

## China Macro View

### Relaxing Population Policy: Overdue but Never Too Late

- **Population policy change is closer than ever** – China has reached a turning point where the demographic dividend will become a liability. As working age population starts to decline, China's potential growth rate is set to fall, and the aging population would make the pension system unsustainable. Policy change discussion is gaining momentum recently. Late this year or early next year, the government may allow couples to have a second child if one of the parents has no siblings (单独二胎), and the government may adopt a blanket two-child policy in a few years. We have built a likely scenario that envisages additional new births of 11 million in the next five years, pushing up annual growth by 0.1-0.2ppt during 2015-19 due to higher demand, and potential growth by 0.05ppt annually during 2031-35 due to additions to the working age population. A more aggressive policy change can bring more benefits.
- **Policy change is overdue** – The family planning policy has reinforced the drop in the total fertility rate (TFR), from roughly 3.0 during 1975-80 to around 1.6 during 2005-10. The resulting decline in the dependency ratio has contributed significantly to China's amazing growth performance. However, working age population appears to have peaked, and the dependency ratio would rise steadily from 36% in 2010 to roughly 65% in 2050 based on UN estimates. Population aging would reduce China's growth potential and put pressure on the pension system.
- **Policy change discussion is gaining momentum** – Increasing public calls for policy change has prompted the government to study proposals to improve the policy. It is reported that, late this year or early next year, the government may allow couples to have a second child if one of the parents has no siblings, and the government may adopt a blanket two-child policy in a few years. The main concern of the government is that new births might surge right after the policy relaxation, leading to a baby boom that could strain public facilities, such as hospitals and schools.
- **We expect policy relaxation to boost growth in the near and longer term** – We have created a likely scenario and an aggressive scenario to assess the impact of policy changes relative to a base case of no policy change. We assume a phased relaxation (either age-based or region-based) that could avoid a bunching of new births. The likely/aggressive scenario, in which the TFR would rise to 1.8/2.0 immediately, envisages additional new births of 11 million/16 million in the next five years. In the near term, higher demand helps to absorb excess capacity and raise annual growth rates (0.1-0.2ppt in the likely scenario and 0.2-0.3ppt in the aggressive scenario during 2015-19). After 2030, as additional new births start to enter the labor force, potential growth can be lifted (0.05ppt per year in the likely scenario and 0.15ppt in the aggressive scenario during 2031-35).

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# Relaxing Population Policy: Overdue but Never Too Late

## Population profile after three decades of family planning

### China introduced family planning in the late 1970s to address overpopulation

– China's population grew from around 540 million in 1949 to 940 million in 1976. To control the size and raise the quality of the population, a stringent family planning policy was adopted in the late 1970s and has been implemented ever since. The policy essentially forbids couples from having more than one child in urban areas. However, "one-child policy" is not an accurate characterization, as exceptions exist in the rural areas and for ethnic minorities (Figure 1).

Figure 1. China's Family Planning Policy

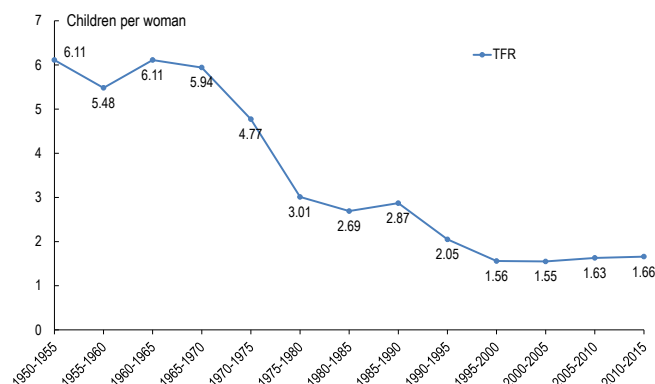
	<u>Application</u>	<u>Population covered 1/</u>
<b>One child</b>	Urban Han families	35.4%
<b>Conditional two children</b>	In rural areas, Han families are allowed to have a second child if their first-born is a girl.	53.6%
<b>Two children</b>	A second child is allowed if both parents are single children. Ethnic minorities with population less than 10 million.	9.7%
<b>Three or more children</b>	Ethnic minorities in remote areas, including Tibet	1.3%

1/ According to the former Population and Family Planning Commission, 2011.

