



From 'Made in China' to 'Sold in China': The rise of the Chinese urban consumer

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McKinsey Global Institute

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From 'Made in China' to 'Sold in China': The rise of the Chinese urban consumer

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Preface

This report is the product of a year-long research project conducted by the McKinsey Global Institute (MGI) in collaboration with McKinsey's offices in China, McKinsey's Strategy Practice, and its China Consumer Center.

Eric Beinhocker, a senior fellow at MGI based in London, worked closely with me to provide overall leadership for the project. The project was managed initially by Elizabeth Stephenson and then by Ulrich Gersch, both engagement managers in San Francisco and New York respectively. The econometric modeling team was led by Ezra Greenberg, a specialist with MGI in Washington DC, and included Jonathan Ablett, a senior research analyst. Geoff Greene, an independent econometrician based in Washington DC also provided invaluable assistance. The project team also included several members of McKinsey's Greater China office as well as the Firm's Asia House office in Frankfurt and we are grateful for the efforts of Mingyu Guan, Isabel Ho, Grace Hu, Mavis Ji, Yuan Luo, Yong Li, and Begine Ng. The team also benefited from the input of Janamitra Devan, Jani Moliis, Vivien Singer, and Hsinhsin Tsai, as well as the research of McKinsey's superb R&I staff.

The report would not have been possible without the support and expertise of McKinsey partners and associate principals in the Greater China office, including Andrew Grant, Kevin Lane, Gordon Orr, Jonathan Woetzel, Ian St. Maurice, Claudia Suessmuth-Dyckerhoff, Paul Gao, as well as the MGI's external advisors, Nick Lardy, a senior fellow at the International Institute for Economics (IIE), and Martin Baily, a senior adviser to MGI, a senior fellow at the IIE, and formerly chief economic adviser to President Clinton.

Moreover we would like to thank Janet Bush for her editorial efforts; Rebeca Robboy and Kim Brooks, MGI's external relations managers; Kale Gaddy, Ling Lau and their technical team for the development of the interactive charts for the web version of the report; Deadra Henderson, MGI's practice administrator; our executive assistants; and McKinsey's production services for their much appreciated contributions.

Our aspiration for this project is that it will provide a fact base and insights on the future of Chinese consumer demand that business leaders and policy makers can use to make better decisions. As with all MGI projects, this work is independent and has not been commissioned or sponsored in any way by any business, government, or other institution.

Diana Farrell
Director, McKinsey Global Institute
November 3, 2006
San Francisco

Executive summary

Ever since China's process of liberalization began in the 1980s, business executives around the world have dreamed of serving a market of 1.3 billion customers. But while the production side of China's economy has boomed with two decades of 10 percent growth, the consumer side has yet to live up to its promise.¹ Consumption in China has grown at a significantly slower pace than output—consumption as a share of GDP has shrunk from 47 percent in 1995 to 37 percent in 2005. For all of the excitement over China, its total consumer economy today is still barely larger than Italy's despite having over 20 times the population, and its citizens spend on average only \$543 per person per year versus \$11,511 in Italy.

The experience of foreign multinational companies (MNCs) serving China's consumers has likewise been mixed. There have been some notable success stories, for example Western-style supermarkets now reach deep into the Chinese heartland and last year nearly 90 million mobile phones were sold in China, making it the world's largest mobile market. But many companies have been surprised at the competitive intensity of China's markets, found the markets for their—by Chinese standards, premium-priced—products smaller than anticipated, and seen margins squeezed by the costs of sales, marketing, and distribution. As one senior MNC executive put it, the attention China gets in his boardroom is way out of proportion to the reality of his company's current profits in the country.

If there is one overriding message from this report, however, it is that such attention is just what the Chinese consumer market deserves. This report will show that China's economy is on the verge of an important transition in which its consumers will begin to take their place on the world stage.

¹ See Nicholas R. Lardy, "China: Toward a Consumption-Driven Growth Path," Institute for International Economics Policy Briefs in International Economics, no. PB06-6, October 2006.

Over the past year, the McKinsey Global Institute (MGI) has looked closely into the future of China's consumer market. We have assembled a proprietary database of 20 years' of data that links macroeconomic and demographic variables to Chinese incomes and consumption behavior. We have then used that data to econometrically project Chinese income distributions and consumption patterns out to 2025.

Our analysis shows that over the next two decades, the Chinese economy will gradually begin to move away from its historical investment-led growth model, and China's consumers will begin to play a far greater role in their economy's growth. As this re-balancing from investment to consumption occurs, Chinese incomes, which have been lagging GDP growth, will eventually begin to catch up, and, between 2006 and 2015, a massive middle class will emerge. This rising middle class will largely be an urban phenomenon, which we project will spread beyond China's large wealthy coastal cities, to smaller cities further inland, thus significantly changing the geography of China's consumer market.

As the incomes of China's new middle class rise dramatically, so too will their consumption, making China the third-largest consumer market in the world by 2025. A key characteristic of China's new middle class will be that these households will have passed the threshold where necessities such as food and clothing constitute the bulk of their purchases. They will begin to spend a larger proportion of their income on discretionary items, thus significantly changing the pattern of spending in the economy.

We have also found that the spectacular rise of China's urban middle class, and its consequent impact on consumption, is a very robust outcome. It does not depend on major changes in Chinese savings behavior or on particular government policies (although certain policies could accelerate or slow the process), but primarily on economic and demographic forces that are already well-established, and on the continuation of overall economic growth. Even the impact of varying future growth rates tends to alter only the timing of these developments, not whether they happen at all.

CHINA'S ECONOMY WILL RE-BALANCE TOWARD CONSUMPTION

China, like a number of other Asian economies, has aggressively pursued a policy of investment-led growth. It has mobilized the savings of its vast, thrifty population to build its industrial base, particularly in the export sector, and develop its infrastructure. This policy has been very successful in fuelling over two decades

of high growth and, as we will see, significantly improving the incomes of large numbers of citizens.

This investment-led approach, however, has created imbalances in both the Chinese economy and the world economy, ranging from the underdevelopment of China's domestic consumer market, to a heavy reliance on exports for growth, and the consequent imbalances in world trade and currency levels. China's investment share of GDP, at 42 percent in 2005, is among the highest in the world. At some point in its development, China will begin to re-balance. Eventually, two things will occur. First, marginal returns on investment will begin to decline, thus creating a natural brake on investment growth. Prior MGI work shows that this is already beginning to happen in China.² In the first half of the 1990s, China needed \$3.30 of investment to support each dollar of GDP growth; since 2001, it has required \$4.90 to produce one dollar of GDP growth.³ Second, consumers will reach income levels where domestic spending begins to have a larger impact on stimulating economic growth. As we will discuss, incomes in China are fast approaching this point as well.

Furthermore, since December 2004, China's top political leadership has made it an express policy to ensure that a re-balancing towards consumption occurs over time.⁴ The government has been using a combination of monetary and administrative controls to attempt to rein in China's investment growth, as well as taking actions, such as raising the minimum wage, de-regulating the retail market, and creating the "Golden Week" holidays, to encourage consumption growth.

We estimate that over the next two decades, a combination of moderating investment levels and rising incomes will cause China's consumption share of GDP to rise from 37 percent today to 41 percent by 2015, and to 45 percent by 2025 (Exhibit 1). Although this re-balancing would be an important shift from the situation prevailing today, it is important to note that it will merely be returning China to a share of consumption seen in the mid-1990s. It will still leave Chinese

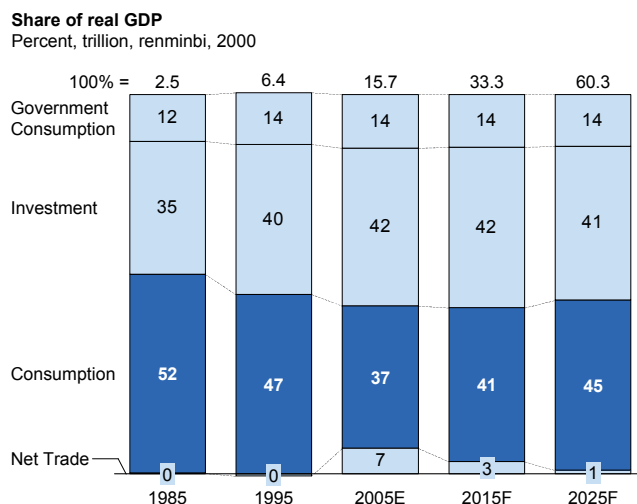
2 See Diana Farrell, Susan Lund, Jaeson Rosenfeld, Fabrice Morin, Niyati Gupta, Ezra Greenberg, "Putting China's Capital to Work: The Value of Financial System Reform," McKinsey Global Institute, 2006, (http://www.mckinsey.com/mgi/publications/china_capital/index.asp).

3 Diana Farrell, Susan Lund, Fabrice Morin, "How Financial System reform could benefit China," The McKinsey Quarterly, 2006 Special Edition: Serving the new Chinese consumer, (http://www.mckinseyquarterly.com/article_page.aspx?ar=1785).

4 As Lardy (2006) notes, the policy was announced at the Central Economic Work Conference in December 2004 and has been reiterated in speeches and remarks by both Premier Wen Jiabao and President Hu Jintao.

Exhibit 1

CONSUMPTION AS A SHARE OF CHINA'S GDP WILL RISE



Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0

consumption well below current Japanese and US levels at 57 and 71 percent of GDP respectively.

Our scenario for the re-balancing of the Chinese economy assumes a “soft landing” in which China’s investment boom cools while overall GDP growth slows but remains at a healthy level. In our base case, we assume real GDP growth to decline gradually from an annual rate of 9.7 percent over the past two decades, to 7.0 percent over the next two. We will consider other growth scenarios in a later section.

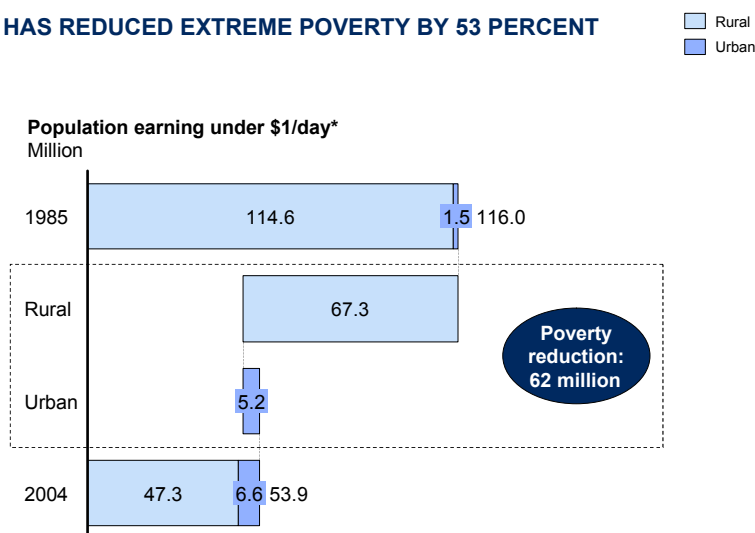
A MASSIVE URBAN MIDDLE CLASS WILL EMERGE

As China’s economy has grown, there has also been a striking increase in Chinese household incomes. We estimate that, since 1985, extreme poverty in China has been cut in half and that 62 million, mostly rural, citizens have been lifted above the \$1 per day income threshold (Exhibit 2).⁵ During this period, China has seen massive rural to urban migration as approximately 250 million people have left the countryside for the cities. Although this has caused a slight rise in the number of urbanites living on less than \$1 per day, for the most part, China’s investment- and export-driven economy has been able to absorb these

⁵ This is in addition to the 125 million that the Chinese government claims to have lifted from poverty between 1978 and 1985 due to rural reforms. While we have used the United Nations’ \$1 per day threshold in our 1985-2004 estimate. The Chinese government uses a poverty line ranging from 100 nominal renminbi per annum in 1978 to 206 renminbi in 1985.

Exhibit 2

CHINA HAS REDUCED EXTREME POVERTY BY 53 PERCENT



* Computed at \$ PPP, 2000
Source: MGI China Consumer Demand Model, v2.0; World Development Indicators

relatively low-skill migrants, shifting them from the agricultural into the manufacturing economy, where both their wages and skill levels have risen. Since 1985, urban real per-capita disposable incomes have more than quadrupled, rising from 2,084 renminbi (\$252) to 8,575 renminbi (\$1,036) per annum in 2005 (Exhibit 3).

Going forward, as the economy re-balances away from investment-led growth, we expect to see Chinese households capture a greater share of total factor income, rising from 59 percent today to 64 percent by 2025. This means that, even as overall economic growth moderates, incomes will continue to rise strongly. In urban areas, total income will continue to rise even faster than overall GDP, climbing 8 percent per annum over the coming two decades. This will be driven by both continued urbanization, as the percentage of people living in urban areas rises from 43 percent today to 59 percent by 2025, as well as rising per capita income as China's cities continue to create higher-value manufacturing and service jobs.

As incomes grow, the shape of the distribution of income in urban China will change too (Exhibit 4). In 1985, 99 percent of the urban population had household disposable income of less than 25,000 renminbi (\$3,019) per year. By 2005, that had dropped by almost half, and will continue to fall as large segments of the population move into the middle class. For the purposes of this report,

Exhibit 3

URBAN INCOMES WILL CONTINUE TO RISE DRAMATICALLY

Total urban household income billion, renminbi, 2000

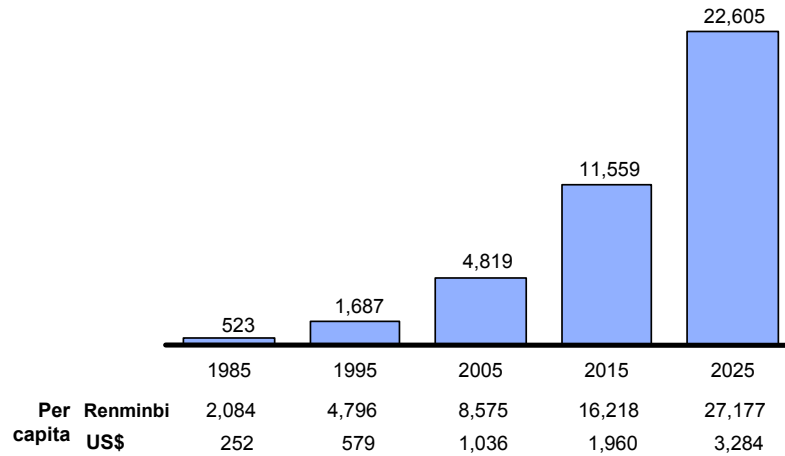
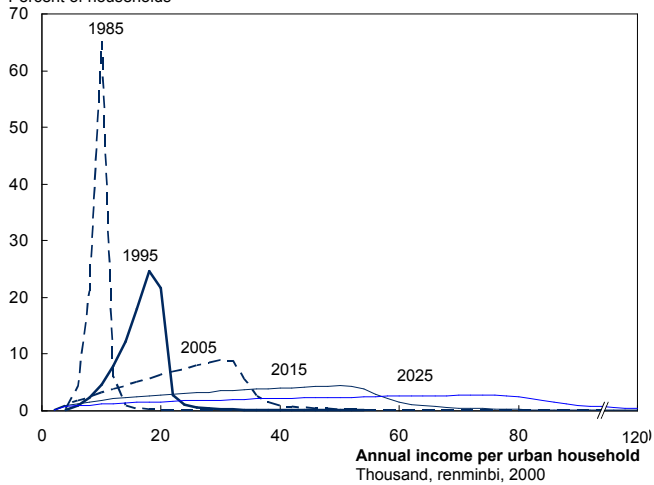


Exhibit 4

CHINA'S URBAN INCOME DISTRIBUTION WILL WIDEN AS ITS MIDDLE CLASS GROWS

Urban household distribution, 1985-2025

Percent of households



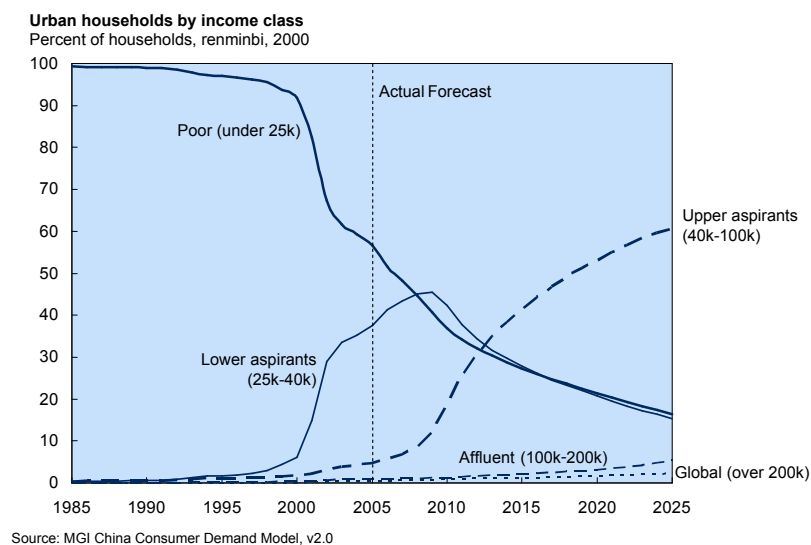
Source: MGI China Consumer Demand Model, v2.0

we define *middle class* as being comprised of two segments: *lower aspirants* earning 25,000 to 40,000 renminbi (\$3,019 to \$4,831) per year, and *upper aspirants* earning 40,000 to 100,000 renminbi (\$4,831 to \$12,077) per year. These amounts may seem modest to Westerners. However, in purchasing power parity terms, lower aspirants earn between \$13,513 to \$21,622, and upper aspirants, \$21,622 to \$54,054—levels of income that purchase a lifestyle that most of the world would recognize as middle class.

We estimate that this urban middle class will grow from 43 percent of the population today, to 69 percent by 2015, and to 76 percent by 2025 or 612 million people-strong (Exhibit 5). As this occurs, the center of gravity in the middle class will shift from the lower aspirants, to a point—around 2015—where upper aspirants will become the largest segment of the population, and then—by around 2020—when they will become the majority. This new middle class will wield enormous spending power. By 2025 real aggregate urban disposable income will reach 22.6 trillion renminbi (\$2.7 trillion), 61 percent of which will be from the upper-aspirant segment alone.

Exhibit 5

UPPER ASPIRANTS WILL BECOME THE LARGEST GROUP IN THE NEXT DECADE



China's urban spending power will also be far less concentrated in the major Tier 1 cities (Beijing, Shanghai, Guangzhou, and Shenzhen) and along the coasts, than it has in the past. China's 37 Tier 2 cities (the top three by population size are Chongqing, Wuhan, and Tianjin), and 620 Tier 3 cities (the top three are Xiangfan, Puning, and Zaoshuang—note that 136 Tier 3 cities have populations of greater than a million) are both growing more quickly than the big four cities and will account for the lion's-share of China's urban income growth.

CHINA WILL BECOME THE WORLD'S THIRD-LARGEST CONSUMER ECONOMY

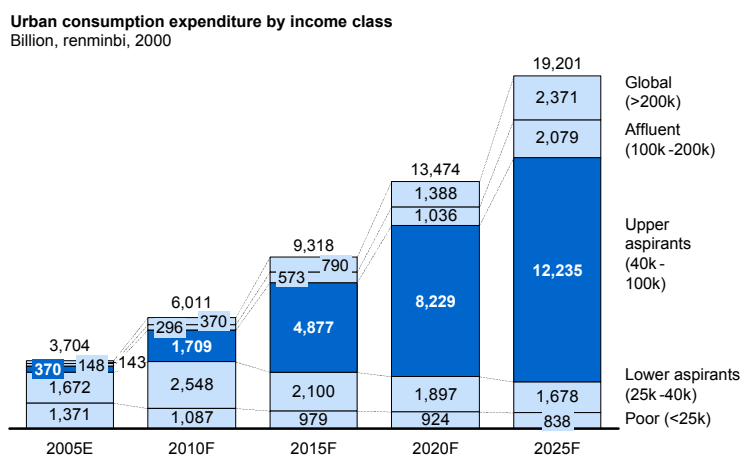
As Chinese urban incomes rise at a rapid rate, so too will the spending of this population. But how much spending rises depends on how much China's frugal citizens put away in savings—overall, Chinese households saved 37 percent of their disposable income in 2005.⁶ Research by McKinsey's China Consumer Center has shown that the primary driver of this high savings rate has been the weakness of the social safety net in China. In essence, people self-insure against unexpected health-care costs, as well as save for their retirement and their children's education. While the Chinese government has made improving the safety net a priority, we assume that only modest progress will be made in the timeframe of our study, and that it will take time for savings behavior to change. Rather, we believe that savings rates will moderate due to demographic factors (the aging of the pre-one child cohort), rising wealth levels, and improvements in the financial sector (e.g. greater availability of insurance products). Urban households already save less than the national average, and we expect their savings rate to decline gradually over the coming two decades.

The combination of rapidly rising incomes and moderating savings rates will lead to a strong surge in spending over the coming two decades. Urban consumer spending will grow more than five-fold in real terms from 3.7 trillion renminbi (\$446 billion) per year in 2005 to 19.2 trillion renminbi (\$2.3 trillion) in 2025 (Exhibit 6). Upper aspirants, who represent only a small fraction of spending today, will be the dominant consumers by 2015.

⁶ This represents a substantial upward revision of earlier estimates of the household savings rate. In the recent release by the NBS, a significant increase in services went to investment rather than consumption. Consequently, this change resulted in a spike in the national savings rate. We re-estimated the share of income and consumption going to households using this revised data and flow-of-funds data, to arrive at a new, higher 2005 estimate of the household savings rate. See also explanation given in Appendix B.

Exhibit 6

URBAN CONSUMPTION WILL INCREASE SHARPLY, MAINLY DRIVEN BY UPPER ASPIRANTS



Source: MGI China Consumer Demand Model, v2.0

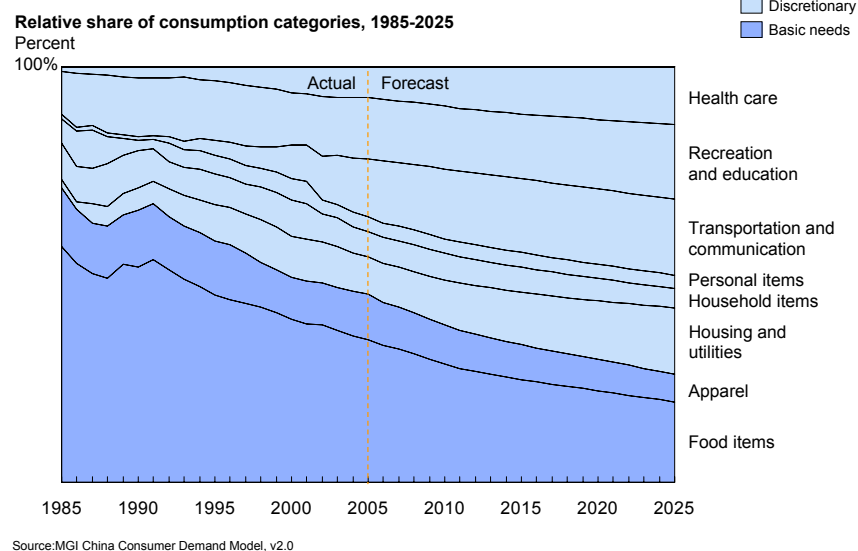
This rise in spending will cause China to surpass Germany in terms of the size of its consumer market by 2015; by 2025, China will become the world's third-largest consumer market, approaching Japan in real dollar terms. Although per-capita spending will remain modest at \$2,302, if we dig under the average we find large numbers of consumers making significant purchases. For example, by 2025 we forecast that there will be eight million global households (disposable income above 200,000 renminbi) with average spending of slightly over 290,000 renminbi per year, and 19 million affluent households (income 100,000 to 200,000 renminbi) with average spending of about 109,000 renminbi per year.

Along with the changing quantity of Chinese spending, the pattern of spending will change dramatically too (Exhibit 7). Since 1990, urban China's share-of-wallet has been shifting steadily away from necessities (which we define as food and clothing) and toward discretionary spending. Today, discretionary items constitute approximately 55 percent of total urban spending, and by 2025 we expect that to rise to 74 percent.

As urban Chinese discretionary spending rises, certain categories will be winners in the share-of-wallet battle, while others will see their shares decline (even if their absolute market sizes continue to rise). Food, which remains China's largest product category throughout the forecast period, will see its relative position decline

Exhibit 7

URBAN CHINA'S RELATIVE SHARES OF CONSUMPTION EXPENDITURE ARE SHIFTING RAPIDLY



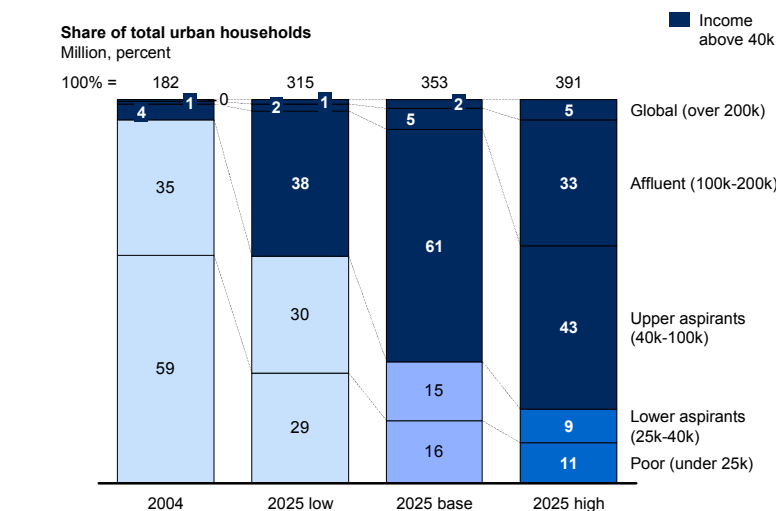
compared with faster-growing categories—despite a 5.5 percent growth rate that is significantly faster than food growth in other world markets. We estimate that transportation and communication will grow at a 10 percent rate, and recreation and education at 9.7 percent as these discretionary categories take up an increasing share of expenditures. Housing and utilities will grow at 11.7 percent as Chinese consumers continue to make investments in improving recently privatized housing stock. The fastest-growing product category will be private health care at 12 percent. Until recently, this has been unaffordable for most Chinese, but it will be a priority for many people as incomes rise.

A QUESTION OF WHEN, NOT IF

The single most important driver of the results summarized above is our assumption of China's overall economic growth rate. As discussed, our base case assumes a "soft landing" whereby China's investment boom gradually cools and growth moderates over time. There are, of course, other possible scenarios, including a "hard landing" in which Chinese growth comes down more rapidly and to a lower level; or what some analysts have called the "no-landing" scenario, in which Chinese growth continues at the levels of the past two decades for another two decades.

Exhibit 8

GROWTH HAS LARGE IMPACT ON TOTAL NUMBER OF HOUSEHOLDS EARNING ABOVE 40,000 RENMINBI A YEAR



In order to test the robustness of our results, we examined income and consumption growth under a hard-landing scenario of 4.2 percent compound annual real GDP growth, and a no-landing scenario of 9.7 percent growth, in addition to our base case of 7.0 percent. In each of the three scenarios, the general character of our results was preserved—urban incomes grow at a pace more rapid than the economy as a whole, a large middle class emerges, and consumption rises significantly, while shifting toward discretionary items. The main difference across the scenarios was the timing of these developments and their magnitude by the end of the forecast period in 2025. One indicator of the timing differences is the point at which the number of upper aspirant households exceeds the number of lower aspirant households; i.e. when the mass of the middle class passes the 40,000 renminbi threshold. In the low case, this happens in 2022; in the base case 2013; and the high case 2011. An indication of the differences in magnitude across the scenarios is the percent of households that reach the 40,000 renminbi upper aspirant threshold by 2025—41 percent in the low case, versus 68 percent in the base case, versus 81 percent in the high case (Exhibit 8).

Urban consumption also grows significantly across all three scenarios, but again with differences in magnitude by 2025. In the low case, consumption grows by a compound annual rate of 5.7 percent, reaching 11.2 trillion renminbi by 2025, compared with 11.5 percent and 32.5 trillion renminbi in the high case. In

all cases, consumption shifts significantly toward discretionary items, reaching 63 percent of share-of-wallet by 2025 in the low case, and 80 percent in the high case.

In addition to GDP growth, we also examined sensitivities to other factors that affect both the level of income as well as its distribution, such as population, growth, the urbanization rate, educational attainment, and wealth effects from savings. While population growth tends to be a relatively predictable factor in economics, there is nonetheless some variability around forecasts, and, given the size of China's population, such differences could potentially matter. For example, if China's population were to be 100 million people, or 7 percent, larger than is forecast by 2025, this would translate into an urban consumption market that is 6.3 percent larger than our base case. Likewise, a 5 percent increase in the urbanization rate from our base case would move the size of the urban market up by 8 percent.

Educational attainment tends to effect the shape of the income distribution, but even a 23 percent change in the level (thus catching up with South Korea) would only marginally change the distribution—e.g. the total income of households at the top-end global-income bracket would only rise by 4 percent. Finally, if real wealth in China were to zoom up from its ratio of 4.2 times GDP today to 6.0 times by 2025 (20 percent higher than our base case and higher than the current US level), there would only be a modest impact on the income distribution—e.g., the total income of households at the top-end global-income bracket would rise by 3.8 percent.

Our conclusion is that, short of an economic downturn far below our low case, a major reversal in China's political or social conditions, or changes in other factors that significantly deviate from our base-case assumptions, over the next two decades China will give birth to a massive middle class and develop into one of the world's major consumer economies.

Readers interested in our detailed findings and analyses are invited to go to the main chapters in the full report. Those interested in forecasts for specific product and service categories should look at Appendix A, and those interested in further details on our modeling approach and data sources are directed to Appendix B.

* * *

As the dream of a market of nearly 270 million middle-class households begins to come true over the coming decades, both business leaders and policy makers will grapple with its implications. MNCs will need to continue to drive their prices and costs down relentlessly to be able to reach and build relationships with consumers who have modest incomes today but will be the middle class of tomorrow. In addition, MNCs will need to extend their geographic reach into the Tier 3 and lower cities where the majority of these consumers live. At the same time, Chinese companies will need to build skills in branding and product innovation in order to follow these customers up-market as their tastes change with rising incomes.

For their part, policy makers will face a delicate balancing act of shifting China's economy from dependence on investment and exports, to one that is increasingly driven by its own domestic consumers, while still keeping growth rates at high levels. Critical decisions will need to be made about government investment in the social safety net to free up consumption, and financial-sector reform will play a key role in helping both China's producers and households reduce their excess savings and spend more.

China's growth into a consumer superpower will be good for China as more of its citizens realize their aspirations for a more comfortable life. It will also be good for the citizens of other countries as China's consumer markets will generate enormous opportunities for companies around the world, creating jobs, expanding trade, and leading to a more balanced role for China in the global economy.



1. Introduction

China's economic accomplishments are by now well-known. Over the past two decades (1985-2005), real gross domestic product (GDP) has enjoyed annual growth of 9.7 percent,¹ and China has rocketed from being the seventh-largest economy in the world to the fourth, passing Italy, France, and the United Kingdom along the way.

Much of the focus has been on the supply-side of China's economy as China has become the world's manufacturer; less attention has been given to the demand-side. How is growth impacting Chinese consumers? What is happening to their incomes? On what will they spend their newfound wealth?

RE-BALANCING THE CHINESE ECONOMY

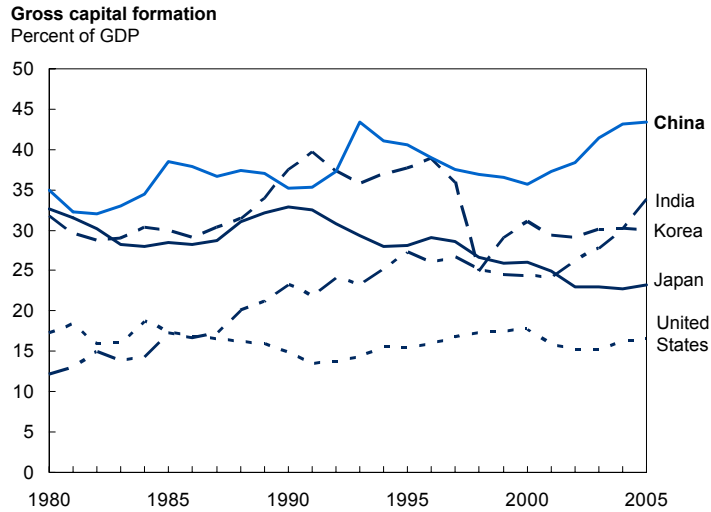
The reality is that China's growth has been imbalanced. China has mobilized the savings from its frugal population as well as substantial amounts of foreign direct investment (FDI) to invest in its industrial base and infrastructure at record levels (Exhibit 1.1). But this emphasis on investment-led growth has crowded out the consumption side of China's economy, and private consumption has declined significantly as a share of GDP (Exhibit 1.2). China has therefore reached a much lower level of private consumption relative to the size of its economy than most other economies, including Japan and the United States (Exhibit 1.3).

Although China's investment-led model has been a highly successful development strategy, the fact that demand growth has not kept up with that of supply has contributed significantly to the country's trade imbalances with the rest of the world. China's export sector now accounts for 37 percent of GDP. In addition,

1 All period growth rates of economic and financial variables in this report, unless explicitly stated otherwise, refer to compound average growth rates (CAGR).

Exhibit 1.1

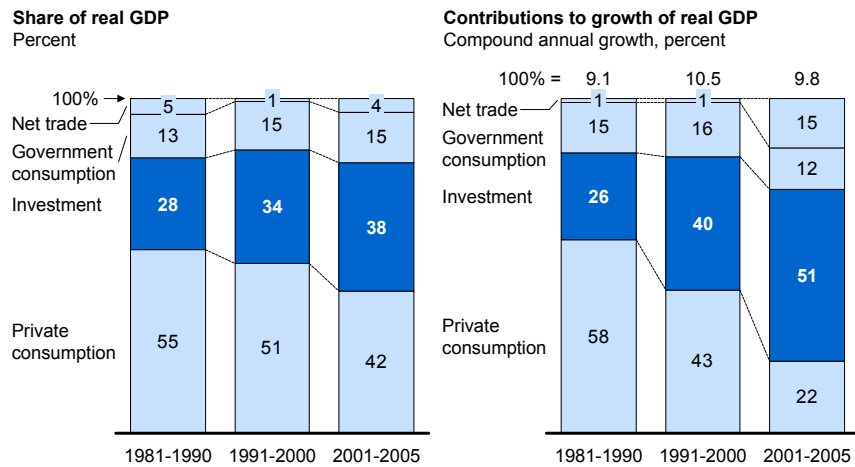
CHINA'S CAPITAL FORMATION RATE IS SETTING NEW RECORDS



Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0; Reserve Bank of India; CSO India; Bank of Korea; BEA; ERSI Japan

Exhibit 1.2

INVESTMENT SHARE OF GDP HAS INCREASED WHILE CONSUMPTION SHARE HAS DECLINED

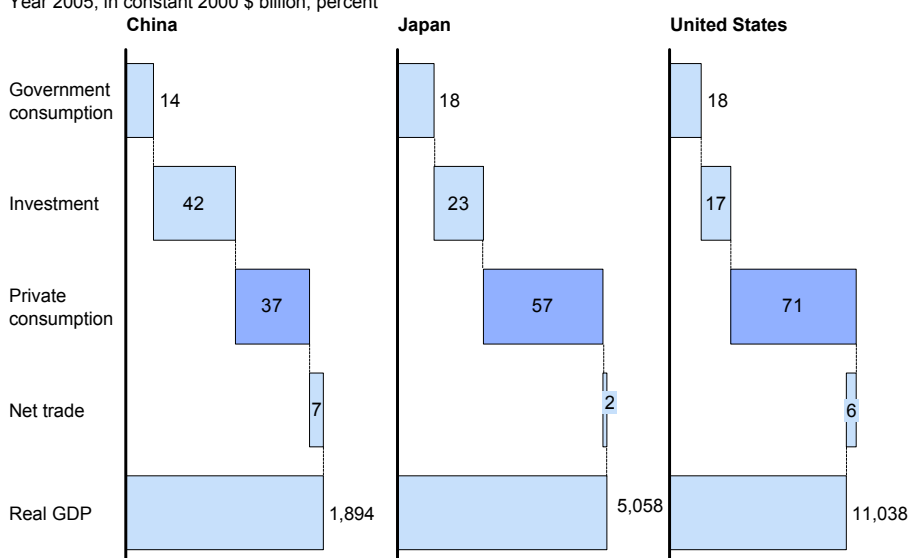


Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0

Exhibit 1.3

CHINA'S CONSUMPTION SHARE OF GDP IS MUCH LOWER THAN THAT OF THE UNITED STATES AND JAPAN

Year 2005, in constant 2000 \$ billion, percent



Source: Global Insight; MGI China Consumer Demand Model, v2.0; Bureau of Economic Analysis

it has tilted the pattern of trade toward imports of lower-value raw materials and manufacturing inputs, and away from higher-value finished consumer goods.

There is evidence that China's investment-led strategy may be reaching its natural limit. In addition to rising trade tensions, previous MGI work has shown that the marginal payoffs to China's investments are beginning to decline.² In the early 1990s, China needed \$3.30 of investment to support each dollar of GDP growth; since 2001, it has required \$4.90 to produce one dollar of GDP growth. The experience of Japan and South Korea shows that such investment-led models do inevitably reach a point of decreasing returns, and that this presages a shift to growth that is more balanced between investment and domestic consumption.

China's political leadership recognizes that, over time, the economy must transition to this more balanced growth model and has made the stimulation of domestic consumption a key priority in the 11th Five Year Plan of 2006. In his summit with US President Bush in April 2006, China's President Hu Jintao said,

² See Diana Farrell, Susan Lund, and Fabrice Morin, "How financial-system reform could benefit China," *The McKinsey Quarterly*, 2006 Special Edition: Serving the new Chinese consumer, pp. 95-96, (http://www.mckinseyquarterly.com/article_page.aspx?ar=1785).

“China is pursuing a policy of boosting domestic demand, which means that we’ll mainly rely upon domestic demand expansion to further promote the economic growth of the country.”³

Business leaders in China and around the world have likewise been eagerly anticipating the day when consumer demand in China will take off and begin to catch up with the fast pace of growth in the supply-side of the economy. With the political will to encourage domestic consumption explicitly stated, and the incomes of China’s 1.3 billion consumers rising rapidly, the potential for a shopping spree of historic proportions is clear.

Today, China is already a reasonably large consumer market, with spending of \$709 billion putting it just ahead of Italy.⁴ But China has more than 22 times Italy’s population; so, on a per-capita basis, China still looks like a developing market. In 2005, private consumption per capita was \$542, on a par with Indonesia, but well behind Mexico and Thailand. Even as Chinese incomes have grown rapidly, spending by China’s high-saving households has lagged. In fact, Chinese private consumption growth has actually slowed significantly in recent years, from 8.9 percent annually between 1985 and 2000, to only 4.9 percent in the period from 2000 to 2005.

This raises a number of questions. Will China’s long-awaited consumer boom ever take off, and if so, when? What is the real long-term potential of the Chinese consumer market—how big will it become? How will consumption growth change Chinese spending and savings patterns? What opportunities will this create for Chinese and multinational businesses? And finally, how can government policy support and accelerate this transition?

In response to these questions, MGI commissioned a project to look into the future of Chinese consumer demand. Specifically, we wanted to understand how the forces of economic growth, demographics, urbanization, and rising education levels would effect growth in Chinese incomes, and how this increased spending power would in turn translate into household consumption. We were particularly interested in the rise of China’s mass market, the so called “new middle class.” At present, a large segment of China’s urban population lies just below the income threshold where experience—both in China and other developing

³ As translated and reported by the White House, July 20, 2006.

⁴ In 2005, total consumer spending in China was \$709 billion, while Italy’s was \$676 billion. Spending in the two countries was nearly identical in 2004. Spending in China is still approximately \$100 billion below that of France.

countries—shows that significant discretionary consumption typically begins. When will this population move from struggling urban poor to consuming middle class? How big will this emerging middle class be? And how much spending power will it wield?

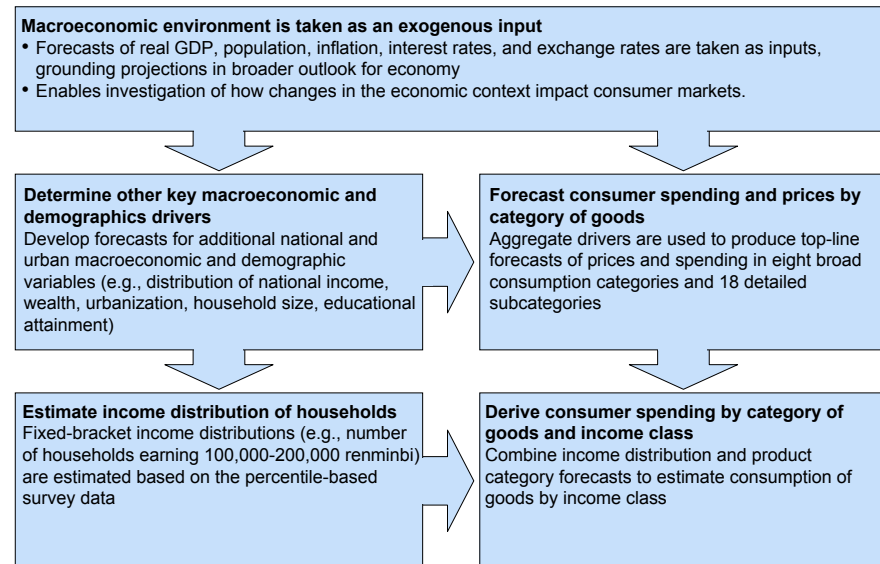
OUR APPROACH

Our approach to addressing these questions relied on three elements:

- 1. A proprietary database**—first, we collected data from multiple sources to create a comprehensive and consistent database—covering the period from 1985 to 2005—of variables that are relevant to past and future consumption. The core of the data came from China’s National Bureau of Statistics (NBS), in particular China’s national accounts data and the Household Income and Expenditure Survey. We used statistical techniques to adjust for methodology changes during the 20 years of data collected, as well as to fill in for years in which no data were collected for certain variables. We also applied a set of checks and adjustments for consistency across the dataset, and made further adjustments to reconcile the national account and survey data (a well-known issue is that national account and household survey data rarely agree). Finally, we supplemented the NBS data with data from other sources, including Global Insight, the World Bank, Haver Analytics, and McKinsey’s proprietary China Consumer Center survey of over 6,000 households. Appendix B provides a detailed description of our data sources and adjustments.
- 2. An econometric forecasting model**—second, using the database, we built an econometric model that enables us to translate macroeconomic scenarios for China into forecasts for income growth by income class and consumption across 18 major product categories over the two decades between now and 2025. This allows us to answer very specific questions such as: How many Chinese will have an income between 100,000 and 200,000 renminbi by 2025? How much will be spent on household durable goods in 2025? The model is organized into five major blocks (Exhibit 1.4). It uses a set of exogenous inputs and data from the database to create a set of macroeconomic drivers, which it then translates into forecasts for income distributions and consumer spending. It then combines these forecasts to create an estimate of future product-category spending by income class. Appendix B provides a detailed description of the model.

