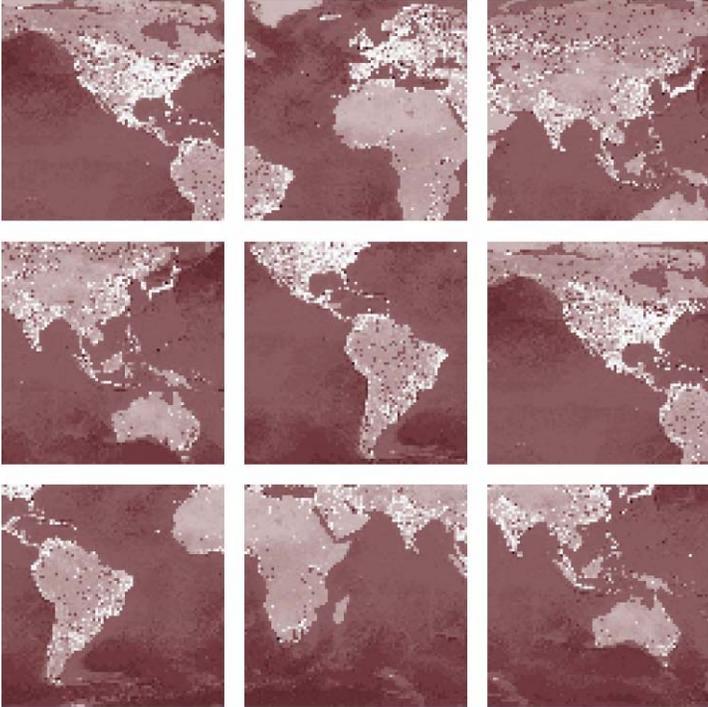


CHAPTER THREE

WILL CHINA GROW OLD BEFORE GETTING RICH?

February 2006





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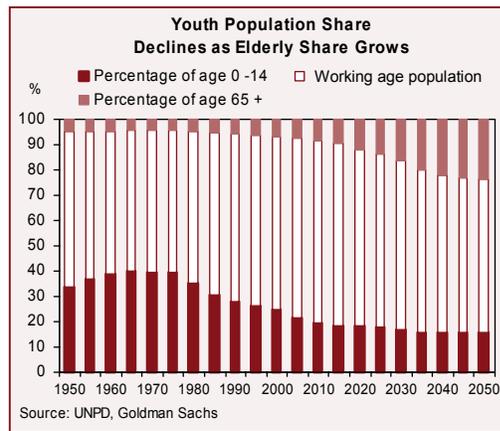
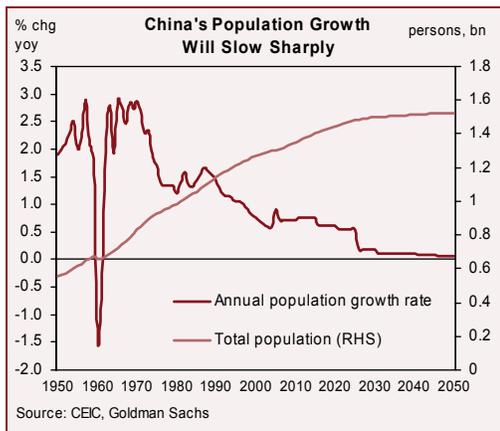
China's unrivalled economic growth over the past quarter-century has surpassed all records and created a new standard in the history of economic development. With an average annual real GDP growth rate of 9.6% from 1978 to 2004, China's pace of growth is faster than that achieved by any East Asian economy during their fastest-growing periods.

Nonetheless, demographers have warned that rapid ageing will limit China's future growth prospects and that the demographic tailwind will turn into a significant headwind. China has benefited from strong raw labour growth from the late 1970s until now, but the future demographic outlook suggests that the growth of the labour force will slow and ultimately decline after 2030. (Our forecasts are in line with the United Nations Population Division and with official Chinese projections.)

Two forces drive these changes: 1) increased longevity, which is raising the number of elderly, and 2) the one-child policy, which has slowed the growth rate of young adults in the population. The implication for workforce growth is immediate and significant. When more workers reach retirement age and growth of the young adult population slows, the dependent-per-worker ratio will increase and the 'demographic bonus' will end.