Source: Citi Research

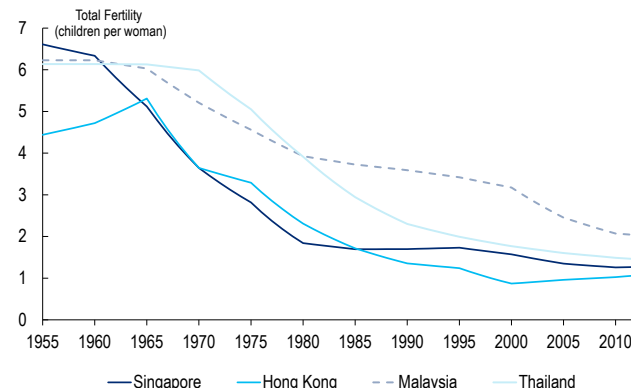
**Population growth slowed significantly as fertility rates declined** – China's total fertility rate (TFR), a measure of the average number of children a woman would bear through her life, fell sharply even before the introduction of the family planning policy (Figure 2), which was consistent with what has been observed in countries that have gone through their fertility transition (Figure 3). The family planning policy appears to have reinforced the TFR decline, from roughly 3.0 during 1975-80 to around 1.6 during 2005-10, according to data from the United Nations. Partly as a result, the annual population growth rate decelerated from 1.40% in 1980 to 0.63% in 2010.

Figure 2. Family planning policy reinforced TFR decline



Source: UN and Citi Research

Figure 3. TFR decline has been observed in other economies



Source: UN and Citi Research

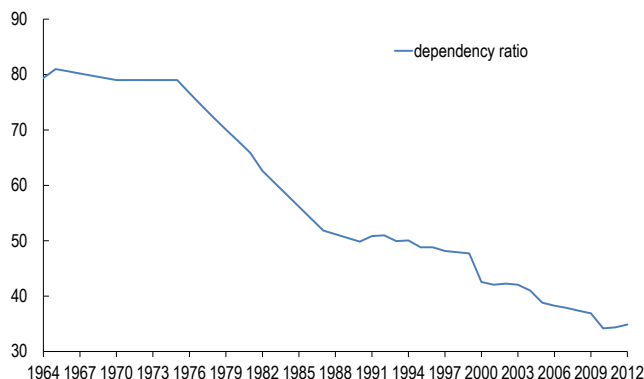
**Working-age population grew faster than the dependents, bringing demographic dividend** – Falling TFR led to fewer child dependents. Meanwhile, the large number of children born before the 1980s entered the productive labor force. As a result, China's dependency ratio (the ratio of the number of dependents aging below 14 or above 65 to the number of working age population) declined consistently, and stood at around 36% in 2010, implying there were nearly three times as many working age people as the rest of the population (Figure 4). The demographic dividend has been an important factor behind the rapid growth that China experienced in the last three decades.

**But China has reached a turning point where the dividend will become a liability** – The working-age population who contributed to the demographic dividend is growing older. Meanwhile, the impact of lower TFR is being felt, and the working-age population appears to have peaked (Figure 5). The old-age dependency ratio is on the rise, which would result in an increase in the total dependency ratio. Based on the UN forecast, China's dependency ratio will rise steadily from 36% in 2010 to roughly 65% in 2050, and total population will peak at 1.46bn in 2029.

- The age structure of the population would point to an aging society by 2050 (Figure 6). This would put significant pressure on the pension system as the number of contributors dwindles, and the number of retirees and life expectancy increases.
- A side-effect of the family planning policy is a tangible increase in the sex ratio at birth (number of male births per female birth) and male/female ratio (Figure 7), which foreshadows social problems in the future.

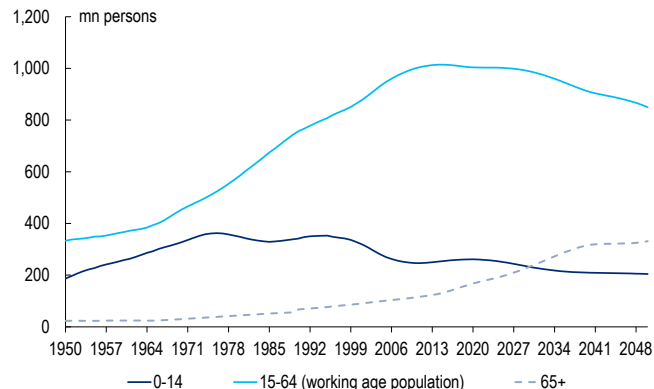
**China's potential growth rate is set to decline as a result** – Favorable demographic changes in the past three decades have contributed significantly to China's amazing growth performance: increase in working age population has helped build human capital, and falling dependency ratio has allowed the population to save and investment more, thereby accumulating physical capital. According to our estimate, during 1991-2000, working age population grew by 1.1% annually (Figure 8). But the growth decelerated to 0.5% during 2001-10, and is expected to register negative growth during 2015-2020. Partly as a result, China's potential growth is expected to exhibit a declining trend.