Exhibit 1.4

THE MGI CHINA CONSUMER DEMAND MODEL HAS FIVE MAJOR BLOCKS



Source: MGI China Consumer Demand Model, v2.0

3. On-the-ground insights in China—third, and finally, the results of a quantitative modeling exercise would not be of much use unless the results are interpreted, and put into the context of what is actually happening on the ground in China. We relied heavily on the knowledge of our colleagues in McKinsey’s Greater China office and their experience serving both Chinese and multinational companies in the region. We also conducted interviews and reviewed our results with a number of external and internal experts on the Chinese market.

Why our approach is distinctive

A number of researchers in both the academic and business worlds have previously examined the issue of Chinese consumption (see the Bibliography to this report). While many of these studies have provided useful insights, our approach is distinctive on several dimensions:

- *Focused on future consumption*—a number of studies have been based on surveys of current Chinese consumer behavior. While this is very helpful in understanding today’s spending patterns and the attitudes of Chinese consumers, such studies do not tell us what the long-term future direction of Chinese consumption will be. Our use of econometric techniques enables us to use a number of data sources to inform a forecast of future demand.

-
- *Constrained to 100 percent of demand*—where other studies have focused on future consumption, they have tended to do so for specific product-categories, such as automobiles or personal computers. However, this leaves open the possibility that, if one added up all of the forecasts for individual product categories, the result might show total spending that is greater than the size of the total Chinese economy. We forecast both total expenditures, as well as share-of-wallet, for 18 different product-categories simultaneously, and constrained our forecasts to 100 percent of demand.
 - *Developed detailed income distributions*—we used advanced techniques to model the evolution of China’s income distribution over time and then related those distributions to consumption at the product-category level. This enables us to analyze consumption patterns by specific income class. To our knowledge, this has not been done before.
 - *Linked to macroeconomic scenarios*—finally, few studies have rigorously linked macroeconomic variables, such as GDP growth, demographics, and savings, with the future evolution of income and consumption growth over time, and no study that we know of has done so in a way that enables the modeling of the impact of different future economic scenarios.

Model assumptions, base case, and scenarios

The most important driver of our forecast of Chinese household income and consumption is China’s overall GDP growth, which has increased at a rate of 9.7 percent over the past 20 years. For our base case, we selected a growth scenario developed by the international forecasting firm Global Insight, which is roughly in the middle of the range of analysts’ estimates, and integrated it with data from our other sources (Exhibit 1.5). Under our base case, between 2005 and 2025, real per-capita GDP growth is expected to register at an annual rate of 6.5 percent.

Recent data from China has shown very rapid growth in the first half of 2006 and raised concerns that the economy is overheating. Implicit in the Global Insight forecast, and other consensus estimates, is that China is able to successfully execute a “soft-landing” in the near-term and will slow its growth to 7.0 percent real GDP⁵ from 2005 to 2025 instead of the torrid 9.7 percent of the previous 20 years (Exhibit 1.6)—in other words, adjustments to interest rates, credit creation,

5 Note that while real GDP growth for the 2005-2025 period is 6.96 percent, rounded to 7.0 percent in Exhibit 1.6, real per-capita GDP growth is 6.53 percent, or rounded to 6.5 percent as shown in Exhibit 1.5. Since population growth during the same period is expected to be 0.41 percent, real per-capita GDP growth will necessarily be lower than real GDP growth.

Exhibit 1.5

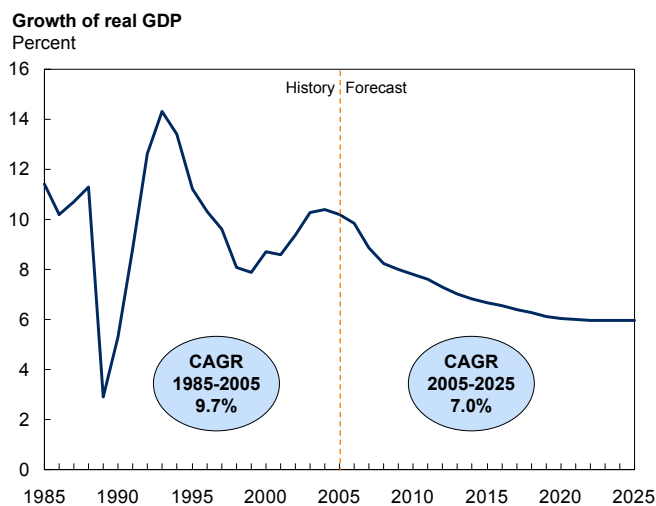
MGI BASE CASE IS MIDDLE OF FORECAST RANGE

Source	Real GDP growth per capita CAGR, percent	Timeframe
MGI High Model	9.2	2005-2025
UBS, High	8.2	2005-2020
Shell, High	7.8	2005-2025
HSBC	7.3	2004-2024
UBS, Low	6.7	2005-2020
MGI Base Model	6.5	2005-2025
Global Insight	6.4	2005-2025
Goldman, High	6.2	2005-2025
Shell, Low	6.2	2005-2025
Goldman, Low	5.4	2005-2025
Department of Energy	5.3	2004-2025
MGI Low Model	3.8	2004-2025

Source: MGI China Consumer Demand Model, v2.0; Global Insight, September 2006; DOE International Energy Outlook, 2006; Shell "Scenarios to 2025"; UBS "How to think about China", January 2006; Goldman Sachs "Will China Grow Old Before Getting Rich?", 2006; HSBC "China Economic Insight", January 2006

Exhibit 1.6

BASELINE GDP PROJECTION SHOWS A "SOFT LANDING" IN CHINA OVER THE NEXT TWO DECADES



Source: Global Insight
Note: All figures are rounded to the nearest first decimal.

and exchange rates, combined with fiscal and administrative measures, successfully slow the Chinese economy to a more sustainable pace without precipitating a recession. At the time of writing this report, the Chinese government was moving firmly to make those adjustments. In Chapter 4, we will consider the implications of a “hard landing” (in which China fails to avoid a recession) for our results, as well as a “no-landing” scenario where growth continues at its current trend. There is, of course, significant uncertainty around any long-range GDP forecast, and in Chapter 4 we will examine further factors that could contribute to more optimistic or pessimistic scenarios and their implications for our findings. A more detailed description of each of our scenarios is given in that chapter and in Appendix B.

In addition to GDP, the model is also dependent on exogenous assumptions about other factors such as population growth, demographics, inflation, exchange rates, interest rates, and worldwide economic growth. These exogenous drivers are taken from Global Insight as well so that they are consistent with our baseline GDP scenario. Appendix B provides a complete description of the underlying assumptions.

The main body of the report will focus on the results using the 6.5 percent base case per-capita real GDP growth assumption. We should also note that our base-case scenario has been updated compared to a previously published article in the McKinsey Quarterly (June 2006)⁶ to include the official revisions to China’s GDP by expenditure accounts for 2004 and 2005, updated forecasts from Global Insight, and some methodological refinements. Details on the changes, and a reconciliation of the previous model version, are provided in Appendix B.

We should also briefly note that there are well-known inconsistencies between two of our primary data sources, the Chinese national accounts data and the Household Income and Expenditure Survey. This is not an issue particular to China, but rather a general problem seen across countries due to errors in survey data (for example, householders don’t always remember all of their expenditures). Using the historical data, we have econometrically estimated the relationships between the two datasets and used those relationships to drive our forecasts, but we have not imposed an “adding up” restriction as this would have introduced further assumptions and potential distortions. The net result is that our forecasts for income and consumption are likely to err on the conservative side (see Appendix B for more detail).

6 See Diana Farrell, Ulrich Gersch, and Elizabeth Stephenson, “The value of China’s emerging middle class,” *The McKinsey Quarterly*, 2006 Special Edition: Serving the new Chinese consumer, (http://www.mckinseyquarterly.com/article_page.aspx?ar=1798).

Another question that is commonly asked is how one handles data-quality issues or under-reporting of incomes and consumption due to tax evasion or black-market activities. First, we should note that the quality of China's economic statistics has improved significantly over the years, and where the government has made important methodological adjustments, we have accounted for that by statistically adjusting our historical dataset (see Appendix B). As we rely on government statistics, any black-market income or consumption is not captured in our model. Estimates on the size of such activity vary widely, but there is a consensus that it is more common in rural areas than the urban areas on which we focus. Again, the result is to make our estimates slightly conservative.

Finally, all econometric models make implicit assumptions about the stability of relationships between variables over time, for example the price elasticity of demand or consumer preferences. Thus, unforeseen changes in technology, or shifts in Chinese consumer tastes, could impact the outcomes. Furthermore, our econometric approach also makes an implicit assumption that government policy continues in generally the same direction of recent years. For example, as China becomes richer, we assume a gradual increase in government spending from 18 percent of GDP today to 27 percent by 2025 as the government seeks to improve social services, in particular health care and pensions for what will be an aging population. However, a significant shift in direction for public policy would potentially change the outcome of our results. We will discuss this further in Chapter 4.

A note on exchange rates

The natural volatility and unpredictability of exchange rates invariably makes their impact on future economic scenarios difficult to forecast. In China's case, predicting the exchange rate is further complicated by the fact that the exchange rate for the renminbi is currently managed by the Chinese central bank, and there is a strong likelihood that the renminbi will be floated at some point during our 20-year forecast period. As our analysis is focused on domestic Chinese consumption, however, the impact on our forecasts is limited.⁷ Our approach in this report is to present our forecast numbers in year 2000 real renminbi, leaving readers to translate to other currencies at exchange rates they believe are appropriate for the years in question.

⁷ The primary real economic impact of the exchange rate on our model is twofold. First, it would potentially change overall GDP growth due to its impact on the export sector. Second, by changing relative prices of goods across the 18 product categories we examine (e.g. the prices of imported final goods, or goods reliant on imported factors of production, might change), exchange rate movements would have an effect on the share-of-wallet mix of consumption.

When we provide comparisons with other countries or convert numbers to US dollars for illustration purposes, we will either use an exchange rate of 8.28 renminbi per dollar (as our renminbi figures are in real year 2000 renminbi, we have used the year 2000 exchange rate), or the year 2000 purchasing power parity (PPP) adjusted rate of 1.85 renminbi per dollar as appropriate.⁸

FOCUSING ON CHINA'S URBAN CONSUMERS

In modeling the future of China's consumers, we faced a choice as to whether to focus initially on China's urban, or rural, populations. We have chosen to begin with the urban population, and will, at a later stage, analyze the rural data to complete the picture. There are two reasons for starting with China's urban consumers:

First, urban areas are becoming increasingly important population centers. Over the last 20 years, the urban population has more than doubled from 251 million people to 562 million. In 2005, urban areas accounted for 43 percent of the total population, up 20 percentage points from 1985. Approximately three-quarters of these increases have been driven by rural-to-urban migration, with the remainder accounted for by natural population growth.⁹ By 2025, we estimate that more than 55 percent of the total population will live in urban areas.

Second, urban areas are the dominant source of household income in China. Average urban per-capita income is now more than three times higher than in rural areas and is expected to increase to 4.2 times by 2025 (Exhibit 1.7). Moreover, urban households are now capturing approximately 70 percent of national disposable income and this ratio will rise to 85 percent by 2025. Many families in rural China, in fact, depend on remittances from relatives living in urban areas to supplement their incomes.

In interpreting urban statistics, it is important to note that there is no widely accepted international definition of "urban area". This report is based on the definition of urban areas used by the NBS. This definition is relatively broad, including, for example, cities at, or above, the prefecture level, as well as

8 Our PPP exchange rate is sourced from the *World Development Indicators*, World Bank, 2006, and defined as the number of units of a country's currency required to purchase the same amount of goods and services in that country as compared with another, based on a comprehensive nationwide survey of goods and services on which money is spent, including purchases of capital goods and outlays by government. The latest survey was conducted in 1996. The PPP exchange rate could therefore distort international comparisons to the extent that relative prices have changed across countries between 1996 and 2000 (our currency base year).

9 Zhang and Song, "Rural-urban migration and urbanization in China: Evidence from time-series and cross-section analyses," *China Economic Review*, 14, 2004.

districts under the jurisdiction of cities. This means that urban areas include many smaller cities and towns that are likely to be quite different in character than major city centers, and also includes agricultural areas that are under the administration of cities.¹⁰ The NBS definition, however, largely excludes migrant workers who keep a rural “hu kou”.¹¹ It should be noted that some observers argue that this definition inflates the rate of urbanization, and all the other statistics that characterize urban China.¹²

However, we remain of the view that this definition is the most suitable option for this study, given our data sources. Operationally, the household information required to estimate income distributions in urban China is only reported under the official definition.

Practically, this has three implications for the interpretation of our analysis of urban-household income. First, and most importantly, households living on the periphery, and in smaller towns and cities, are likely to have lower average incomes. Including these households in the urban areas therefore makes our estimates of average urban-household incomes more conservative than they would have been if we had used a narrower urban definition. Second, including more households in urban areas will increase our estimate of aggregate urban income relative to a more narrow definition. However, since households in more recognizably urban areas are likely to have higher average income, removing those households on the periphery would have much less than a one-for-one impact on aggregate income.¹³ Third, most of our analyses are conducted at an income-class level. The number of urban households in the highest-income classes (including “global”, “affluent”, and “upper aspirants” described in Chapter 2) are likely to be close to what they would have been with a narrower urban definition, while the number of urban households in lower-income classes (“poor”, “lower aspirants”) is likely to be higher than what a narrower definition would produce.

10 Broadly speaking, this definition of urban areas is more akin to the definition of Metropolitan Statistical Areas in the United States, which typically are quite large, including city centers, suburbs, exurbs and less populated fringe areas.

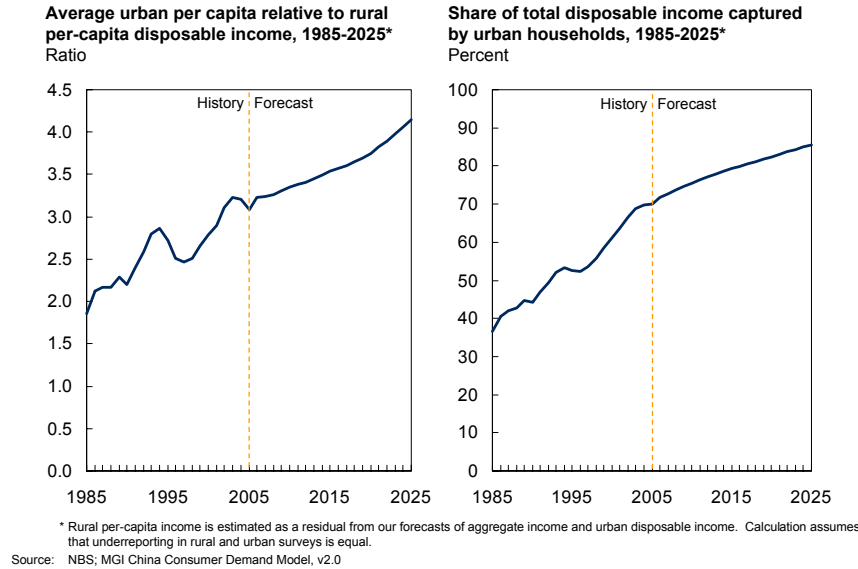
11 The term “hu kou” refers to mainland China’s household registration system, which officially identifies a person as a resident of a particular area.

12 For example, Anderson, “Exposing China’s urban legends,” UBS, 2006.

13 For example, assume that a more narrow definition of urban areas would include 75 percent of the current households. If the ratio of average disposable income per capita between central and periphery urban areas is the same as that between the current urban and rural areas (i.e., 3 to 1), narrowing the definition to exclude the periphery would reduce aggregate urban income by only about 10 percent. If 50 percent of the households were on the periphery, eliminating them would reduce aggregate urban income by about one-third. In both cases, average per household income in the narrow urban area would necessarily rise.

Exhibit 1.7

URBAN PER-CAPITA INCOME CONTINUES TO OUTPACE THAT IN RURAL AREAS



ORGANIZATION OF THIS REPORT

The report is divided into four subsequent chapters:

- **Chapter 2** *The rise of the urban middle class* begins by providing an overview of Chinese urban incomes today and how that income breaks down by class and geography. We will then look at how economic growth, demographics, and other factors will cause incomes to grow in the future and how this will lead to the emergence of the world's largest middle class.
- **Chapter 3** *Changing patterns of savings and consumption* will then examine how the income picture will translate into consumption. First, we will look at how savings behavior will likely evolve over time and its implications for spending. Then, we will look at how patterns of spending are likely to change over eight major product categories, with further detailed results on 18 categories provided in Appendix A.
- **Chapter 4** *Upsides, downsides, and sensitivities* considers the impact on the base case results of the high- and low-growth scenarios and analyzes the sensitivities of our results to changes in key input variables.

-
- **Chapter 5** *Opportunities and challenges* summarizes the opportunities and challenges presented by the future growth of the Chinese consumer economy.

The physicist Niels Bohr was reputed to have once said, “Prediction is very difficult, especially about the future.” It is important to note that the purpose of our modeling exercise is not simply to make point forecasts that will inherently be imperfect. Rather, it is to help business and policy leaders better understand the likely implications of growing consumption in China under a range of plausible scenarios, and prepare more effectively for a future in which China will be a consumer superpower.

2. The rise of the urban middle class

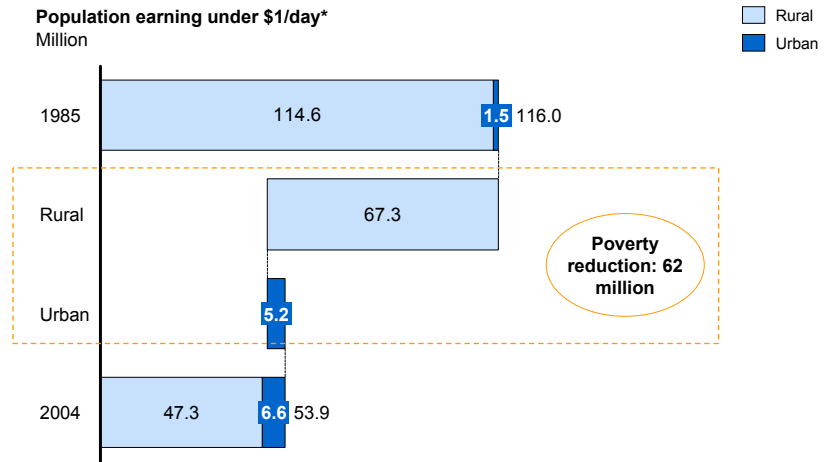
Prior to the reforms of the 1980s, China was a highly egalitarian, but also a highly impoverished, country. In 1985, 99 percent of households lived on incomes of less than 25,000 renminbi, or \$3,019 per year. One of the most stunning successes of China's reforms has been in alleviating poverty. The UN Millennium Project has defined extreme poverty as an income of less than \$1 a day and established a target of cutting the number of people living under these circumstances in half. According to our analysis, China achieved this goal during the past two decades (Exhibit 2.1). We estimate that, in 1985, there were 116 million people in China living on less than \$1 a day; by 2004, this had been reduced by 53 percent to just under 54 million. The combination of China's pro-market reforms and integration into the world economy have enabled it to move 62 million people out of extreme poverty—a historic achievement in one generation.

In 1985, Deng Xiaoping remarked that some people would need to get rich first in order to pave the way for the masses to follow, and this is what has happened.¹ China today is a far richer, but less egalitarian society than it was in the past (Exhibit 2.2). As real average disposable income for households has grown 3.2 times over the past 20 years to 25,348 renminbi today, China has developed a structure of distinct income classes, and in particular is beginning to grow a large middle class. In this chapter, we will see how China's growing wealth is changing the distribution of income within the population, as well as spreading spending power more widely across the country.

1 "We should let some people get rich first, both in the countryside and in the urban areas. To get rich by hard work is glorious." Source: "China: From Mao to Deng," *International Socialist Review*, Issue 01, Summer 1997, (http://www.isreview.org/issues/01/mao_to_deng_1.shtml).

Exhibit 2.1

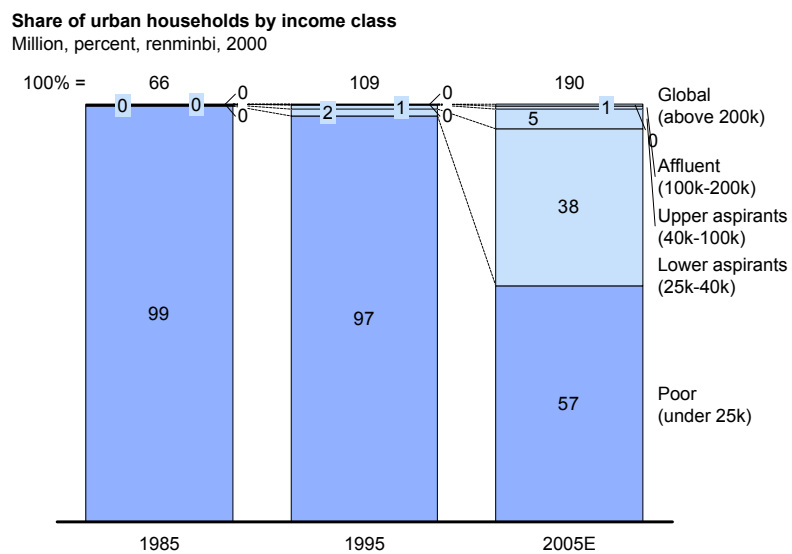
CHINA HAS REDUCED EXTREME POVERTY BY 53 PERCENT SINCE 1985



* Computed at \$ PPP, 2000
Source: MGI China Consumer Demand Model, v2.0; World Development Indicators

Exhibit 2.2

SHARE OF POOR URBAN HOUSEHOLDS HAS FALLEN AND CLASS STRUCTURE IS EMERGING



Source: MGI China Consumer Demand Model, v2.0

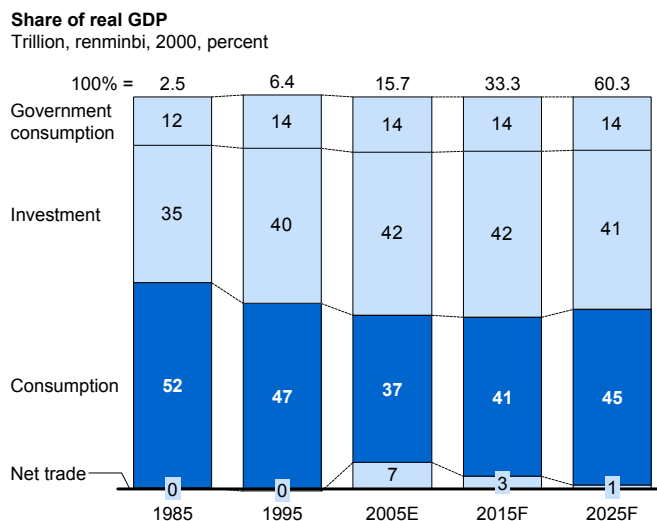
URBAN INCOMES WILL GROW FASTER THAN THE OVERALL ECONOMY

There are two factors that will drive continued rapid income growth in China. First, and most importantly, is continued, rapid GDP growth. While our base case foresees a modest cooling off of the economy, real GDP growth of 7.0 percent over the next two decades is still quite impressive. A combination of growing labor productivity, increasing value added in China's industries, and rising education levels, will continue to translate overall growth into rising per-capita incomes for China's workers.

The second is that, as the economy re-balances toward consumption, and investment becomes a smaller share of GDP growth, a virtuous cycle will be established. As incomes rise to levels where ordinary Chinese can afford more discretionary spending, more money will be devoted to domestic consumption. This, in turn, will stimulate further growth and employment in the economy (replacing some of the growth from slowing investment), and stimulate even further consumption. We estimate that consumption will rise from 37 percent of GDP in 2005 to 45 percent by 2025 (Exhibit 2.3). So, consumption will grow from accounting for less than a third of China's growth over the past decade, to accounting for almost half of growth over the coming two decades (Exhibit 2.4).

Exhibit 2.3

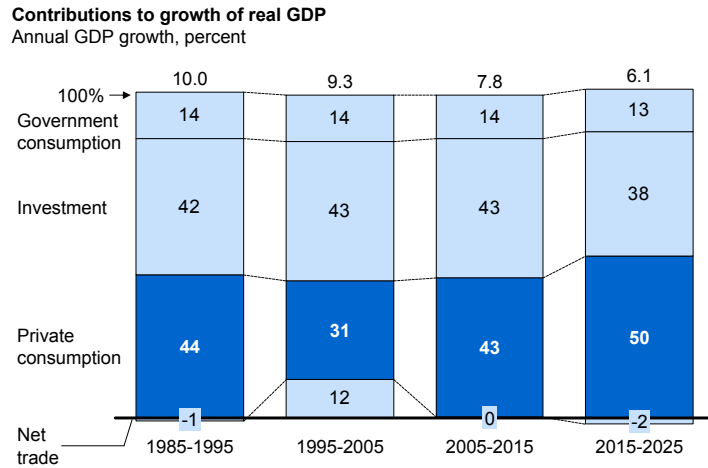
CONSUMPTION AS A SHARE OF CHINA'S GDP WILL RISE



Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0

Exhibit 2.4

HALF OF ECONOMIC GROWTH WILL COME FROM CONSUMPTION BY 2025



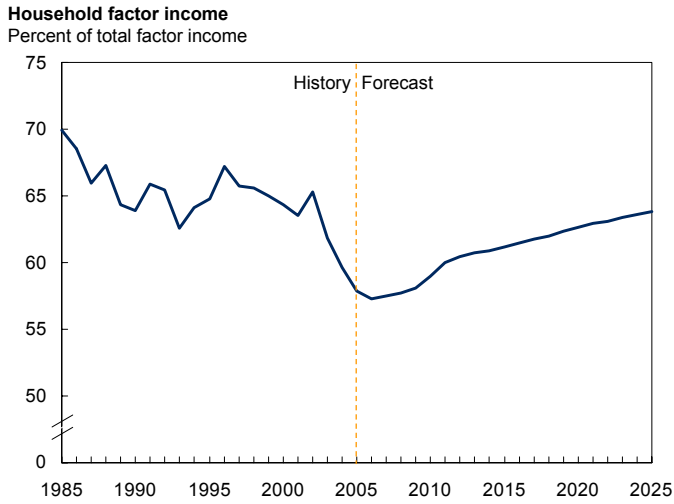
Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0

The net result of these two forces is that households will both capture a greater share of China's growth, and be more responsible for its growth in the future. We estimate that household factor income as a percentage of total factor income will begin to rise again after declining under China's investment-led growth model (Exhibit 2.5). While rural areas will benefit somewhat from this growth as it filters back into the agricultural sector through higher food demand, urban areas will benefit disproportionately—as we will see in the next chapter, much of the increased consumption will be in manufactured goods and services which tend to stimulate urban employment and incomes. We estimate that urban disposable income over the period 2005-2025 will grow at a rate of 8 percent, versus real GDP growth of 7.0 percent (Exhibit 2.6). This implies that total urban Chinese income will grow from 4,819 billion renminbi today to 22,605 billion renminbi by 2025, and average per-capita income will grow from 8,575 renminbi per year today to 27,177 renminbi in 2025.

But aggregates and averages only tell part of the story of the rise of Chinese incomes. Perhaps even more importantly, the distribution of urban incomes will change dramatically.

Exhibit 2.5

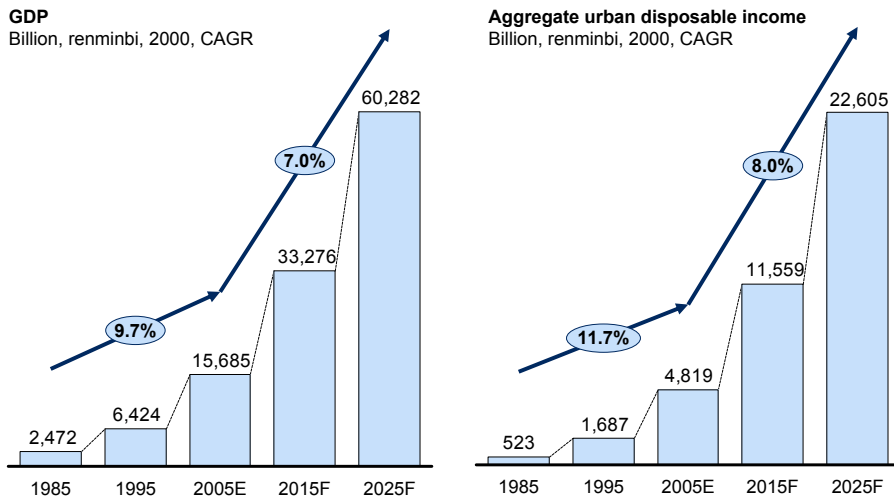
HOUSEHOLD FACTOR INCOME WILL GROW AS A PROPORTION OF TOTAL FACTOR INCOME



Source: MGI China Consumer Demand Model, v2.0

Exhibit 2.6

URBAN HOUSEHOLD INCOME WILL GROW FASTER THAN OVERALL ECONOMY



Source: MGI China Consumer Demand Model, v2.0

DEFINING CHINA'S ECONOMIC CLASSES

In order to gain a deeper understanding of the structure of Chinese incomes, we needed to divide the population up into income bands: i.e., the number of rich, middle-class, and poor people. In setting the bands for our analyses, we considered four factors. First, we looked at the definitions used by other analyses of incomes in China and other countries, in particular those of the World Bank. Second, we wanted a set of bands that would give us granularity at both ends of the forecast period—i.e. we didn't want most of the population lumped in one band at either the beginning or the end of the period. Third, we wanted to tie our definitions to the lifestyles of the people in the income bands. In order to do this, we examined how much of people's spending at various levels of income was for basic necessities (for example, food and clothing) versus discretionary items. Finally, we also assessed data on income segmentation from McKinsey's China Consumer Center consumer survey.

Using these four factors, we grouped all urban households into five annual income brackets (real 2000 renminbi):

- *Poor*: less than 25,000 renminbi;
- *Lower aspirants*: 25,000-40,000 renminbi;
- *Upper aspirants*: 40,000-100,000 renminbi;
- *Affluent*: 100,000-200,000 renminbi;
- *Global*: greater than 200,000 renminbi.

When we refer to China's middle class in this report, we will be describing lower and upper aspirants collectively. Taken together, therefore, the middle class refers to households earning between 25,000 and 100,000 renminbi per year. We should note that, at a PPP-adjusted exchange rate, this is equivalent to a household annual income of between \$13,500 and \$53,900. While the low end of this range may not sound middle class to wealthy Western ears, this level of income, both in the context of the Chinese economy and in the rest of the world, buys a lifestyle that would be recognized as middle class. However, the high end of the range compares favorably to notions of middle class in developed countries—for example, the 2005 median household income in the United States at constant 2000 dollars was \$40,850.² In order to help non-Chinese readers develop a

² Sources: Global Insight for consumer price index; "Income, Poverty, and Health Insurance Coverage in the United States: 2005," US Census Bureau, August 2006, in which the 2005 nominal median household income was \$46,326.

better feeling for the lifestyle associated with each of these different income levels, we have included in this chapter profiles of typical lives in each of these categories, and how their lives are likely to evolve over the next two decades.³

ZHAO Jianping – poor, and remaining poor

2005 - Zhao Jianping, 45, has had to take early retirement from a state-owned auto parts plant in Changchun, Jilin Province, which had been losing supply contracts for years as it failed to meet the quality requirements of its foreign automaker customers. Due to the Cultural Revolution, he never went to secondary school and started working in the factory at age 18 using his father's "employment quota". He and his wife Li Fen were given a lump sum early retirement fee of 40,000 renminbi—barely enough to see them through to their "real retirement" in 15 years. The family can't count on their son for a better future as they cannot afford the fees to send him to a technical training school.

2025 - While China has continued to become richer, Jianping now 65, and his wife, still live in poverty. They stretched their retirement payoff as much as they could, and Jianping supplements it with odd jobs, but his lack of skills makes it difficult to find regular work. Their government pension of 9,600 renminbi per year barely covers the necessities. Their son, also low-skilled, has had to move far away to find work and sends money when he can, but it isn't much. They generally don't go hungry, but their nutrition is poor, and various illnesses have made Li Fen feeble. At least the government now offers basic medical insurance and they can just barely afford Li Fen's medications.

THE COMING WAVE OF MIDDLE-CLASS GROWTH

The rapid rise in incomes we have projected over the next two decades will impact all strata in the income distribution—the rising tide of growth in China will lift all boats, though some more than others. The key drivers of the shape of China's income distribution over time will be demographics, levels of educational attainment, and developments in China's labor markets.

The demographic bulge

Over the next 20 years, population growth in China is expected to slow to just 0.4 percent annually. During that period, China will feel the impact of the one-child

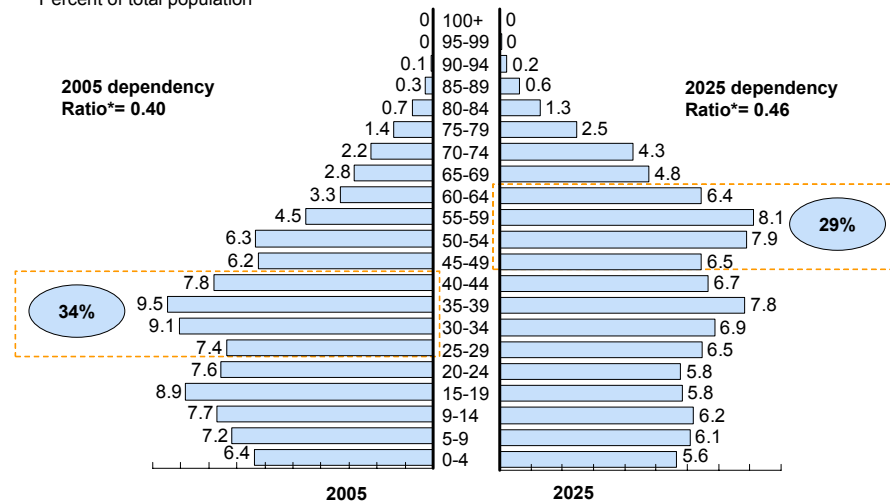
³ The profiles, while fictional, are based on interviews and data from McKinsey's China Consumer Center research.

policy as the population ages. The generation that was born prior to introduction of the one-child policy in 1979 is now entering its prime working and earning years. This demographic “bulge” is currently helping push average incomes up and, over time, will help shift the center of gravity of China’s population into the lower- and then upper-aspirant income brackets. Eventually, however, this bulge will begin heading toward retirement. Over the next 20 years, the population over 65 is expected to grow 3.5 percent annually and the dependency ratio—the ratio of the elderly and young to the working-age population—will steadily rise from 0.40 to 0.46 (Exhibit 2.7).

Exhibit 2.7

CHINA’S DEMOGRAPHIC BULGE WILL CONTINUE TO DOMINATE THE POPULATION AS IT AGES

Share of population by age bracket, 2005-2025
Percent of total population



Source: UN Population Database; McKinsey analysis
Note: *Dependency ratio = ratio of population under 15 and over 65, divided by population between 15 and 65, rounded to the nearest first decimal

The one-child policy has a further impact on the shape of China’s income distribution. In most developing countries, people at the lower end of the income spectrum tend to have higher fertility rates than those at the upper end, so that the population at the lower end of the tail of the distribution tends to grow more quickly than the upper end. While enforcement of the one-child policy is not perfectly even across the income distribution (for instance, enforcement is sometimes more difficult in poor areas or varies by geography; and wealthy Chinese who go abroad can have more than one child), it still broadly means that population growth in China is likely to be roughly the same across the income spectrum.

Accompanying the demographic shifts due to the one-child policy will be a further fall in urban household sizes from 2.96 people today to 2.35 by 2025. Two factors will drive this. First, as incomes rise, it makes it possible for children to move away from their families, which they might not have been able to afford in the past (as we will see in the next chapter, this shifts consumption patterns towards the fixed costs associated with setting up new, independent households, such as housing and household products). Second, the skewed male-female distribution in China's demographics (China has 114 males to 100 females versus 105 to 100 in most societies) will mean more households of single men over time. This will tend to lower income per household, as China's working population will be spread across a larger number of households. At the same time, however, it will also widen the distribution of incomes as the heterogeneity of households rises—with, for example, an increase in the number of households with young people just starting their working lives, with single men, and with “empty nester” couples without children.

ZHANG Meijuan – from poor to aspirant, thanks to the next generation

2005 - Zhang Meijuan, 47, was born in Shanghai. As her textile factory's sales plummeted in the late 1990s, she was laid off and has only had occasional temporary jobs since then. She and her husband, Wang Weiguo, who works at a local bearings plant, together earn only 12,000 renminbi a year. Balancing the household budget is a struggle—she rarely spends any money except on the household's basic needs. The family's only hope is their one daughter Wang Feifei, a student at Fudan University, who had her tuition fees waived because of her excellent academic record.

2025 - Meijuan's life has been transformed for one reason—her daughter Feifei's successful career at a Chinese bank that has merged with a foreign bank. Thanks to Feifei, Meijuan and her husband have moved to a more spacious house in the suburbs where she now has a dishwasher and dryer and can afford to employ a maid. As she gets older, she also has a feeling of security from her private health insurance. Whereas walking or the bus used to be her only option, Meijuan can now afford to use the metro, and she and her husband regularly travel to Shanghai city center for nights out.

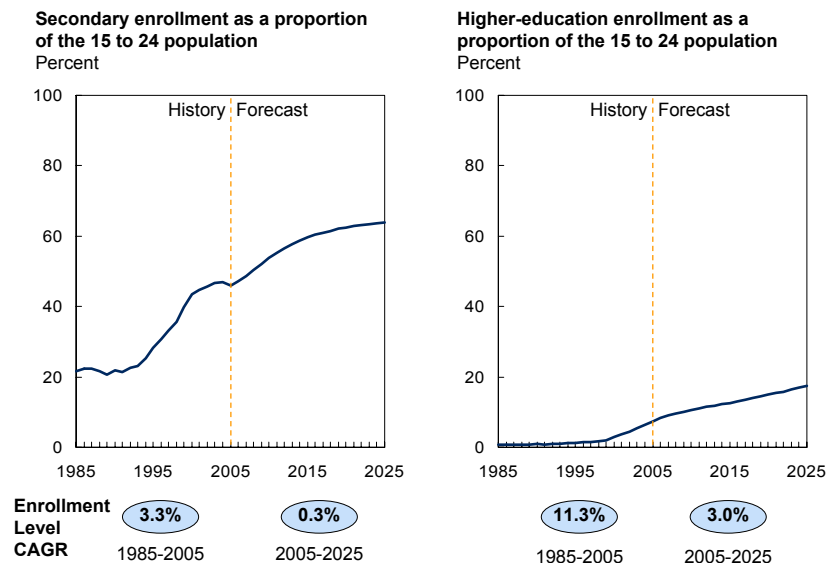
Continuing gains in education

The expansion of education also plays an important role in determining the shape of the income distribution. As educational-attainment rates rise, the productivity of workers increases, in turn driving higher incomes. We can draw distinctions

between the different levels of education and their impact on the distribution. The expansion of secondary education tends to reduce disparity in the income distribution as, broadly, it raises worker productivity. Our forecast shows a continuing strong rise in secondary enrollment, which in turn will help increase incomes generally (Exhibit 2.8). Higher-educational enrollment has been rising very rapidly in recent years as it has become affordable to more people, and many Chinese see higher education as key to attaining a better quality of life. We expect this growth to slow somewhat later in the forecast period as the limitations on enrollment shift from affordability to numbers of qualified students. We should note that the translation of enrollment rates into attainment levels for the population will slow as the demographic shift implies fewer school-age children over time. Nonetheless, rising education levels will continue to be an important driver of growing Chinese incomes.

Exhibit 2.8

EDUCATIONAL ENROLLMENT RATES WILL CONTINUE TO RISE



LIU Qiang – from poor to upper aspirant

(2005) Liu Qiang, 20, lives with six members of his family, crowded into a one-floor, brick house on the family farm at Zunyi, Guizhou Province. Qiang's mother walks to a nearby town five kilometers away to buy groceries. They don't have a refrigerator or a bath, but they do have a small color TV. The family couldn't afford Qiang's education beyond junior high school, so he has been helping on the farm. But he has now decided to visit an uncle in Wuhan to look for a job. He begins work on various construction sites and as a restaurant delivery boy. His family back home has to make do with a letter every three months—the cost of making phone calls or buying a mobile phone is simply beyond Qiang's budget.

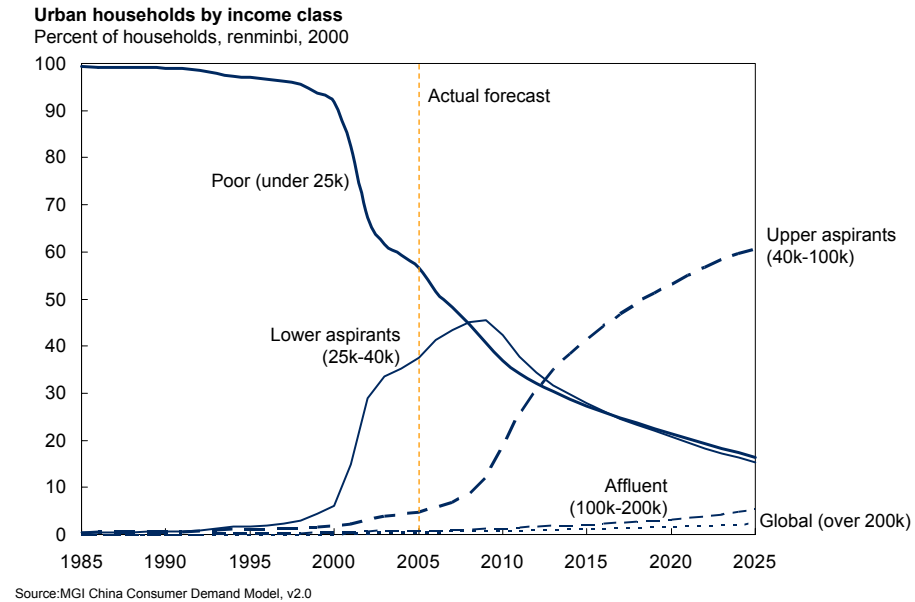
(2025) Qiang joined his local hypermarket in 2012, starting as a shelf-stacker and working his way through a series of roles while completing his high school diploma and taking English and accounting courses at evening school. The hypermarket has been very successful and Qiang now runs the grocery department. His salary and bonus together come to about 60,000 renminbi a year. He has a compact car in the garage of his apartment in Hanyang District, but still cycles to work. His loyalty to the store naturally extends to his own spending choices—his family buys nearly everything at the hypermarket from groceries to home appliances. His parents and brother still live back in Zunyi but life is more comfortable—the house has been rebuilt and equipped with modern facilities. Qiang talks to his family by mobile all the time.