Many observers are thus concerned that 'China may get old before it gets rich'. Ageing has been perceived almost exclusively as a problem for industrialised economies, following years of urbanisation and industrialisation. Fewer people have associated ageing with a developing country where labour is often ample and the cost of child-raising inexpensive. China may be an exception. Although it is still considered a developing country by many standards, China has the fastest ageing trend among the 14 developing economies in the BRICs and the N-11.

Our analysis suggests that by the time China becomes an 'aged society' in 2027, it will probably be considered a developed country, although it will still be considerably poorer than the US or Japan on a per-capita income basis. We believe the rapid build-up of human capital and the continued release of surplus labour from the agriculture sector will mitigate the negative influences on the labour supply from ageing.



Will China Grow Old Before Getting Rich?

Despite the slowdown in labour force growth, improved labour quality is likely to help sustain ‘quality-adjusted labour supply’ growth. China’s economic growth has coincided with a tremendous boost in human-capital accumulation. In addition to advances in education from improved living standards, the one-child policy has led to increased human-capital investment on a per-child basis. As public and private education expenditure has per person increased, the education attainment of the labour force has boomed. Smaller family sizes have helped China to achieve great success in promoting higher education and producing college graduates. This accumulation of human capital contributed 15% of overall growth between 1979 and 2004, while labour force growth only contributed 13%. Further educational improvement should continue to support quality-adjusted labour growth.

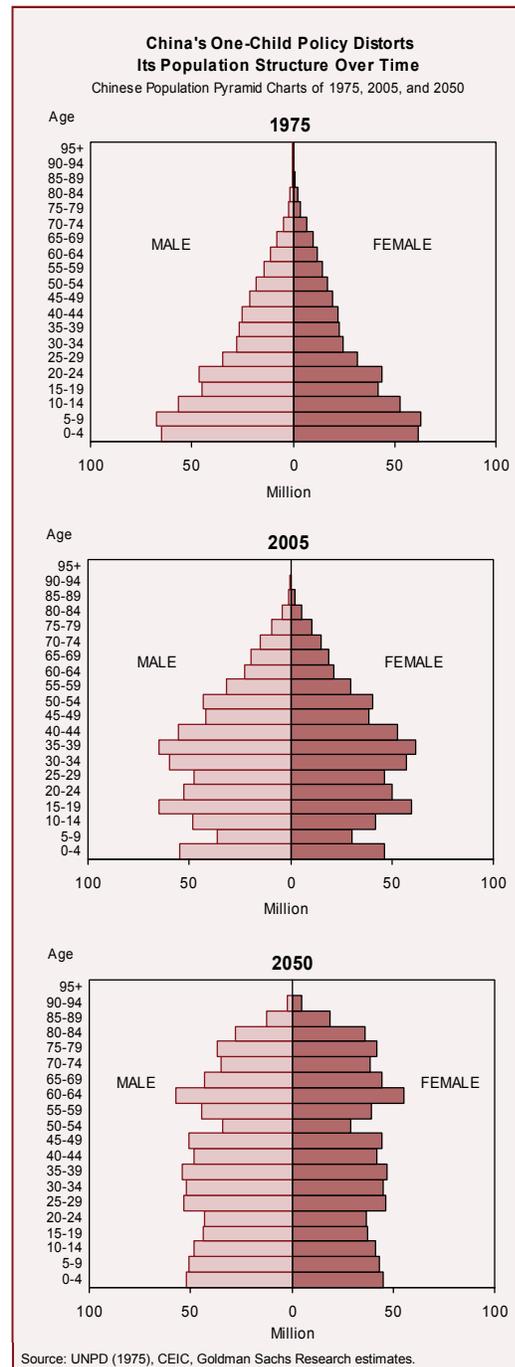
The release of rural labourers into the industrial and service sectors will also augment the available supply of labour. The ongoing gradual relaxation of the household registration (*hukou*) system should facilitate this.

China's Labour-Force Dynamics

Slower population growth, ageing and a rising dependency ratio

China’s average population growth from 1950 to 1978 was 2.01% per year. Since then, population growth has slowed substantially. From 1979 to 2004, growth averaged 1.16% per year. By 2005, the population growth rate had fallen to about 0.65%, half the world average and just roughly one-third of its level 50 years ago.