Figure 4. Falling dependency ratio brings demographic dividends



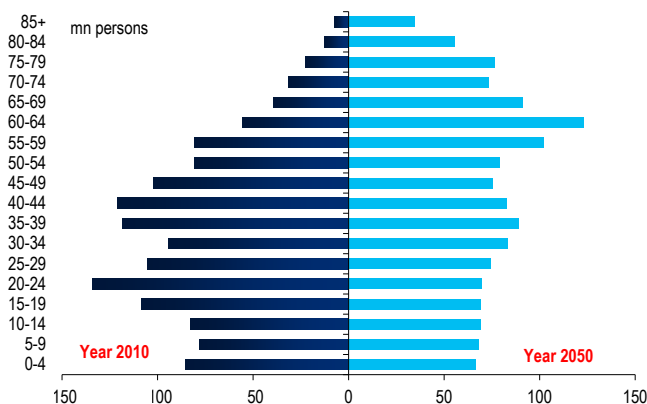
Source: NBS, UN and Citi Research

Figure 5. But working age population is set to decline soon



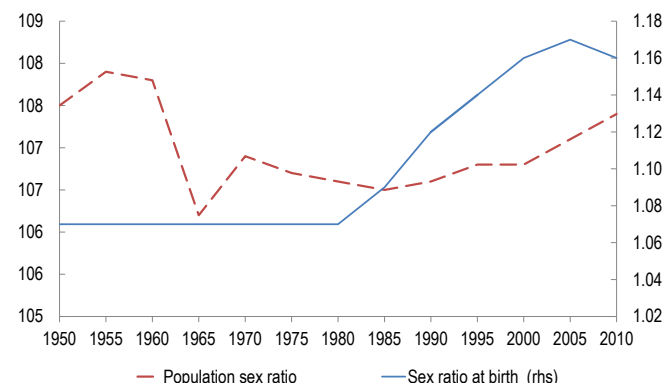
Source: UN and Citi Research

Figure 6. China is moving toward an aging society



Source: UN and Citi Research

Figure 7. The family planning policy distorted the sex ratio



Source: UN and Citi Research

Figure 8. China: Growth Accounting and Potential Growth (In percent) 1/

	1991-2000	2001-10	Conservative Scenario		Incremental Reform Scenario
			2015	2020	2020
Real GDP growth	10.5	10.5	7.7	5.5	6.8
Factor accumulation 2/	5.8	4.9	3.9	2.9	2.9
Labor growth	1.1	0.5	0.2	-0.1	-0.1
Capital growth	10.3	9.1	7.5	5.9	5.9
Solow residual 3/	4.7	5.6	...	...	...
Total factor productivity	5.5	5.1	3.8	2.6	3.8
Cyclical factors	-0.9	0.5	...	...	...

1/ Contribution, except those indicated as growth.

2/ Accumulation of labor and capital, using factor shares of 0.49 and 0.51 respectively.

3/ Residual from the growth accounting exercise.

Source: Citi Research

## Impending policy changes

**Policy change discussion is gaining momentum** – There have been increasing calls for a change in the population policy. Politically, restriction of a basic right of the citizen and brutal implementation of the policy in some regions have tarnished the image of the government. Economically, overpopulation is no longer a threat and the current policy would depress China's growth potential. In early August, the

spokesperson of the National Health and Family Planning Commission stated that the Commission was studying proposals to improve the population policy. There have been media reports that late this year or early next year, the government may allow couples to have a second child if one of the parents has no siblings (单独二胎), and the government may adopt a blanket two-child policy in a few years.

**The government may introduce changes gradually to avert a sudden baby boom** – A main concern of the government is that new births may surge right after the relaxation of the family planning policy, leading to a baby boom that could strain public facilities such as hospitals and schools. According to our conservative estimate, a policy relaxation without phasing may increase new births by around 20 million in the next few years that can hardly be handled by the current capacity (annual new births in recent years did not exceed 19 million).<sup>1</sup> In addition, a baby boom on top of an aging population would push the dependency ratio even higher. Therefore, it may take more than a few years before the government would allow all couples to have two children. Some have proposed to adopt different policies for different regions, and loosen policies first in big cities where the population has already started to decline.