Labor market stresses and successes

Although we did not explicitly model China's labor markets, our econometric model makes an implicit assumption that these continue to provide the opportunities necessary to translate rising educational attainment into growing incomes. One of the successes of the China growth story has been its ability to provide low-skill manufacturing employment for relatively poor workers with little education who are migrating from rural areas. As China's industries have moved up the value chain, so too have its workers, and a ladder of opportunity has been created from low-skilled manufacturing jobs up to highly-skilled managerial and professional employment. There are concerns about how well the labor markets will continue to translate education and economic growth into rising incomes. As higher education in China has risen dramatically, many universities are sending graduates into the labor market without jobs waiting for them and lacking the skills employers need. At the same time, there are serious shortages of workers

Exhibit 2.9

UPPER ASPIRANTS WILL BECOME THE LARGEST GROUP IN NEXT DECADE



with certain specialized skills, including managerial skills, as well as increasing low-wage competition from other countries. Despite these challenges, we believe that the overall strength of China's rapidly growing industrial base, combined with a labor market that is increasingly responsive to market signals, will continue to provide opportunities for rising incomes for its workers.⁴

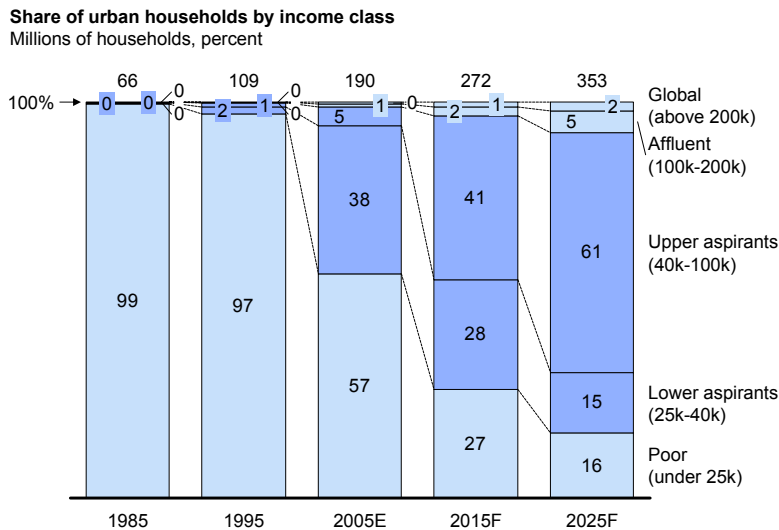
Moving into the middle class

Over the next 20 years, the combination of rising GDP, demographics, educational gains, and continued labor market development, will help the mass of China's population move from the working poor and the bottom end of the lower-aspirant bracket, up into the solid middle class of the upper-aspirant bracket. This rolling wave of income growth will begin over the next five years as lower-income groups will decline in size and we will begin to see the rapid growth of the lower-aspirant income segment. By 2009, the lower-aspirant segment will overtake the poor to constitute the greatest number of urban Chinese households, with up to 100 million households or 45 percent of the urban population (Exhibit 2.9).

⁴ See Diana Farrell and Andrew J. Grant, "Addressing China's looming talent shortage," *The McKinsey Quarterly*, 2005, Number 4, (http://www.mckinseyquarterly.com/article_page.aspx?ar=1685).

Exhibit 2.10

A LARGE URBAN MIDDLE CLASS WILL EMERGE BY 2015 AND DOMINATE BY 2025



Source: MGI China Consumer Demand Model, v2.0

After 2009, the number of households in the lower-aspirant class will begin to decline as we see the population begin to make the next jump up the income ladder. During the next ten years, we expect to see the appearance of a robust upper-aspirant class with 40,000 to 100,000 renminbi in annual household income. By 2025, this group will represent more than 60 percent of urban households—more than 214 million of the 353 million expected urban households in 20 years' time (Exhibit 2.10). When combined, the upper and lower aspirants will be 268 million households-strong in 2025—or roughly 612 million people—making it the world's largest middle class.

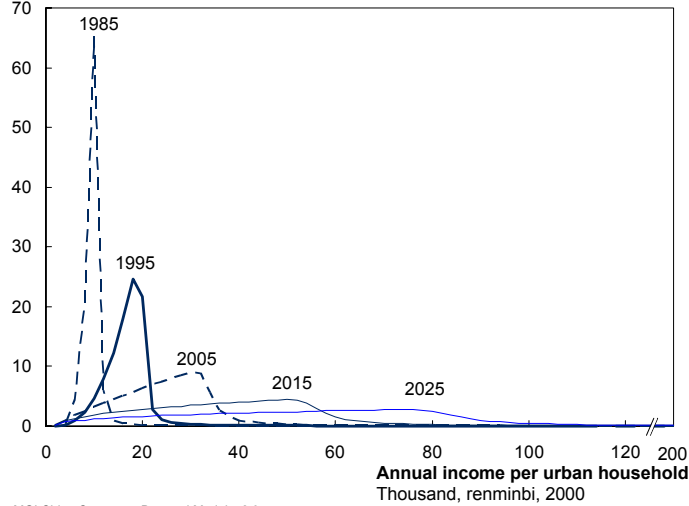
Finally, as China's incomes rise and the mass of the population moves up and spreads out across the income brackets, the shape of China's income distribution will change dramatically (Exhibit 2.11). In 1985, China's poor, but egalitarian, society was highly concentrated at the lower end of the income spectrum, creating a spiked distribution. By 2025, China's urban households will be spread widely across the income spectrum, with greatly reduced numbers of poor households, a smooth hump showing the new middle class, and a long tail of high earners.

Exhibit 2.11

AS THE MIDDLE CLASS GROWS, THE INCOME DISTRIBUTION WILL WIDEN

Urban household distribution, 1985-2025

Percent of households



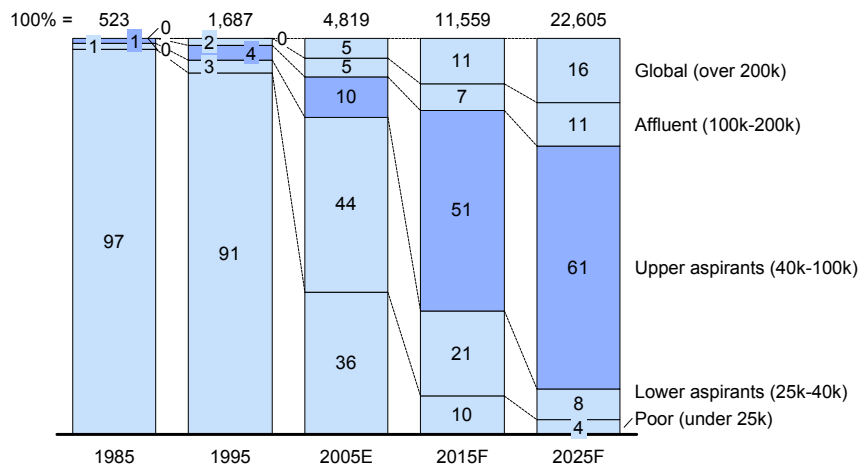
Source: MGI China Consumer Demand Model, v2.0

Exhibit 2.12

UPPER ASPIRANTS WILL COMMAND POTENTIALLY ENORMOUS SPENDING POWER

Share of real urban disposable income by income class

Billion, renminbi, 2000, Percent



Source: MGI China Consumer Demand Model, v2.0

RAPIDLY GROWING SPENDING POWER

In addition to looking at the income brackets by population, we can also look at them by their potential spending power. By 2025, China's urban disposable income will be 22.6 trillion renminbi and the upper aspirants will command the lion's-share of that spending power at 13.9 trillion renminbi or 61 percent of the total (Exhibit 2.12).

YANG Zhiran – from lower aspirant to upper aspirant

2005 - Yang Zhiran, 35, is an associate professor in electrical engineering at Sichuan University, Chengdu, on an annual salary of 18,000 renminbi. He lives with his wife, an associate professor at the same university (she earns about the same, so their combined income is 36,000 renminbi), and their six-year-old son in a two-bedroom faculty apartment. Zhiran sees his family as a typical urban Chinese household—weekly supermarket shops, the occasional restaurant meal out, riding to work by bicycle rather than car. The only unique feature of the Zhiran household is that it has two laptops because of their work. Zhiran is optimistic about the future due to the government's pledge to invest in science and education.

2025 - Zhiran, now a renowned professor at the same university, earns 72,000 renminbi a year, with the occasional top-up from external lectures and publications. His son, 26, has finished his masters degree at the University of Science and Technology of China, and is now taking a Ph.D. in computer science at MIT in the United States— all of which has been very expensive for Zhiran, but worth it. In the past 20 years, the couple has moved into a larger apartment with air conditioning for the first time, and bought a car. In order to afford their apartment they took out a mortgage—but true to their conservative views about borrowing, they paid the loan back early. They continue to live modestly—they dine out more often but would never think of spending their savings on luxuries. Instead, they plan to help their son buy a house when he moves back.

The upper-income brackets will also command a large, and growing, amount of spending power. The numbers of high earners will initially be small as a percentage of the population. Today, urban-affluent households comprise 0.6 percent of the population and global households 0.3 percent. By 2025, these will have grown to 4.5 percent and 1.5 percent of the population respectively. While this is small in percentage terms, it is large in absolute terms—there will be 37

million affluent and 13 million global consumers in China by 2025, which helps to explain the recent growth of luxury goods shops in Chinese cities.

The most affluent subset of this upper class, the globals—representing 2.3 percent of Chinese urban households in 2025—will be among the global rich, earning incomes at current exchange rates that put them at levels of middle class or above in the developed economies of the world. In addition, China has already developed its own class of multimillionaires and billionaires that, unless there are major changes to policy, will continue to grow.⁵

China's expanding upper classes will also wield considerable spending power. Globals will have 3.6 trillion renminbi in income, or 16 percent of total real disposable income by 2025, and affluents will have 2.5 trillion renminbi or 11 percent. By 2025, these groups will together account for 6 percent of China's population, but more than one-quarter of its disposable income.

XU Gang – moving from affluent to global

2005 - Xu Gang, 28, works in Xi'an, capital of Sha'anxi Province as northwest regional sales director of a garment company, headquartered in his hometown of Ningbo and owned by his uncle. He had no choice but to work for his relative—his exam results weren't good enough for a government education grant, and his family couldn't afford to send him to college. Nonetheless, his uncle's business is very successful, Gang has done well in sales, and now earns 120,000 renminbi a year, most of which he sends to his wife and their four-year-old son back in Ningbo. He is saving his money for the dream of opening his own business someday and usually eats at work to save money. He rings home almost every day because his company covers his mobile costs—but can only afford to fly home about twice a year.

2025 - Gang eventually established his own garment company and his business earns tens of millions of renminbi a year. He now pays himself at least 200,000 renminbi a year, but he has not lost his frugal habits—he still flies economy and stays in three-star hotels on his regular business trips to Europe to meet customers, and to India, Bangladesh, and South Korea, to buy fabrics. Although he now lives with his family, he still works non-stop. Determined his son shouldn't be held back by a limited education, he paid for him to go to a top Shanghai private university, hoping that, one day, he will take over the family business.

5 Rupert Hoogerwerf, "China's Rich List – The Inside Story," Shanghai Lexicographical Publishing House, Shanghai, 2005. And, according to the *Hurun Report*, 2005, the top five richest individuals in China each have wealth in excess of 10 billion renminbi, (<http://www.hurun.net/listcn21.aspx>).

An important feature of China's evolving affluent class will be its relative youth. Unlike their peers in developed markets, young Chinese adults—across income brackets—will be wealthier than their parents. This is largely because, having invested in higher education, these consumers, now aged between 25 and 39, will boast the skills demanded by future labor markets and will therefore disproportionately reap the benefits of the booming economy. The resumption of national college entrance exams and normal higher education in 1977–78, the rapidly increasing number of Chinese students studying overseas in the 1990s, and the sectoral and structural shifts of China's economy, have all contributed to this development. In sum, China's wealthiest consumers will be much younger than their counterparts in the United States or Japan where people aged between 45 and 54 hold most of the wealth.

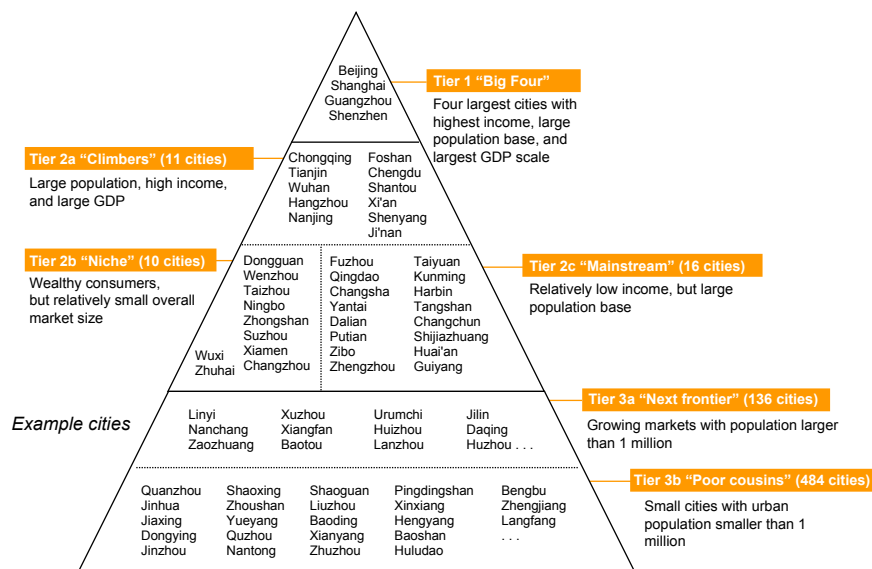
Michael CHEN – a global getting richer

2005 - Michael, 27, is a product engineer in a high-tech company in Shenzhen, earning 216,000 renminbi per year. With a Masters degree in engineering from Tsinghua University and strong English language skills, the world is his oyster. He bought a sedan car with an auto loan and is now looking into taking out a mortgage with his fiancée, Vivian, for the 120 square meter apartment they want in Jingtian—it will be a stretch but he is keen to invest in the booming market for high-end real estate. The young couple is planning to honeymoon in Phuket, and is saving for a trip to Europe in a couple of years' time, with plans for lots of shopping.

2025 - Michael completed an MBA at Stanford in 2009, and joined a large Silicon Valley IT company, gaining valuable skills and connections. However, tempted by the opportunities in the fast-growing IT market in China, he returned home at the age of 34 and started his own firm—funded by US venture capitalists—in Beijing, doing high-end specialist work for companies around the world. The couple has since traded up to a villa in a Beijing suburb, complete with a top of the range kitchen and the latest electronic gadgets. Their son is studying at an international school in Beijing, and Michael's parents, now in their late 70s, are living in a senior citizen house run by a Hong Kong health care company. He and Vivian sometimes drive to see them in their SUV. They are debating whether to go back to Chamonix for their winter Golden Week vacation or try somewhere new.

Exhibit 2.13

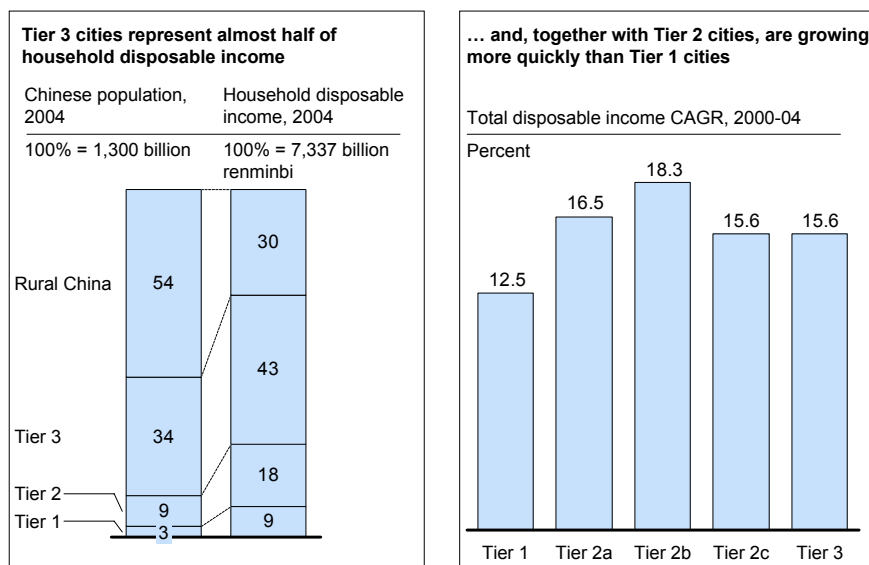
CHINA'S CITIES CAN BE GROUPED INTO TIERS



Source: China Statistical Yearbook; MGI analysis. Note that Tier 3b is also referred to as Tier 4. Our reference to Tier 3 combines 3a and 3b for a total of 620 cities.

Exhibit 2.14

DISPOSABLE INCOME IN TIER 2 AND 3 CITIES IS GROWING QUICKLY



Source: China Statistical Yearbook 2004; China City Statistical Yearbooks 2000-2004; MGI analysis

THE GROWING GEOGRAPHIC DIVERSITY OF INCOME

As incomes have become more heterogeneous across the population, they have also become more varied geographically. As discussed in the previous chapter, urban-income growth has been outpacing rural growth. But as urban incomes have risen, that growth has become increasingly dispersed, with much of it now coming from cities outside the traditional Big Four of Beijing, Shanghai, Guangzhou, and Shenzhen, or what can be referred to as the Tier 1 cities (Exhibit 2.13). Incomes have been rising particularly quickly in what can be called the Tier 2 and 3 cities (Exhibit 2.14)

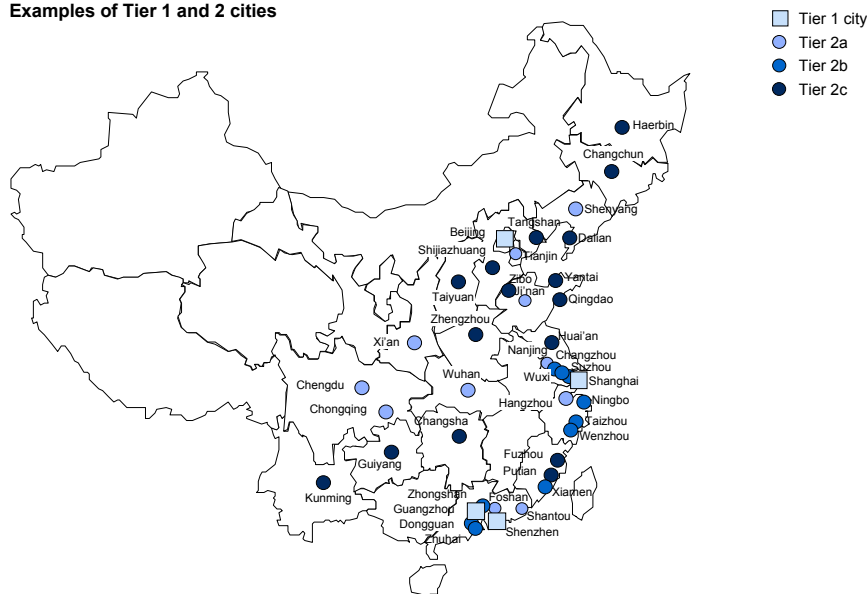
This means that spending power has become more dispersed across a greater number of urban areas, although these urban areas remain largely concentrated in the coastal and central regions of the country (Exhibit 2.15). It is worth noting that the total disposable incomes of the Tier 2 cities taken together are now larger than that of the Tier 1 group, although per-capita income in the Tier 1 cities remains somewhat higher (Exhibit 2.16). Tier 3 cities, while difficult to cover completely for many businesses, represent a massive 3.1 trillion renminbi market, greater than the Tier 1 and 2 cities combined.

It is understandable that the Tier 1 cities have been the main entry point for multinational corporations (MNCs) as well as a major focus for Chinese com-

Exhibit 2.15

CHINA'S WEALTH IS SPREADING GEOGRAPHICALLY

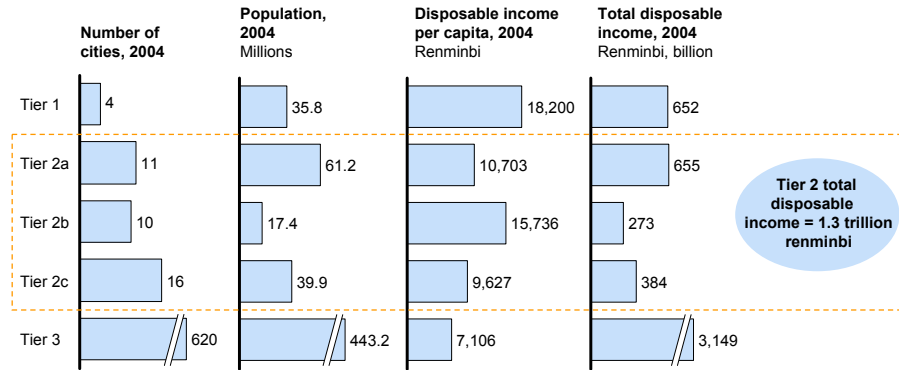
Examples of Tier 1 and 2 cities



Source: China Statistical Yearbook; MGI analysis

Exhibit 2.16

RELATIVELY LARGE POPULATIONS AND INCOMES ARE MAKING TIER 2 AND 3 CITIES ATTRACTIVE MARKETS

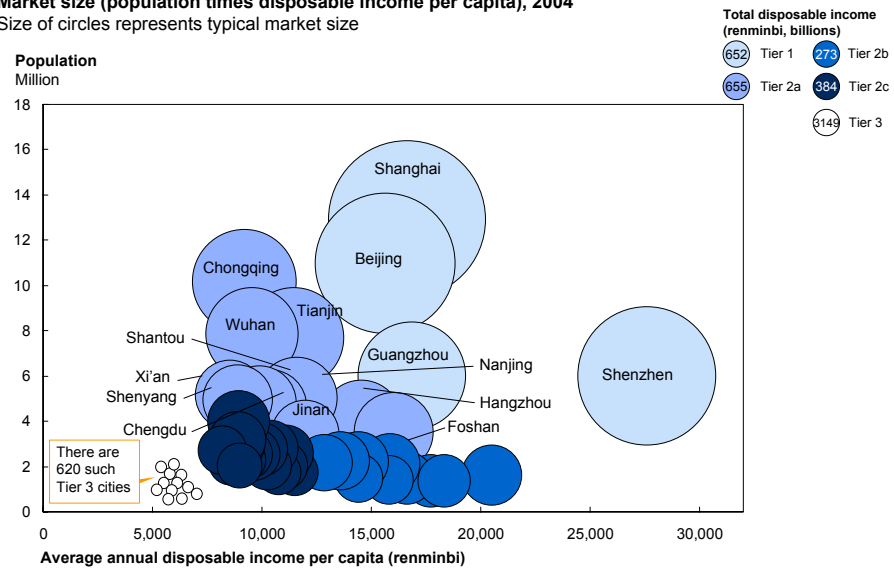


Source: China Statistical Yearbook 2004; China City Statistical Yearbooks 2000-2004; MGI analysis

Exhibit 2.17

TIER 1, 2 & 3 CITIES VARY CONSIDERABLY BY MARKET SIZE

Market size (population times disposable income per capita), 2004
Size of circles represents typical market size

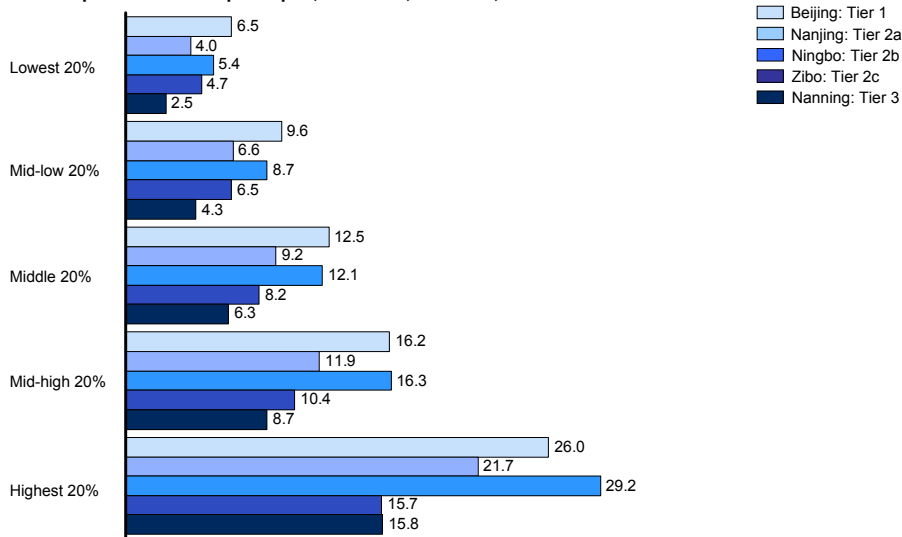


Source: China Statistical Yearbook 2004; China City Statistical Yearbooks 2000-2004; MGI analysis

Exhibit 2.18

COMPARING INCOME BANDS ACROSS REPRESENTATIVE CITIES

2004 disposable income per capita, thousand, renminbi, 2000



Source: Beijing, Nanjing, Ningbo, Zibo and Nanning City Statistical Yearbooks, 2000-04; MGI analysis

panies—they are both large and have high-earning populations (Exhibit 2.17). However, over the past several years, many MNCs have invested heavily in expanding into the Tier 2 cities. Carrefour’s hypermarkets, for example, can now be found in any number of Tier 2 cities. The current focus for many MNCs is now the expansion into Tier 3 cities, which account for 62 percent of China’s disposable income. For example KFC, which has been in China since the late 1980s, is opening restaurants in Tier 3 cities. When they entered Nanchang in 2000 they put up signs saying “We are sorry for being late here”. But with 620 cities to choose from, all with populations of greater than a million, prioritizing Tier 3 investments is a difficult challenge. Geographic strategy in China is made even more difficult by the significant heterogeneity across regions and cities in terms of consumer tastes and attitudes.⁶

The opportunities across China’s city tiers become apparent when one compares income distributions. Taking representative cities in Tiers 1, 2a, 2b, 2c, and 3 (Exhibit 2.18)—Beijing, Nanjing, Ningbo, Zibo, and Nanning respectively—it is remarkable that, in 2004, the average income of the richest 20 percent of the

⁶ See Kevin P. Lane, Ian St. Maurice, and Claudia Wu, “Marketing to China’s hinterland,” *The McKinsey Quarterly*, 2006 Special Edition: Serving the new Chinese consumer, pp. 42-51.

population in Ningbo, a Tier 2b city, was already higher than in Beijing, a Tier 1 city. In terms of real disposable income per capita, it is also notable that Nan-ning, a Tier 3 city, is already on par with Zibo, a Tier 2c city.

By 2025, we estimate that some 67 percent of China's urban middle-income-and-above population will come from today's Tier 3 cities—compared with some 24 percent now. This would imply a net gain of a little short of 400 million people who will enter the ranks of the middle and affluent classes in Tier 3 cities alone—that is substantially more than the current population of the United States.

As China's GDP growth continues at a rapid pace and the economy re-balances toward the household sector and consumption, incomes will grow rapidly. A combination of demographics, rising education levels, and the workings of the labor market, will translate these rising incomes into a dramatically reshaped income distribution. In short, China will give birth to the world's largest middle class over the next decade. This new middle class, with 268 million households, will wield the bulk of urban China's 22.6 trillion renminbi (\$2.7 trillion) in disposable income by 2025. China's already heterogeneous market will become even more so, with large populations of millions of people transitioning from one income class to another, and wealth spreading out into the Tier 2 and 3 cities. The key questions will be how much of their rising incomes will they spend, and what will they buy?

3. Changing patterns of savings and consumption

In the previous chapter, we examined how overall growth and the re-balancing of the Chinese economy will lead to continued rapid income growth and the rise of a large middle class. In this chapter, we will see how China's spending power is likely to translate into actual consumption, and on what China's consumers will spend their money. However, before we discuss consumption, it is important to understand how the savings behavior of China's citizens is likely to evolve.

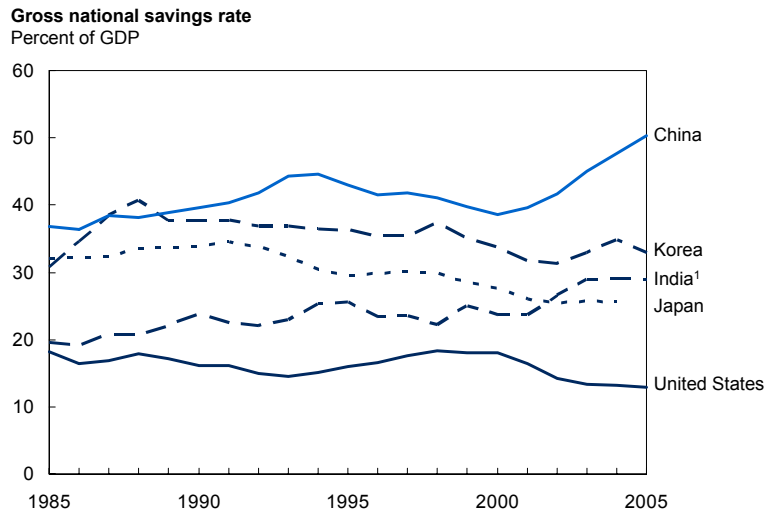
SAVINGS RATES TO DECLINE BUT STAY RELATIVELY HIGH

China's strong investment-led economic growth over the past two decades has been financed largely by China's very high national savings rate and, as mentioned, to a lesser extent, by FDI. China has maintained a gross national savings rate of between 30 percent and 50 percent over the past two decades—significantly higher than international benchmarks, including both developed and developing economies'—allowing the economy to rapidly accumulate its capital stock. By 2005, the national savings rate had reached an astounding 50 percent of GDP (Exhibit 3.1). All sectors have contributed to China's high national savings: corporate savings have been boosted by surging profits, and government savings have risen because of increased revenues resulting from strong overall growth (Exhibit 3.2).

The critical question in terms of consumption however, is what will happen to household savings over time. A slow-down in the growth of private household spending during the past several years resulted in a jump in household savings between 2000 and 2005. With GDP expanding by 9.8 percent annually, and consumption increasing at only 4.9 percent over the same period, private consumption as a share of GDP fell to an all-time low of 37 percent in 2005 from an average of 50 percent between 1985 and 2000. As a consequence, we

Exhibit 3.1

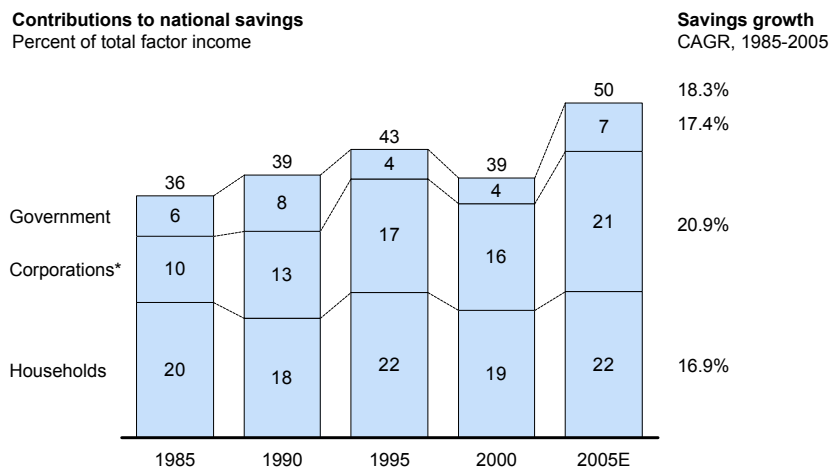
CHINA'S NATIONAL SAVING RATE IS WELL ABOVE THAT OF OTHER COUNTRIES



¹ Fiscal year basis, 2005 estimate
Source: RBI; CSO India; China Statistical Abstract; Bank of Korea; BEA; ERSI Japan; Oxford Economic Forecasting, McKinsey Global Institute analysis

Exhibit 3.2

ALL SECTORS HAVE BOOSTED SAVINGS IN RECENT YEARS PUSHING THE NATIONAL SAVING RATE TO AN ALL-TIME HIGH



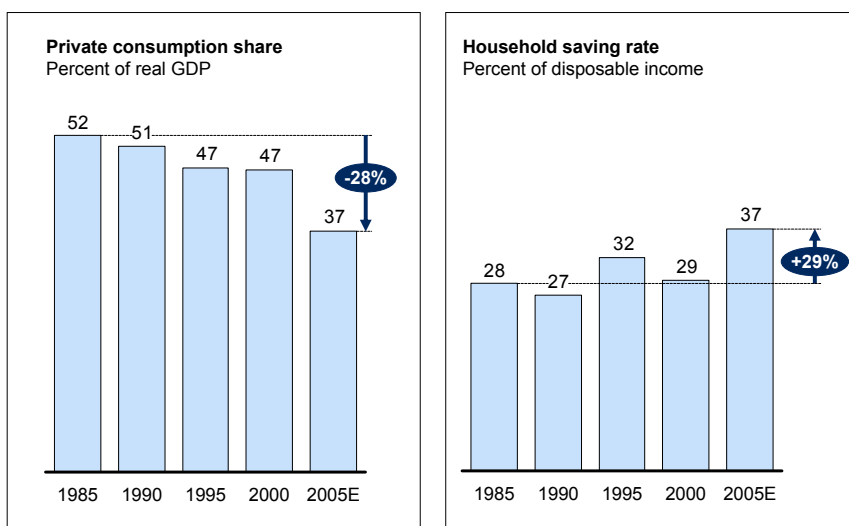
* Includes state-owned enterprises
Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0

estimate that household savings, measured as a percent of disposable income, increased to a record 37.0 percent in 2005 (Exhibit 3.3).¹

While savings have been rising rapidly, the question of future savings behavior depends on several factors, including changes to China's social safety net, demographics, and the development of the financial sector.

Exhibit 3.3

WHILE CONSUMPTION SHARE HAS DECLINED, THE HOUSEHOLD SAVING RATE HAS INCREASED SUBSTANTIALLY



Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0
Note: Figures are rounded to the nearest whole number

Weak social safety net is a major driver of high savings

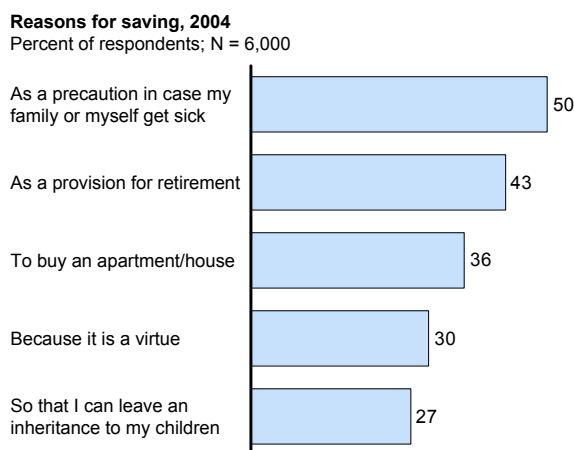
An important reason for China's high household-savings rate is China's relatively weak social safety net. Access to public health care is limited, and private care is still very expensive for most people. Public pensions for the elderly are also generally quite limited. So, in essence, households need to use savings to self-insure against serious illness as well as to prepare for their retirement.

According to a survey of some 6,000 consumers conducted by McKinsey's China Consumer Center in 2005 (Exhibit 3.4), concern about health-care costs was the largest driver of China's high private-savings rates (50 percent of respondents), followed by the need to save for retirement (43 percent). Self-insurance against

1 See Appendix B for a description of our methodology for estimating 2005 national savings.

Exhibit 3.4

CONCERNS ABOUT HEALTH CARE AND RETIREMENT ARE MAIN MOTIVES FOR HIGH PRIVATE SAVINGS



Source: McKinsey China Consumer Center, September 2005; McKinsey Global Institute analysis

adverse risks will continue to keep savings rates high as long as China's social safety net and private insurance markets remain underdeveloped.²

While the government has begun to invest more in these areas, in our model we only assume a moderate gradual improvement over time. Even if the social safety net were to improve dramatically, it would take time for deeply ingrained behaviors to change—it might take a generation or two for Chinese citizens to begin to trust in a strengthened social safety net and adjust their behavior.

Demographics will lower savings in the long-run

Demographics play an important role in aggregate savings levels. The current demographic profile of China has a positive influence on savings. The working-age population—aged 15 to 64—has been rising steadily, reaching 70 percent of the total population in 2005, and will peak in approximately 2010. It is well-established that, within developed economies, household-saving rates tend to be highest during the primary working years as households prepare financially for retirement. Recent academic work suggests that this lifecycle pattern is also evident in China, which means that savings will begin to moderate as the

² See Meng, "Unemployment, Consumption Smoothing, and Precautionary Savings in Urban China," *Journal of Comparative Economics*, 31, 2003.

working population peaks.³ Urban China's increasing life-expectancy will likewise increase average household savings in the short-term, since Chinese citizens need to provide for a longer expected period of retirement. Eventually, however, China's aging society will save less overall due to an ever-increasing share of older age groups that have reached the lifecycle stage of dis-saving. Over the timeframe of our forecast, we expect to see the number of people over 65 in China rise from 7.6 percent of the population to 13.8 percent.

Another well-known demographic factor in savings behavior is different attitudes towards savings across generations based on their experiences. There is evidence that the generation that endured the uncertainties of the Cultural Revolution may have higher savings rates than the generation that has grown up enjoying relative prosperity. Thus, as the next generation enters its peak earning and savings years, this may cause a further decline in the savings rate.

Financial sector development will reduce savings

Another important factor in high savings is the lack of development of the consumer finance sector.⁴ On the borrowing side, it means that Chinese consumers have only very limited access to credit other than through networks of families and friends. Some large-ticket purchases, such as automobiles, are commonly paid for with cash. Thus, despite the large size of the Chinese banking sector, consumer loans make up only 13 percent of total loans outstanding. On the deposit side, Chinese consumers have few options for their savings other than banks offering relatively low returns—86 percent of financial assets are in bank deposits. Furthermore, other instruments commonly used for retirement-planning and financial security in developed countries—such as life insurance, pension funds and mutual funds—remain underdeveloped and expensive on a risk-return basis. Over the past ten years, based on the currently-available asset mix, the weighted-average real return on total wealth for Chinese households has been 0.5 percent, a much slower rate of wealth appreciation than, say, the 3.1 percent seen in the United States (Exhibit 3.5). This low average return on savings means that Chinese households must save relatively more than their developed country counterparts to meet equivalent retirement goals. We implicitly assume that there will be some improvements in the financial sector that will gradually reduce savings rates over time, but, again, not a dramatic change.

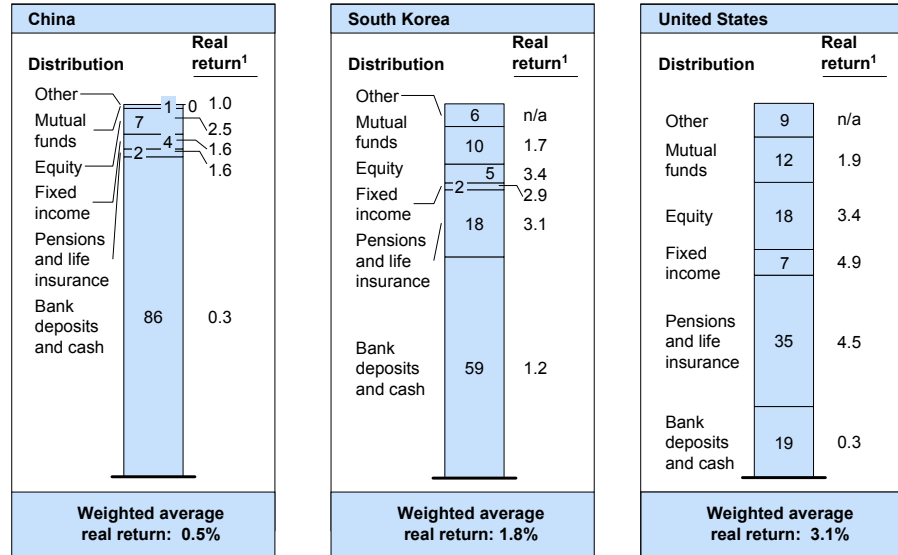
3 See Shi Larry Cao and Franco Modigliani, "The Chinese saving puzzle and the life-cycle hypothesis," *Journal of Economic Literature*, Vol. XLII, 2004.

4 See Diana Farrell, Susan Lund, Jaeson Rosenfeld, Fabrice Morin, Niyati Gupta, Ezra Greenberg, "Putting China's Capital to Work: The Value of Financial System Reform," McKinsey Global Institute, 2006, (http://www.mckinsey.com/mgi/publications/china_capital/index.asp).

Exhibit 3.5

REAL RETURN ON CHINESE FINANCIAL ASSETS IS VERY LOW

Percent



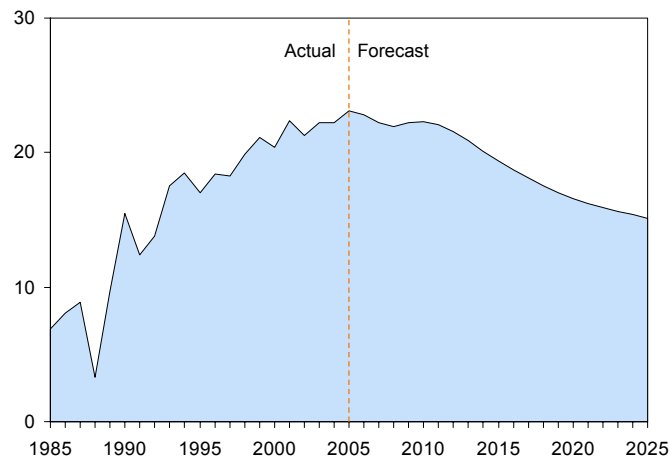
¹ 1995–2005; some numbers are estimates.
Source: US Federal Reserve; PBOC; RBI; Bank of Korea; MGI analysis

Exhibit 3.6

URBAN HOUSEHOLD SAVINGS RATE WILL DECLINE FROM HISTORIC HIGHS

Urban household savings rate

Percent of urban household disposable income



Source: MGI China Consumer Demand Model, v2.0

Our base case thus assumes that a number of factors will begin to work in concert to gradually reduce the savings rate over time. The government will invest more in the social safety net, an aging population will eventually begin to save less, and the financial sector will begin to modernize.