Ageing has been a hidden problem in China for some time. Since 1980, the elderly population has been growing faster than the average of the world and Asia. Yet ageing



was not considered a serious problem 20 years ago, because there was a large pool of young people aged 0–15 who rapidly replaced the elderly exiting the labour force. But when this reserve of youngsters is drained and the elderly surpass the rest of the age groups in growth significantly, ageing will soon become a credible threat to the sustainability of China's rapid economic growth.

The cause of China's ageing problem lies mainly in the lack of young people, rather than the superabundance of the elderly. The reasoning is simple. Young cohorts tend to have a persistent impact on society because they are dependents today, workers tomorrow and the elderly afterwards, while the impact from the elderly is more transitory.

The shortfall in new births is partly due to the normal drop in fertility that accompanies economic development. The one-child policy introduced in 1978 has also played an important role, expediting the country's ageing process by preventing millions of births (the government claims the figure is as high as 300mn). By limiting the total number of children in each family, China has reduced the crude birth rate from 21% in 1980 to 14% per year in 2005, significantly below the current world average of 21% per annum (21 live births per 1,000 people in a given year).

The population pyramid charts on the previous page illustrate the demographic transition China is likely to experience if existing policies are left unchanged. After 28 years of tight population control, the demographic structure now looks more like a Christmas tree rather than the well-based pyramid of 30 years ago. The only-child generation born after 1978 occupies the entire lower portion aged 0–30. By 2050, without changes to the one-child policy, the population will be much less supported at the base by the young, and overweighted at the top due to ageing.

Having fewer babies has been helpful for per capita income growth since 1975, because having fewer young dependents reduced the burden on the workforce. Strong growth in raw labour largely reinforced China's manufacturing-based industrial success. However, once the shortage of young people translates into a slower growing work-age population in the near future, beginning in 2010, the dependency ratio (which is the ratio of the population aged 0-14 and 65+ to the working-age population aged 15-64) will rise again. The dependency ratio will ultimately reach 70% in 2050, implying that every 10 people of working age will have to support up to seven dependents (young and senior) in 2050, compared with fewer than four today.

Uniquely, the sharp rise in the dependency ratio will occur at lower levels of per-capita income than in other countries. The dependency ratios in Japan and Korea are projected to reach 50% in 2005 and 2026, respectively, when their incomes are likely to be well above \$30,000 (in 2005 prices). In contrast, our BRICS projections suggest that China's per capita GDP will be just \$11,000 in 2030, when the dependency ratio will approach 50%.

A literature review suggests a weak link between per-capita growth and raw labour growth. China's own experience thus far seems to support this argument. Although raw labour growth slowed in the 1990s, economic growth remained robust. It is therefore likely that government policies and individual behaviour will change as ageing becomes a more critical issue. In particular, we think favourable changes in two labour factors will boost future growth.

A Primer on China's One-Child Policy

After China's high infant mortality rate fell substantially in the 1950s, fear of exhausting food and other living resources began to rise. However, the government chose to subscribe to a Soviet view that a large population would affect output growth favourably. This ushered in a second baby boom over the course of the 1960s, when China's population increased by 25%.

The family-planning policy was among the first set of reforms introduced in the late 1970s. Enforcement of this policy began for government and SOE employees in urban areas as early as 1979. In the early 1980s, the rule was implemented and strictly enforced in both urban and rural areas.

In general, couples are allowed only one child, but there are exceptions, even in urban areas, where enforcement is strict. Second children are allowed in families falling into various groups, including permanent disability in the first-born; remarried families with only one child; and pregnancy after long infertility but after adopting a child. In addition, since the late 1980s, rural couples have been allowed to have a second child if the first-born is female. Other couples of special groups (such as from minority groups or both from only-child families, or couples involving a foreign citizen) are subject to more relaxed regulations.

Strict enforcement has relied on a carrot-and-stick approach. On the 'carrot' side, families with only one child are rewarded by a small monthly stipend. All children born 'within quota' (including the first and second child when permitted) are issued official birth certificates that allow them to enter the household registration system (*hukou* system) immediately after birth. This entitles them to social benefits such as free education and local preferential employment on reaching adulthood.