**We think an age-based policy relaxation helps to address the fairness issue** – For historical reasons, people have been enjoying different level of benefits mostly depending on where they live. The change of the family planning policy offers an opportunity to treat each individual in an equal way, no matter where they live or whether they have siblings. To avoid bunching of the new births, the government could consider giving priorities to women approaching the end of their child-bearing age. For example, in the first year, women aged 40 and above are given the right of having a second child, and in the second year, women aged 38 and above are included, and so on and so forth.

## What a difference it would make

**We have created three scenarios to assess the impact of a policy change** – We used the population forecast model of the United Nations to predict the demographic path based on different assumptions on TFR as a result of policy changes (Figure 9).

Figure 9. Scenario analysis summary

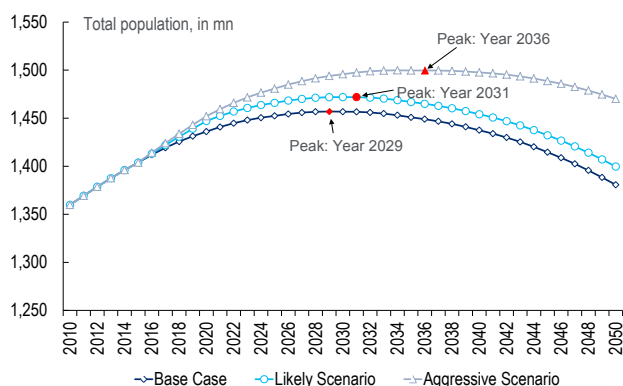
	Base scenario	Likely scenario	Aggressive scenario
<b>Policy assumptions</b>	No change	Allow couples to have a second child if either parent is the only child from 2014, followed by a blanket two-child policy in three years with aged-based or region-based phased measures.	Adopt a blanket two-child policy from 2014, and full relaxation in five years with aged-based or region-based phased measures
<b>Total Fertility Rate: from current 1.6 to</b>	1.8 during 2041-50	1.8 in 2015 and stable afterwards	2.0 in 2015 and stable afterwards
<b>Total population peaks in</b>	Year 2029 @ 1.46bn	Year 2031 @ 1.47bn	Year 2036 @ 1.5bn
<b>Additional new births</b>	--	11 million in the next five years	16 million in the next five years
<b>Additional GDP growth (2015-19)</b>	--	0.1-0.2ppt annually	0.2-0.3ppt annually
<b>Additional potential GDP growth (2031-35)</b>	--	0.05ppt annually	0.15ppt annually

Source: Citi Research

<sup>1</sup> Currently, the number of the Chinese women at active child-bearing age (20-40) exceeds 200 million. According to Figure 1, about 35.4% of them (70 million) are restricted by the one-child policy. Even if only one-third of them (roughly 20 million) are willing to have a second child, a policy relaxation without phasing may lead to a bunching of new births in the next few years.

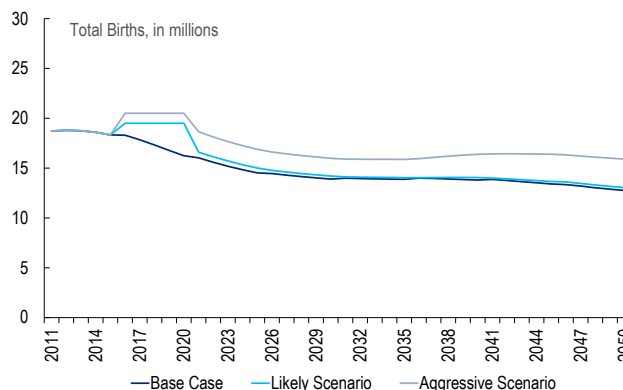
- The base case assumes no change in the current policies. Under this scenario, we followed the UN's probabilistic projections of the TFR that envisages a gradual increase in China's TFR from 1.6 during 2005-10 to 1.8 during 2041-50. Total population would peak at 1.46bn in the year of 2029.
- The likely scenario assumes gradual relaxation of the population policy, starting from allowing couples to have a second child if either parent is the only child as early as the beginning of next year, followed by a blanket two-child policy in three years. Under this scenario, we assume the TFR will increase to the long-term rate of 1.8 in 2015 and then remain stable. In addition, we assume the government would introduce phased measures (either age-based or region-based) to avoid a bunching of new births that could stress the health and education system, so that the annual new births would not exceed 5% of the recent peak. Total population would peak at 1.47bn in the year of 2031.
- The aggressive scenario assumes the adoption of a blanket two-child policy from the beginning of next year, and full relaxation in five years that would allow TFR to get close to the replacement ratio. Under this scenario, we assume the TFR will increase to 2.0 in 2015 and then remain stable.<sup>2</sup> In addition, we assume the government would introduce phased measures (either age-based or region-based) to avoid a bunching of new births, so that the annual new births would not exceed 10% of the recent peak. Total population would peak at 1.5bn in the year of 2036.