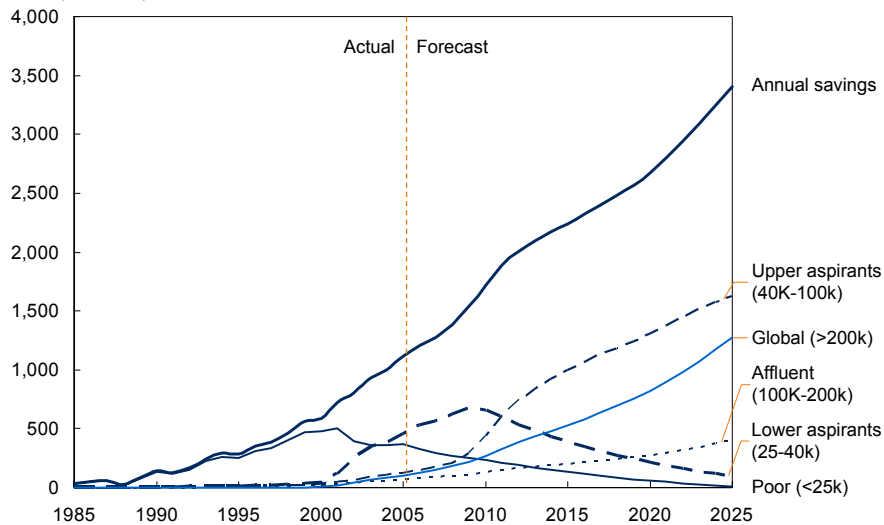
The net result is a forecast that the average urban household-savings rate in urban China will start to decline slowly from 23 percent today and reach 15 percent towards the end of our forecast period (Exhibit 3.6). We should note that the 2005 figure for this forecast—23 percent—is for urban China only and based on household-survey data; it thus differs significantly from the 37 percent total household-savings rate estimated from national-accounts data. Appendix B provides more information on the differences between the two data sets.

Despite this forecast moderation in the household-savings rate, rapidly rising incomes mean that China's aggregate household savings will continue to grow strongly, in particular among the emerging upper-aspirant class and globals (Exhibit 3.7). This will ensure that China remains a large and growing market for financial services for many years to come. And despite declining investment rates as a percentage of GDP, these high aggregate savings will ensure China has plenty of capital to invest in the future—over 3.4 trillion renminbi per annum

Exhibit 3.7

AGGREGATE SAVINGS WILL CONTINUE TO INCREASE SHARPLY

Urban China's household savings
Billion, renminbi, 2000



Source: MGI China Consumer Demand Model, v2.0

from urban households by 2025. The source of China's savings, dominated by the poor and lower aspirants today, will shift dramatically over time to the upper aspirants and globals (Exhibit 3.8) creating many opportunities for financial institutions.⁵

BECOMING ONE OF THE LARGEST CONSUMER MARKETS IN THE WORLD

The likely evolution of Chinese savings behavior means that growth in Chinese consumption will have two phases. In the near-term, consumption growth will be driven primarily by rising per-capita incomes and population growth. In the longer-term, this will be further accelerated by a moderating savings rate (Exhibit 3.9).

The combination of these factors means that, over our forecast period, consumption will grow faster than the economy as a whole (again, investment is the sector that is growing more slowly). What is true at the economy-wide level will be true at the urban level as well. In our base-case scenario, total urban consumption will increase during the period from 2005 to 2025 at 8.6 percent annually—to reach more than 19 trillion real renminbi by 2025—versus real GDP growth of 7 percent. This will lead to an incremental increase in private-consumption expenditure over the same period of more than 15 trillion renminbi.

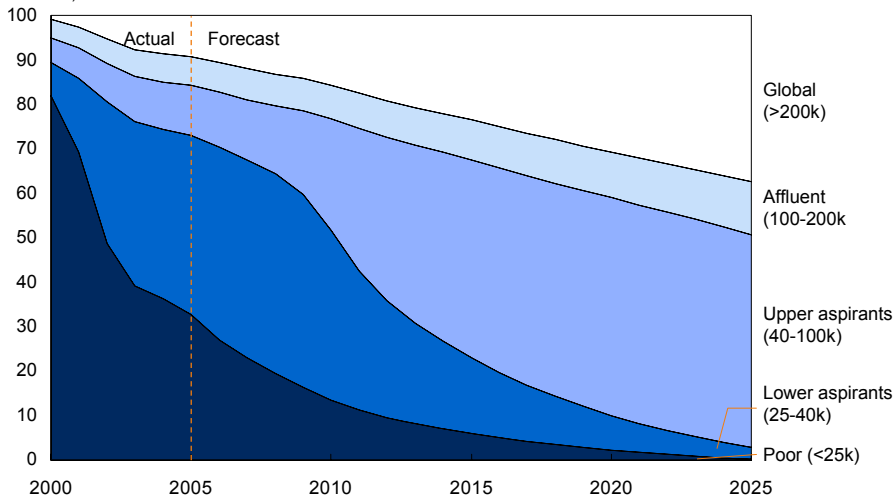
China's growth into one of the largest consumer markets in the world will be powered by the spending of its new urban middle class. As the combined share of the lower and upper aspirants in the urban population increases from 39 percent today to 57 percent in 2010, their aggregate disposable income will increase from 54 percent to 69 percent by 2010 (Exhibit 3.10). Between 2005 and 2010, most of the increased spending will come from lower aspirants, but beginning between 2010 and 2015, upper-aspirants will grow into the dominant spending group (Exhibit 3.11). During the 20-year forecast period, upper-aspirant spending will increase by nearly 12 trillion renminbi, followed by the affluent, whose consumption will grow by 2 trillion renminbi, and the globals whose consumption will rise by 2.2 trillion renminbi. As the poor and lower aspirant segments shrink, by 2025, upper-aspirant spending will account for almost two-thirds of all urban spending in China (Exhibit 3.12).

⁵ Our analysis may underestimate the savings power of globals as many of China's wealthiest individuals are entrepreneurs, running small- and medium-size businesses (SMEs) which have become a critical and fast-growing part of China's economy since the 1990s. Most of these businesses are sole proprietorships or family-owned, and their entrepreneurial owners tend to plough profits back into them (contributing to China's high corporate savings rate), and accumulating wealth that is not picked up in personal savings data.

Exhibit 3.8

RISING MIDDLE CLASS AND AFFLUENT GROUP WILL DRIVE SAVINGS

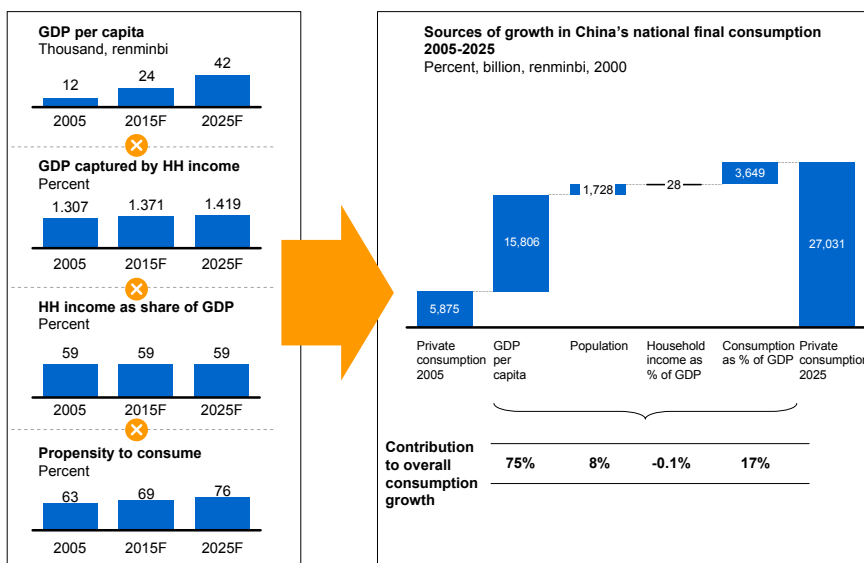
Share of household savings by income class
Percent, renminbi



Source: MGI China Consumer Demand Model, v2.0

Exhibit 3.9

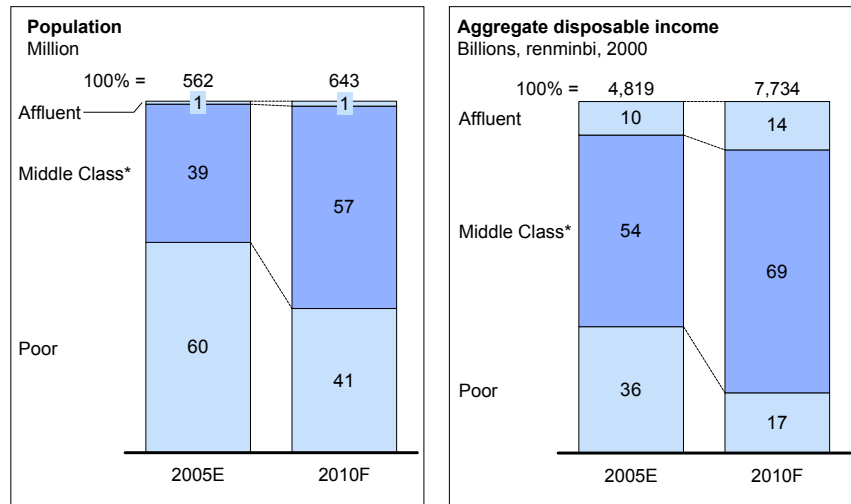
GDP GROWTH WILL BE THE KEY DRIVER FOR CONSUMPTION GROWTH



Source: MGI China Consumer Demand Model, v2.0; MGI analysis

Exhibit 3.10

THE URBAN MIDDLE CLASS WILL DOMINATE IN BOTH POPULATION AND PURCHASING POWER BY 2010



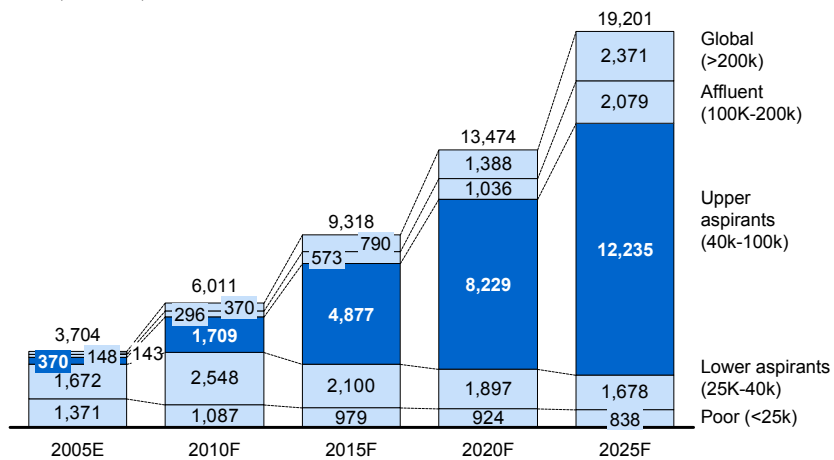
* Defined as lower plus upper aspirants

Source: MGI China Consumer Demand Model, v2.0

Exhibit 3.11

UPPER ASPIRANTS WILL DRIVE SHARP GROWTH IN URBAN SPENDING

Urban consumption expenditure by income class
Billion, renminbi, 2000

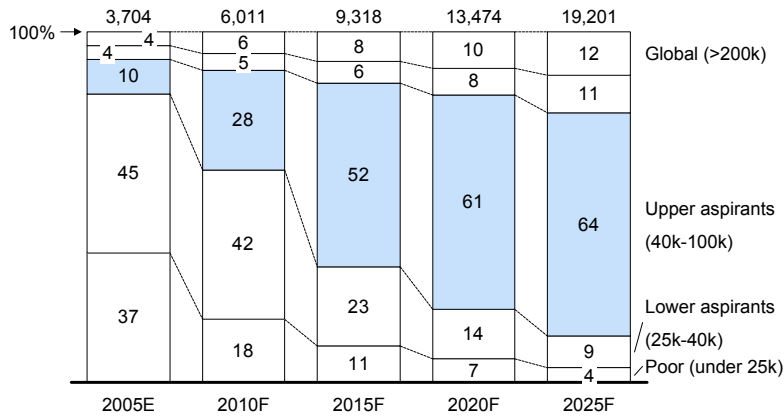


Source: MGI China Consumer Demand Model, v2.0

Exhibit 3.12

THE RELATIVE WEIGHTS OF INCOME CLASSES IN CONSUMPTION WILL CHANGE DRAMATICALLY

Share of total real urban consumption expenditure by income class
Billion, renminbi, 2000

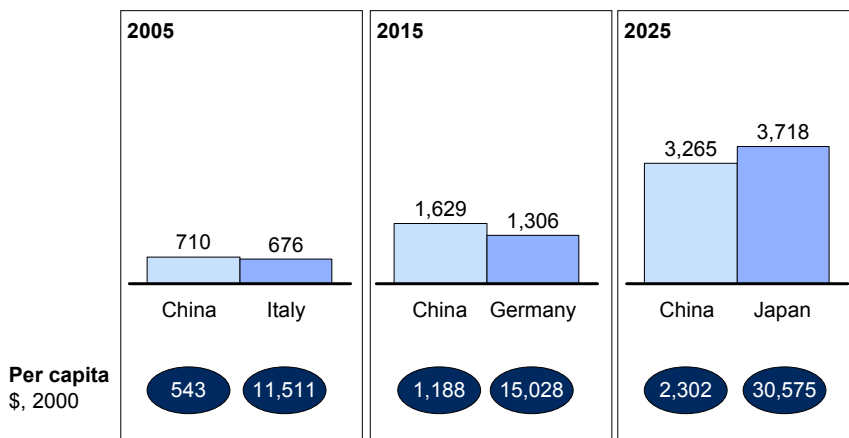


Source: MGI China Consumer Demand Model, v2.0

Exhibit 3.13

CHINA WILL BECOME ONE OF THE LARGEST CONSUMER MARKETS BY 2025, BUT LAG IN PER-CAPITA CONSUMPTION

Aggregate private consumption, 2005-2025
Billion, \$, 2000



Source: Global Insight; MGI China Consumer Demand Model, v2.0; MGI analysis

To put the growth of China's consumer market in perspective, we can compare it with some other countries (Exhibit 3.13). Today, China's overall consumer market ranks at about equivalent size to Italy's, making it a fairly mid-size market, despite China having 22 times the population. Per-capita spending, however, is still quite modest at less than 5 percent of the Italian level. By 2015, however, rising per capita incomes and China's enormous population will cause it to surpass Germany at the aggregate level, and by 2025 eventually become the third-largest consumer economy in the world behind Japan and the United States. While per-capita spending will grow over four-fold, it will still be at levels well below those in the developed world.

The urban population in China on its own will be one of the world's largest markets—with 3.7 trillion renminbi, or approximately \$447 billion, in consumer spending it has recently overtaken South Korea and by 2025, with 19.2 trillion renminbi annually, or approximately \$2.3 trillion in today's dollars it will be more than twice as large as the UK consumer market today. The urban Chinese consumer market will grow nearly three-fold from the equivalent of 2.7 percent of all OECD plus China aggregate consumption to the equivalent of 10.0 percent in 2025 (see Exhibit A.2 in Appendix A).

To some extent these figures may underestimate the true future power of Chinese consumers, as today the Chinese government manages the renminbi exchange rate. If the renminbi were to float freely to its purchasing power parity level, then goods priced at world market levels would become even more affordable to Chinese consumers, and the total size of the Chinese consumer market, measured in US dollars, could even surpass the United States in size. For example, using the World Bank's 2000 PPP level of 1.85 renminbi per US dollar, would imply a 2025 consumer market of a real \$14.6 trillion. This compares with a US total consumption expected to be worth \$13.7 trillion in 2025.⁶

RAPIDLY CHANGING PATTERNS OF CONSUMPTION

As consumption increases, what will urban China's consumers spend their money on and how will patterns of consumption change over time?

We assessed the impact of growing incomes and overall spending on eight high-level, and 18 more detailed, product and service categories. By statistically analyzing historical data, we were able to understand how, as people move up

⁶ Global Insight, United States Interim annual forecast, October 2006.

the income ladder, their patterns of consumption change. Using econometric techniques, we were able to project how consumer's share-of-wallet spending would evolve for each of our five income brackets.

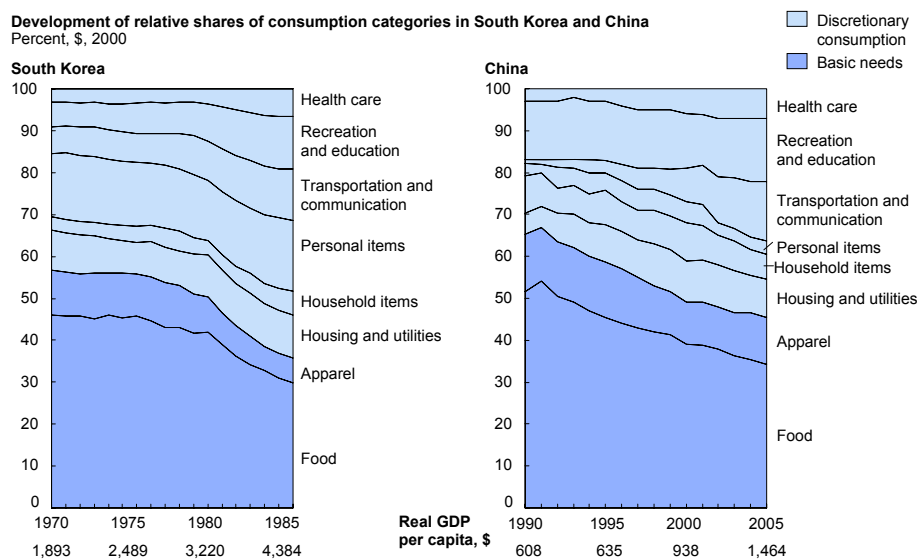
The historical pattern in China, as well as the experience of other economies, such as Taiwan and South Korea, shows that, as incomes rise, consumers tend to spend proportionally less on basic necessities and more on discretionary items and relative luxuries. For the purposes of our analysis, we have defined necessities as food and clothing. One might also consider housing a necessity, but local-market housing conditions differ significantly (e.g. China has only recently privatized its housing stock), thus making cross-country comparisons difficult. So, for simplicity, we have just used food and clothing, which are more comparable across countries. By this standard, South Korea's share of spending on basic necessities has halved since 1970 (from 44 percent in 1970 to 22 percent today); Japan's population now spends 22 percent on basic necessities compared with 35 percent in 1980; US consumers spent 20 percent on the basics in 1970 but that has fallen to 13 percent today.

A similar transition is already underway in China. Like people in other countries, China's emerging middle class will aspire to driving a car, relaxing in front of a

Exhibit 3.14

CONSUMPTION CATEGORIES ARE SHIFTING FASTER IN CHINA THAN THEY HAVE IN OTHER ECONOMIES

Development of relative shares of consumption categories in South Korea and China
Percent, \$, 2000



Source: OECD; Global Insight; MGI China Consumer Demand Model, v2.0

Exhibit 3.15

URBAN CHINA'S RELATIVE SHARES OF CONSUMPTION EXPENDITURE WILL CONTINUE TO SHIFT RAPIDLY

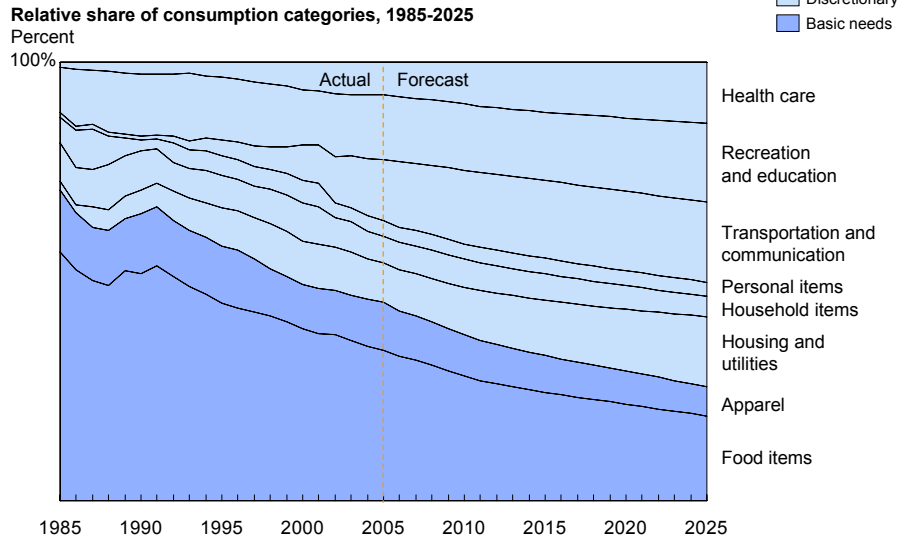


Exhibit 3.16

BASIC NEEDS WILL REMAIN CONSUMPTION FOCUS FOR POOR HOUSEHOLDS

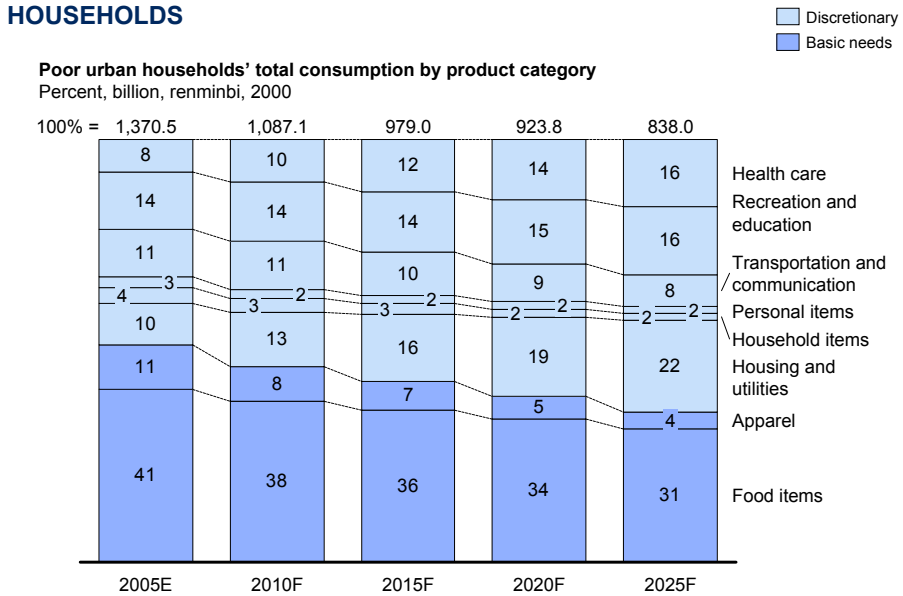
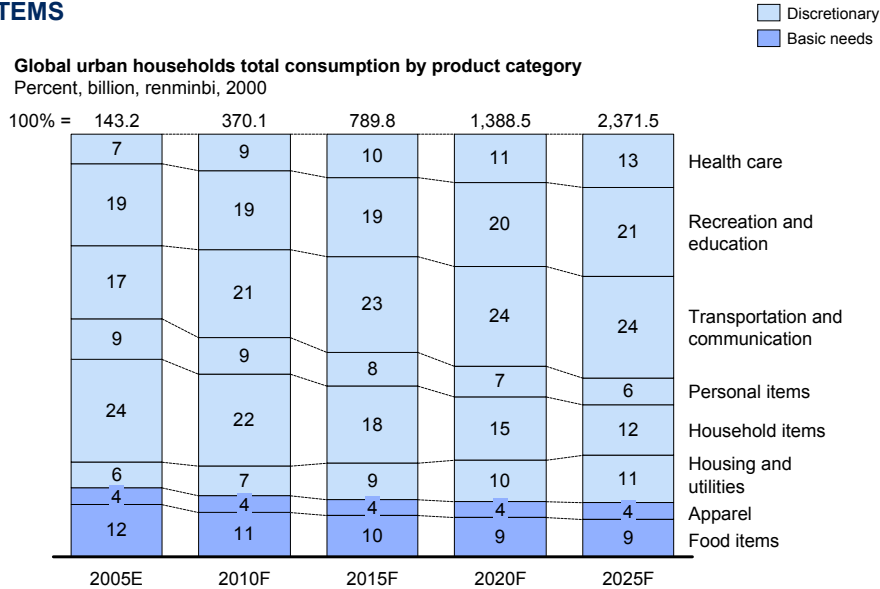


Exhibit 3.17

GLOBAL HOUSEHOLDS WILL LARGELY SPEND ON DISCRETIONARY ITEMS



Source: MGI China Consumer Demand Model, v2.0

plasma television, consuming branded goods, and enjoying the other privileges of higher income. The transformation of urban China from necessary to discretionary consumption is already happening at a much faster pace than it did in other countries such as South Korea. For several years, urban Chinese consumers have spent less on the basics than South Koreans did at a similar point in their country’s economic development⁷ (Exhibit 3.14).

One explanation for the accelerated pace of change in China is that the country experienced decades of being a planned economy with limited choice, and this has left Chinese consumers eager to catch up and satisfy needs that had been restricted in the past. Until the mid-1980s, for instance, Chinese people still needed coupons to purchase daily necessities, as well as bigger-ticket items such as furniture and bicycles. Since these restrictions were lifted, Chinese consumers have tended to “overspend” on products that were unavailable during the pre-reform era.

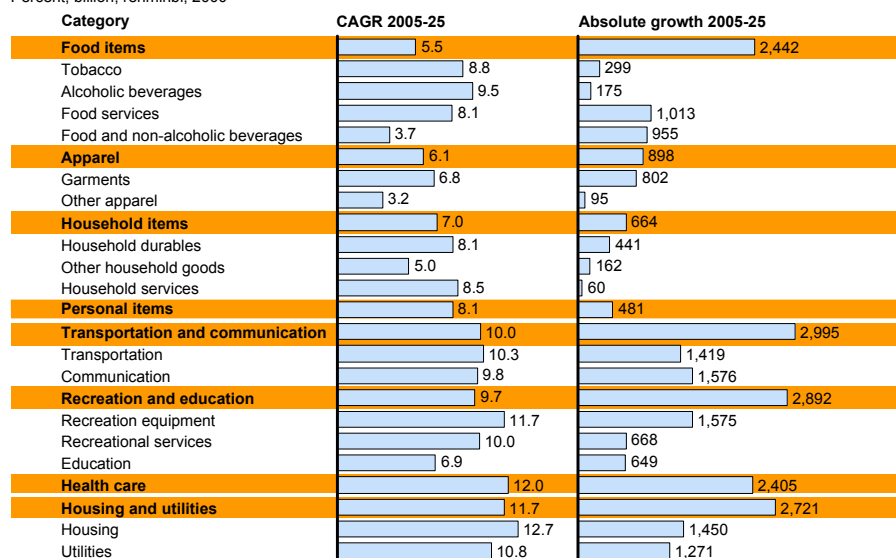
Going forward, we expect the dramatic trend toward declining share-of-wallet on necessities to continue for all but the poorest citizens (Exhibit 3.15). While the

⁷ Measured by real per-capita GDP in U.S. dollars.

Exhibit 3.18

ALL CATEGORIES GROW, SOME FASTER THAN OTHERS

Absolute and relative growth in urban China of product subcategories
Percent, billion, renminbi, 2000



Source: MGI China Consumer Demand Model, v2.0

poorest households—with an annual income of below 25,000 renminbi—maintain a share of spending on basic needs of above 35 percent throughout the next 20 years (Exhibit 3.16), China’s most affluent households will dedicate the largest share of their total consumption expenditure to product categories such as transportation, communication, recreation, and education (Exhibit 3.17). Appendix A provides further detail on spending by income brackets and product categories.

ALL PRODUCTS GAIN, BUT SOME MORE THAN OTHERS

In absolute terms, all categories of consumer spending will significantly increase in value over the next 20 years. For example, food items, a basic necessity, will grow by almost 2.4 trillion renminbi, and housing and utilities by 2.7 trillion renminbi. Even apparel, a category expected to see a declining share-of-wallet (from 11 percent in 2005 to below 7 percent in 2025), will grow by nearly 900 billion in 2000 renminbi (Exhibit 3.18).

Out of the eight high-level product categories covering 100 percent of total urban consumer demand, five categories will grow by more than 2 trillion renminbi: food; housing and utilities; recreation and education; transportation and communication; and health care. The product categories with the smallest absolute increase

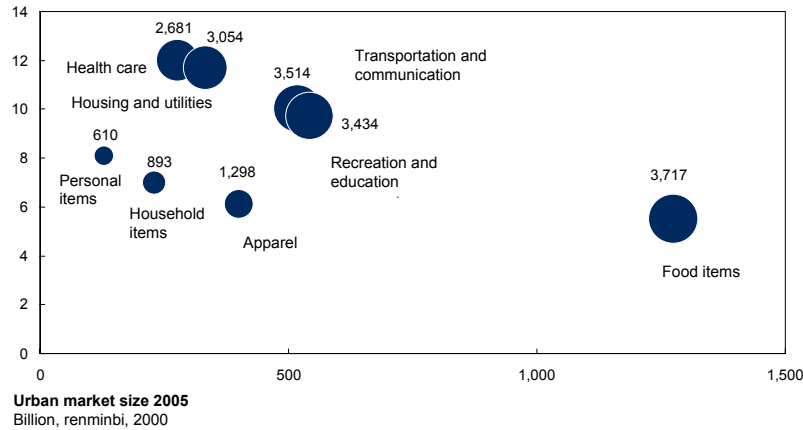
Exhibit 3.19

FOUR CATEGORIES WILL GROW QUICKLY AND BECOME LARGE

Urban China's consumption categories

Growth rate, 2005-25
Percent

● Size of bubble indicates
urban market size 2025
in billions renminbi



Source: MGI China Consumer Demand Model, v2.0

in value—personal items and household items—are starting from the lowest base of only 129 billion renminbi and 230 billion renminbi in 2005 respectively.

The absolute and relative growth rates of the eight broad categories will vary significantly and we will see the emergence of clear relative winners and losers, with significant shifts in spending. Although the food category will remain the biggest consumption category in absolute terms, other product categories—notably discretionary items—will catch up relatively quickly during the forecast period. In particular, four categories—transportation and communication, health care, recreation and education, and housing and utilities—will grow most rapidly in relative terms, becoming very large consumption categories by 2025 (Exhibit 3.19). The average urban household today spends less than 9 percent of total household consumption on housing and utilities, but 45 percent on food and apparel. By 2025, housing and utilities will rise to more than 16 percent of total consumption, while the share of food and apparel will fall to 26 percent.

The following are our top-line assessments for each of the eight major product and service categories (more details on all 18 categories can be found in Appendix A):

Food

Food will continue to be the largest consumption category in absolute terms, although the share-of-wallet for food items will decline across all income classes as incomes rise and people's preferences shift away from basic needs to more discretionary spending. Within the food category, alcoholic beverages, tobacco, and food services (e.g. eating out) will grow relatively faster than the other food and non-alcoholic beverages subcategory.

Apparel

During the forecast period, the compound annual growth rate of the apparel category will be the lowest among the eight broad categories, as Chinese people spend a greater share of their incremental income on discretionary spending categories such as recreation or communications. Nevertheless, the absolute growth in this category will amount to almost 900 billion renminbi over the coming two decades.

Household items

Driven by China's rapid urbanization, the privatization of the housing sector, and a declining average household size, Chinese households will continue to invest in household durables and other household products. Spending on household items will therefore experience strong growth of 7 percent per year, and the category's share-of-wallet will decline only slightly. The most affluent income segments will continue to spend the relatively largest share-of-wallet on this product category.

Personal items

Urban Chinese will increase spending on personal items, including jewelry and cosmetics, by 8 percent per year, as they continue to differentiate their tastes and habits, and express their lifestyles. Compared to other developing countries, such as India, Chinese people consume relatively less jewelry—since it is not usually considered an important vehicle for savings.

Recreation and education

Changes in lifestyles, values, and attitudes towards life will drive fast growth rates in recreational products and services of more than 11 percent. Although Chinese consumers will continue to invest heavily in their children's education, educational spending will grow at a slower rate of 6.9 percent per year, as the

number of Chinese people aged 15-24 will decline by 50 million during the next 20 years. Overall, however, the share-of-wallet of recreation and education will increase significantly.

Health care

Chinese consumers will display a growing propensity for spending in this category, driven mainly by China's rapidly aging population and relatively weak public health-care provision. The introduction of advanced equipment and a variety of new pharmaceutical products will also motivate spending in this category. As the fastest-growing category, the share-of-wallet in health care spending will increase significantly.

Transportation and communications

Driven by rapid urbanization, transportation and communication consumption will also become more important. Communication has grown very rapidly during recent years, and will continue to do so during the first half of our forecast period, largely driven by the rapid penetration of mobile phones and the Internet. However, transportation spending will outgrow communication spending during the second half of our forecast, as the incomes of many Chinese consumers will by then exceed the threshold required for them to consider ownership of private transportation vehicles. Next to food, transportation and communication will together become the second largest consumption category in absolute terms.

Housing and utilities

The continued liberalization and privatization of urban China's private housing market will cause this category to grow very rapidly, second only to health care in terms of relative growth rates. Changes in lifestyle preferences and the availability of financing for real estate will further drive its growth, making it one of the largest consumption categories in absolute terms by 2025. Over the next two decades, the category's share-of-wallet will therefore increase significantly.



4. Upsides, downsides, and sensitivities

For two decades, China's remarkable economic journey has been fairly consistent, growing at a compound annual rate of 9.7 percent. With the exception of a slowdown in 1989 and a subsequent rebound, China has managed to avoid significant cyclicity in its growth, and has confounded many skeptics who have said that this record cannot continue. Most analysts believe that, while China's investment boom will eventually cool off in response to government actions and declining marginal rates of return, this will moderate China's economic growth rather than lead to a significant downturn—some have referred to this as the 'soft-landing' scenario.

But more skeptical observers argue that China's unparalleled economic growth may soon begin to run into a number of constraints. It is possible that the investment boom is in fact an investment bubble; that China cannot escape the dynamics of the business cycle forever; and that a "hard-landing" is the more likely scenario in the coming years. Some worrying signs include a recent build-up in inventories, which, in the aggregate, have reached a record level relative to final sales. This has coincided with a climb in the fixed-investment share of GDP to what is generally agreed to be an unsustainable level, and the continued misallocation of capital to lower-productivity businesses and sectors by China's un-modernized financial sector.¹

In addition to these endogenous factors, skeptics point to a number of exogenous risks to Chinese growth. One often-cited risk is rising oil prices, given that China has few reserves of its own. China is far more energy-intensive than other countries, needing ten barrels of oil equivalent to produce \$1,000 of GDP, compared with four in the case of Korea and 1.2 in the United States. Countering

1 See Diana Farrell, Susan Lund, Jaeson Rosenfeld, Fabrice Morin, Niyati Gupta, Ezra Greenberg, "Putting China's Capital to Work: The Value of Financial System Reform," McKinsey Global Institute, 2006, (http://www.mckinsey.com/mgi/publications/china_capital/index.asp).

such concerns, however, is the fact that China's energy is nearly all based on coal, which means that its transportation sector is the only major sector with significant exposure to rising oil prices. Another major risk that is cited is a future recession in the United States, resulting in a drop in demand and depreciation of the dollar, leading to a significant decrease in demand from China's largest export market—accounting for 27 percent of total exports in 2005. Other factors also lie in the realm of possibility, including the spread of an epidemic, new tensions over Taiwan, or a swing toward protectionism among China's major trading partners. Indeed, history shows that, during similar stages of economic development, Japan, Korea, and the other Asian tigers, all had to manage their share of crises and economic turbulence on their way up the development ladder.² History would indicate that it is unlikely that China will be able to avoid all of the major potential risks that may arise over the next 20 years.

There is, however, another view that might be called the “no-landing” school.³ These analysts believe that the fundamental drivers of China's growth will continue largely unabated, that China is on a long-term, secular growth path, and that there is still much untapped upside in the Chinese economy. They argue that China has embarked on its growth path from a relatively low base, and still has some distance to go before its capital/labor ratio and productivity numbers approach those of the developed world. A historian would note that China's growth rate is, in fact, unexceptional (although the absolute size of China's growth is), and that Japan and the original Asian tigers all grew *more* rapidly than China in the years following their initial take-off. The no-landing school argues that China has confounded the skeptics in the past and will do so in the future.

The advocates of this view are also optimistic that China's policy makers will continue on the path to reform, expanding competition and thereby growing productivity in the economy, and increasingly allowing markets, rather than politics, to dictate the allocation of capital; and that China's industry will continue to march up the value chain, moving from being largely anonymous low-cost manufacturers to becoming innovative, branded, market leaders—emulating, for instance, Korean companies Samsung and LG. The irreversible processes of globalization will continue to work in China's favor, this school argues, and the country's enormous investments in education and technology development will also begin to pay off.

2 See “Asia Rising: Patterns of Economic Development and Growth,” IMF World Economic Outlook, 2006.

3 See the discussion in Goldstein and Lardy, “What Kind of Landing for the Chinese Economy,” Institute for International Economics, 2004.

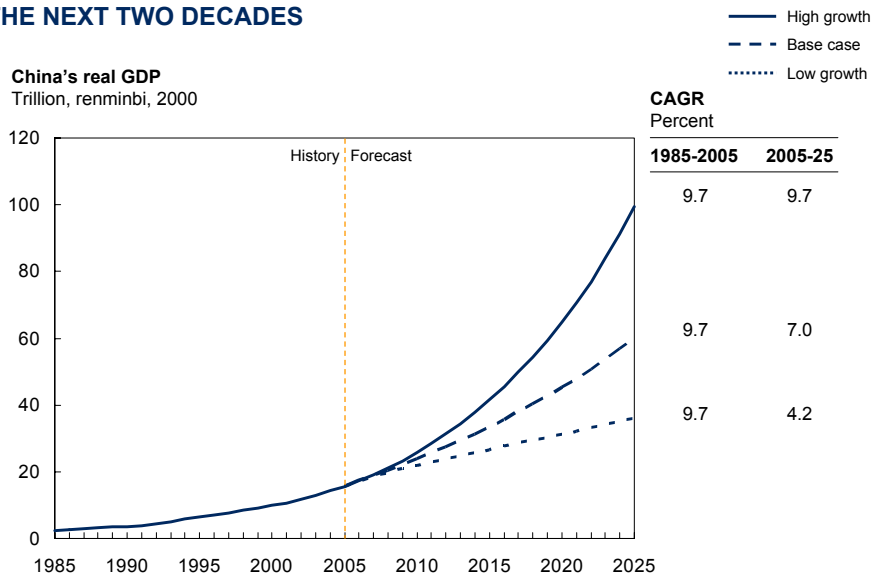
We will now discuss the impact of these three different growth scenarios on our results. One can think of these scenarios as varying the size of the economic pie from which our projections of income and spending are derived. We will then also look at sensitivities to factors, most notably urbanization and education, that impact how the pie is divided amongst China's income classes.

THE IMPACT OF THREE GROWTH SCENARIOS

To test the robustness of our results we constructed three scenarios that broadly reflect the three views on China's future growth just described—the soft-landing, hard-landing, and no-landing schools of thought. Our base case corresponds to a mid-range, soft-landing scenario. Our low case reflects a hard-landing scenario in which GDP grows at a compound annual rate of 4.2 percent a year between 2005 and 2025. Our high, no-landing case assumes growth continues at a compound annual rate of 9.7 percent (Exhibit 4.1). In addition to varying the GDP paths, we also adjusted other macroeconomic variables to ensure the scenarios were internally consistent—details of the three scenarios can be found in Appendix B. So, what impact do these three scenarios have on our forecasts for Chinese incomes and consumption?

Exhibit 4.1

GROWTH IN CHINA COULD VARY SIGNIFICANTLY OVER THE NEXT TWO DECADES



Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0

The primary conclusion of our scenario testing was that the main characteristics of our findings do not change—in all three cases a large urban middle class emerges, consumption rises dramatically, and the pattern of consumption swings toward discretionary categories. What changes is the timing of these developments by approximately plus or minus five years, and their full magnitude by the end of the forecast period in 2025. The impending rise of China's consumer economy appears to be a robust result across a broad spectrum of potential growth paths, driven by well-established economic and demographic forces. In order for this general result not to occur, one would have to believe that China's 20-year future growth rate would be substantially less than our low case or even negative, which is unlikely short of major political reversals or social upheavals.

For companies making long-term commitments to China's consumer market, this is reassuring as it means that the growth of Chinese consumption is largely a matter of when within a range of a decade, and not if.

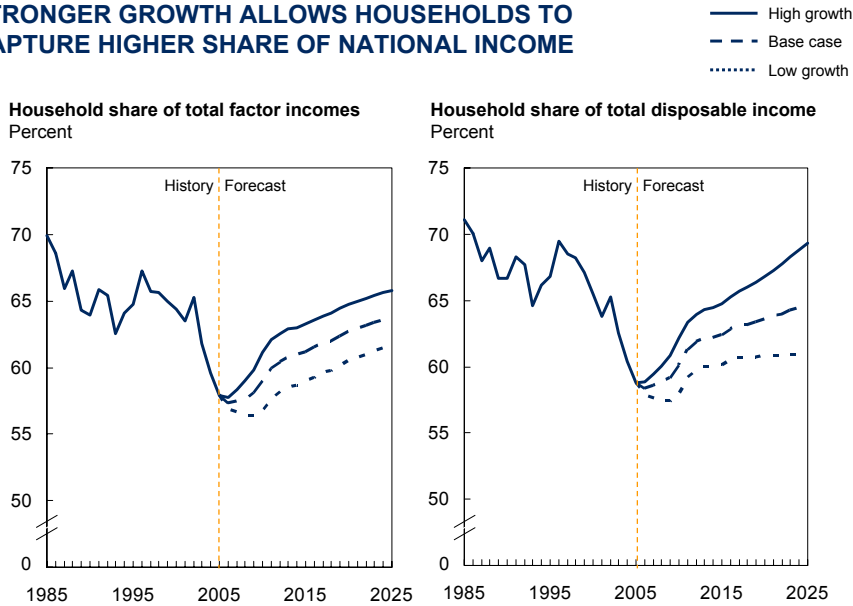
Income—the middle class still rises

Because stronger growth in GDP means higher income creation, our high-growth scenario generates real growth in aggregate household disposable income at a compound annual rate of 10.1 percent compared with 7.9 percent in our base case. In the low-growth scenario, real household disposable income grows at only 3.9 percent. Growth also has distributional implications across households, corporations, and the government. In the high-growth scenario, investment continues to maintain a higher share of GDP relative to the base case, driving up the capital stock, increasing the relative return to labor, and households' share of factor income. Furthermore, a more positive current account position and strong profit growth raise the overall tax contributions of corporations faster than those of households, allowing households to capture an even greater share of disposable income (Exhibit 4.2).

Under all three scenarios, the lower-aspirant segment will evolve into urban China's largest income segment in the near- to mid-term. The main difference between the scenarios is timing (Exhibit 4.3). In the base and high-growth scenarios, the lower aspirants overtake the poor as the largest class in 2008; in the low-growth case, this event occurs in 2010. As discussed in the previous chapter, household-consumption patterns will shift away from necessities and toward more discretionary items as they are lifted out of poverty.