On the 'stick' side, children born outside beyond the allowed limit incur a 'social fostering charge'. This additional fee pays for the benefits and entitlements in the welfare system including nine-year compulsory education. For a second child born outside the quota, this fee can range from two to ten times the average annual disposable income or actual annual income, whichever is higher.

In addition, employers of rule-breaking parents (especially those in the government or related organisations) may also take disciplinary action against them, possibly affecting their career development. This measure used to work most effectively in urban areas because public-sector employees tended not to risk their jobs over a second child. There were also incidents where people were severely punished and harshly treated for pregnancy or births beyond the assigned quota, especially during the early years of implementation.

Local governments provide contraceptive advice, medical consultations and 'treatments' (abortions and sterilisations) free of charge. Local bureaucrats have strong monetary and career-driven incentives to keep the local birth rate below quotas assigned by the immediate upper-level government. Failing in one or more standards would result in 'one vote negates all' in their evaluation, and might permanently taint their political careers.

Human capital accumulation

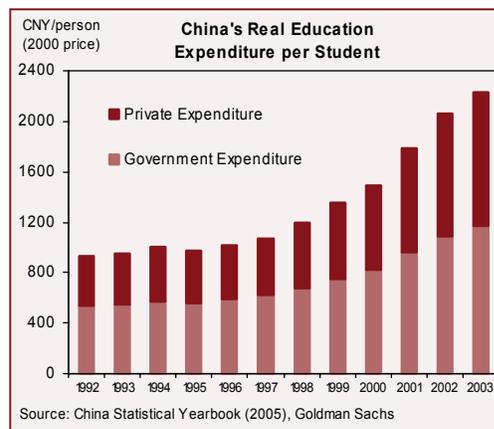
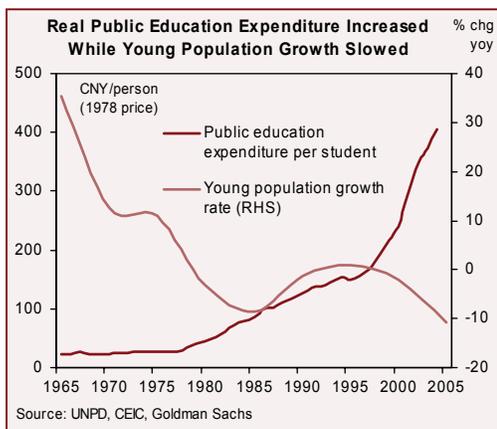
Improving living standards since the late 1970s have helped China to make remarkable progress in accumulating human capital. Education was revived after years of repression during the Cultural Revolution. China has made huge progress in spreading nine-year compulsory education extensively in rural areas, and has been successful in promoting more senior secondary school students into higher education. During the past decade, China has produced college and university graduates at a significantly faster pace than Korea and Japan did during their fastest-growing periods. Students' health conditions have improved as well, as the result of a more balanced diet and the higher priority placed on physical education.

Human capital has also received a huge boost from the one-child policy. Population control makes children scarcer and more valuable to their parents, and this has encouraged parents to increase their educational investment on a per child basis. Disposable income can be more generously allocated on a single child than on many, and, within a smaller family, parents can be expected to raise their average expenditures on each child. Abundant material and emotional resources are expected to contribute to improving labour quality. This should become a buffer against the raw labour growth slowdown in the future.

Unleashing Surplus Labour

China's agricultural productivity has increased remarkably since the early 1980s, but its growth has lagged behind that of industrial productivity. Labour productivity in the industrial sector grew twice as fast as that in agriculture during 1979-2004.

The implied slower efficiency gain in the agricultural sector is partly due to less capital and poorer technology compared with other sectors, and partly due to the lower number of labour input hours per labourer. We therefore expect that when some labourers leave agriculture to work in the industrial or service sectors, those remaining may be able to increase their labour input in response. In the end, real labour input in agriculture would not decline and total agricultural output growth would not be negatively affected. This has happened in the past: since 1978, a sizeable number of agricultural labourers have migrated into cities, but agricultural output growth remained robust nonetheless.



Will China Grow Old Before Getting Rich?

