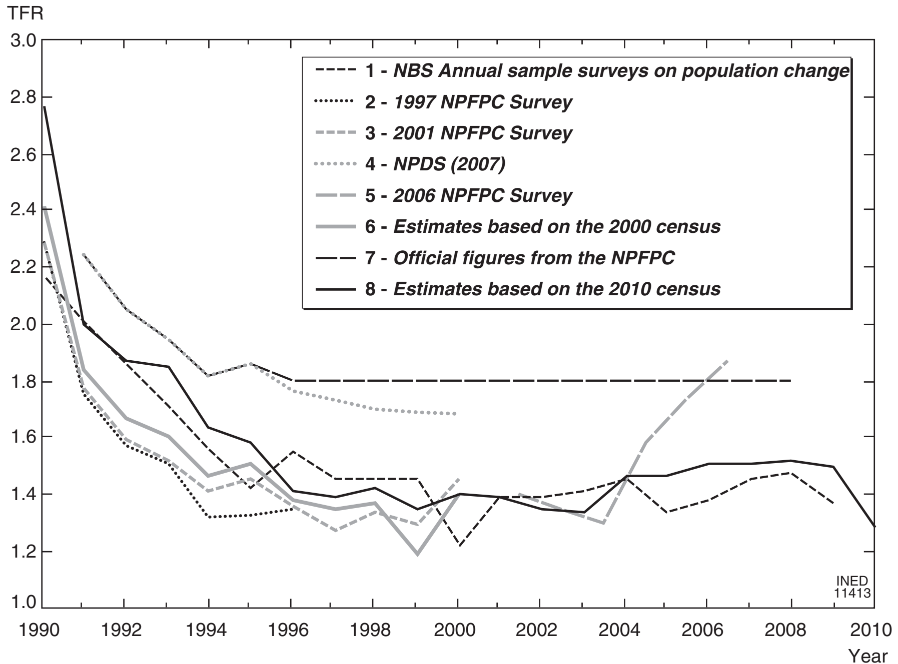

Fig. 2.1 Fertility (TFR) trends as observed from various sources, 1990–2010 (Sources and notes: *(1)* National Bureau of Statistics. Annual sample surveys on population change (NBS 1990–2010); *(2)* Authors' calculations based on the data from the 1997 National Population and Reproductive Health Survey, National Population and Family Planning Commission;
(3) Calculations by Ding (2003) based on the data from the 2001 National Population and Reproductive Health Survey, National Population and Family Planning Commission;
(4) NPDS (2007). Medium Scenario;
(5) See Zhang (2008);
(6) Estimates based on the 2000 census (NBS 2007b);
(7) Official figures from the NPFPC (2009);
(8) Estimates by Guo (2011) based on the 2010 census data.

2010 census once again provides further evidence of the low fertility prevailing in China since the mid-1990s.

Inset 2.2 China's Family Planning Policy: An Overview

At the Communist takeover in 1949, the new Chinese government had no intention of regulating population growth. Far from viewing a large population as problematic, socialist ideologues saw it as a force for economic prosperity. Moreover, due to the absence of reliable sources, very little was known at that time about the demographics of the world's most populous country. The early years of the regime were therefore marked by openly pro-natalist