Figure 10. Population will peak in 2036 even under aggressive scenario



Source: UN and Citi Research

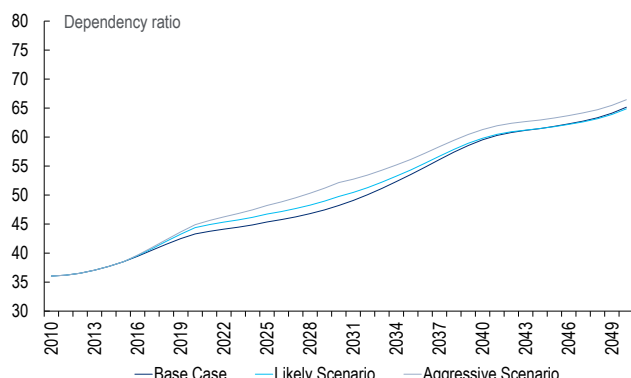
Figure 11. New births may rebound following phased policy relaxation



Source: UN and Citi Research

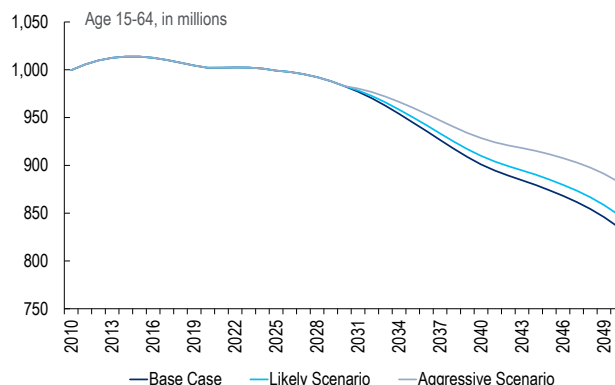
<sup>2</sup> The replacement ratio is 2.1.

Figure 12. Dependency ratio would increase immediately



Source: UN and Citi Research

Figure 13. Working age population would increase around 2030



Source: UN and Citi Research

**Even the aggressive policy change would not change the long-term trend of population decline** – As long as the TFR remains below the replacement ratio of 2.1 (According to the UN forecast, the long-term TFRs in Japan, Korea, Singapore and Hong Kong SAR are all below 2.0), China's total population is bound to decline (Figure 10). The likely scenario would postpone the process by only two years and aggressive scenario would postpone the process by seven years.

**The likely scenario envisages additional new births of 11 million in the next five years** – We expect a rebound of the new births following the phased relaxation of the population policies, as women at the late stage of their child-bearing age would rush to conceive children (Figure 11). However, as a result of the existing one-child policy, the number of childbearing women would decrease, and new births would decline over time. Under the likely scenario, an average of 2.2 million children would be added on top of the base case during 2015-19, while in the aggressive scenario, the annual addition could reach 3.2 million during the same period.

**Dependency ratio would increase immediately, followed by higher working age population later on** – The policy change would first increase the child dependency ratio and therefore the total dependency ratio (Figure 12). The additional new births would start to enter the labor force around 2030 (Figure 13), and the dependency ratio tends to converge with the base case, especially in the likely scenario.

#### Policy change may contribute to higher growth

##### ■ In the near term, higher demand helps to absorb excess capacity –

Extended period of PPI deflation and low capacity utilization in the manufacturing industry indicate China's economy is running below potential. External demand, while improving, may not be sufficient to fill the slack in the economy. Domestically, the room for investment is constrained by already-excessive capacity and the need for deleveraging. A relaxation of population policy could potentially contribute to baby-related consumption demand (such as baby formula, diapers, toys, baby clothing and medicine) as well as demand for bigger homes and bigger cars. On the other hand, since there is little excess capacity in food production and service industry, inflation is likely to be higher. A rough estimate based on population additions suggests annual growth could be higher by 0.1-0.2ppt during 2015-19 in the likely scenario and by 0.2-0.3ppt in the aggressive scenario.

- **Potential growth can be lifted after 2030** – Higher working-age population relative to the base case from 2030 onward would help to raise the potential growth rate slightly. For example, during 2031-35, potential growth could be higher by 0.05ppt per year in the likely scenario and by 0.15ppt in the aggressive scenario, according to our estimate. While the long-term problem of aging and under-funding of the pension system would still exist, the policy change would provide relief on the margin. In addition, the sex ratio at birth may become more balanced.



## Appendix A-1

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