Past restrictions from the household registration system (or *hukou* system) and various other barriers have largely prevented surplus labourers from migrating into cities to work for higher compensation. These requirements are being phased out in a number of areas, and Chinese authorities are also initiating *hukou* reforms to eliminate rural-urban disparity. Several large cities have suspended the temporary residence permit requirement for migrants, and a few provinces are working to unify urban and rural household registration records so that residents will be free to move within the province.

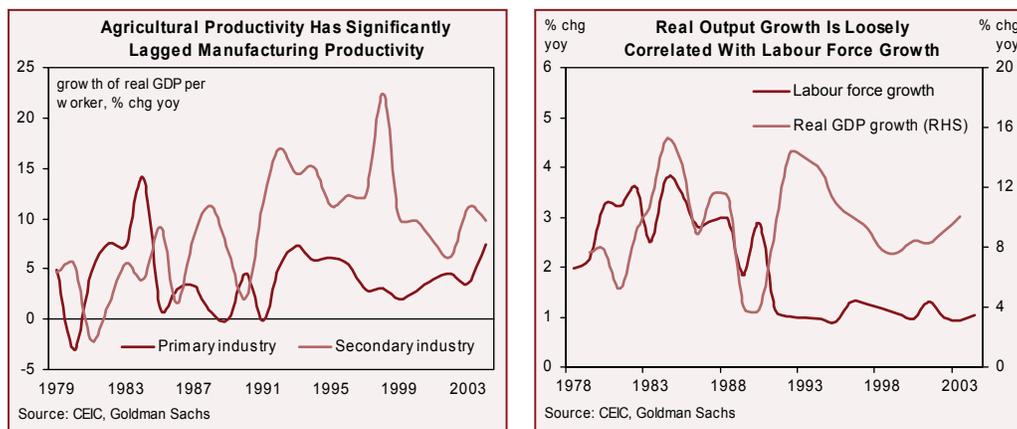
Non-*hukou* barriers also contribute to a high cost of migration. Rural labourers have to worry about potentially forfeiting their right of cultivation when they return in the future. In the cities, some of the high-paying urban jobs are often reserved for urban residents. Job hunting, the lack of unemployment insurance and an unfavourable working and living environment can easily lead to disappointment, and add to the costs of migration to the cities.

We view the ongoing *hukou* reform and a potential reduction of the non-*hukou* barriers as positive signals to reduce the distortion in resource allocation. There will likely be a windfall gain in relaxing the system and allowing workers to move more freely into the industrial sector.

The ongoing reform of state-owned enterprise (SOE), government and public service units will almost certainly free more redundant labour. The total number may not be significant when compared with that in rural areas, but the potential social impact in urban areas can be challenging. We do not include this portion of labour in our scenario analysis, mainly because it is difficult to estimate the number of eligible labourers with appropriate and employable skills.

A review of the world standard of agricultural population and output suggests that China will experience a further decline in both the proportion of work force and the value added in output in agriculture relative to the rest of the economy.

We assume conservatively, and in line with existing research, that 20%-27% of the agricultural labour force (approximately 98-128mn) is surplus today. People aged 15–29 are most likely to migrate into cities, because the ability of township and village enterprises to absorb surplus labour has declined. This implies that a gradual relaxation of the *hukou* system and other migration barriers could potentially release 25-32mn young labourers into the industrial or service sectors.



Deciphering the *Hukou* System

Hukou (or *hujji*) is the common name for household registration in China. Its origins can be traced back to the Shang Dynasty 3,500 years ago. Administration with legal enforcement was introduced in the Qin Dynasty from 220 BC. The household registration system counted residents, limited their mobility across regions and unified tax collection.

A new *hukou* system under the communist regime was formally established in 1958, strengthening the mobility constraint to prevent rural residents from moving into cities and urban residents from migrating between cities. Since the 1950s, China has placed enormous emphasis on developing heavy industries, supported by low living costs and a heavily-subsidised welfare system for urban workers. The *hukou* system helped to ensure sufficient labour supply in agriculture to facilitate the early stages of industrialisation.