Exhibit 4.2

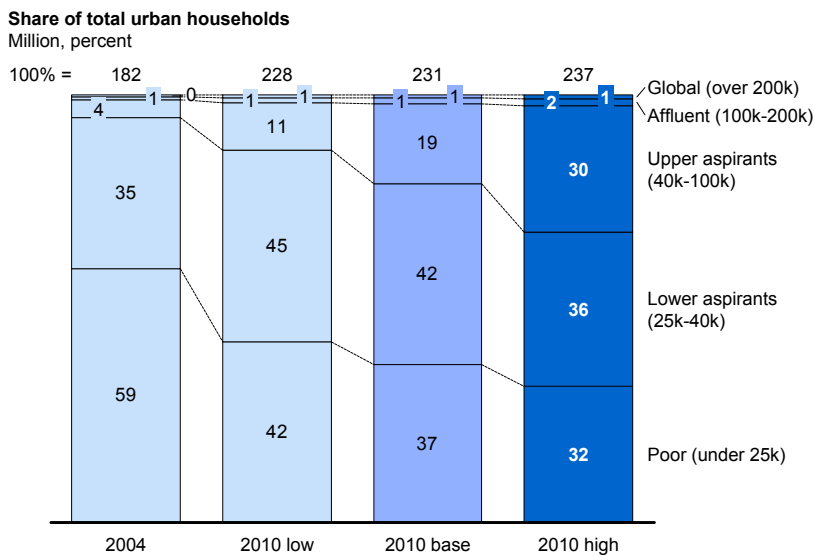
STRONGER GROWTH ALLOWS HOUSEHOLDS TO CAPTURE HIGHER SHARE OF NATIONAL INCOME



Source: NBS; MGI China Consumer Demand Model, v2.0

Exhibit 4.3

LOWER ASPIRANTS TAKE LEAD IN 2008 IN HIGH AND MID-GROWTH CASES, BUT IN 2010 WITH LOW GROWTH

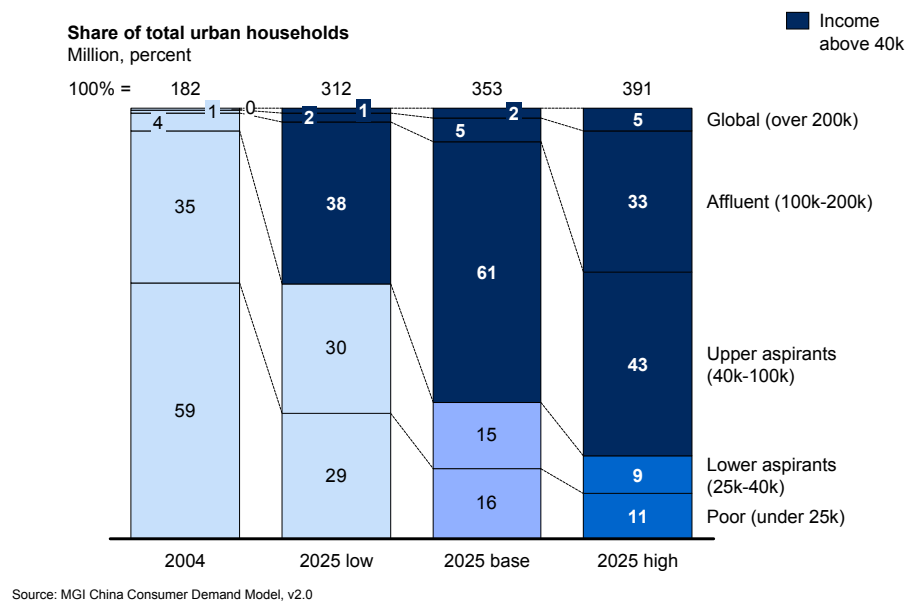


Source: MGI China Consumer Demand Model, v2.0

If we look further out to the rise of the upper-aspirant segment, the impact is more varied. In our low-growth scenario, the upper-aspirant income class will not emerge as the largest group among urban China's households until 2022; in the other two scenarios, the transition will happen a decade earlier—2011 in the high case and 2013 in the base case. In 2025, only 41 percent of all urban households will earn annual disposable income of at least 40,000 renminbi in the low case, compared to 81 percent in the high case. The number of upper class affluent and global households also varies significantly in the different scenarios, ranging from 3 percent of all urban households in the low scenario in 2025, to 38 percent in our high-growth scenario (Exhibit 4.4).

Exhibit 4.4

GROWTH HAS LARGE IMPACT ON PERCENTAGE OF HOUSEHOLDS EARNING ABOVE 40,000 RENMINBI A YEAR



So, all three scenarios lead to substantial gains in income for China's urban households and the evolution of a massive middle class, but the timing of these gains and the mix of income bands varies widely in the different growth-paths. Likewise, the aggregate amount of spending power in urban China by 2025 varies significantly across the three scenarios: in the low case it is 12.7 trillion renminbi, in the base case 22.6 trillion renminbi, and in the high case 39.7 trillion renminbi. The impact of the scenarios is thus to decrease 2025 income by 44 percent or increase it by 75 percent versus the base case.

Consumption—substantial, but how substantial?

Changes in the growth of income and its distribution have significant implications for the pattern of spending by households. As would be expected, higher growth and income leads to higher consumption. Again, however, the timing and magnitude of the changes shifts across the scenarios, as does the share-of-wallet mix.

Given that Chinese incomes grow substantially even under the low scenario, it is not surprising that spending does too. Under the low scenario, by 2025 total household consumption will reach 11 trillion real renminbi (around \$1.4 trillion, or slightly more than Germany today) versus 19 trillion renminbi in the base case (\$2.3 trillion compared to Japan today at \$2.8 trillion), and 32 trillion real renminbi in the high case (\$3.9 trillion, equivalent to a market that is half the size of today's US market). Thus under any of these three scenarios China evolves into a major consumer market, rivaling Germany, Japan or approaching the United States.

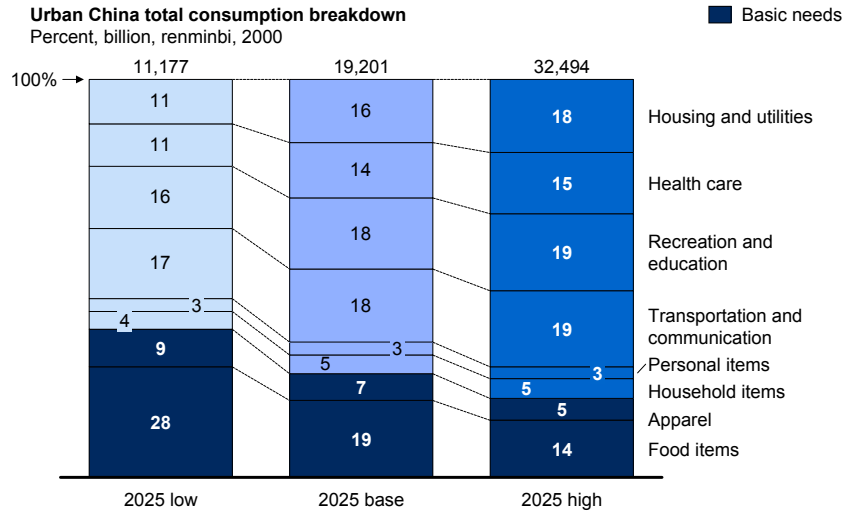
At the level of individual product categories it is a similar story. The markets will grow significantly; it is just a question of how significantly. For example, under the low-growth scenario, the household items market will still reach 501 billion real renminbi in urban China by 2025—the equivalent of some \$272 billion in PPP terms, or more than twice the size of the market today. Furthermore, the compound growth rate of 3.9 percent under the low scenario would still likely compare favorably with other world markets.

Certain product categories are more sensitive to changes in economic and income growth rates than others. The product categories that are most sensitive to overall income growth are: food, which ranges from a share-of-wallet of 28 percent in the low case to about 14 percent in the high-growth case; housing, with a range of 11 percent to 18 percent; and recreation and education, with a range of 16 percent to 19 percent (Exhibit 4.5).

The annual growth rates of these product categories also vary significantly at different rates of economic growth. Housing, for instance, grows at 6.8 percent in our low-growth scenario but by as much as 15.5 percent in our high-growth environment (Exhibit 4.6). Growth rates in many other product categories vary, too, but more narrowly. For instance, growth in total spending on food items is expected to range between 4.6 percent and 6.8 percent, and recreation and education between 6.0 percent and 13.1 percent, under low- and high-growth paths.

Exhibit 4.5

HOUSING AND HEALTH CARE WILL BE THE MAJOR CONSUMPTION AREAS IN HIGH-GROWTH CASE



Source: MGI China Consumer Demand Model, v2.0

Exhibit 4.6

GROWTH SCENARIOS HAVE GREATEST IMPACT ON DISCRETIONARY CONSUMPTION CATEGORIES

Percent, billion, renminbi, 2000

	Urban consumption			CAGR (2005 - 2025)			
	2005	2025		Base	High	Low	
		Base	High				
Food items	1,274.74	3,716.90	4,709.27	3,116.61	5.5	6.8	4.6
Apparel	400.29	1,297.87	1,706.82	1,048.40	6.1	7.5	4.9
Household items	229.60	893.29	1,684.22	501.77	7.0	10.5	4.0
Personal items	128.63	610.10	898.43	364.42	8.1	10.2	5.3
Transportation & communication	518.89	3,514.05	6,224.81	1,949.64	10.0	13.2	6.8
Recreation & education	542.17	3,434.17	6,335.62	1,742.86	9.7	13.1	6.0
Health care	276.50	2,681.32	4,995.35	1,217.47	12.0	15.6	7.7
Housing & utilities	332.99	3,053.68	5,939.30	1,236.25	11.7	15.5	6.8

Source: MGI China Consumer Demand Model, v2.0

It is clear that different growth scenarios will have varied implications for individual sectors. Given that much of the uncertainty expressed by our scenarios is about how many people will reach higher-income brackets and when, the growth rates of discretionary and higher-priced products will tend to be more varied across the scenarios than lower-priced necessities.

SENSITIVITIES TO OTHER FACTORS

Our three scenarios implicitly encompass a range of potential events and policy decisions that could change China's growth trajectory and in effect change the size of China's economic pie. In addition to these, there are other important economic factors that could impact how the economic pie is divided and thus the shape of China's income distribution. It is not possible to exhaustively model all of the factors that could effect distributional outcomes, nor is it possible to capture all of the possibilities for dynamic interplay between the factors. Nonetheless, we have examined the sensitivity of our model to independent changes in four important factors: population growth, urbanization, education, and wealth effects.

Population growth

As population is usually one of the more predictable factors in economics it is not often a variable for sensitivity testing. However, in China's case, the size and speed of growth of the population make it a critical factor. China's population recently passed the 1.3 billion mark. While population growth has decelerated in recent years, annual absolute changes in population are still very large. Between 2004 and 2005, China's population increased by 7.5 million people, broadly equivalent to the current population of Chicago.⁴ In our base case, we use the United Nations' "medium-variant" forecast, which projects that the population will grow by 0.4 percent per year going forward (compared with 1.1 percent between 1985 and 2005), reaching approximately 1.4 billion people in 2025. In addition, the UN also provides high- and low-population variants. In the high case, China's population is approximately 80 million people higher in 2025; in the low case, there are approximately 80 million fewer people.

To examine the impact of changes in population growth on the size of the consumer market, we hold real per-capita GDP the same as in the base case, and vary the size of the population. This way, changes in population growth translate directly into changes in the level of real GDP. Faster or slower population growth

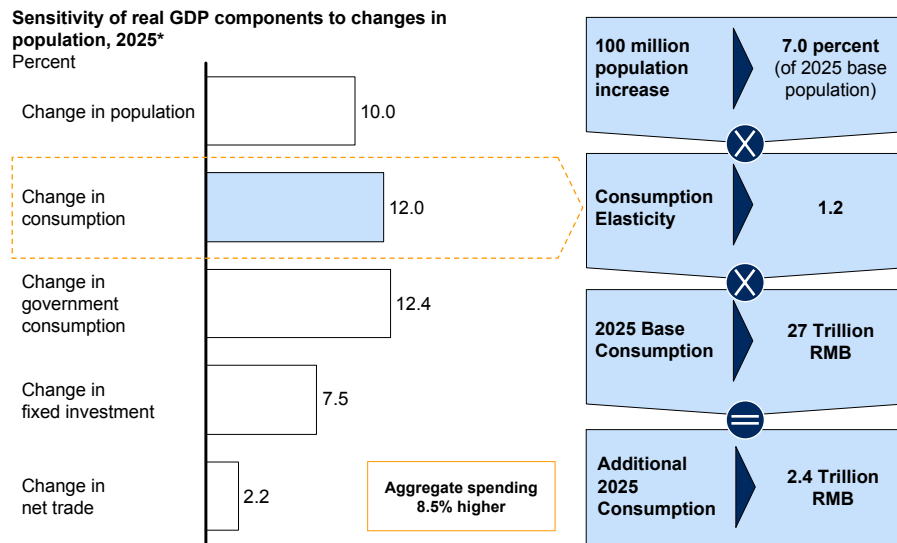
⁴ In 2005, Chicago Metropolitan Division had an estimated population of 7.9 million, according to the US Census Population Estimates Program.

also generates different age distributions within the population. This affects the demands on government spending for education and or health care, which, in turn, produce second-round effects. In summary, changes in population growth can affect the base case in two ways—by changing the overall level of GDP, and the age distribution, both of which we now explore.

The various components of GDP respond differently to changes in population. For example, a 10 percent increase in population would increase net trade by only 2 percent, but aggregate consumption by approximately 12 percent. So, if the 2025 population were to be 100 million larger than in the base case (although this is unlikely as it is above the UN high-variant case, we can use 100 million as a round number to test the magnitude of the effect), this would translate into an additional 2.4 trillion renminbi in real consumption, equivalent to an 8.5 percent increase relative to the base case (Exhibit 4.7).

Exhibit 4.7

AGGREGATE CONSUMPTION IS EXTREMELY SENSITIVE TO POPULATION CHANGES



* GDP per capita is held to the base case scenario, allowing population to change
Source: MGI China Consumer Demand Model, v2.0

Similarly, population increases impact aggregate disposable income. A 10 percent change in the population translates into approximately a 6 percent change in real household disposable income. To quantify this effect, 100 million more people leads to an additional 1.5 trillion renminbi in real disposable income, a 4.2 percent increase relative to the base case. As disposable income increases less than

consumption, primarily because of the increased taxes required to finance higher government spending, the net result is a fall in savings of 0.8 trillion renminbi, a decline in the savings rate of approximately 3 percentage points.

Changes in aggregate consumption and income impact on the size of the urban market nearly proportionally—a 10 percent increase in aggregate consumption and income translates to approximately a 10 percent increase in these variables in urban areas. To follow the example of the 100 million-person change in overall population through to the urban market, we find that the number of urban households increases by 21.6 million renminbi (6.4 percent), urban real disposable income by 920 billion renminbi (4.1 percent), and real urban consumption by 1.2 trillion renminbi (6.3 percent).

Our results are also sensitive to changes in the age profile of the population. A faster-growth scenario implies a more rapid increase in the size of the school-age population. Increases in this population expand the need for schools and education funding and therefore demand for government expenditures. As the school-aged population and education funding increases, enrollments and, eventually, attainment rates, can also be expected to rise. A 10 percent increase in the under-25 population translates into a 5.6 percent rise in the secondary school enrollees by 2025, and a 1.3 percent increase in the number of people who have attained a secondary education. Higher secondary-attainment rates, in turn, affect the urbanization rate, and income distribution. Using UN data, the impact on secondary-education attainment is relatively muted—i.e., population changes of a reasonable magnitude impact the urban market primarily by increasing its size, rather than its distribution.

Urbanization rate

The pace of urbanization in China has been one of the outstanding features of China's economic transformation. The population of its urban areas has more than tripled since 1978, reaching 543 million, and the urban share of the population more than doubled from 18 percent to 43 percent. Next to changes in overall economic growth, these developments in the urbanization rate have the greatest impact on income levels and distribution. The increasing contributions of industry and services to overall GDP and the growth in secondary-educational attainment have been important drivers of this trend.

China controls its rate of urbanization more tightly than many other developing countries through its *hu kou* system of household registration (although, more

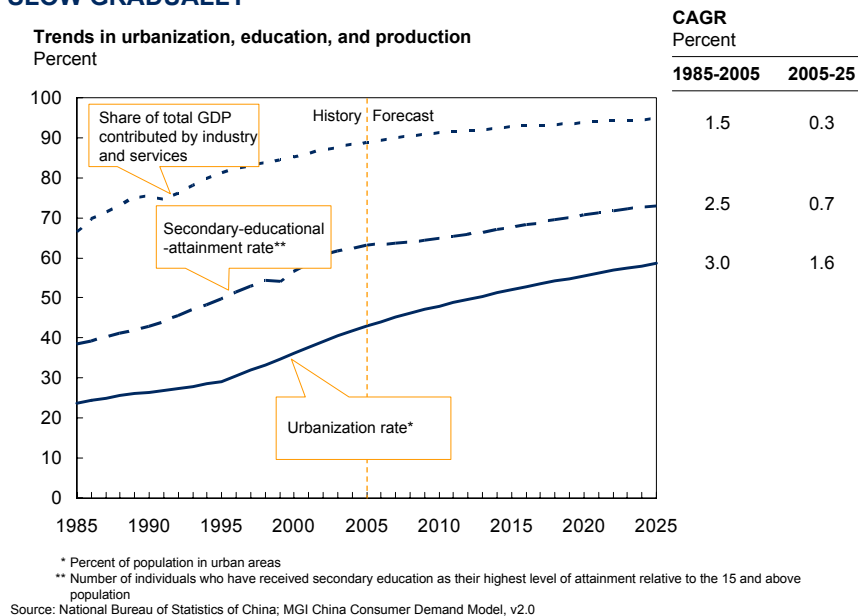
recently, it has begun to relax some of the rules), under which people who change their registration must have a job waiting for them in the new location. Although these restrictions have been loosened in recent years (and vary at the regional level), and there is a large population of urban migrant workers who continue to maintain a rural *hu kou*, the Chinese government has been able to manage the rural-urban flow to some degree and thus prevent the creation of the large urban slums and urban joblessness that one sees in many developing countries. One of the primary government strategies has been to make large-scale investments in growing, existing urban areas, adding factories and housing on city outskirts to absorb the new migrants, as well as turning former agricultural land into new industrial zones. Chinese policy makers have also been careful to ensure that the growth is widely spread among China's many large cities, and not just concentrated in a few mega-cities.

Historically, much of China's investment has been aimed at creating relatively low-skilled manufacturing jobs, which take advantage of China's low wage rates. The existence of these jobs has made the rural-urban transition possible, as they provide employment for former agricultural workers with secondary school or below levels of education. As China has developed, its industry has moved up to higher value-added products, and its service sector has expanded. This has created opportunities for its workers to also move up to higher-skilled and better-paid jobs. With higher wages and an urban environment also comes the possibility of better educational opportunities for one's children. Thus the historical data of the past two decades shows the pattern of people moving from being rural poor, to low-skilled urban workers, and then up into the lower aspirant level of urban working middle class.

Our base case projects that the trend in urbanization, driven by rising secondary-educational attainment and the contributions of industry and services, continues but at a reduced pace (Exhibit 4.8). In addition to the overall slowdown in growth, secondary-education-attainment rates increase less rapidly going forward because of slower increases in enrollment rates that are consistent with the smaller size of the school-age population and the already low illiteracy rate (10 percent in 2005; expected to drop to approximately 6 percent in our base case). The share of total output accounted for by industry and services was already near 90 percent in 2005, so the greatest shifts in China's industry-mix over the next two decades will not be in industry and services relative to agriculture, but more within industry and services. Finally, although the overall pace of urbanization will slow, the absolute magnitude of the change is still extraordinarily large—by 2025, we expect the urban population to have increased by 40 percent or some 225 million people.

Exhibit 4.8

URBANIZATION AND ITS KEY DRIVERS WILL SLOW GRADUALLY



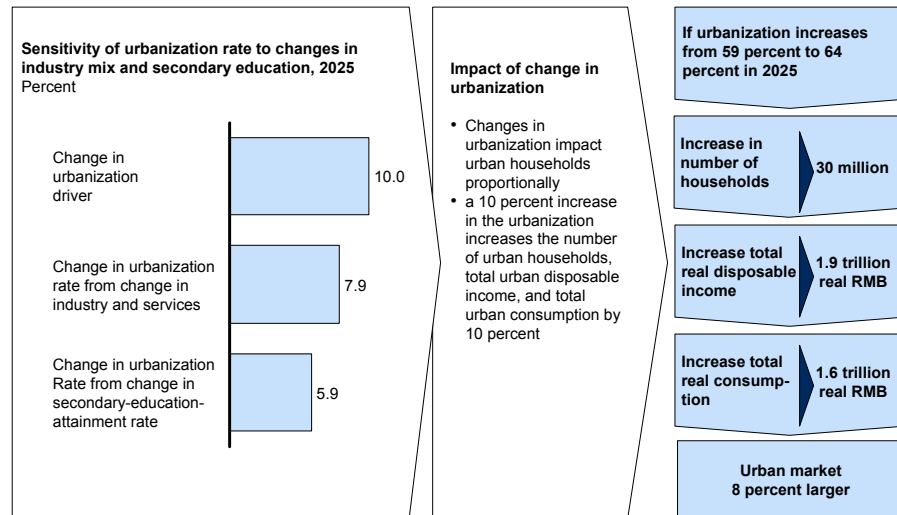
There are, however, uncertainties around our base-case projection of urbanization. On the one hand, urbanization rates could accelerate. Some analysts note that China's urbanization rate, when compared with other developing countries, is not extraordinary, and could potentially rise.⁵ As reform in the agricultural sector continues and productivity rises, this would have the near-term impact of depressing wages and creating unemployment and underemployment. Urban-rural discrepancies continue to be a keenly-watched and debated phenomenon in China, one result of which could be pressure to increase urbanization rates in order to go some way towards closing the wide gap in incomes. Under a "no-landing", high-growth and high-investment-rate scenario, it is possible that labor markets, through rising wages, could create the demand-pull that would support such increases. Finally, the fact that urbanization is widely-spread across the 136 Chinese cities with a population greater than 1 million, coupled with the evident ability—so far—of China's cities to grow through urban sprawl rather than rising density, means that rapid urbanization could continue for some time.

On the other hand, rapid urbanization is creating extraordinary pressures on China's cities. The strains range from housing availability, to transport, to water and sewage, to services such as health care and education, as well as pol-

5 See Jonathan Anderson, "Exposing China's 'Urban Legends,'" UBS Investment Research, *Asian Economic Perspectives*, August 9, 2006.

Exhibit 4.9

CHANGES IN INDUSTRY MIX AND EDUCATIONAL-ATTAINMENT RATES HAVE A SIGNIFICANT IMPACT ON URBANIZATION



Note: For this sensitivity, overall GDP and its components, as well as the unemployment rate, are held fixed. To isolate the impact of secondary-educational attainment, higher-educational enrollment and attainment rates are also held fixed.
Source: MGI China Consumer Demand Model, v2.0

lution and environmental impact. There is a perception by many Chinese that urbanization rates are unsustainable, and there are concerns about competition for jobs from new rural migrants. For all these reasons, the pressure to slow the urbanization rate could intensify.

Although our model does not explicitly incorporate a feedback link from changes in economic activity in urban areas to top-line changes in economic growth, taking overall real GDP and its components as fixed, we can still compute the impact of key drivers of urbanization.⁶ Of course, not including the dynamic feedback channel makes these estimates conservative. In doing so, we find that increases in the contributions of industry and services to GDP and the secondary-educational-attainment rate have a significant impact on urbanization. If the share of industry and services were to be 10 percent higher in 2025 than in our base case, the urbanization rate would increase by almost 7.9 percent. Similarly, if the secondary-education-attainment rate were 10 percent higher in 2025, the

6 To forecast the development of the urban market, our modeling strategy takes overall GDP and its components as inputs, and thus there is no dynamic feedback multiplier to aggregate growth from changes in the urban market. This is necessary to make the modeling of the income distribution and consumption by income category tractable. See technical appendix for further discussion.

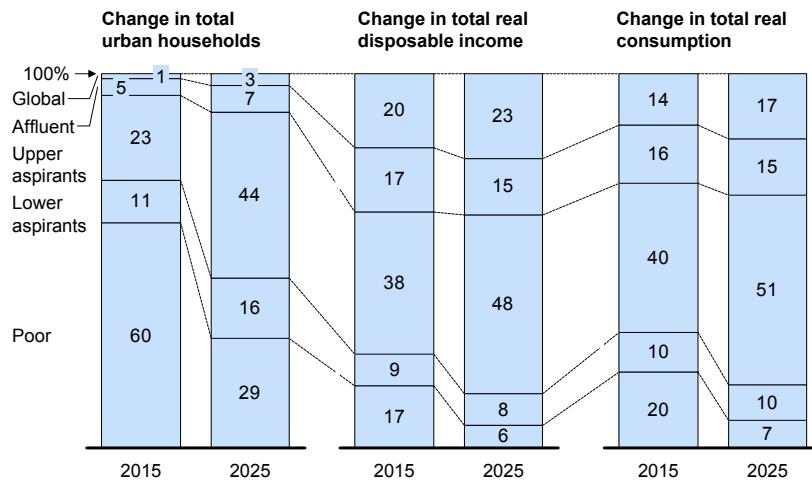
urbanization rate would be 5.9 percent higher (Exhibit 4.9).⁷ For example, if secondary- educational-attainment were to increase from the base case forecast of 73 percent in 2025 to approximately 80 percent, urbanization would increase from approximately 59 percent to 62 percent.

Changes in the urbanization rate essentially translate one-for-one into increases in the size of the urban market—a 10 percent increase in the urbanization rate increases the number of urban households, total real disposable income, and total consumption each by 10 percent. Thus, if the urbanization rate were to rise to 64 percent in 2025, approximately 5 percentage points higher than in the base case, there would be approximately 30 million new households, 1.9 trillion real renminbi in additional disposable income, and 1.6 trillion real renminbi in additional spending in urban China. The urban Chinese consumer market would be approximately 8 percent larger.

Exhibit 4.10

GAINS FROM INCREASED URBANIZATION DISPERSE MORE WIDELY OVER TIME

Impact distribution of increased urbanization*
Percent of total impact



* Increases in secondary education attainment and enrollment rates drive urbanization steadily higher over the forecast, ending two percentage points (3 percent) above baseline in 2025.

Source: MGI China Consumer Demand Model, v2.0

The impact of changing urbanization rates becomes more widely dispersed over time. Within the first 10 years, 60 percent of the increase in new urban households would be categorized as poor, with upper aspirants accounting for approximately 23 percent of the increase (Exhibit 4.10). The entrance of additional workers

7 To isolate the impact of secondary-educational attainment, we also hold fixed higher-educational enrollment and attainment rates.

into urban areas initially depresses wages and increases returns to business owners and better-off households. Nearly 75 percent of the initial increases in income, and 70 percent of the early increases in consumption, are captured by the top-three income classes. However, in the longer-term, as the new workers are absorbed into the urban economy and gain skills and experience, the gains are distributed more equitably and we begin to see a more rapid expansion of the middle class. By 2025, the number of new poor households is halved, while upper aspirant households nearly double. This shift in household wealth is mirrored in real income and consumption spending. More than 60 percent of the change in spending, driven by changes in urbanization, is captured by the aspirant classes in 2025.

Higher-educational attainment

It is generally recognized that human capital—often measured by rates of educational attainment—plays a central role in the process of economic development. As discussed above, levels of secondary-educational attainment have been an important driver of urbanization and the increased levels of income creation that this process has engendered. Similarly, our analysis has found that increases in the levels of higher-educational attainment have also played an important role. The returns to higher education help explain increases in the relative income of higher-income households in urban areas.⁸

Increases in the rate of higher-educational attainment in China over the last 20 years have been stunning. In 1985, there were approximately 8 million people who had completed college or an advanced degree. By 2005, the number of graduates jumped by a factor of 9 to 72 million. This is equivalent to a compound-annual-growth rate of 11.3 percent over a period when the population aged 15 and above grew at only 1.6 percent, the 15 to 24 year old population actually fell at a 0.6 percent compound annual rate, and the secondary-educational-attainment rate grew at 2.5 percent. While only 10 percent of the 25 to 64 population attained a higher-educational level in 2005, higher-educational-attainment rates are expected to reach the current OECD average by 2025 (Exhibit 4.11).⁹ This occurs in our base case despite a deceleration in the growth of secondary- and higher-education-attainment rates to 5.6 percent because of

8 Robert J. Barro and Xavier Sala-i-Martin, “Economic Growth,” Second Edition, MIT Press, 2003.

9 Educational attainment rates quoted elsewhere in this report are graduates as a percent of the 15 and above population, which is how they are computed in our model. Here we use the 25 to 64 population as a numeraire to be comparable to the figures published by the OECD. See “Educational Trends in Perspective,” OECD, 2005.

slower increases in secondary attainment, the smaller size of the school-age population, the already-low illiteracy rate, and slower overall growth.

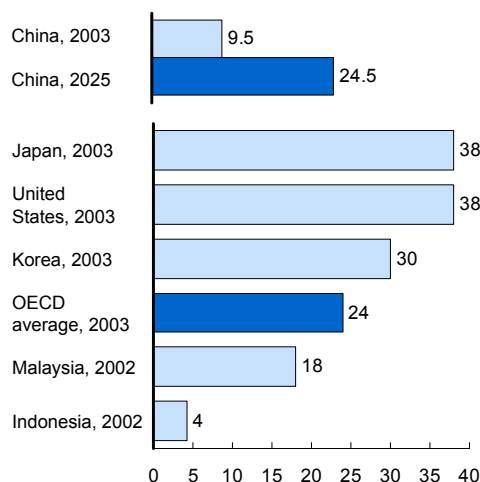
Just as in the case of urbanization, we can assess the impact of higher-educational attainment on urban households by holding overall GDP and its components fixed, and varying the attainment rate. The rate of higher-educational attainment can change because of changes in enrollment at this level, and graduation rates (which we take as exogenous). Enrollment changes because of changes in expenditures on education and secondary-education-attainment rates.

Unlike changes in the secondary-educational-attainment rate, which directly influences the size of the urban areas and therefore the total income available to urban households, higher-educational-attainment has its most significant impact on the distribution of income. Increases in the higher-education-attainment rate benefit households at the upper end of the income distribution the most, as they are in the best position to capitalize on the new opportunities. With a fixed pie of income, the more educated individuals will receive a greater share of income, increasing overall income disparity. Both the number of global and affluent households and the amount of income they capture go up. The amount of income captured by poor households also rises, but because of an increase in the number of poor households, not because of a rise in average income. The number of aspirant households and the income they capture falls (Exhibit 4.12).

Exhibit 4.11

CHINA WILL REACH CURRENT OECD AVERAGE OF EDUCATIONAL ATTAINMENT BY 2025

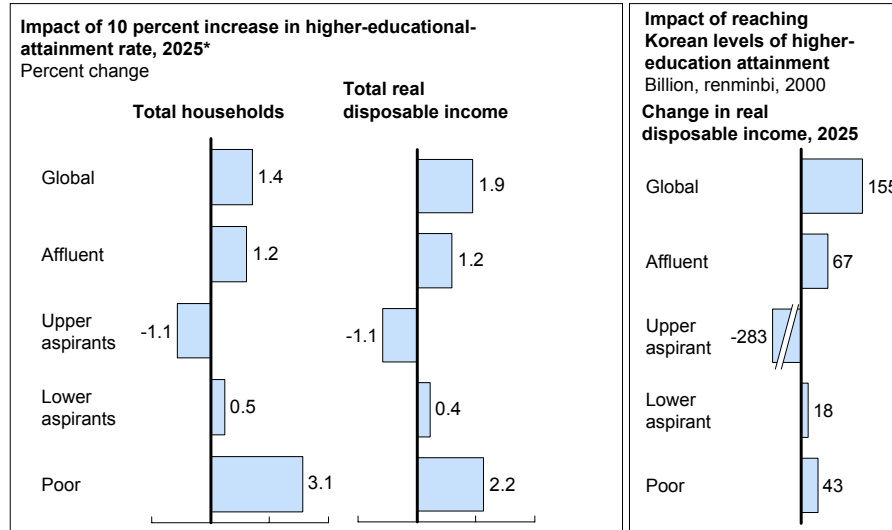
Higher-educational-attainment rates
Percent of 25-64 population that attained college or advanced degree



Source: "Educational Trends in Perspective," OECD, 2005; MGI China Consumer Demand Model, v2.0

Exhibit 4.12

WITH AVAILABLE INCOME FIXED, RISING HIGHER-EDUCATION-ATTAINMENT RATES MARGINALLY INCREASE INCOME DISPARITY



Note: For this sensitivity, overall GDP and its components, as well as the unemployment rate, are held fixed. To isolate the impact of secondary-educational attainment, higher-educational enrollment and attainment rates are also held fixed.
 Source: MGI China Consumer Demand Model, v2.0

It remains the case that, for plausible changes in the higher-educational-attainment rate in China in 2025, the overall impact on income distribution is small. Even if China were to reach Korea’s higher-educational-attainment rate of 30 percent in the 25 to 64 year old population in 2025—which would be a 23 percent increase over our base case forecast—the amount of income captured by the different income classes varies only marginally. For example, total income in global households increases by approximately 155 billion real renminbi from a base of approximately 3,600 billion real renminbi or 4 percent.

Income from wealth

Real wealth in China increased at an astonishing compound rate of 12.8 percent between 1985 and 2005. Growing more quickly than the real economy, real wealth, including real net capital stock, the real stock of money, and the real stock of net foreign assets, rose from 2.3 times real GDP in 1985 to 4.2 times real GDP in 2005. Similar to higher-educational attainment, we find that real aggregate wealth has its most significant impact on the distribution of income. In the past, we find that income from average aggregate real wealth per household has helped explain increases in the relative income of higher-income households in urban areas.

Rapid growth in investment in recent years has made the capital stock the largest component of wealth, accounting for 55 percent of the total in 2005. As we have described, our base case projects that growth in investment spending will slow over the forecast, consistent with the shift to a more consumer-driven economy. The real money stock accounted for an additional 40 percent of wealth in 2005. Its growth of the money stock is expected to expand at roughly half of its historical pace in our base case, consistent with the expected tightening of credit in China as the government attempts to engineer a “soft landing” and shift the economy away from investment-driven growth. Finally, the current account surplus soared to \$160 billion in 2005—more than 7 percent of GDP, and double its 2004 value. Going forward, we expect this surplus to return gradually to balance by the end of the forecast period, driven primarily by a decline in China’s trade surplus as the economy shifts toward more domestically driven growth, as imports rise due to higher household incomes, and as the renminbi appreciates. With the current account surplus shrinking over the forecast period, the impact of net foreign assets on wealth will slow. Overall, a deceleration in the growth of investment spending and the monetary stock, combined with a gradual reduction of the current account surplus toward balance, will lead to China’s real wealth to real GDP ratio stabilizing at approximately five times real GDP by 2025 in the base case (approximately the current US ratio).

As in the case of higher-educational-attainment rates, plausible changes in China’s real wealth to GDP ratio have a small overall impact on the income distribution. If the country’s real wealth were to reach six times real GDP in 2025, a 20 percent increase relative to the base case, the amount of income captured by the different income classes varies only marginally. For example, total income in global households increases by approximately 140 billion real renminbi, off a base of approximately 3,600 billion real renminbi or 3.8 percent (Exhibit 4.13).

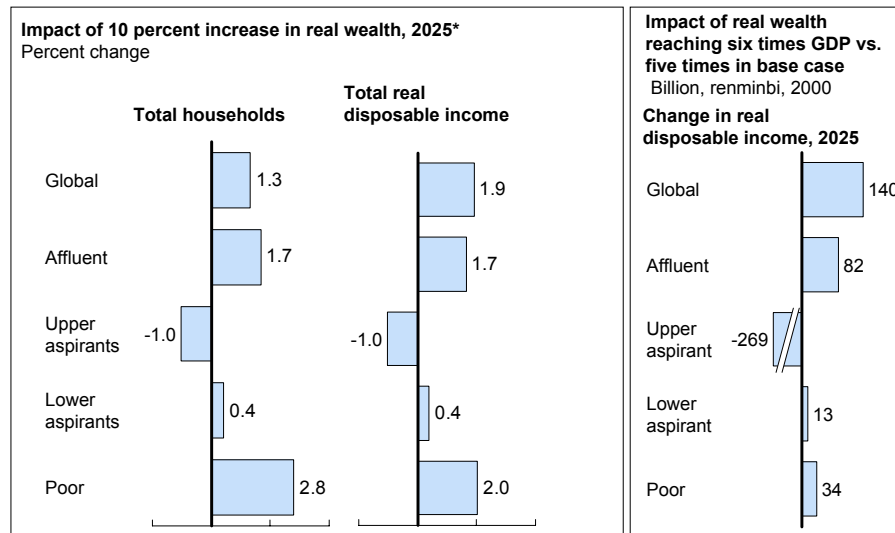
* * *

Overall, the results of our scenario and sensitivity testing suggest that our conclusion that China is beginning a transformative phase of consumption growth is robust against a broad spectrum of scenarios and assumptions. Short of an unexpected disaster, or a major reversal in the path toward reform, a large urban middle class will arise over the coming decades, with the spending power that will make China one of the world’s largest consumer markets. It is clear, too, that rising incomes will shift spending patterns toward discretionary consumption. The main uncertainties are of timing and degree. The largest factor contribut-

ing to that uncertainty is China’s overall macroeconomic growth path, and while other factors such as urbanization rates will shape the outcome, none is likely to dramatically change its character. Nevertheless, even at the low-end of the growth range, many companies will still see China as an attractive consumer market relative to other opportunities. If China’s growth trajectory is at the high-end of our three scenarios, then the opportunities will be extraordinary.

Exhibit 4.13

WITH AVAILABLE INCOME FIXED, INCREASES IN HIGHER-EDUCATION-ATTAINMENT RATES INCREASES INCOME DISPARITY MARGINALLY



Note: For this sensitivity, overall GDP and its components as well as the unemployment rate are held fixed. To isolate the impact of secondary-educational attainment, higher-educational enrollment and attainment rates are held fixed.
Source: MGI China Consumer Demand Model, v2.0

5. Opportunities and challenges

The excitement over China's future as a consumer market is justified. Over the coming two decades, China's consumer market will be larger than Germany's—by 2015—and rival Japan's—by 2025. If one were to view the market in purchasing power parity terms, the \$10.4 trillion spending of China's consumers in 2025 will be surpassed only by consumer spending in the United States.

FOR COMPANIES—OPPORTUNITIES AND CHALLENGES

For the leaders of major consumer businesses, China's relative importance will increase substantially over the coming years. If the consumer markets of the OECD continue to grow at current trend, we estimate that China will grow from 2.7 percent of total OECD, plus China, demand today, to 10 percent by 2025.¹ The story is similar at the level of specific product and service categories. For example, urban Chinese consumption of food will grow from a 4.3 percent share of OECD demand to 11.7 percent; health care from 1.8 percent to 10.6 percent; and of transport and communications from 2.3 percent to 10.2 percent (see Exhibit A2). If one looks at China's share of future growth, the story is even more compelling—for a company whose sales roughly track the growth of OECD markets, China will represent approximately 20 percent of worldwide growth over the next two decades.

However, China is, and will be, unlike any other large market that most companies serve. It will be high in volume, but still relatively low in terms of price points. Although China's consumer economy will surpass that of Germany by 2015, average consumption will still only be \$1,188 compared with \$15,208 in Germany.

¹ Assuming that OECD consumption in each product category continues to grow at the same growth rate in the period 2005-2025 as in 1990-2003.

And our definition of middle class ranges from lower aspirants earning 25,000 renminbi, or \$3,019, to upper aspirants earning 100,000 renminbi, or \$12,077. While in PPP terms, this band ranges from \$13,513 to \$54,054, the uncertainty over when and how much China's currency will approach its PPP level means that international companies will feel the pressure to keep their price points low for some time to come.

Nonetheless, aggregates and averages in China's vast population hide a great deal. Our analysis estimates that 7.3 million households will be added to the top-end global bracket (income greater than 200,000 renminbi, \$24,154 real or \$108,108 PPP) between 2005 and 2025—which is roughly the total number of households in Australia. Likewise, the 17.4 million urban affluent households (income between 100,000 and 200,000 renminbi, \$12,077 to \$24,154 real, or \$54,054 to \$108,108 PPP) that will be added to the Chinese market is roughly the same as the total number of households in today's Thailand, or about three-quarters the current number of households in the United Kingdom.

Many companies will also take comfort from the robustness of these results. As described in Chapter 4, we varied our forecasts of compound annual GDP growth between 4.2 percent and 9.7 percent, and the overall results of the emergence of a large urban middle class and a correspondingly large consumer economy, held firm. The main impact of slower or faster growth was to shift the timing—in rough terms, we can say that China's middle class will emerge as a globally important spending power around 2015, plus or minus five years.

The changes in magnitude across the scenarios, while significant in absolute terms (plus \$1,606 billion or minus \$969 billion in total urban consumer spending in 2025) are less meaningful in managerial terms. Under virtually any scenario, the markets for all 18 product categories we analyzed will be large by world standards. The absolute size of the potential markets and levels of current penetration are such that, practically speaking, companies are more likely to find themselves constrained by factors such as distribution, the challenge of aligning cost structures with price points, intense local market competition, and finding managerial talent, than by the absolute size of latent demand. Again, the impact of the range of scenarios is most likely to be felt by companies in terms of the speed with which things happen, not whether they will happen.

The reason for the robustness of these results is the strength of the fundamental forces driving China's economy, and the momentum behind them. These include China's rapid industrialization, its huge stock of investment capital, rising produc-

tivity, growing urbanization, increasing education levels, and a demographic bulge of people in their prime working years. Again, this is not to say that there are no factors that could derail this momentum—war, a pandemic, or major change in political direction could all impact these results—but these are risk factors that are not unique to China.

Most companies will also find the timeframes of this transformation encouraging. Although we have focused on the 2025 end-point of our analysis in presenting our results, significant changes will begin far sooner than that. Within the next five years, we estimate that 34 million households will move into the upper-aspirant disposable-income band of between 40,000 renminbi and 100,000 renminbi (\$4,830 to \$12,077 real, or \$21,621 to \$54,054 PPP). As this occurs, spending by this income segment will increase almost fivefold to 1.7 trillion renminbi, or \$206 billion.

The magnitude of changes and timeframes should provide some reassurance that major commitments to China's consumer market have the potential to pay off in the medium-term, if not sooner. But, at the same time, these timeframes should not encourage complacency. A decade is not a long time in China, and companies preparing for the 2010 to 2020 wave of consumer spending need to be preparing now—as the best companies in China already are.

For companies attempting to capture the Chinese consumer opportunity there will be a number of challenges, and those challenges will differ for multinational companies (MNCs) versus Chinese companies. For MNCs, there will be three main challenges:

- *Driving down price points.* MNCs must continue to drive price points and cost structures down to the level where products and services come within reach of the mass of consumers. There is a saying in China that one is often negatively surprised on margins, but positively surprised on volumes. China's intensely competitive markets, price-sensitive shoppers, and high costs of distribution have made it difficult for many MNCs to achieve the margins to which they are accustomed. However, as our analysis shows, there are enormous volumes to be had, in particular in the fast-growing urban lower-aspirant income band. Reaching these customers today will not only enable MNCs to tap into China's fastest-growing pool of consumers, but also enable MNCs to better understand these customers and build relationships with them as they begin their march up-market.