In the centrally-planned economy, the seamless integration of the *hukou* system with other socialistic institutions became a binding constraint on domestic mobility. From 1958 until the early 1980s, urban-rural migration was virtually forbidden except for official planning purposes. People were deterred from moving to other areas due to constraints on food allocation (which was determined by *hukou* records), employment and education.

Since China began its transformation into a market economy—and especially since the 1990s—rural-urban migration has become more feasible for those who have completed their education and who seek jobs in informal sectors. The young rural population was among the first to take advantage of this flexibility, venturing into construction, manufacturing and service sectors in urban areas.

Looking forward, a greater proportion of the population may urbanise, either by migrating temporarily to urban areas or by choosing to remain there rather than return home. Even if people do stay in rural areas, the rapid pace of urbanisation may transform them into urban dwellers in any case. To facilitate urbanisation, the *hukou* reform is certainly helpful, but more has to be done. Reducing other migration costs and improving living conditions for migrant workers will be essential to keeping them in cities.

In our growth projection below, we assume that a total of 27mn surplus labourers will exit the agriculture sector by 2050. The migration flow will presumably start with a 1mn release in 2006, adding 200,000 in the second year and gradually more in subsequent years. Since the remaining labourers in this sector will likely increase their labour input to compensate for those who have departed, this implies the economy will have a net gain of labour input worth 27mn people in total.

A potential easing of the one-child policy

A change in the one-child policy would help sustain China's population growth in the long run and improve its demographic structure. In our view, a gradual and conditional easing of the one-child policy beginning in 2010 would significantly boost the total population by 2050.

The government is reported to be considering a gradual lifting of the one-child policy from as early as 2010. A World Bank proposal (which we think has a high likelihood of being adopted) would allow each woman aged 35 and over to have two children (regardless of gender), beginning in 2010, followed by an annual lowering of the 35-year age limit by one year.

Will China Grow Old Before Getting Rich?

Initial shocks from a relaxation of birth quotas may cause an upsurge in fertility rates in the early years. Ultimately, birth rates are likely to stabilise at a level that is higher than in most developed countries, but lower than that in most developing countries.

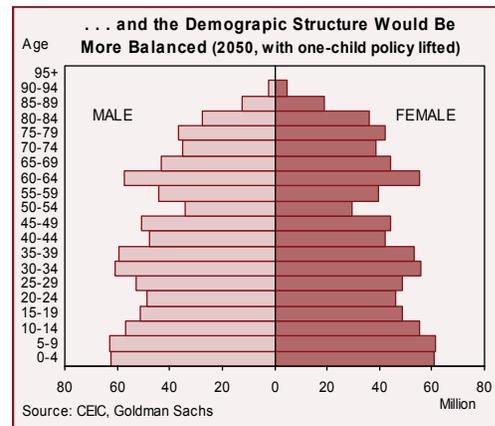
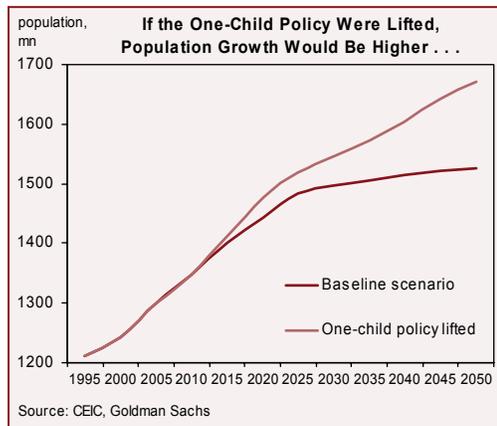
Output Growth Forecast

Economic growth will be affected by a combination of forces, including the demographic transition, rapidly improving human capital and the further release of surplus labour from the agriculture sector. We show in the following analysis that output growth should hold up well after accounting for the last two factors, as well as a potential easing of the one-child policy.

We project real GDP growth in three scenarios:

- **Scenario 1** is the baseline case and does not account for any human capital acceleration or further reduction of rural-labour migration barriers. It implicitly assumes that China will undergo a modest accumulation of human capital, and sees no change in the urbanisation or one-child policy. This estimate is similar to our BRICs projections.
- **In Scenario 2**, we take into account the rapid acceleration of education attainment going forward, and allow rural surplus labourers to migrate more freely from 2006. The potential policy environment needed for the second scenario seems to be shaping up well.
- **Scenario 3** takes into account an improvement in labour quality and the release of surplus labour from the agricultural sector, and assumes a phase-out of the one-child policy beginning in 2010, with details consistent with the proposal discussed above. The extensive review that has been conducted on the one-child policy suggests that the policy will be modified. Hence, we are inclined to think that Scenario 3 is the most likely of the three.

Scenarios 2 and 3 take into account both an overall increase in labour supply and a higher-quality labour force, suggesting an even more bullish growth prospect than Scenario 1, or our original BRICs estimates. In particular, Scenario 3 demonstrates that the easing of the one-child policy will likely further accelerate total GDP growth by 12 basis points and have a limited negative impact on per-capita GDP income. This is because a greater proportion of the



added population will be in urban areas and thus will enjoy better educational opportunities. Improvement in average labour quality will ultimately outweigh the burden from the increasing dependent population and help sustain overall growth, especially towards 2050.

Rich But Not Richest

Together, these results suggest that by the time China becomes old, it should be fairly developed, but still not richer than the US or Japan in terms of per-capita income. Richness is usually defined in relative terms, while economic development is both an absolute and relative concept. Generally, an economy is considered to have achieved ‘developed’ status upon its accession into the OECD. An effective rule of thumb has put per-capita income of \$10,000 as the threshold of ‘developed country’ status. Economies above this line are fairly developed, and are often consistent in sectoral composition of output, urbanisation, life expectancy, national wealth, capital stock per labour hour, education and service-sector development, etc.

For China, this day may not be too far away. Our analysis shows that by the time China becomes an aged society in 2027, its per-capita GDP should have surpassed \$10,000 (in 2005 terms) in all scenarios. However, even by 2030, the most optimistic scenario suggests that per capita GDP could reach nearly \$22,000 (2005 prices), but stay well below BRICs estimates of per capita GDP in the US (\$61,000), Japan (\$60,000) and Germany (\$51,000) of that year.

In summary, our study on China’s future labour supply has the following implications:

- In the medium term, ‘demographic deficits’ will likely be counterbalanced by an unusually rapid accumulation of human capital and a further release of rural surplus labourers.
- In the longer run, growth will likely hold up well as the country ages. By the time it is old, China will be considered a developed economy—although it will probably be poorer than many developed countries.
- Our BRICs projection of real GDP growth may have some further upside, if China adopts a favourable policy mix to address the labour issues. A potential easing of the one-child policy after 2010 would help boost long-term growth, especially towards 2050.

China's Projected Real GDP Growth

avg % chg yoy	BRICs projections	Scenario 1	Scenario 2	Scenario 3
2005 – 2010	7.6	7.5	8.9	8.9
2011 – 2015	6.0	6.0	7.0	6.9
2016 – 2020	5.0	5.7	6.5	6.3
2021 – 2025	4.5	5.1	5.3	5.4
2026 – 2030	4.0	4.5	4.9	5.1
2031 – 2035	3.8	3.8	4.0	4.3
2036 – 2040	3.8	3.6	3.9	3.9
2041 – 2045	3.4	3.1	3.2	3.5
2046 – 2050	2.8	2.9	3.0	3.5
2005-2050	4.5	4.7	5.2	5.3
GDP growth per capita 2005-2050	6.3	4.3	4.8	4.7

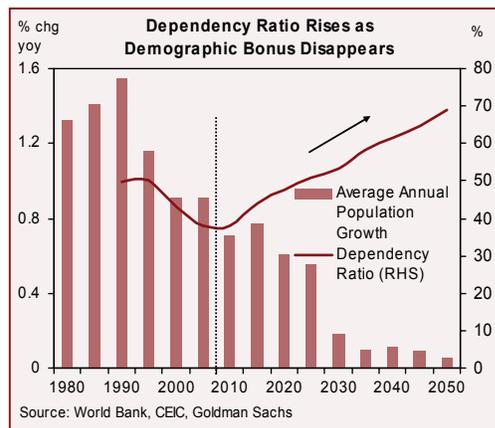
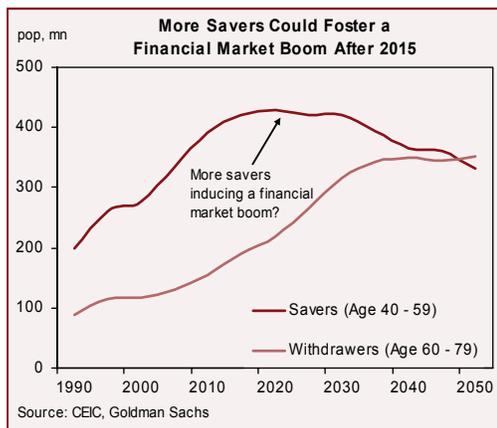
Source: Goldman Sachs