-
- *Deepening geographic penetration.* Most MNCs are well-established in China's Tier 1 and Tier 2 cities, but are now struggling to establish how to go more deeply into the Tier 3 cities. As our research has shown, incomes are in fact growing fastest in some of China's mid-size and smaller cities (although even China's "small" cities are sizeable by world standards). Reaching these cities presents significant challenges for many MNCs in terms of sales, marketing, distribution, customer support, and infrastructure. Building capabilities in these areas requires investments, and often local partnerships. Given that there are 136 Tier 3 cities spread across China, this presents difficult decisions in terms of which cities and regions to prioritize. However, solving the Tier 3 problem, and even eventually the challenges posed by serving Tier 4 cities, will be essential for companies wishing to capture the middle-class opportunity.
 - *Learning more about the new middle class.* MNCs that have focused on China's more affluent segments or stuck to its larger cities may be in danger of thinking that they know China's customers better than they do. A national survey by McKinsey's China Consumer Center of 6,000 consumers, including many in smaller cities, shows striking variations in tastes, attitudes, and brand loyalty both among members of different income classes, as well as across cities and regions. Successful MNCs will develop a deep understanding of these consumers, who may not be able to afford the company's products today, but may be able to do so in the future. And these companies will be willing to innovate and adapt to meet the needs of these rising consumers.

For Chinese companies the challenges will be somewhat different:

- *Following their customers up-market.* Many Chinese companies already have strong relationships with working-poor and lower-aspirant consumers. Their price points are affordable, their brands are well-known, and their products are adapted to meet their customers' needs. The challenge will be to move up-market as their consumers' incomes grow. This will involve innovations in products and services, raising quality standards, positioning brands to fit their customers' rising aspirations, and creating new Chinese brands that can compete with the best that the world has to offer.
- *Adapting to the new retailing environment.* The rise of the middle class has already transformed China's retailing environment with the rapid expansion of hypermarkets and big-box retailers into China. Many Chinese companies are more accustomed to dealing with small regional distributors and retailers

over whom they have historically had significant market power, and are finding negotiating and working with large sophisticated buyers a new and challenging experience.

- *Broadening geographic penetration.* Finally, Chinese consumer companies traditionally enjoy deep geographic penetration in their markets, even into remote rural areas. But historically, many companies have been limited to a regional base and do not have truly national coverage, and their brands may be seen as regional rather than national brands. This is changing quickly as Chinese companies seek to become truly national players, but, like the MNCs, they face difficult strategic questions about how to create a national presence in what are often diverse and fragmented markets.

The rise of the Chinese consumer creates a historical opportunity for both MNCs and Chinese companies, but capturing the full benefits of this transformation will require ingenuity, patient investment, and the willingness to take risks.

FOR POLICY MAKERS—A BALANCING ACT

China's senior policy makers have been very clear about the importance they place on China's transformation to a consumer economy. The results of the 2004 Central Economic Work Conference, the current Five-Year Plan, and public statements by President Hu Jintao and Premier Wen Jiabao all point toward the goal of re-balancing the economy away from investment and towards consumption. Achieving this goal would reduce China's dependence on exports for growth, raise the standard of living for its citizens, and reduce tensions with the rest of the world over trade and currency levels.

As we have argued, a combination of rising incomes and declining marginal returns on investment will naturally begin to push the economy in this direction. Nonetheless, government policy can do much to either help or hinder this process. China's policy makers, however, will face a difficult balancing act.

An important part of the government's strategy is to carefully rein in investment while at the same time stimulating consumption growth. The hope is that as investment cools, China's consumers will begin to step up to fill in some of the gap, thus keeping GDP growth at the reasonably strong levels assumed in our base case. The danger, of course, is that investment drops without a pick-up in consumption and growth slows significantly.

This balancing act is difficult because China's macroeconomic tools for controlling investment levels are fairly crude and the government's ability to stimulate consumption have thus far proved to be limited. The usual tool for controlling investment levels in developed economies is interest rates. However, the unreformed nature of China's financial system means that interest-rate changes have a weaker impact on China than in many other countries, and the government's exchange rate policy also limits its degrees of freedom on interest rates. The government must therefore instead rely on administrative controls over investment, in particular bank-lending policies and the investment policies of local governments and (SOEs). The translation of central-government policies into actions at the individual bank, local government, and company level, however, is often far from perfect, and local officials whose incentives are tied to local growth tend to dilute the impact of the policies. But if the central government moves too firmly on its administrative controls, then it risks an overreaction that could cut off credit to a large number of companies creating business failures and unemployment. Thus, while the government has been attempting to rein in urban investment, it has only slowed slightly, growing at 23.6 percent year on year in the third quarter of 2006 versus 28.2 percent the prior year—still rapid growth by any standard.

On the consumer side, the government also faces challenges. The traditional tool for stimulating consumer demand in developed countries is fiscal policy, in particular tax cuts. But as Nicholas Lardy of the Institute for International Economics has pointed out, Chinese personal income taxes amount to only 1.1 percent of GDP (versus 10 percent in the United States prior to the 2001 tax cuts and 7 percent after), and realistic proposals for cuts would only add 0.13 percent of GDP in additional disposable income.²

Chinese policy makers have had more success with microeconomic initiatives to stimulate demand. For example, the opening up of China's retail markets to foreign competition has spurred the rapid growth of highly efficient hypermarkets and big-box retailers who have helped bring Chinese consumers lower prices and more choice, thus boosting demand. Privatization of the housing market has stimulated enormous investments in China's housing stock. Likewise, the government's creation of the three "Golden Week" national holidays in 1999 has helped boost tourism as well as domestic spending.

² See Nicholas R. Lardy, "China: Toward a Consumption-Driven Growth Path," Institute for International Economics Policy Briefs in International Economics, no. PB06-6, October 2006.

There are two levers that the Chinese government has for encouraging the consumer economy that it has thus far not pulled, but in the long-term will likely have the largest effect. The first is strengthening the social safety net, in particular with regard to health care and pensions. As noted in Chapter 3, the weakness of the social safety net is a major driver of household-savings behavior. The government has signaled its intention to address this issue, and recently committed to investing \$60 billion in rural areas. However, given the scale of the challenge this will clearly be a multi-decade effort.

The second is reforming the financial system. This would affect consumption in three ways. First, by developing the retail financial sector, reform would make credit and insurance products more widely available and at lower cost to China's consumers, thus again reducing the need to save. Second, financial reform would raise real returns on household savings, again reducing total savings. Third, and perhaps most importantly, reform would help reduce excess savings by China's corporate sector. China's corporate sector is responsible for 42 percent of China's national savings and has been accumulating savings at an annual growth rate of 21 percent for two decades (see Chapter 3, Exhibit 3.2), much of it held by SOEs. In a market-based financial system, such excess capital would be re-circulated back into the economy through dividends, share buy-backs, or other mechanisms, and some of the funds would eventually find their way into consumer spending. The World Bank and others have recently called for China to start requiring its SOEs to pay dividends, or find other mechanisms for re-circulating their excess savings either into strengthening the social safety net, or into its citizens' pockets.³ Financial-sector reform is a complex topic that involves trade-offs, in particular the reduction of capital allocated to inefficient SOEs that provide employment to large numbers of people. But it is in China's interest to go down this path, and, like strengthening the social safety net, our expectation is that it will be addressed over the long-term.⁴

Overall, the most important action the government can take to encourage the re-balancing the economy toward consumption is to keep China on a high growth path and keep labor markets flexible enough to ensure that growth continues to translate into rising incomes. Further microeconomic reforms to encourage competition, productivity, and reduce risk in consumer markets may also have an

3 World Bank Policy Note, "SOE Dividends: How Much and to Whom?" October 17, 2005.

4 See Diana Farrell, Susan Lund, Jaeson Rosenfeld, Fabrice Morin, Niyati Gupta, Ezra Greenberg, "Putting China's Capital to Work: The Value of Financial System Reform," McKinsey Global Institute, 2006, (http://www.mckinsey.com/mgi/publications/china_capital/index.asp).

important impact (e.g. strengthening consumer protection laws). Finally, while the two other major levers—strengthening the social safety net and reforming the financial system—present complex challenges, they would provide a major impetus for consumption growth.

* * *

The coming transition of China from an investment-led economy to one that is more balanced between investment and consumption will not only transform the lives of China's consumers, but will also create enormous opportunities for companies in China and around the globe. As the world welcomes the birth of its newest and largest middle class, both China and the world will benefit.

A. Product category analyses

In this appendix, we will provide more detailed analyses of future consumption trends in the eight major product and service categories and the 18 subcategories that we analyzed. Table 1 provides a description of what appears in each of the categories; the market size of each in 2005; their expected market size in 2025; and the growth implied by the difference between the two. The largest product categories are food; transportation and communication; recreation and education; and housing and utilities. We expect the fastest-growing category to be health care, followed closely by housing and utilities. We should reiterate that these categories add up to 100 percent of final consumer demand, less financial services.

GROWTH DRIVERS OF CATEGORY-SPECIFIC CONSUMPTION EXPENDITURE

MGI has developed a framework to assess the various accelerators and inhibitors of private consumption-expenditure growth at a product-category level, analyzing ten main drivers (Exhibit A.1). The value of a product category is determined by the number of consumers purchasing a particular product or service, the quantity they buy, and the average price per unit they're paying.

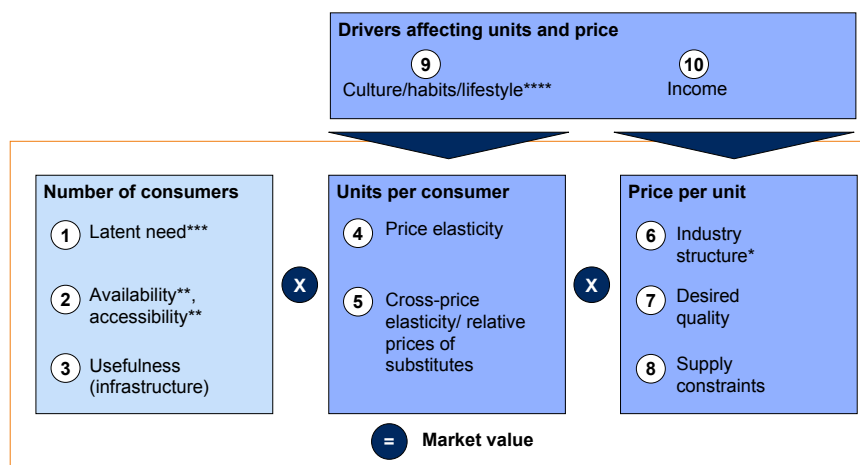
The number of consumers buying a product or service depends on how many consumers actually have a latent need for such items, as well as their availability, accessibility, and usefulness. For instance, a latent need for health-care services can be driven by demographics (aging), or the impact of the environment (pollution). A product or service will be purchased by more consumers if they are offered a wider range of those that they need (through innovation, for example), and therefore can exercise more choice. At the same time, products and services need to be accessible, with the appropriate distributional infrastructure in place—for instance, when cell phones didn't exist and fixed-line phones were not accessible in rural China, many potential consumers couldn't satisfy their latent

Table 1: A snapshot of product-categories

Category	2005 spending (2000 renminbi, billion)	2025 spending (2000 renminbi, billion)	CAGR
Food • Food and beverages • Food services • Alcohol • Tobacco	1,275	3,717	5.5
Apparel • Garments • Footwear and other apparel	400	1,298	6.1
Personal items	129	610	8.1
Household items • Household equipment • Household services • Other household items	230	893	7.0
Recreation and education • Recreation equipment • Recreation services • Education	542	3,434	9.7
Health care	277	2,681	12.0
Transportation and communication	519	3,514	10.0
Housing and utilities • Housing • Utilities	333	3,054	11.7

Exhibit A.1

MGI'S FRAMEWORK FOR ASSESSING PRODUCT-CATEGORY VALUE GROWTH



* Including industry competition, production technology/efficiency, sourcing cost, etc.
 ** Covering product innovation and distributional infrastructure
 *** Number of consumers with a latent demand at a given time, e.g., driven by demographics, pollution, etc.
 **** Including, e.g., changes in female labor-force participation, or distance between home and work, etc.
 Source: McKinsey Global Institute

need for communication. Once available, products and services, even if meeting a latent need, will only be consumed if they are of use—again, for example, backed by the necessary infrastructure. For instance, consumer electronics will only be purchased if the required electricity-distribution infrastructure is in place.

The number of units consumed depends on different consumers' price elasticity and the relative price of substitutes. Most goods and services are consumed in larger quantities when their price decreases (there are sometimes exceptions, so-called 'Veblen' goods—for example a luxury item that becomes more desirable when it has a higher price tag). At the same time, the number of units consumed of a certain good or service depends on the relative price of other goods and services, and on whether consumers see them as complementary, substitute, or independent products.

The average price per unit is determined by the industry's structure, the desired product quality, and supply-side constraints. The degree of competition within an industry or product market, the available production technology and efficiency, and the local and global sourcing costs of product components are key drivers of price. Furthermore, the quality desired by consumers determines the average price per unit consumed. With growing incomes, for instance, many urban Chinese consumers upgrade the product quality to which they aspire, and buy higher-priced goods and services. This increases the value of the market, even if the number of consumers and average units per consumer remain unchanged. In addition, supply constraints have an impact on the average price per unit of a product or service. Given China's fast rate of urbanization, space is likely to become increasingly scarce in urban centers, constraining the supply and average size of apartments, for instance, and thereby increasing average prices.

Finally, there are two additional drivers of the value of a product category, which impact either units per customer, prices per unit, or both. First, cultural changes, including evolving habits and lifestyles, alter the buying behavior of consumers. For instance, Chinese consumers will spend relatively more on transportation, as suburbanization and specialization tend to increase the average distance between work and home. Second, changes in income determine the value of product categories, as our shares-of-wallet time series analysis for urban China shows. Increasing incomes in urban China raise both the number of units consumed per customer, as well as the average price per unit.

Our econometric model generates price, income, and other elasticities from historic data. It then applies these to macroeconomic and demographic forecasts

to generate consumption forecasts by product category and income class. This methodology implicitly assumes that the dynamic relationships between variables (for example, relationships between income and consumption), and constraints on the system (for example, the availability of products) remain as they have been in the past. Changes in these factors can naturally affect the outcome. For example, increased retail efficiency and market penetration have been making a greater variety of products available at lower cost to consumers—a trend that is implicitly reflected in the historical data and our forecasts. If this trend were to sharply accelerate or decelerate in the future, then that could affect consumption patterns. Other exogenous factors could also affect specific categories—for example, recent measures by the Chinese government to reduce alcohol and tobacco consumption (both fast-growing categories) for health reasons.

We note again that, while it is not possible to take into account all possible future contingencies, the model produces likely category forecasts based on economic patterns and relationships observed over time.

A.1 FOOD, BEVERAGES, ALCOHOL AND TOBACCO

Food consumption provides a good example of how spending patterns will change in China. On the one hand, increased urbanization and growing wealth will cause total urban food consumption to rise significantly. We project aggregate urban Chinese food spending to grow by 5.5 percent annually through 2025, making it one of the fastest-growing food markets in the world. In order to provide a perspective on China's food market growth, we can compare it to the food markets in the Organisation for Economic Co-Operation and Development (OECD), a group of 30 developed nations. China is currently not a member of the OECD, but if it were, and if the OECD's food consumption were to continue to grow at historical rates, then China's share of consumption would grow from 4.3 percent in 2005 to 11.7 percent by 2025 (Exhibit A.2). We also expect food to remain one of the largest categories of spending in China in absolute terms through 2025.

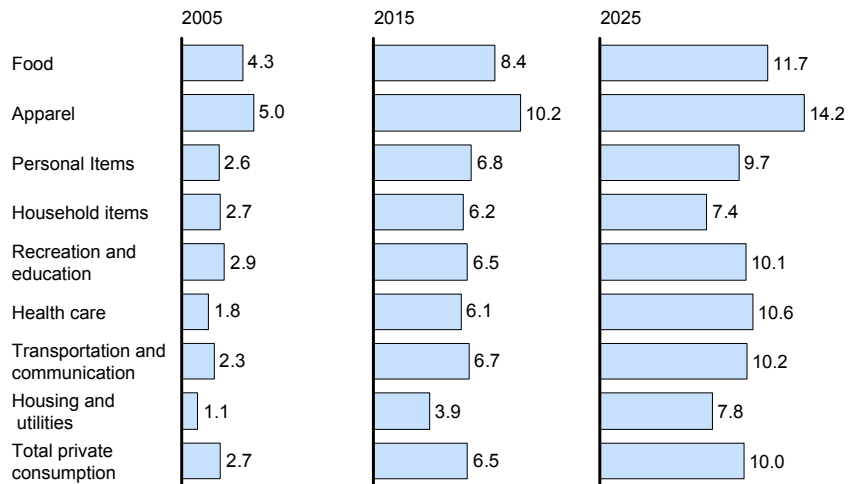
However, overall incomes of urban China's households will rise faster than food spending. Spending on other categories is projected to grow even more rapidly than food, and thus food's relative share-of-wallet will therefore gradually move towards the levels observed in other Asian countries and the developed world (Exhibit A.3).

While the overall category is expected to grow at a rate below China's real GDP growth rate, the fastest-growing subcategories—tobacco and alcoholic beverage

Exhibit A.2

URBAN CHINA'S SHARE OF CONSUMPTION VERSUS MAJOR WORLD MARKETS IS EXPECTED TO GROW

Urban China's share of consumption of OECD plus China*
Percent



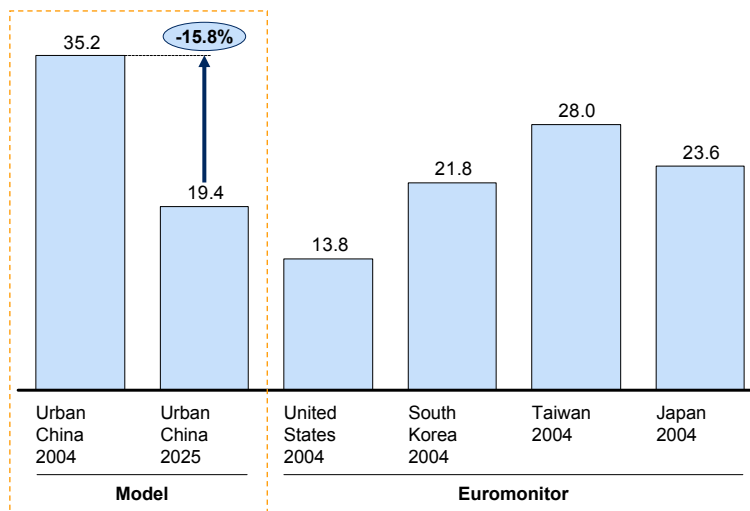
* Does not include insurance, social protection, and financial services, assumes that OECD consumption in each product category continues to grow at same growth rate from 2005-2025 as from 1990-2003.

Source: OECD; MGI China Consumer Demand Model, v2.0

Exhibit A.3

URBAN CHINA'S FOOD CONSUMPTION SHARE-OF-WALLET TO DROP TO MORE COMPARABLE INTERNATIONAL LEVELS

Percent of total household consumption

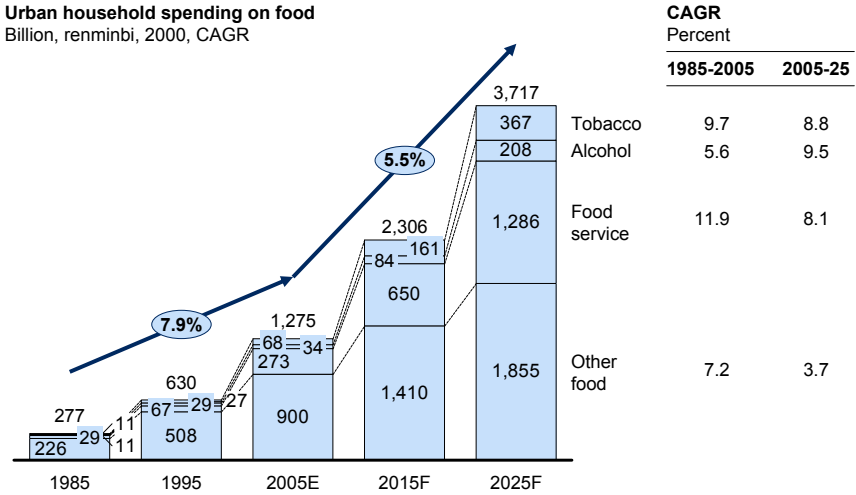


Source: Euromonitor; MGI China Consumer Demand Model, v2.0

Exhibit A.4

OVERALL FOOD TO GROW SLOWER THAN GDP, BUT CERTAIN CATEGORIES TO GROW FASTER

Urban household spending on food
Billion, renminbi, 2000, CAGR

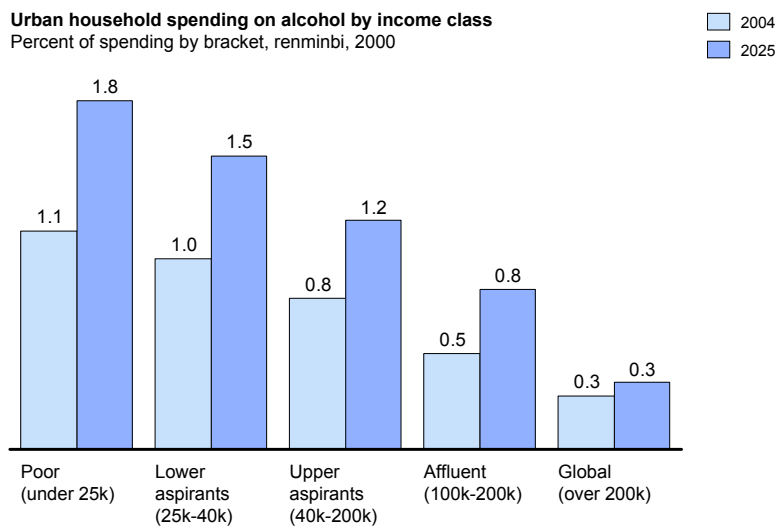


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.5

ALCOHOL CONSUMPTION SHARE-OF-WALLET WILL INCREASE ACROSS INCOME CLASSES

Urban household spending on alcohol by income class
Percent of spending by bracket, renminbi, 2000

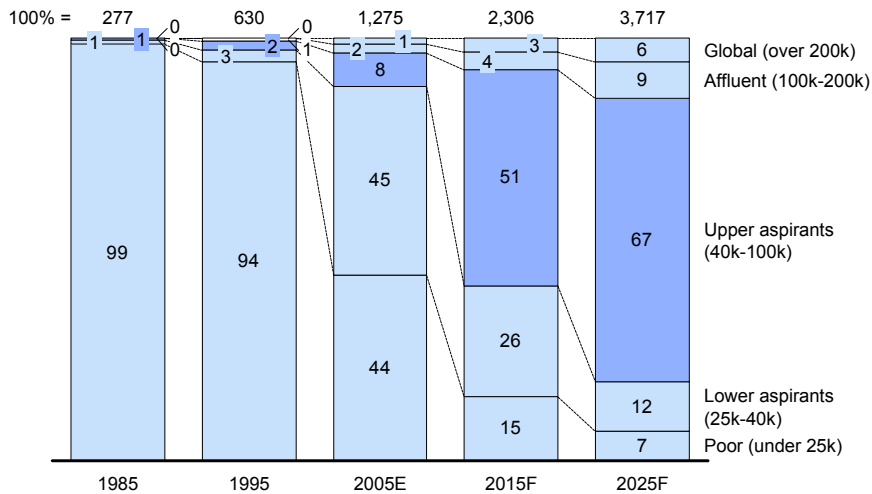


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.6

UPPER ASPIRANTS WILL BE THE MAJORITY CONSUMERS IN THE FOOD SEGMENT

Urban household spending on food by income bracket
Percent, billion renminbi, 2000



Source: MGI China Consumer Demand Model, v2.0

ages—are predicted to grow above real GDP, at annual rates of 8.8 and 9.5 percent respectively (Exhibit A.4). Across all income segments, the share-of-wallet of alcoholic beverages is expected to increase sizably (Exhibit A.5). In addition, the food-services subcategory (largely consumers dining out) is also expected to grow more rapidly than GDP at 8.1 percent, although slow in growth from recent historical rates.

Today, urban China's lower-aspirant and poor households are the two largest consumers of food and beverages. With the rise of the upper aspirant, this income class will gradually become the largest consumer of food and beverage products in next two decades (Exhibit A.6). This relatively rapid change in income class will undoubtedly have significant implications for the type and value added of food consumed, and the type of retail channels these consumers shop at.

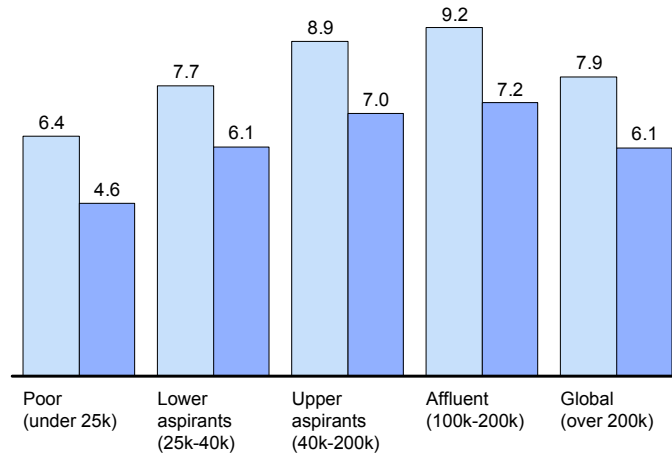
The aggregate share-of-wallet of private consumption spending on food services will remain relatively stable from 2005 to 2025—gradually falling from 7.4 percent to 6.7 percent. Although (at constant income levels) consumers will shift spending away from dining out, and towards other product categories (Exhibit A.7), the share-of-wallet spent on dining out will increase as a function of household income. Therefore, aggregate spending on dining out does not decrease substantially as a share of total disposable income, since urban Chinese

Exhibit A.7

CONSUMERS WILL SHIFT FROM FOOD SERVICE TO OTHER CATEGORIES ACROSS INCOME CLASSES

Urban household spending on food-service by income class
Percent of spending by bracket, renminbi, 2000

2004
2025

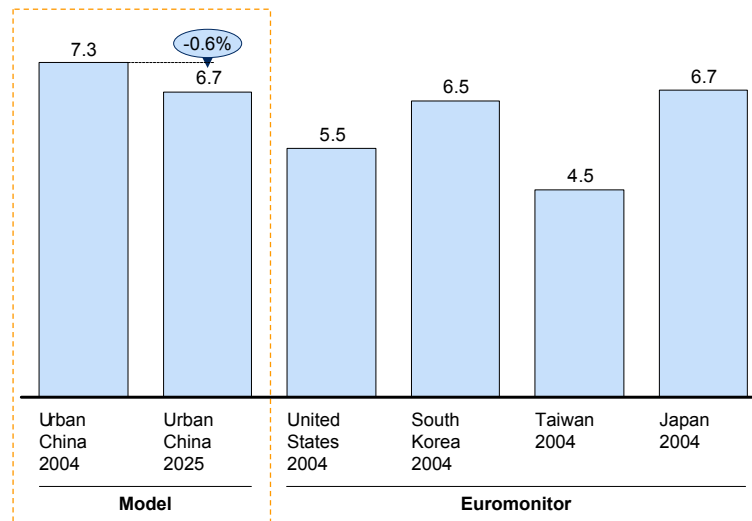


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.8

COMPARISON OF RELATIVE SHARE OF FOOD-SERVICES CONSUMPTION ACROSS ECONOMIES

Percent of total household consumption, urban China



Source: Euromonitor; MGI China Consumer Demand Model, v2.0

households will, at the same time, move up the income ladder. Chinese households have traditionally spent a relatively large share-of-wallet on food services, compared with, for instance, their Taiwanese counterparts (Exhibit A.8), given that they dedicate a relatively larger proportion of their leisure time to dining out. However, as alternative ways to spend leisure time proliferate in urban China, citizens will dine out relatively less frequently and spend relatively less, enjoying other activities instead and quickly raising their spending on these alternatives.

In general, urban Chinese do not face starvation nowadays, but the average amount of calories consumed per capita per day is still lower than in many parts of the developed world. There is therefore a latent demand to increase the amount of food consumed by China's poorest urban households and, with consumers moving up the income ladder, average food consumption will increase accordingly. In addition, environmental changes—such as the declining availability and quality of drinking water in some urban areas—will tend to further increase the latent demand for product items such as bottled water.

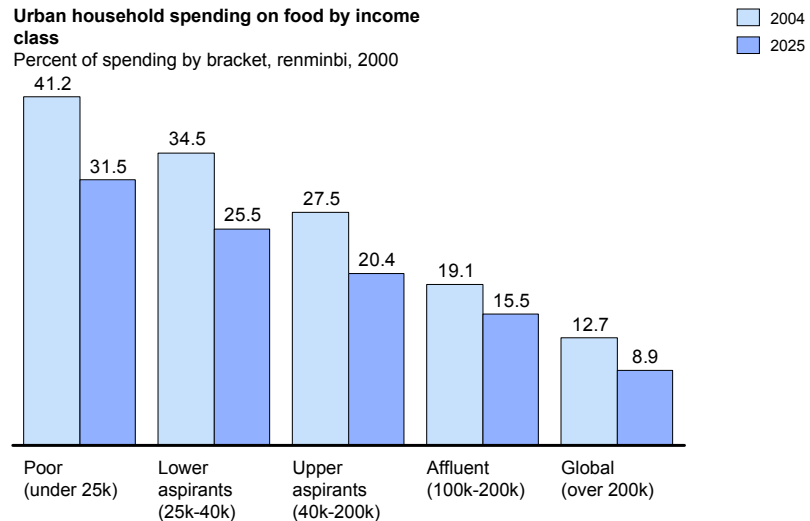
Food is available to all urban consumers through traditional distribution channels such as wet markets, and, increasingly, via modern retail formats. The continued growth in modern distribution channels—convenience stores, super- and hypermarkets—will further increase the availability of a broader product variety to urban consumers, and in particular to rural-urban migrants.

Changes in infrastructure and lifestyles will also mean evolving product choices. While packaged food is available to the vast majority of urban Chinese consumers, a significant share of these households continues to buy fresh rather than packaged/frozen food. However, a combination of an increase in the penetration of both modern retail formats, providing the required cold chain for packaged/frozen goods, and gradual changes in habits—such as the frequency of grocery shopping—will make these products more attractive to urban Chinese consumers.

Relative prices of food items and services at a constant product quality are expected to decline slightly over the coming years. While China's agricultural sector is currently highly fragmented, consolidation and the increased use of capital will increase the sector's productivity in the coming years, leading to a significant fall in the relative price of food. Meanwhile, the relative price for food services is expected to increase as higher income Chinese seek out more up-market alternatives.

Exhibit A.9

SHARE-OF-WALLET ON FOOD CONSUMPTION DECLINES PROPORTIONATELY ACROSS INCOME CLASSES



Source: MGI China Consumer Demand Model, v2.0

Our forecasts show that, per capita per day, spending on food and non-alcoholic beverages remains relatively stable in the lower-income-earning segments, but increases significantly in the most affluent income segments. While these consumers do not greatly increase the quantity of food they consume, its value will grow as they opt for higher-quality, and therefore, more expensive food.¹

In fact, changes in lifestyles have a significant impact on the growth of the food segment's overall value. Female labor force participation is already relatively high and expected to show a modest further increase—in turn, raising the propensity to dine out and utilize convenience food. Most Chinese traditionally prepare their meals at home, limiting the size of the market for packaged food and supporting the dominance of the market for fresh food. However, recently these traditions have started to change. Currently, a booming subcategory is convenience food, from pre-prepared fresh vegetables to the Chinese favorite of frozen dumplings. Overall, evolving lifestyles and habits will lead to an emphasis on convenience and health; and, although traditional food will continue to dominate, there will be a continuation of the increase in market share we have already seen of Western-style food.

¹ For example, as in other developing countries, the highest-income-earning segments are expected to gradually shift their diet from one that is carbohydrate-heavy to one with more meat, fish, and dairy products.

Last but not least, the share-of-wallet decline in urban Chinese food spending is largely driven by developments in incomes. As higher-income-earning households tend to spend a much lower share of their wallet on food, the migration of millions of urban households into higher-income segments leads to a decline in the overall proportion spent on food. The shares-of-wallet spent on food across income segments, moreover, decline proportionally across income segments (Exhibit A.9).

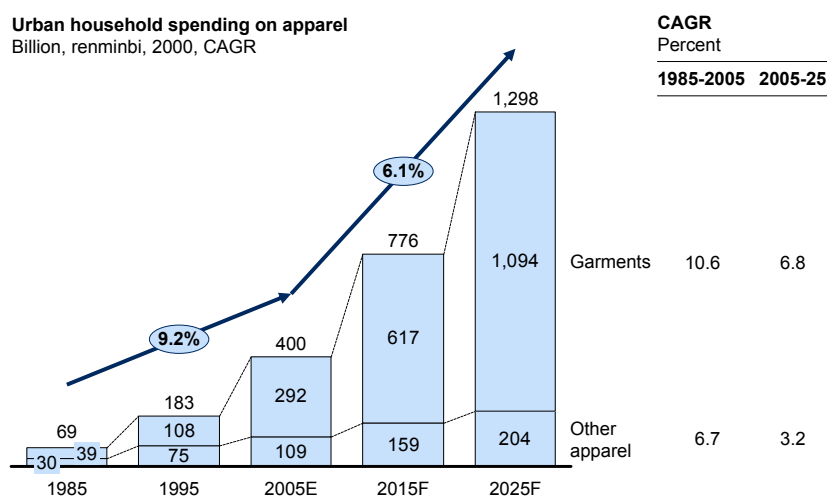
In sum, the aggregate value of food, beverage, tobacco, and dining out consumption will increase significantly in absolute terms, making China still one of the most attractive markets in the world for the overall category, while food's share-of-wallet will decline and therefore grow below the average of consumer products for the economy.

A.2 APPAREL

Urban China's consumption of apparel products and services, including clothing, shoes, and tailoring and laundry services, has grown very rapidly over the past 20 years—at nearly 10 percent a year. However, this growth will decelerate over the next two decades to annual rates of between 3 and 7 percent, well below the growth in total urban consumption of 8.6 percent. Although apparel's relative share-of-wallet will consequently decline, total spending in this segment will nevertheless more than triple in real terms between 2005 and 2025 (Exhibit A.10). China's apparel market will grow from the equivalent of 5.0 percent of

Exhibit A.10

ANNUAL CONSUMPTION OF APPAREL WILL TRIPLE OVER THE NEXT 20 YEARS

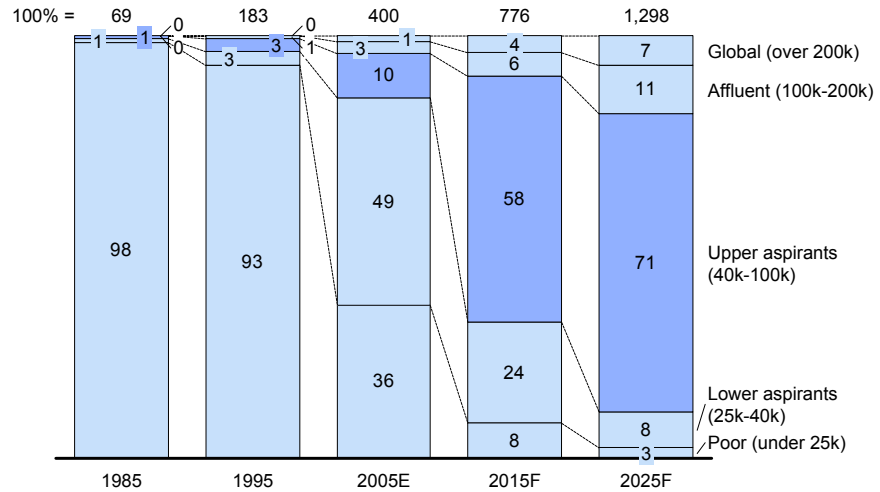


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.11

UPPER ASPIRANTS WILL BE THE MAJOR CONSUMER OF APPAREL IN THE NEXT 20 YEARS

Urban household spending on apparel by income bracket
Billion, renminbi, 2000, percent

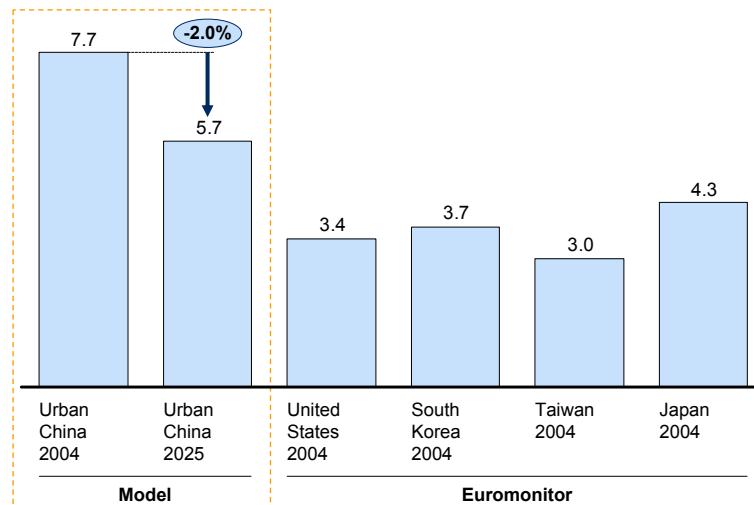


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.12

COMPARISON OF RELATIVE SHARE OF GARMENTS CONSUMPTION ACROSS ECONOMIES

Percent of total household consumption, urban China



Source: Euromonitor; MGI China Consumer Demand Model, v2.0

total OECD and China consumption in this category in 2005 to 14.2 percent in 2025 (Exhibit A.2).

China's urban lower aspirants are currently the largest consumer of apparel products. In the coming years, however, upper aspirants will become the largest consumers in this segment (Exhibit A.11). In addition, luxury producers of clothing and footwear, whose target consumers are mainly urban China's affluent and global income segments, should expect their market to grow rapidly through the 2010s, when spending on apparel by these segment takes off.

China's current share-of-wallet spent on garments is nearly 7.7 percent—much higher than the share-of-wallet of Chinese consumers' peers in Asia as well as in the United States. As its economy matures and household incomes continue to increase significantly, urban China's garments share-of-wallet will decline to 5.7 percent by 2025, thereby approaching the levels observed in more developed economies (Exhibit A.12). Urban China's share-of-wallet of other apparel products, notably footwear, will also decline over the same period, from nearly 3 percent in 2005 to 1.1 percent in 2025, thereby converging with the shares of below 1 percent observed in most developed Asian economies.

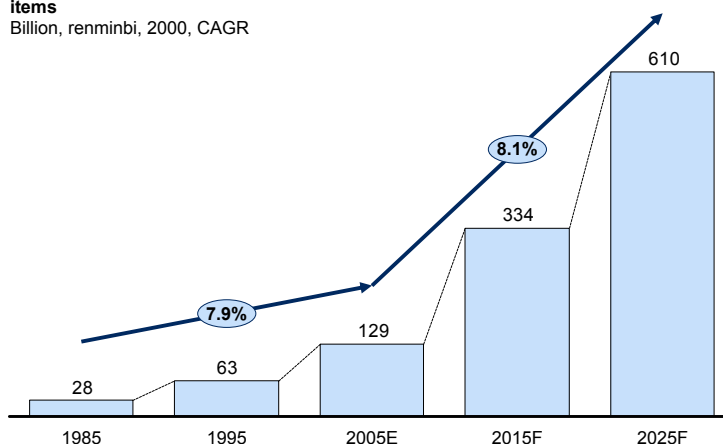
There are a number of factors behind apparel's predicted strong absolute growth but decline in share-of-wallet. First, increasing incomes shift spending from basic to discretionary items, as consumers opt for more product variety and higher quality as a way of expressing their (rising) social status. This is a well-established relationship observed in all developed economies and we expect it to be no different in China. Although most of Chinese households' incremental income will not be spent on necessities such as food and apparel, Chinese will still spend enough on this category to increase the absolute size of this market significantly. As Chinese consumers demand more variety—influenced by their changing aspirations and their awareness of international fashion trends—they will buy a larger quantity of apparel items which will also, increasingly, be of higher quality and more expensive.

While luxury brands are widely available these days in urban China's upscale department stores and luxury boutiques, the majority of China's urban population—still considered poor with average household incomes below 25,000 renminbi a year—predominantly buys low-priced basic apparel, sold mostly under local Chinese brand names in Chinese department stores and national and local retail chains. Still, modern retail formats, such as foreign-run hypermarkets, have

Exhibit A.13

PERSONAL-ITEMS CONSUMPTION IN URBAN CHINA WILL CONTINUE TO GROW RAPIDLY

Urban household spending on personal items
Billion, renminbi, 2000, CAGR



Source: MGI China Consumer Demand Model, v2.0

emerged as new distribution channels for low-priced apparel products, and are expected to gain market share.

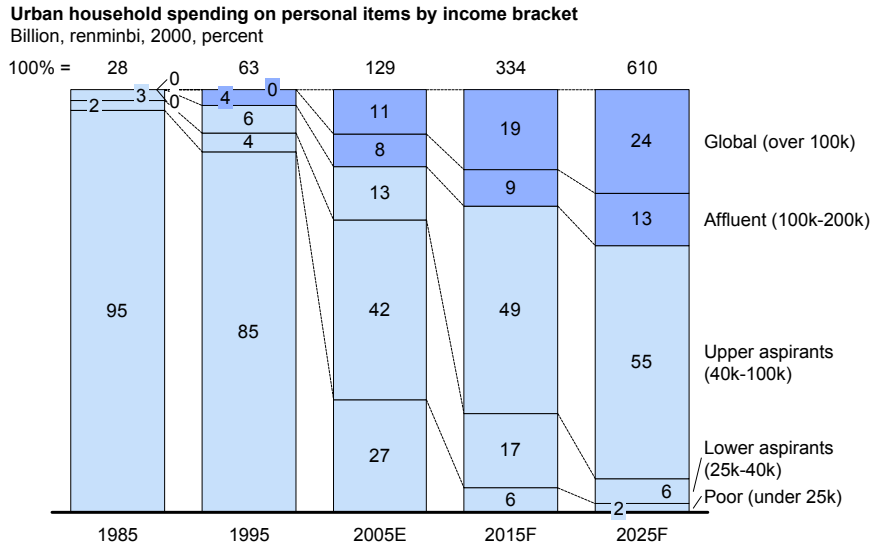
The projected emergence of lower- and upper-income segments during the next two decades will open up a new segment of middle-level apparel—quality brands sold at major department stores and through specialty chain boutiques that appeal to, and are affordable for, this new middle class. Many of China’s emerging middle-income consumers are young professionals with significant discretionary spending power. For Chinese and international fashion retailers, they present a significant growth opportunity in an increasingly competitive Chinese mass-fashion market, characterized today by a relatively low degree of product differentiation and intense price competition.

A.3 PERSONAL ITEMS

The personal-items category includes products and services that are purchased and applied for personal use, including jewelry, watches, cosmetics, hairdressing, toiletries, and beauty services. This category overall is projected to grow at an annual rate of 8.1 percent from 2005 to 2025. In terms of absolute growth, spending will increase by 481 billion renminbi over the same period, increasing the total spending on this category almost four times (Exhibit A.13). The share-

Exhibit A.14

GLOBAL AND AFFLUENT CONSUMERS WILL ACCOUNT FOR OVER TWO-THIRDS OF PERSONAL-ITEMS SPENDING



Source: MGI China Consumer Demand Model, v2.0

of-wallet will remain relatively stable between 3.5 percent and 3.1 percent. Again, if China were to be part of the OECD, urban China’s personal-items consumption would be equivalent to 9.7 percent of total OECD consumption in this category in 2025 (Exhibit A.2).

Although growing rapidly in absolute terms, the share-of-wallet of total private consumption spending on personal items will decrease from 2005 to 2025 across all income segments. The share-of-wallet spent on personal items remains highest in the global income class, at 6.3 percent in 2025. Consequently, China’s affluent and global consumers will account for a combined 37 percent of total personal items consumption by 2025, whereas the largest income class, the upper-aspirants, will account for 55 percent of personal-items consumption in urban China (Exhibit A.14).

Survey data from McKinsey’s China Consumer Center shows that with increasing income, urban China’s consumers will put more emphasis on services and products that help differentiate them as individuals from their peers and help them to express their personalities. Personal items and services cater to this emerging and rapidly growing need, and the consumption of items such as cosmetics and jewelry will therefore grow rapidly in absolute terms. Moreover, brands are widely

considered a signal of quality by Chinese consumers, and they therefore tend to accept higher prices for items such as personal-care items whose quality is important to them.

It should be noted, however that, compared with other emerging economies such as India, Chinese consumers do not tend to regard jewelry as a savings vehicle.

A.4 HOUSEHOLD ITEMS

We project aggregate urban Chinese spending on household-items—including durables such as furniture and white goods, decoration materials, household appliances, and repair services—to grow by nearly 7 percent a year from 2005 to 2025 (Exhibit A.15). This makes China one of the fastest-growing household items markets in the world, although it will still remain a relatively small proportion of the world market. By 2025, urban China will consume the equivalent of 7.4 percent of the total OECD plus China consumption in this category (Exhibit A.2).

Today's largest consumers of household items are China's lower-aspirant income class (Exhibit A.16). The upper-aspirant segment is expected to take the lead after 2010, when the affluent and global segments will also start to grow significantly to take a combined market share of more than 40 percent by 2025.

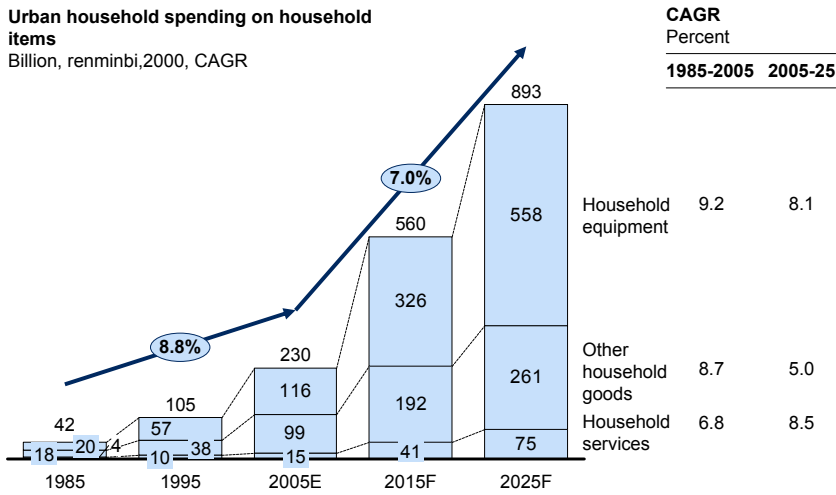
Within household items, household equipment (e.g. white goods) and household services will grow at respectable annual rates of 8.1 percent and 8.5 percent respectively, while the other household goods category—including home-decoration materials, for instance—will grow by only 5.0 percent a year. As a result, the share of household equipment within the aggregate household-items category is projected to rise from 51 percent of total household items in 2005 to 62 percent in 2025 (Exhibit A.17).

Overall, urban China's disposable incomes will rise even faster than household-items spending, so household-items' relative share-of-wallet will decline slightly from 6.4 percent to 4.7 percent—around the level of between 3 and 5 percent observed in other Asian countries and the developing world (Exhibit A.18)—as spending on other categories will grow even more quickly.

The main drivers of growth in household-items consumption in the years ahead will be demographics, changes to the housing market, and evolving lifestyle preferences. The number of households in urban China is expected to more than double in the next 20 years, from 190 million to 353 million. This rapid growth will be due both to urbanization and a decline in the average household size

Exhibit A.15

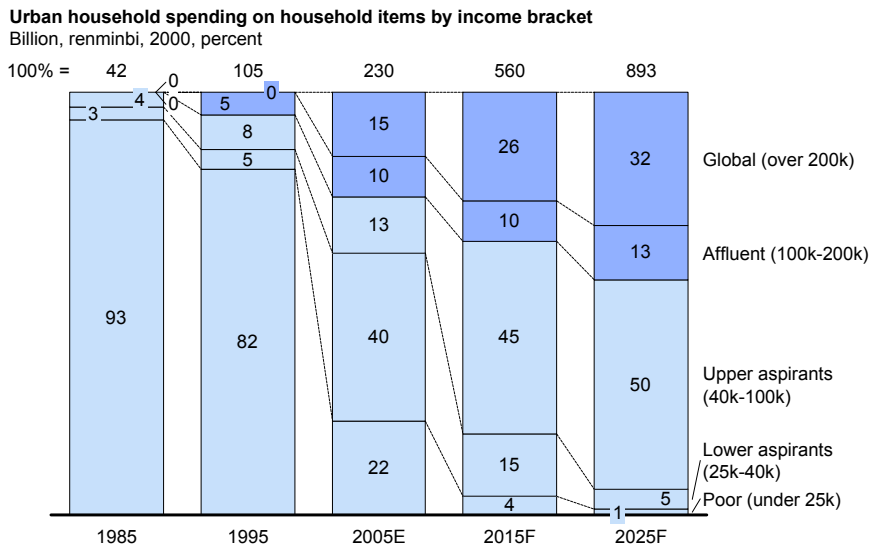
HOUSEHOLD-ITEMS CONSUMPTION WILL REGISTER RESPECTABLE GROWTH OVER THE NEXT 20 YEARS



Source: MGI China Consumer Demand Model, v2.0

Exhibit A.16

GLOBAL AND AFFLUENT WILL BE AS IMPORTANT AS THE UPPER ASPIRANTS IN HOUSEHOLD-ITEMS

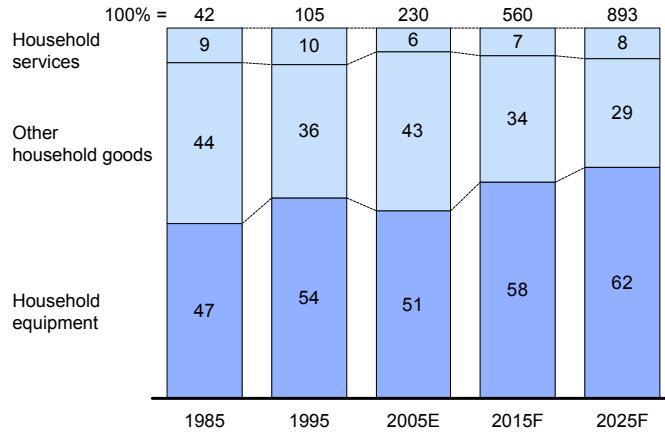


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.17

URBAN CHINA: HOUSEHOLD EQUIPMENT IS THE MAIN HOUSEHOLD ITEMS SUBCATEGORY AND ITS SHARE WILL INCREASE

Percent, billion, renminbi, 2000

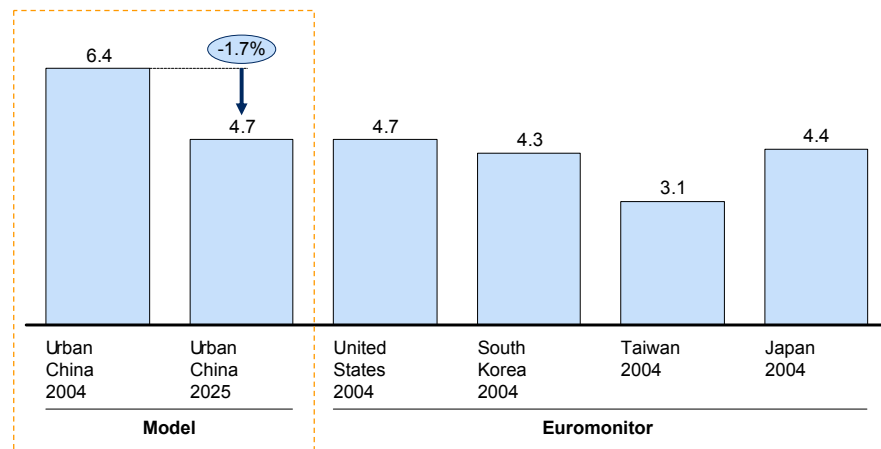


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.18

URBAN CHINA WILL FALL IN LINE WITH CONSUMPTION SHARES OF OTHER COUNTRIES

Percent of total household consumption, urban China



Source: Euromonitor; MGI China Consumer Demand Model, v2.0

from almost 2.96 today to 2.35 in 2025. Since household-items consumption is predominantly a function of the number of households— rather than the number of people—this surge in the number of urban households strengthens demand for household items and services.

An additional factor is the recent privatization of China's housing market which is leading to a rapid increase in the number of home owners in urban China—and therefore purchases of household goods and services.

Many Chinese households tend to maintain very high savings rates over extended periods in order to splash out on household items once they have reached key stages in their life.² For example, it is common for young couples to live with parents for a number of years in order to save up, and then eventually move into their own apartment or perhaps buy a house (often waiting to get married until they can afford to move), and then at that point spend a significant amount on household-goods. Another driver of rising household goods demand is the rising amount of living space per person in China as average household sizes decline and new housing construction continues to boom.

Higher-income classes, with preferences for higher-quality products, tend to spend a larger proportion of their income on household items than poor and lower-income-class consumers. It is inevitable therefore that the growing number of urban households in the upper-aspirant class and affluent income segments will anchor consumption of household items even as the category declines overall in share-of-wallet terms (Exhibit A.19).

A.5 RECREATION AND EDUCATION

Recreation and education—a category which includes such products and services as consumer electronics (TV, DVD, and PCs, for instance), musical instruments, packaged vacations, books, and educational tuition fees—is one of urban China's fastest-growing categories with a projected annual growth rate of 9.7 percent (Exhibit A.20).

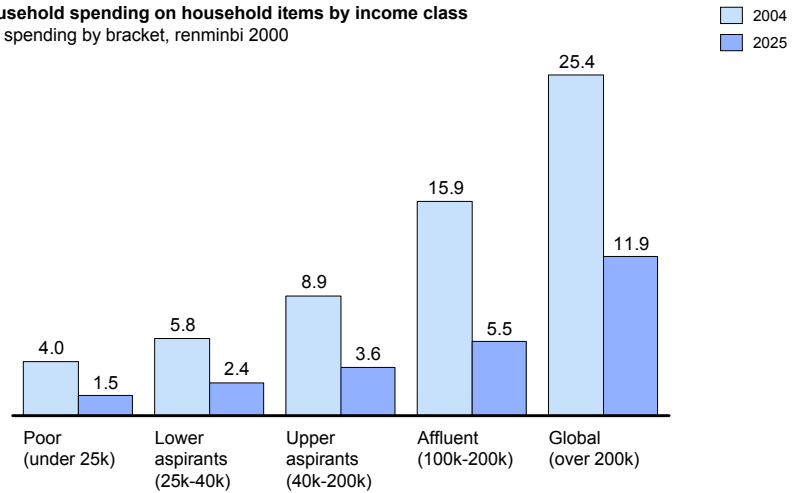
Subcategories within this segment will experience varying growth rates. For instance, recreational equipment, containing many consumer-electronics products, is expected to grow at 11.7 percent, significantly faster than other subcategories such as education, and recreation and culture services, which are projected to grow by 6.9 percent and 10.0 percent a year respectively through 2025.

2 McKinsey China Consumer Center Research 2005.

Exhibit A.19

HIGHER-INCOME-CLASS GROUP TENDS TO HAVE HIGHER SHARE-OF-WALLET ON HOUSEHOLD ITEMS

Urban household spending on household items by income class
Percent of spending by bracket, renminbi 2000

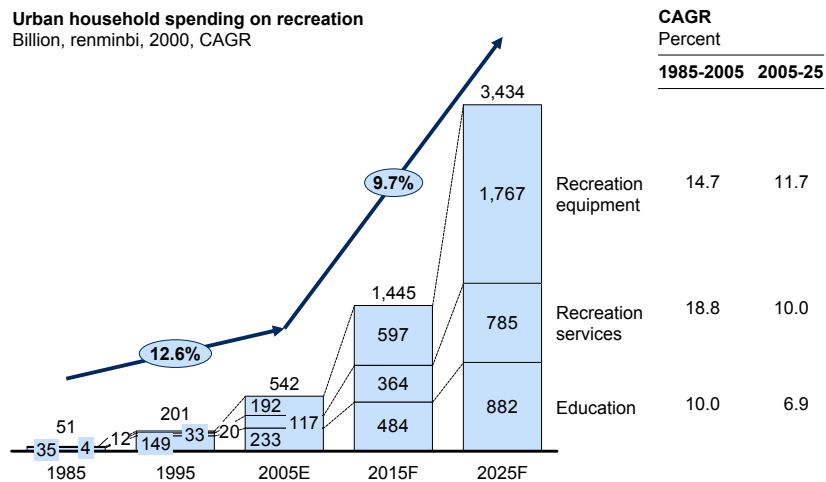


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.20

RECREATION AND EDUCATION WILL BE ANOTHER HIGH-GROWTH CATEGORY

Urban household spending on recreation
Billion, renminbi, 2000, CAGR



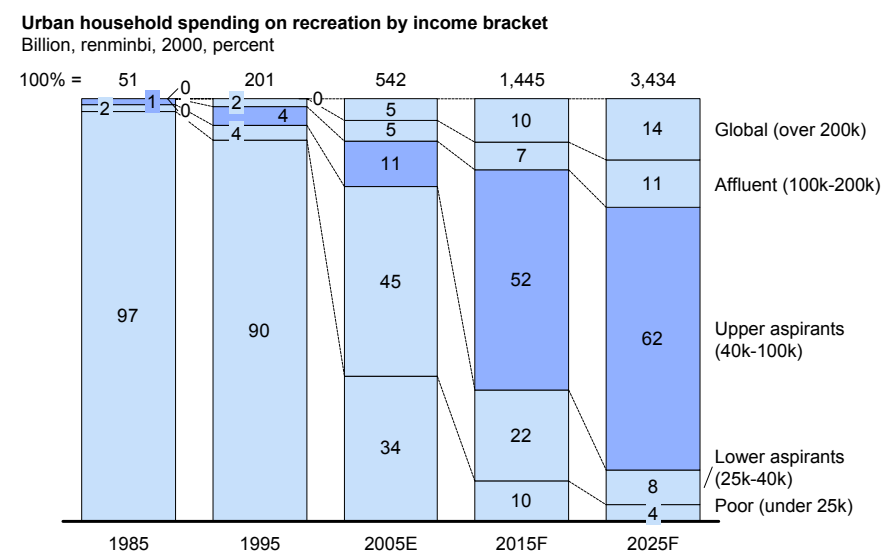
Source: MGI China Consumer Demand Model, v2.0

In terms of absolute growth, spending here will expand by almost 3 trillion renminbi over the next 20 years, almost a six-fold increase. Using the OECD comparison, this rapidly growing segment will reach 10.1 percent of OECD plus China demand by 2025 (Exhibit A.2).

Until 2010, China's urban lower aspirants will lead consumption in this sector, followed by the upper aspirants that, by 2025, will account for 62 percent of total spending on this category (Exhibit A.21).

Exhibit A.21

HIGHER-INCOME-CLASS GROUPS WILL BE MAJOR FORCE FOR RECREATION CONSUMPTION



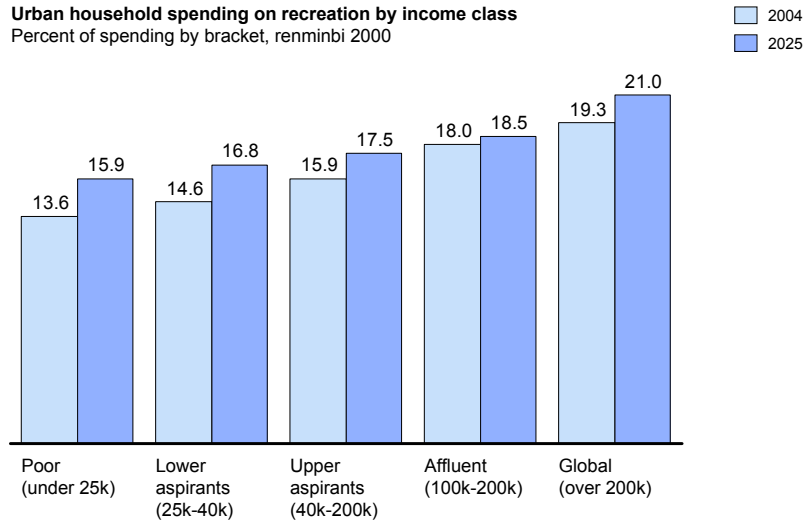
Source: MGI China Consumer Demand Model, v2.0

The share-of-wallet of private consumption on recreation and educational products and services will increase from 2005 to 2025 across all income segments (Exhibit A.22). Urban China spends around 15 percent of total wallet today and is expected to increase this share to 18 percent over the next two decades.

As one would expect, given urban China's relatively low level of GDP per capita today, urban Chinese consumers currently spend a significantly smaller share-of-wallet on recreational equipment than consumers in other Asian economies and the developed world. However, over the next 20 years, as incomes increase, urban Chinese consumers are expected to increase their relative spending on these items from 5.2 percent today to 9.2 percent in 2025, emulating the share-of-wallet levels prevailing in today's most developed Asian economies (Exhibit A.23).

Exhibit A.22

HIGHER-INCOME-CLASS GROUPS ALSO HAVE HIGHER SHARE-OF-WALLET IN RECREATION CONSUMPTION

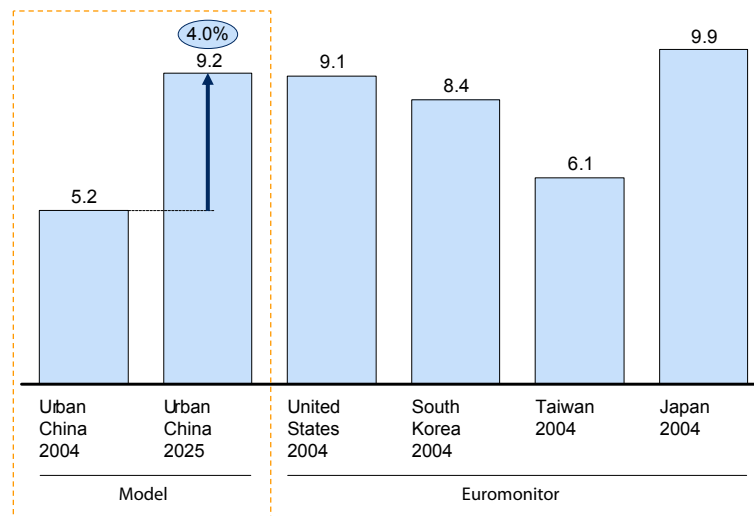


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.23

AS URBAN CHINA PROSPERS, RECREATION SPENDING MEETS THE LEVELS OF OTHER ADVANCED ECONOMIES

Percent of total household consumption, urban China



Source: Euromonitor; MGI China Consumer Demand Model, v2.0

Changes in lifestyles, values and attitudes towards life, as well as the availability of more choice, are the key drivers of the rapidly increasing share of recreational spending. Chinese people, whose attitude for years had been “work hard to modernize China”, have become more aware of trying to strike a work-life balance. A new “work hard, play hard” attitude is a key driver of higher spending on recreation in general. The government has also been a catalyst, introducing two-day weekends in 1995 and Golden Week national holidays—three seven-day national holidays at Chinese New Year, Labor Day, and National Day—in 2000, as part of its efforts to promote domestic consumption.

Urban Chinese households are now seeing a proliferation of recreational products and services on which to choose to spend their money and this is fueling consumption growth. In the 1980s and early 1990s, watching television and dining out were among the few recreational options available. Now many Chinese consumers are able to buy products such as DVD players, game consoles, and home karaoke systems, as well as services such as satellite television, concerts, and nightlife options. Other innovative recreational products and services are contributing to the rapid growth of this product category. Online gaming, for instance, is a significant new growth area, a market expected to grow from \$100 million in 2002 to more than \$1 billion by 2008, according to some estimates.³

There are, however, major infrastructural constraints on the growth of urban China’s markets for recreational and educational goods and services which may lead to bottlenecks. One example is travel during China’s Golden Weeks—at a stroke, the world’s largest population developed the desire to travel to China’s most famous domestic tourism destinations at exactly the same time. Naturally, all major domestic vacation destinations were rapidly overbooked and trains, flights, and hotels quickly reached their capacity limits. Only a small number of the most affluent households could afford foreign travel to escape this highly skewed, domestic peak for leisure travel.

Projections from our model suggests that such constraints will be temporary, as supply keeps up with demand and consumer behavior continues to change rapidly. According to some forecasts, outbound tourism will grow to over 100 million visits per year in 2020, which will reduce the intensity of peaks in domestic tourism. Mainland Chinese tourists have already paid 12.5 million visits to Hong Kong, accounting for 54 percent of all Hong Kong’s tourists.⁴

3 China Game Publishers Association, *Annual Report*, 2004; International Data Corporation, 2005.

4 World Tourism Organization, (<http://www.pub.world-tourism.org:81/epages/Store.sf/?ObjectPath=/Shops/Infoshop/Products/1302/SubProducts/1302-1>).

Some constraints may remain—such as limited access to visas for foreign travel and regulation of media and entertainment—which could prevent this sector’s full potential being realized. However, market opportunities still abound—especially for those who can bring innovative products and service offerings to the market at reasonable prices that are affordable to China’s nascent lower aspirant class. Successful examples include online travel booking agencies that offer affordable rates for flights, hotels and packaged vacations. In addition, the markets for quality, budget hotels and discount airlines, affordable personal computers (e.g. Lenovo’s creation of a PC priced below 3,000 renminbi), online and mobile gaming services, are all bound to increase rapidly during the next two decades as urban China’s lower- and upper-income classes become more prominent.

China’s emphasis on education—rooted not only in the nation’s culture but also a desire to improve the next generations’ standard of living—is reflected in urban Chinese households’ relatively high share-of-wallet on this product segment compared with many developed economies. Survey data from McKinsey’s China Consumer Center validates the perception that education is very important to Chinese families. It indicates that the strong link between education and potential social upward mobility is a well-established driver of Chinese households’ decision-making.

The variety of private educational options available to Chinese households—in higher and vocational education, and the opportunity of studying abroad—has increased rapidly and is expected to continue to do so, fueling consumption on education and making China one of the world’s largest markets for educational products and services.

Chinese households are willing to pay increasingly higher prices for education. Tuition fees for education beyond China’s nine-year compulsory education system have increased rapidly in recent years, contributing significantly to strong growth in educational spending among China’s students. We expect average spending on education to increase further as the relative price of educational products and services continues to rise. Driving spending even further is fierce competition to get into top-tier universities, which is likely to make parents even more willing to spend money on educational tutorial services—a market which is currently highly fragmented, consisting largely of freelance teachers.

Despite all these factors buoying education spending, MGI’s model predicts that the total share-of-wallet of private education expenditure will decline slightly over

the next 20 years, largely due to the huge demographic shift towards an older population. The number of Chinese people aged between 15 and 24 years of age—the age range with the highest absolute spending on education—is expected to decline from 210 million people today to 161 million people by 2025.

Although we project a continued increase in education spending per capita among students and young professionals at rates well above per capita real GDP growth, this will not fully compensate for the rapid decline in the total number of students and young professionals. Therefore, urban China's share-of-wallet on private education is expected to decline slightly from 6.3 percent in 2004 to below 5 percent by 2025.

A.6 HEALTH CARE

Health-care consumption in urban China will grow at an annual rate of 12.0 percent a year from 2005 to 2025—the fastest growth rate among the eight major consumption categories assessed in this report (Exhibit A. 24). It therefore presents significant opportunities for health-care providers, insurance companies, and manufacturers of pharmaceuticals and medical equipment. As a proportion of OECD plus China, consumption, urban China's consumers will spend 10.6 percent on health care in 2025, compared with the meager 1.8 percent spent today (Exhibit A.2).

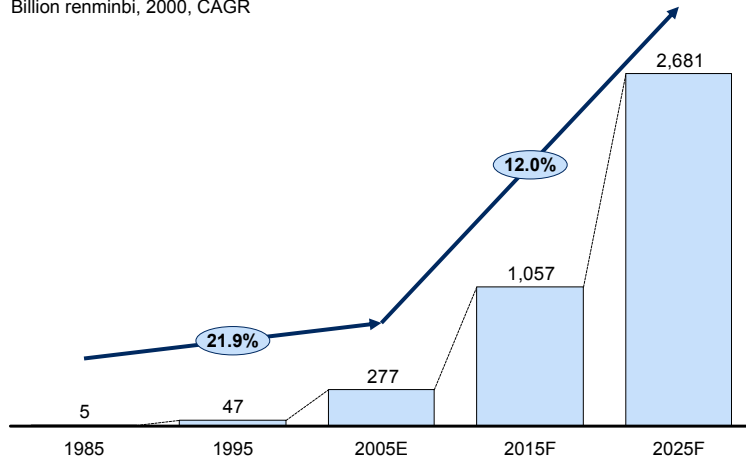
As in the case of the other consumption categories, the largest consumers of health care will be the most populous urban consumer segments at different stages in our forecast period. China's urban lower aspirants will lead total health-care consumption until 2012—despite spending a relatively moderate absolute amount. After that, the upper-aspirant segments will come to prominence; by the end of our forecast period in 2025, they will account for more than 60 percent, or a real 1.7 trillion renminbi out of the 2.7 trillion renminbi, of the total private health-care market. Both affluent and global income classes will show strong growth in health-care spending, with the global replacing the lower-aspirant class as the second-largest income class in terms of health-care spending by 2025 (Exhibit A.25).

Health-care spending as a share of total consumption is currently relatively even across all income classes at around 7 to 8 percent but a wider differential between the income classes will open out during our forecast period. Growth in shares-of-wallet from 2005 to 2025 will be significant. Differential growth will be lowest among globals (about 5 percent), and widest among lower-income

Exhibit A.24

HEALTH CARE CONSUMPTION IN URBAN CHINA WILL CONTINUE TO GROW RAPIDLY

Urban household spending on health care
Billion renminbi, 2000, CAGR

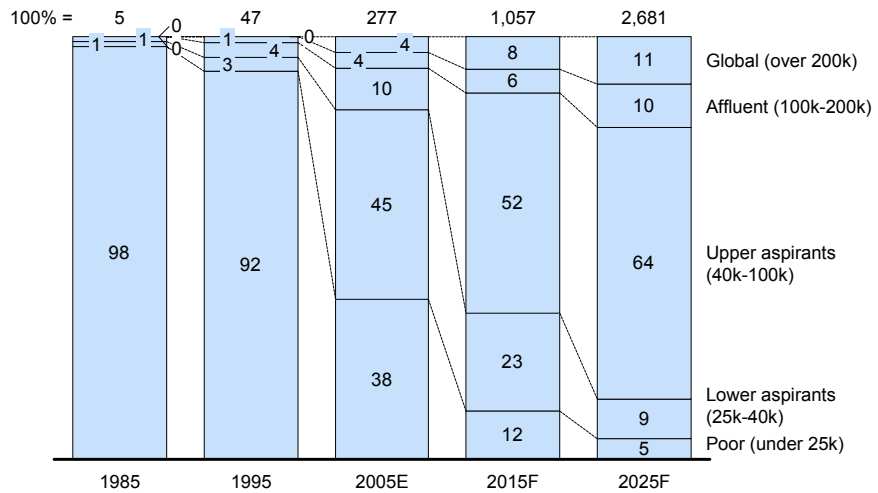


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.25

HIGHER-INCOME CLASSES WILL BE THE MAJOR SOURCE OF HEALTH-CARE CONSUMPTION

Urban household spending on health care by income bracket
Percent, billion renminbi, 2000

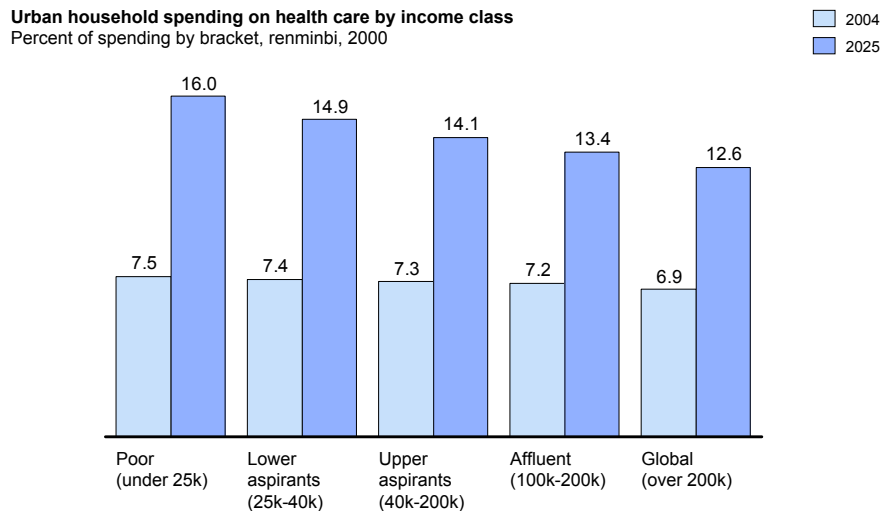


Source: MGI China Consumer Demand Model, v2.0

segments, since these contain most of the older Chinese population in coming decades who will need proportionately more health care (Exhibit A.26).

Exhibit A.26

LOWER-INCOME GROUPS WILL HAVE HIGHER SHARE-OF-WALLET IN HEALTH CARE



Source: MGI China Consumer Demand Model, v2.0

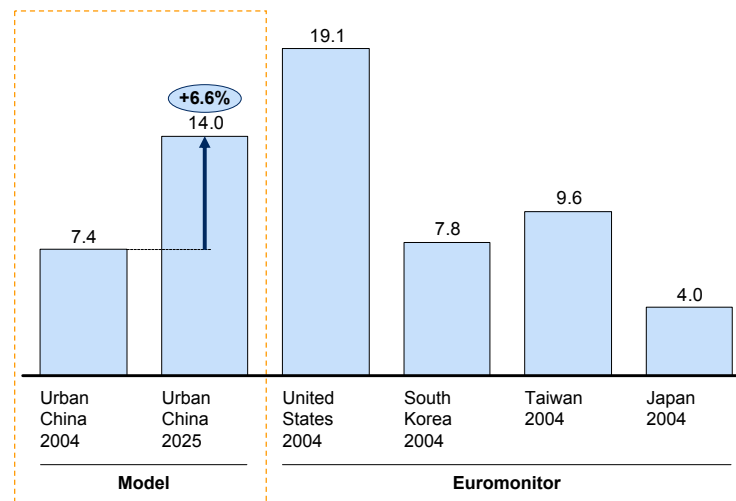
In aggregate, urban China's share-of-wallet on health care is expected to increase from 7.4 percent in 2004 to 14.0 percent by 2025, so exceeding the private health-care spending shares-of-wallet currently seen in South Korea, Taiwan and Japan, but remaining significantly below the 19 percent in the United States today (Exhibit A.27).

The latent need for health-care products and services is expected to increase significantly in urban China during the coming decades, driven by demographics plus increasing life expectancy, which creates a larger share of older people with a relatively higher need for health care. The UN demographic models that underlie our forecasts project that the number of Chinese people aged above 64 years will increase by a staggering 100 million people between today and 2025. At the same time, the number of Chinese under age 24 will fall by nearly 80 million people.

Health-care professionals also expect that other factors will contribute to rising health care demand. These range from the impact of significantly rising pollution levels and poor air quality in many cities, to the kind of diseases that arise as

Exhibit A.27**URBAN CHINA'S HEALTH CARE NEEDS WILL SURPASS THOSE OF NEIGHBORS, BUT LAG THAT OF THE UNITED STATES**

Percent of total household consumption, urban China



Source: Euromonitor; MGI China Consumer Demand Model, v2.0

a consequence of rapid urbanization, rising incomes, and dietary changes—for example, heart disease, high blood pressure, high cholesterol, and cancer.

The availability of health insurance will also be a key driver of increased spending in this category. With today's relatively basic public-health-care system and low private-insurance penetration rates, most medical expenses come out of people's own pockets and many Chinese cannot afford to see a doctor even when they are ill. However, as private-health insurance spreads, allowing the urban Chinese to pool their risks rather than depending on individual precautionary savings, health-care products and services will become affordable to a much larger number of people.

The Chinese Government is also trying to improve the public-health-care system and provide BMI (Basic Medical Insurance) coverage to a larger proportion of the Chinese population. Besides China's traditional public general hospitals, private hospitals, specialized clinics, and privately run retirement homes have increased their market share in urban China considerably over past decades, increasing consumers' choice by ensuring the availability of formerly unavailable services.

At the same time, the introduction of more advanced pharmaceutical products and medical devices has made the treatment of many illnesses and diseases available to a much larger share of China's urban population. Many leading mul-

tinational pharmaceutical companies have shifted some of their R&D to China. At the same time, they are targeting the Chinese consumer market, increasing the availability of their products, and ensuring that most of their price points, especially for off-patent products, are within reach of China's mass-market consumers.

Additionally, changes in lifestyles and habits will contribute to the fast growth in health-care spending as Chinese consumers are expected to become increasingly health-conscious. The Chinese concept of health care has evolved from rudimentary treatment of illness when it happens, to a more sophisticated combination of treatment, regular physical check-ups, health consultancy, and illness prevention.

The overall growth in private health-care spending, which is complementary to public spending, will depend on the future direction of China's reforms of health care. Our model forecasts assume that public health care will remain limited, and that a majority of health-care spending will be private.⁵ A rapidly ageing population, changes in lifestyles, and the increasing penetration of insurance and availability of advanced medical treatments and services, will ensure that health care will become one of the fastest-growing consumption categories in China.

A.7 TRANSPORTATION AND COMMUNICATION

We project aggregate urban Chinese transportation and communication spending—a category including consumption of private cars, motorcycles, auto fuels, private spending on airplane and train tickets, fixed and mobile phone hardware and services, as well as postage services—to grow at 10.0 percent a year in our forecast period (Exhibit A.28). This makes it one of the fastest-growing transportation and communication markets in the world. Growth rates, however, will be significantly slower than the torrid pace of the past two decades (21 percent for transportation, 39 percent for communications), but will be on a far larger base. Urban China's consumption of this category will grow from 2.3 percent to 10.2 percent of total OECD, plus China, consumption over the period 2005-2025 (Exhibit A.2).

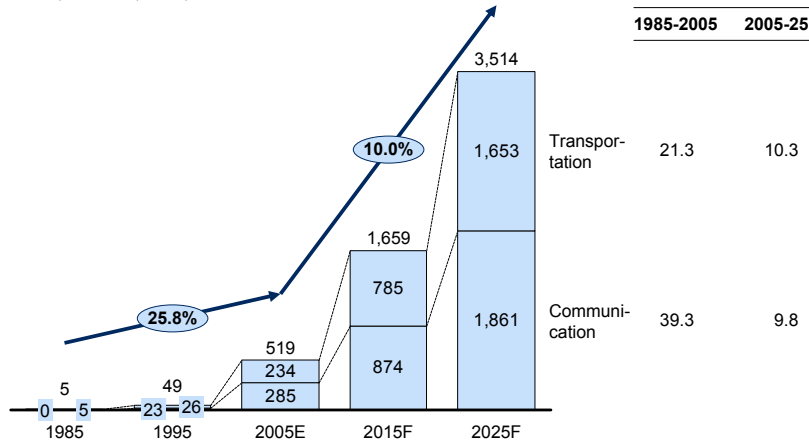
Within this category, transportation will grow at 10.3 percent annually through 2025, compared with communication's annual growth rate of 9.8 percent. As with other discretionary items, the combined transportation and communication

⁵ Public spending is excluded from our forecasts.

Exhibit A.28

TRANSPORTATION AND COMMUNICATION WILL GROW VERY QUICKLY COMPARED WITH OTHER CATEGORIES

Urban household spending on transportation and communication
Billion, renminbi, 2000, CAGR



CAGR Percent	
1985-2005	2005-25
21.3	10.3
39.3	9.8

Source: MGI China Consumer Demand Model, v2.0

category's relative share-of-wallet will increase from 13.0 percent to 18.3 percent in 2025. Within this, transportation's share-of-wallet will rise from 5.6 percent to 8.6 percent, bringing it closer to the shares-of-wallet observed in some of the other Asian countries (Exhibit A.29), while communication, whose share-of-wallet will increase from 7.4 percent to 9.7 percent, will be well above the share-of-wallet spent on communication in other Asian countries and the developed world (Exhibit A.30).

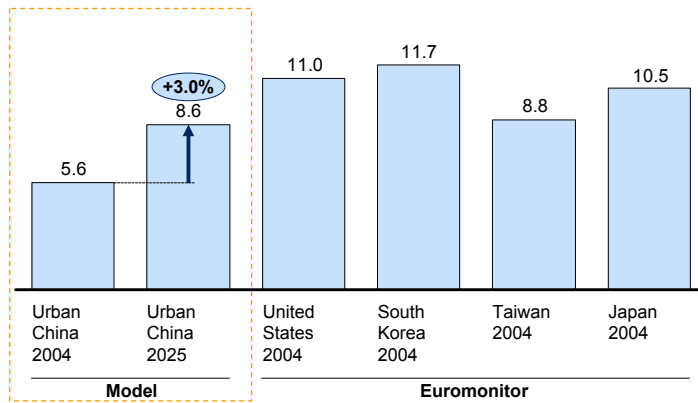
China's urban lower aspirants will lead total transportation and communication consumption until 2011, with the upper-aspirant segments taking the lead after that. By 2025, urban China's global segment will emerge as the second-largest spenders in both the consumption of transportation (Exhibit A.31), and of communication (Exhibit A.32). In the lowest-income class, the share-of-wallet of private spending on transportation will decline by about 1.2 percent; but increase by 4.6 percent in the global segment, whose use of private transportation is predicted to grow strongly (Exhibit A.33). In communication, the evolution of the share-of-wallet between today and 2025 will have the same pattern across almost all income classes as that in transportation (Exhibit A.34).

The growth in urban China's household consumption expenditure on transportation is mainly driven by a shift from public to private transportation, changes in

Exhibit A.29

URBAN CHINA WILL CATCH UP WITH OTHER COUNTRIES IN SPENDING ON TRANSPORTATION...