Policies to Watch

In our view, China is taking the necessary steps in education and the labour market to ease the demographic constraints, which means that Scenarios 2 and 3 are more likely to materialise than Scenario 1. Potential policy changes in these areas are important levers that China can and should push to counter the negative influence from demographic changes. In this sense, we believe demographics will not determine the country's future to the extent that most people currently believe.

The most obvious step is to relax the one-child policy. Other important steps will include:

- **Making education affordable and flexible.** There is room to expand public expenditure on education, which is low as a share of GDP. A strong commitment here would help build a more evenly distributed network to provide high-quality compulsory education, especially if the youth base were augmented by a relaxation of the one-child policy. The recent commitment to completely free compulsory education will certainly provide an extra boost. Only if youngsters from the countryside receive better education opportunities and skill-sets, will they be able to migrate to cities to take more permanent positions in high-valued-added industries.
- **Facilitating migration.** Beyond the current reform of the *hukou* system, reducing non-*hukou* barriers to migration will be important. The rural economy needs to be restructured away from small household leaseholds of uncertain tenure to larger commercial farms with more secure property rights. Otherwise, migration is likely to stall.
- **Deepening rather than expanding pension reforms.** The current scope of pension reforms offer sufficient support for a limited number of retirees without building up huge government debts for future generations or discouraging child-raising. For farmers and the self-employed, private savings would still be considered the most effective support. To encourage private accounts to be fully funded, and sustain private savings, China will have to liberalise its capital markets.



Implications of an Ageing But Fast-Growing China

- **China's population is ageing, but its economy should continue to grow rapidly** with the help of a better-educated labour force and rapid urbanisation. The gains from human capital development and intensive urbanisation will help buffer the slowing labour force growth.
- **The strong economic outlook will provide renewed opportunities for China's Asian neighbours, as well as compensate for the relative slowdown of the G7 economies.** This implies that policy agendas in industrial economies should be oriented towards helping them benefit from China's rise.
- For China, **the demographic transition will likely become a positive catalyst for financial markets**, as a larger percentage of savers come into their highest earning periods. Financial asset prices may rise during the early stages of ageing. But when a large number of pensioners start to switch into less-risky assets, stock prices will likely decline.
- In our view, **investment growth will remain solid** for two reasons. First, rural-urban migration requires more capital deepening to equip labourers coming into the industrial and service sectors. Second, even in the distant future when labourers are in short supply, investment will need to increase to replace labour with capital. Ultimately, however, investment may slowly decline as a percentage of GDP when headline growth slows.
- **Future growth also ensures the market potential for commodities, as well as for multinationals producing consumer goods in China for the local market.** Commodity prices will benefit as China industrialises and transforms into a developed economy.
- **Ageing is likely to benefit specific sectors** such as insurance, pharmaceuticals, biotech and health foods. We also foresee increased opportunities for the financial-services industry to offer a larger variety of products as they cater for the need to accumulate and preserve wealth. New industries (such as nursing homes) and new property opportunities (such as vacation homes) are likely to gain as well.
- **Consumption patterns will not only shift because of ageing but, more importantly, due to behavioural changes brought on by added human capital and rapid urbanisation.** Chinese consumers will become more sophisticated and their spending habits will evolve to look more like those of consumers in developed countries. This may translate into positive catalysts for the travel, entertainment, media, fashion, luxury goods and consumer appliances sectors, as well as property, as consumers gain more purchasing power. Rural migrants moving into an urban environment are likely to adopt urban consumption patterns, albeit with a time lag and with less preference for durability and quality.

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February 14, 2006