Percent of total household consumption, urban China

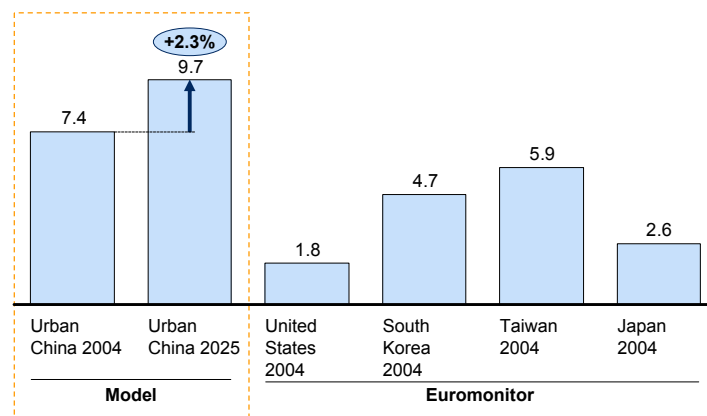


Source: Euromonitor; MGI China Consumer Demand Model, v2.0

Exhibit A.30

...BUT SURPASS OTHER COUNTRIES IN SPENDING ON COMMUNICATION BY 2025

Percent of total household consumption, urban China

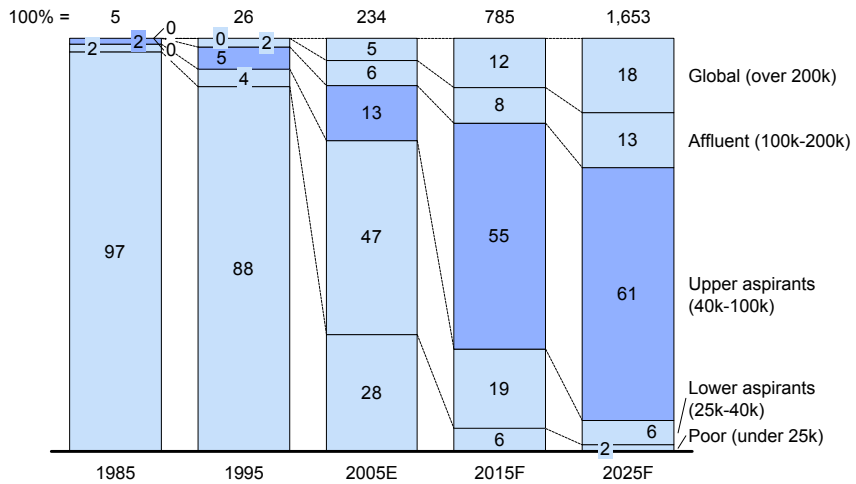


Source: Euromonitor; MGI China Consumer Demand Model, v2.0

Exhibit A.31

UPPER ASPIRANTS WILL CONSUME MORE THAN 60 PERCENT OF TRANSPORTATION IN 2025

Urban household spending on transportation by income bracket
Percent, billion renminbi, 2000

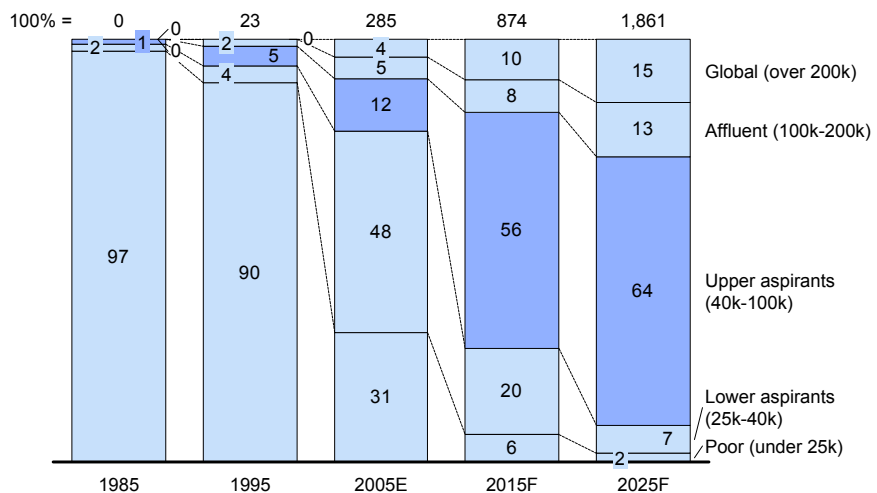


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.32

UPPER ASPIRANTS WILL BE THE MAIN INCOME GROUP IN COMMUNICATION CONSUMPTION

Urban household spending on communication by income bracket
Percent, billion renminbi, 2000

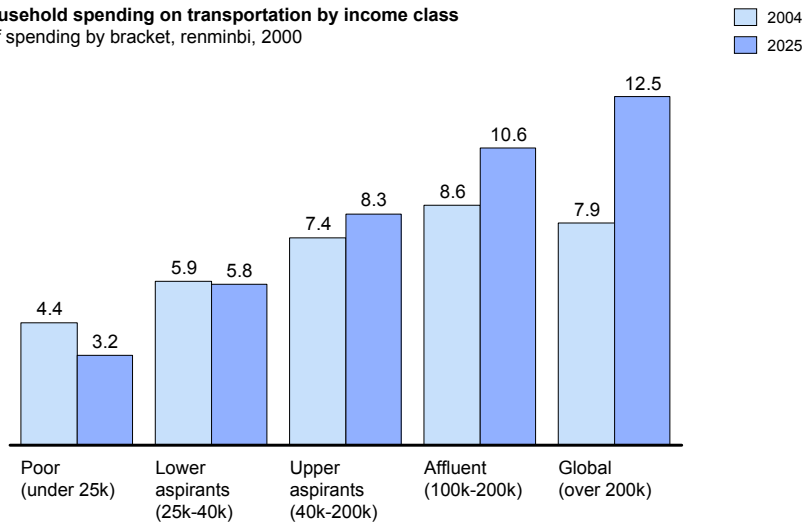


Source: MGI China Consumer Demand Model, v2.0

Exhibit A.33

SHARE-OF-WALLET IN TRANSPORTATION CONSUMPTION WILL INCREASE IN HIGHER-INCOME CLASSES

Urban household spending on transportation by income class
Percent of spending by bracket, renminbi, 2000



Source: MGI China Consumer Demand Model, v2.0

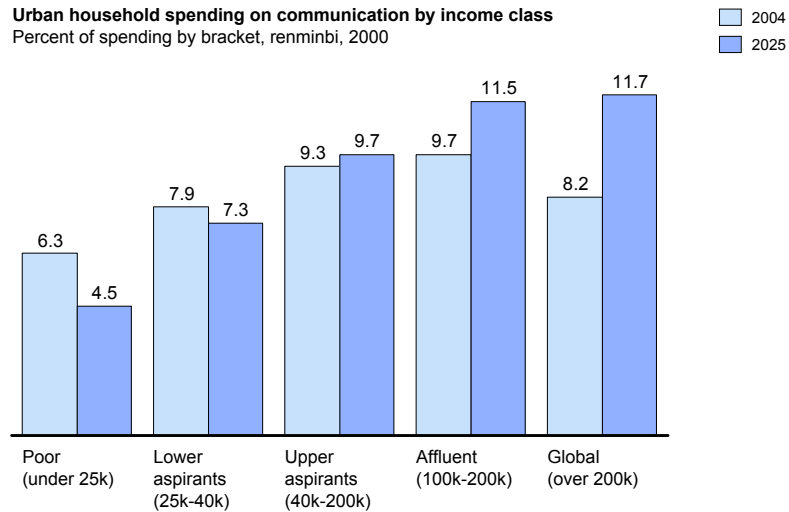
lifestyles, and continued rapid urbanization. On the negative side, energy prices and supply constraints are expected to reduce some of this segment's growth potential.

China's market for private cars has grown rapidly—with some cyclicity—during recent years. Priced at around 100,000 renminbi, and with the increasing availability of auto loans, private cars are affordable to the upper-aspirant and affluent income segments, both of which are expected to grow rapidly over the next few decades. The growth of private-car sales will significantly increase the share of private, as opposed to public, transportation in urban China.

Lifestyle changes will reinforce spending on transportation—for instance, China's affluent households are increasingly moving to suburban areas, creating more need for transportation between home and work. Moreover, leisure travel and vacationing have become more widely accepted and accessible to Chinese households—with air tickets now affordable to the rapidly growing upper-aspirant and affluent income segments. Finally, China's continued rapid urbanization increases the distances between different branches of families and is forcing Chinese people to increase their amount of private travel in order to keep in touch with relatives.

Exhibit A.34

HIGHER-INCOME CLASSES WILL HAVE HIGHER SHARE-OF-WALLET IN COMMUNICATION CONSUMPTION



Source: MGI China Consumer Demand Model, v2.0

Fuel today accounts for 60 to 70 percent⁶ of monthly car expenses (excluding the initial acquisition cost). For this reason, urban China's private-car growth will significantly depend on the evolution of energy prices. Although our base case assumes a relatively stable oil price during the coming decades, higher energy prices could emerge—increasing the share-of-wallet spent on transportation in the short-term, but dampening the category's long-term growth as fewer consumers would be able to afford the shift from public to private transportation.⁷

Another potential hurdle to transportation spending reaching its full potential is whether China's urban infrastructure can keep up with latent demand for private transport. For instance, private-car-penetration rates have reached their limits in some cities—in Shanghai, the number of newly-admitted private cars is being capped and a bidding system to acquire licenses is in place.

In communication, the growth in private spending is mostly driven by the increasing availability of telecommunication products and services, expected changes in relative prices, and changing lifestyles. Urban China has seen the extremely rapid penetration of communications infrastructure, products and services, over

⁶ McKinsey analysis, calculations based on monthly repair costs, insurance, road usage fee, and fuel cost.

⁷ Forthcoming work of the MGI will assess the impact of changes in oil prices on the private consumption of transportation products and services.

the past decade, and this segment's share-of-wallet already exceeds that in other countries by a significant margin. In the years ahead, our model shows communications continuing to grow rapidly in absolute terms.

Growth in spending on communications will partly be fuelled by changes in relative prices. China's mobile-phone market, the largest in the world if measured by the number of subscribers, is an oligopoly today, with four highly-regulated state-owned operators that have been allowed to charge relatively high prices to recover upfront infrastructure investments. However, their prices are expected to decline in coming years, and this will encourage consumers to further increase spending on communication. We expect the volume effect to be larger than the price effect, thereby increasing the overall size of the communications market.

Further increases in the penetration rates of products and services, such as SMS messaging and the Internet, will also fuel the strong absolute growth in communications consumption. The same is true of changing lifestyles. For instance, while urbanization has increased the distance between relatives, it has also raised the latent need to use communication services. Mobile phones have become prestige items to Chinese consumers, with young consumers typically replacing their mobile phones every six to 12 months.

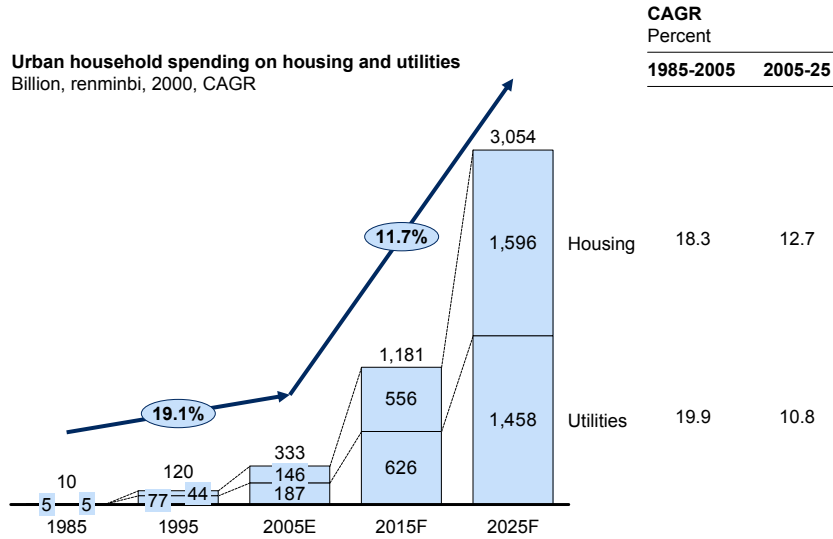
A.8 HOUSING AND UTILITIES

Housing and utilities—including rents and imputed⁸ rents, water, gas, fuels, and household services—will be the second-fastest-growing consumption category in China, growing by 11.7 percent every year (Exhibit A.35). In many emerging economies, consumers spend proportionally less on housing as their incomes increase. However, because the privatization of most of China's housing stock has only recently got underway, Chinese consumers will have to allocate more of their incomes to securing shelter and paying for utility consumption—outlays that will reach a combined 15.9 percent share-of-wallet by 2025. In terms of its absolute size, the housing and utilities market is expected to increase almost ten times in size, growing from 0.3 trillion renminbi today to 3.0 trillion renminbi in 2025. The share-of-wallet will rise from 9.2 percent to 15.9 percent—so matching the proportion spent on housing and utilities in many Asian and other

8 Imputed rent is an estimate of the net rental income of owner-occupied housing. It is based on the assumption that owner-occupants are in the rental business and that they are renting the houses in which they live to themselves. As tenants, they pay rent to the landlords (that is, to themselves); as landlords, they collect rent from their tenants (that is, from themselves); they incur expenses and they may have a profit or a loss from the rental business. See Bureau of Economic Analysis, US Department of Commerce, October 6, 2006, (<http://bea.gov/bea/regional/definitions/nextpage.cfm?key=Imputed%20rent>).

Exhibit A.35

SPENDING ON HOUSING AND UTILITIES WILL BE ROBUST OVER THE NEXT 20 YEARS



Source: MGI China Consumer Demand Model, v2.0

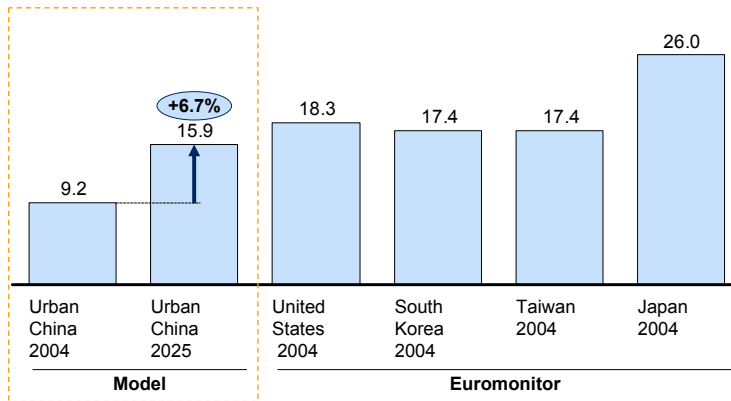
developed economies (Exhibit A.36). Urban China's housing and utilities consumption will grow from 1.1 percent of the total OECD, plus China, consumption in this category in 2005 to 7.8 percent in 2025 (Exhibit A.2).

From 2005 to 2025, within this overall category, housing is expected to grow by a robust 12.7 percent and utilities by 10.8 percent. Absolute spending on housing will exceed that of utilities by 2025. The rapid increase in share-of-wallet of housing is expected to be similar across income segments, increasing by between 2 and slightly over 4 percent across all income groups (Exhibit A.37). The story in utilities is somewhat different—the share-of-wallet of utilities increase by 10 percent in the poor segment, somewhat more quickly than the 0.9 percent increment predicted in the case of the global income class (Exhibit A.38).

Similar to other consumption categories, China's urban lower aspirants lead total housing and utilities consumption in 2005, but the upper-aspirant segment become the major consumers by 2012 and remain so through to the end of the forecast period (Exhibit A.39). This evolution is similar in the case of utilities (Exhibit A.40).

Exhibit A.36

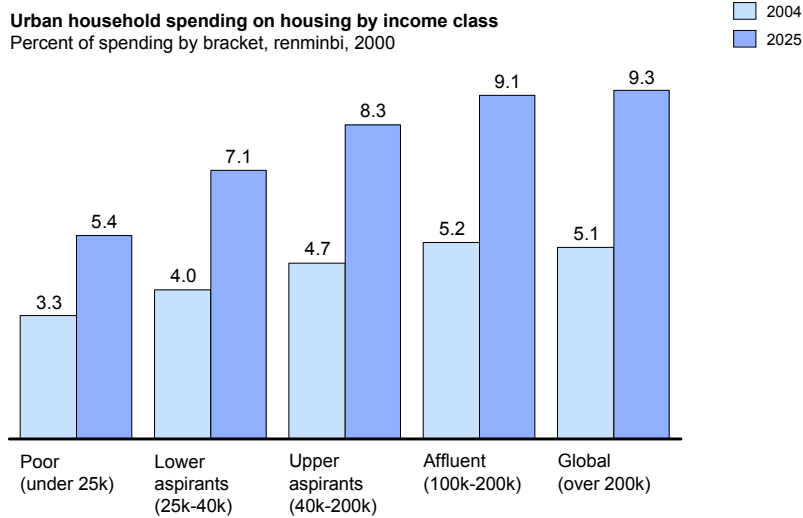
CONSUMPTION ACROSS ECONOMIES
Percent of total household consumption, urban China



Source: Euromonitor; MGI China Consumer Demand Model, v2.0

Exhibit A.37

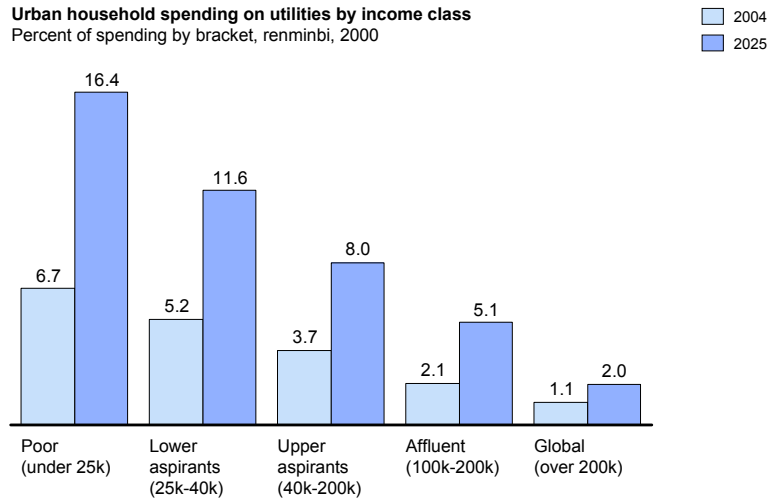
SHARE-OF-WALLET IN HOUSING CONSUMPTION WILL INCREASE ACROSS INCOME CLASSES



Source: MGI China Consumer Demand Model, v2.0

Exhibit A.38

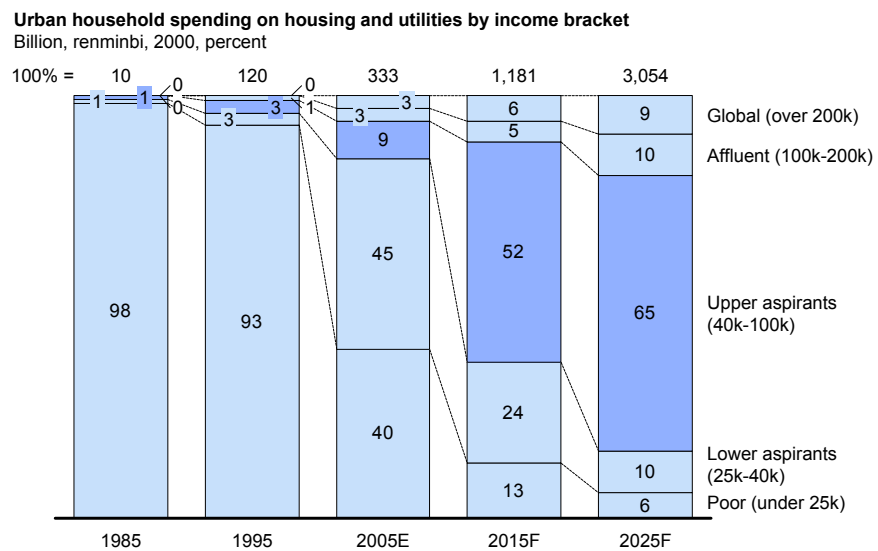
UTILITIES CONSUMPTION WILL HAVE BIGGER IMPACT ON LOWER-INCOME CLASSES



Source: MGI China Consumer Demand Model, v2.0

Exhibit A.39

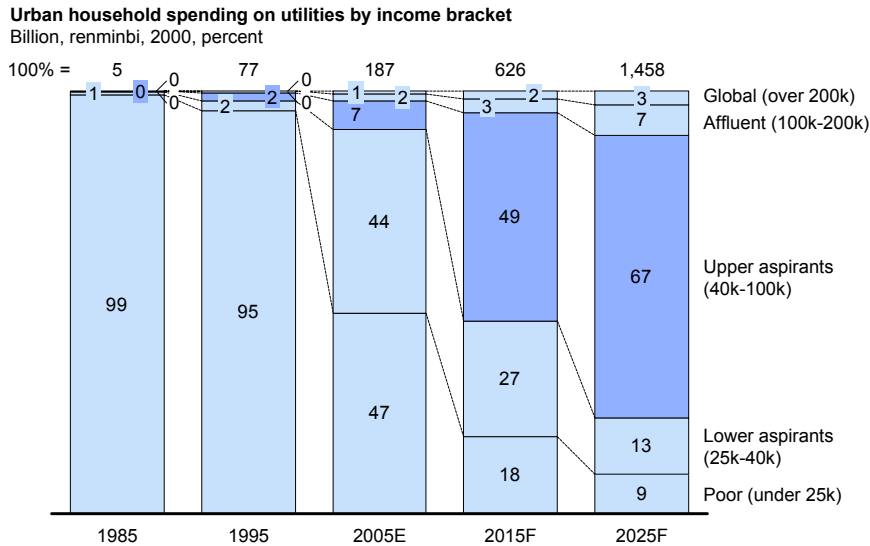
UPPER ASPIRANTS WILL BE THE MAJOR CONSUMERS IN HOUSING AND UTILITIES



Source: MGI China Consumer Demand Model, v2.0

Exhibit A.40

UPPER ASPIRANTS WILL ALSO BE THE MAJOR CONSUMERS OF UTILITIES IN 2025



Source: MGI China Consumer Demand Model, v2.0

Urban China’s rapidly growing housing consumption is mainly driven by urban planning, privatization, the elimination of subsidies; the provision of more housing choices, changes in lifestyles and values, and the availability of mortgage financing. China’s cities are nowadays facing numerous large-scale urban redesign projects, as many of China’s large, densely populated, and—at times—congested city centers, are upgraded with modern business infrastructure. As a consequence, many households in these cities move to suburban areas.

Since a large part of China’s housing market used to be public and subsidized, housing consumption started from a very low base. However, privatization has, virtually overnight, revived the latent desire for home ownership and a better standard of living. Privatization of housing has not only eliminated the direct and indirect subsidies that used to limit private spending on housing, but also created the incentive for Chinese households to invest in larger, higher-quality homes and apartments, and to build houses that meet their individual preferences and needs. Urban China’s average living space per capita doubled in only eight years—from 12 square meters in 1995 to 24 square meters in 2003.

Evolving lifestyles and values are also driving spending on housing. Home ownership is regarded as an important status symbol in China, as well as be-

ing a favorite savings vehicle, and a strong source of personal security. Many young couples will decide to get married but won't actually tie the knot until they have saved enough to buy their own apartment. Based on McKinsey's China Consumer Center's survey in 2005, 36 percent of some 6,000 respondents said that they save for housing—a key reason for China's high savings rates, alongside concerns over health care and retirement. The changing lifestyles of China's most affluent households will have a significant impact on the growth of housing spending. Those in this income class, for example, increasingly move to suburban areas but frequently keep an apartment in urban areas near their work location; some have even started to buy vacation homes.

Mortgage loans have become widely available and broadly accepted in urban China and, with rising confidence given relatively low default rates, this is contributing to strong growth in private-home ownership, and therefore spending on (imputed) rents and utilities which are expected to continue.

On top of this, spending on real estate gives local government a boost as it is a major source of fiscal revenue. Housing development boosts local economic activity and government officials are evaluated almost entirely on the performance of the local economies they manage. Statistics show that the value of all properties under construction currently equals some one-third of total Chinese GDP.⁹

There are some factors that have acted as a brake on housing consumption. For instance, loans to construction companies have increasingly led to defaults and this has led to government intervention and a temporary slowdown in housing supply in recent years. China's real-estate market is widely considered to be highly speculative, and any declines in market prices may have a short-term impact on the growth of spending on housing. However, we do not expect such short-term fluctuations to affect the strong long-term growth in private housing and utilities consumption projected by our demand models.

9 Zou Min Sheng and Le Jia Chun, *Shanghai Securities News*, May 2006.

B. Detailed description of the MGI China Consumer Demand Model

We used a top-down econometric modeling approach to develop our forecasts of income distributions and consumer spending. This approach enabled us to work within a well-defined macroeconomic framework and ground our study appropriately in the context of the broader Chinese economy. It also allowed us to drill down, and understand, how changes in the macroeconomic context are likely to impact China's consumer markets.

This appendix provides an overview of our modeling approach, and describes the different components of the model in greater detail (Exhibit B.1). It also discusses the endogenous and exogenous variables the model uses; details the data employed; highlights the key methodology used to derive fixed-bracket income distributions from percentile data; and examines the model's revisions from the Version 1.0 forecast published earlier in the *McKinsey Quarterly*.¹

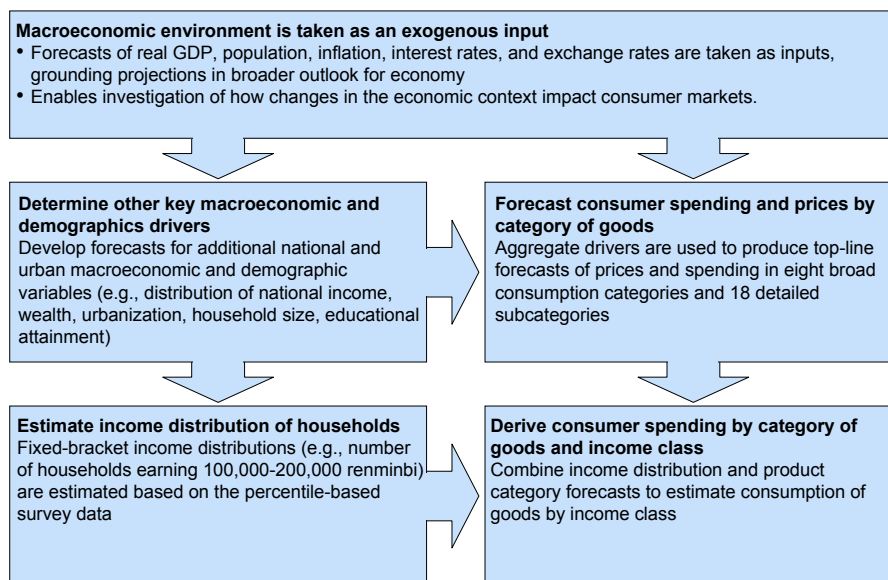
The appendix is divided into ten sections are as follows:

- **External macroeconomic and demographic environment.** Provides background on the macroeconomic and demographic inputs we take as exogenous assumptions.
- **Model-determined macroeconomic drivers.** Develops forecasts for additional national and urban macroeconomic variables.
- **Model-determined demographic drivers.** Develops forecasts for additional national and urban demographic variables.

¹ Diana Farrell, Ulrich A. Gersch, and Elizabeth Stephenson, "The value of China's emerging middle class," *McKinsey Quarterly*, 2006 Special Edition: Serving the new Chinese consumer, pp. 60-69, (http://www.mckinseyquarterly.com/article_page.aspx?ar=1798).

Exhibit B.1

THE MGI CHINA CONSUMER DEMAND MODEL HAS FIVE MAJOR BLOCKS



Source: MGI China Consumer Demand Model, v2.0

- **Linking macroeconomic and household survey information.** Explains how we link the aggregate information on China with the household survey information.
- **Urban total income, consumption and savings.** Describes our estimates of the urban aggregates.
- **Urban distributions.** Explains how we develop estimates of the household size, household employment and income distributions by quantile.
- **Category consumption by category and its distribution.** Describes how we model consumption by category and the distribution of consumption across income quantiles.
- **Fixed-bracket distributions.** Explains how we develop estimates of the distribution of income and consumption by fixed-bracket income classes.
- **Data sources and methodology.** Explains the data sources for the study and the methodology employed to ensure consistency in the development of a historical database.

-
- **Model revisions.** Describes the major differences between our earlier reported findings in version 1.0 and the latest estimates described in this report.

EXTERNAL MACROECONOMIC AND DEMOGRAPHIC ENVIRONMENT

We use forecasts from Global Insight (GI), an international macroeconomic forecasting firm, to set the broad economic context within which we estimate future consumer demand in China. We take as inputs GI's forecasts of real GDP, population, inflation, interest rates and exchange rates.² We also take as inputs GI's projection of relative prices and value added by sector. The following sections provide an outlook for each of these variables over the forecast period.

GDP growth is expected to remain strong in the near-term

China has been on an impressive run of very strong real GDP growth over the past few years. From 2003 to 2005, annual growth was 10 percent or more. This momentum is expected to continue for the next couple of years before China's growth rate slows to 8.0 percent between 2008 and 2010, and subsequently drifts down towards 6.0 percent by the end of the forecast period to give overall real compound annual GDP growth of 7.0 percent between 2005 and 2025. This forecast assumes that China is able to engineer a soft landing over the next couple of years, achieving a smooth transition to a more sustainable growth rate through adequate adjustments in credit creation, revaluations of the renminbi, and institutional development.

Our baseline forecast from GI shows real per capita GDP growing at 6.5 percent annually from 2005 to 2025. Real per-capita GDP is calculated assuming growth in the population at a compound rate of just over 0.4 percent. We believe that this provides a solid baseline, as it is very near to the middle of the per-capita GDP projections from a wide range of sources and therefore close to what appears to be a consensus view (see Chapter 1). As discussed in Chapter 4, we also tested high- and low-growth scenarios that span available forecasts. We have chosen +/- 3 percentage points on growth in real per-capita GDP for our high and low scenarios.

Population will age in the second half of the forecast

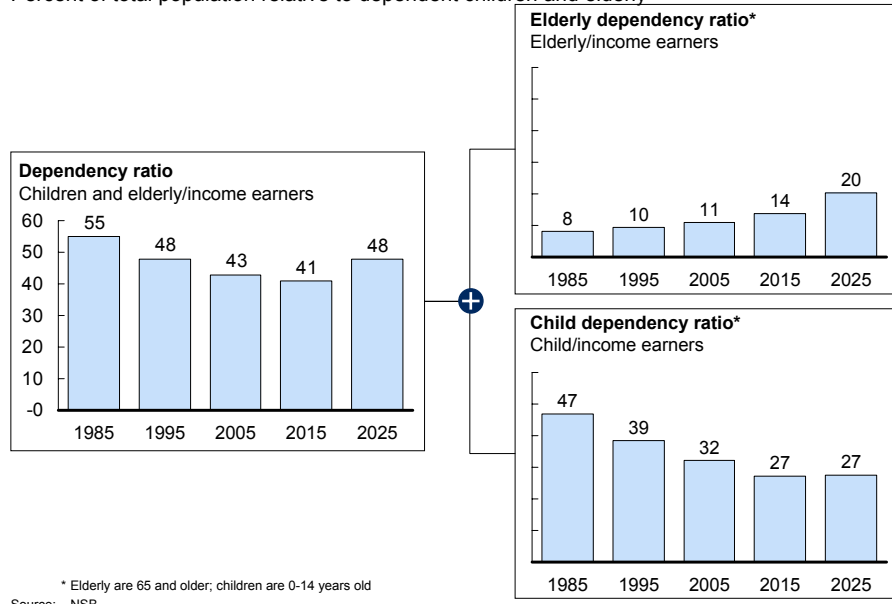
The dependency ratio in China, defined as the number of children (aged 0 to 14) and elderly (aged 65 and above) relative to the working-age population (aged 15 to 64) will begin to rise in the second half of the forecast period from 2015 to

² Forecast as of June 28, 2006.

Exhibit B.2

POPULATION WILL AGE IN THE SECOND HALF OF THE FORECAST

Percent of total population relative to dependent children and elderly



2025 (Exhibit B.2). The primary driver is the slow, but steady, rise in the elderly dependency ratio, although the decrease of the child dependency ratio, stabilizing between 2005 and 2025, tends to contribute to the spike of the overall dependency ratio at the end of the forecast period.

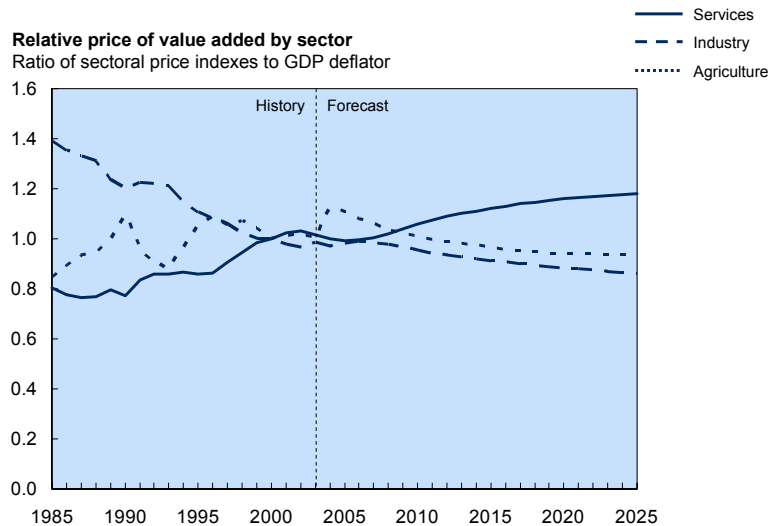
The relative shares of population by age group are important determinants of overall government expenditures, primarily because of the need to provide pension support to the elderly, and education to the younger portions of the population. The 15 years old and over population, in general, and those aged 15 to 24 years old in particular, are key determinants of secondary- and higher-educational-attainment rates at the aggregate level. The distribution of educational attainment is, in turn, an important determinant of the distribution of income (a factor we will discuss in a later section).

Inflation will remain quiescent

Inflation has remained surprisingly tame, given the robust pace of growth, the surge in commodity prices for China's manufacturing-intensive economy, and relative weakness of monetary controls due to the structure of China's financial sector. Overall prices measured by the GDP deflator increased at just 3.2 percent annually between 2000 and 2005, while real GDP surged 9.8 percent. In fact,

Exhibit B.3

SERVICE-SECTOR PRICES WILL RISE MORE QUICKLY THAN OVERALL PRICES, WHILE INDUSTRY AND AGRICULTURE STABILIZE



Source: Global Insight

during this period, in 2002, China experienced a period of falling prices. Excess supply driven by the country's investment boom; insufficient demand from the non-state sector; and administrative control on energy prices have all been cited as reasons for the weakness in prices.

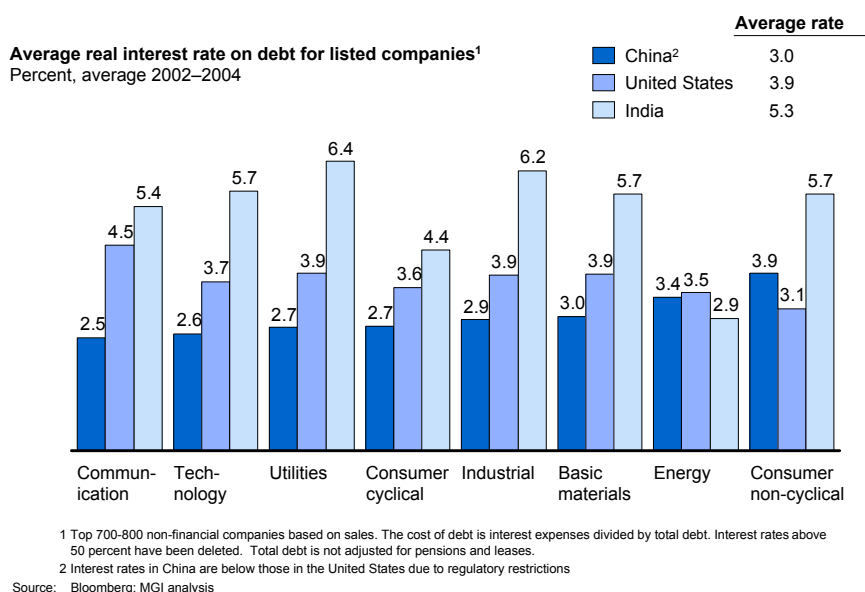
The assumption from the GI forecast is that inflation will pick up only modestly during the forecast period, with both GDP and consumer-price inflation averaging 4 percent annually. Across industries, prices for services are expected to continue rising faster than overall prices, while those for agriculture and industry are expected to rise more slowly (Exhibit B.3). We will later describe how inflation differentially impacts the prices of the specific consumption categories we create forecasts for.

Interest rates remain stable but overall monetary policy tightens

The Chinese authorities have worked primarily through administrative controls, rather than through changes in the price and availability of credit, to try to cool off the rapid growth of fixed-investment spending. However, these controls have been largely unsuccessful. Interest rates have been kept very low, with the real cost of borrowing below that of even the United States, despite generally higher credit risk in China (Exhibit B.4).

Exhibit B.4

REAL INTEREST RATES IN CHINA ARE LOW ACROSS INDUSTRIES

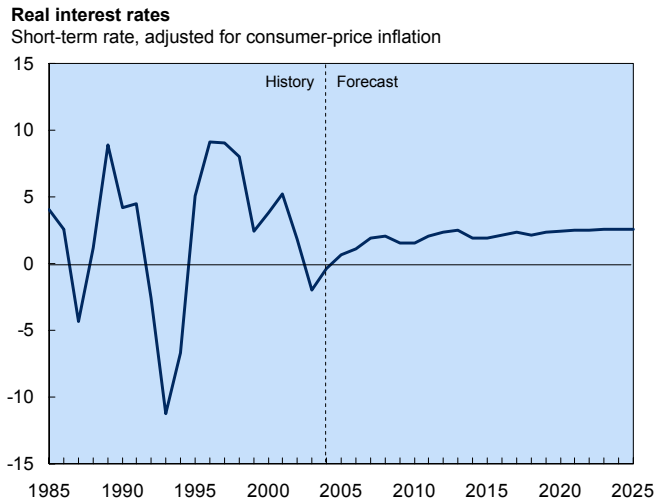


To try and rein in credit creation, the People's Bank of China (PBOC) has tightened monetary policy four times since April, hiking interest rates by 0.27 percentage points twice, and raising the reserve requirement ratio for commercial banks by 0.50 percentage points on two occasions. The one-year lending rate now stands at 6.12 percent, while the reserve ratio is at 8.5 percent. These modest changes have done little to slow credit-creation in the near-term, although they have been seen as a signal to state-owned banks that the PBOC wants to engineer a slow-down in lending.

Any further tightening of monetary policy must be balanced against the potential for precipitating another bout of consumer-price deflation. For this reason, real long-term interest rates are expected to rise only marginally in the near-term, and remain at around 3.0 percent for the entire forecast horizon (Exhibit B.5). We expect that the PBOC will favor increasing reserve requirements and reducing monetary growth, rather than raising administered interest rates, as it does not want to derail already sluggish consumer spending. Evidence of this strategy is that lending rates were increased in April, but deposit rates were not—in an attempt to discourage more saving.

Exhibit B.5

REAL INTEREST RATES ARE EXPECTED TO BE STABLE AT APPROXIMATELY 3 PERCENT OVER THE FORECAST



Source: Global Insight

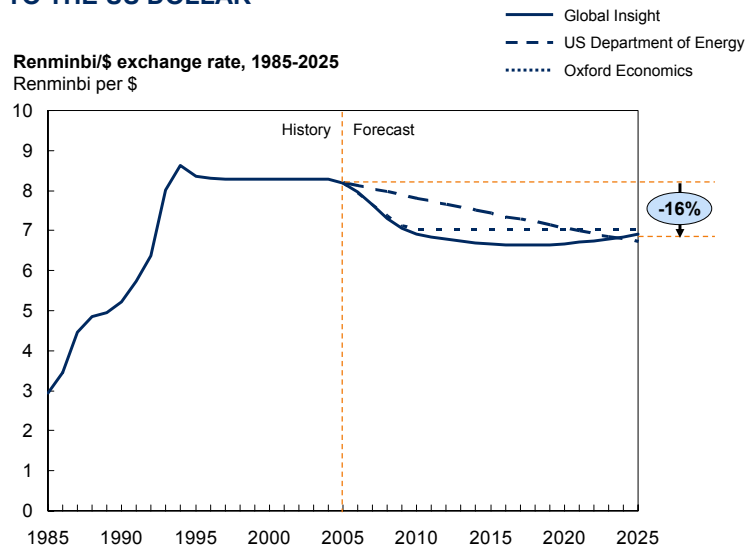
Exchange rate will appreciate modestly

With the announcement of its new exchange rate policy in July, 2005, the Bank of China allowed the renminbi to appreciate 2.1 percent against the dollar to 8.11 renminbi per dollar. Since then, the PBOC has allowed the renminbi to rise up a further 2.5 percent, to 7.91 renminbi per dollar at the time of this report. Despite the fact that this new stance appeared to signal increased tolerance for flexibility, China still retains a policy of exchange-rate stability and has kept the renminbi within a narrow trading band. Even so, the renminbi faces continued upward pressure from robust inflows of foreign capital (including hot-money flows betting upon significant revaluations that avoid capital controls); international pressure to adjust policy due to record Chinese trade surpluses; and the fast expansion of domestic credit that has resulted from the intervention required to maintain exchange-rate stability.

These forces are expected to push the renminbi approximately 9 percent higher by 2008, when it is expected to average 7.24 per dollar. In the longer-term, the upward slide is expected to continue at a moderate pace, leaving the renminbi at 6.9 per dollar by 2025 (Exhibit B.6). As the exhibit shows, although the timing is different, the exchange-rate path forecast by the US Department of Energy and Oxford Economic Forecasting is similar.

Exhibit B.6

EXCHANGE RATE IS EXPECTED TO APPRECIATE SLOWLY RELATIVE TO THE US DOLLAR



Source: Global Insight; US Department of Energy; Oxford Economics

Rest-of-world economic activity

To model the evolution of the current account, including trade, net transfers, and net income requires projections of rest-of-world economic activity. Aggregates for rest-of-world GDP, inflation, and interest rates were obtained from GI.

- **Real GDP growth.** Remaining at around 3 percent through 2011, rest-of-world GDP growth then falls to 2.7 percent by 2025. The slowdown in growth in the major developing countries due to shifting demographics is a primary driver of this longer-term outlook, as is a general increase in the level of interest rates.
- **Inflation.** Consistent with the slowdown in GDP growth and the expected moderation of oil and other commodity prices, rest-of-world inflation, as measured by GDP price deflators, is expected to slow from 4.6 percent in 2005 to 2.3 percent in 2025. Similarly, the rest of the world's import prices will slow from 3.9 percent in 2005 to 1.6 percent in 2025.
- **Interest rates.** Interest rates will rise from their near-record low of 3.3 percent in 2005 to 4.3 percent in 2025

Overall, China is expected to grow more than twice as fast as the rest of the world's economy and have slightly higher inflation.

MODEL-DETERMINED MACROECONOMIC DRIVERS

Using the top-line macroeconomic drivers from GI, we forecast a number of other national and urban macroeconomic variables that we require as drivers of income distribution and household spending.

Aggregate income, consumption and savings

The rate of increase of real disposable income for households is expected to slow marginally, while the growth of real consumption is expected to bounce back. At the aggregate level, the household saving rate will come down from record highs.

Aggregate income. The latest available flow-of-funds accounts provide a breakdown of aggregate factor income (defined as GDP at factor cost, less net income from abroad) by sector through 2002. These accounts also provide information on net taxes and transfers, allowing us to derive aggregate disposable income for households, the government, and corporations.

Our estimates for 2003 to 2005 show that corporations accounted for an increasing share of overall factor income, while households accounted for less. This is primarily because of the surge in corporate profits driven by sustained high rates of economic growth (Exhibit B.7). We estimate that the share of factor income that accrued to corporations jumped from 18 percent of national income in 2001 (almost identical to its average share over the previous 15 years), to 24 percent in 2005. Although profit measures are not readily available for all sectors of the economy, the profits of the manufacturing and mining sectors, which together account for nearly half of the value added in the Chinese economy, are likely to be indicative of broader trends. Real profits in these sectors rose at an annual rate of 23 percent between 2000 and 2005 (Exhibit B.7), raising their share of national income from 4.4 percent to 7.6 percent.

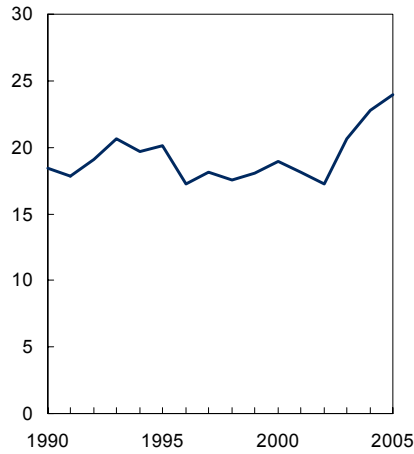
Going forward, we expect the share of factor income garnered by households to rebound slowly towards its historical average (Exhibit B.8). Real household factor incomes will grow at 7.0 percent annually from 2005 to 2025, down from the 7.3 percent pace observed between 2000 and 2005. In contrast, real corporate factor-income growth will slow to 5.5 percent annually over the forecast period, compared with 15.3 percent over the past five years.³

³ Household factor incomes are deflated using the consumption-price deflator, while corporate factor incomes are deflated using the GDP deflator. The consumption-price deflator is expected to grow more rapidly than the overall GDP deflator. If consumption were deflated with the GDP deflator, it would grow at 7.8 percent annually over the forecast.

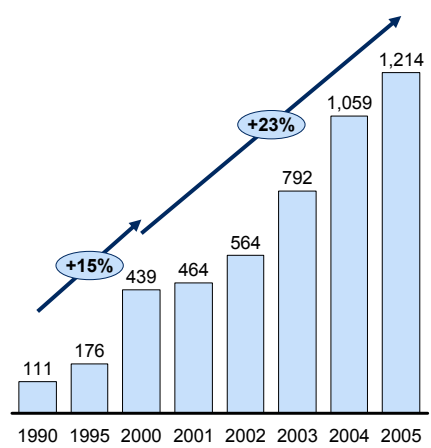
Exhibit B.7

CORPORATE PROFITS HAVE SURGED, CONTRIBUTING STRONGLY TO RISING SAVINGS

Corporate share of national income
Percent of factor income



Profits of manufacturing and mining sectors
Billion, renminbi, 2000

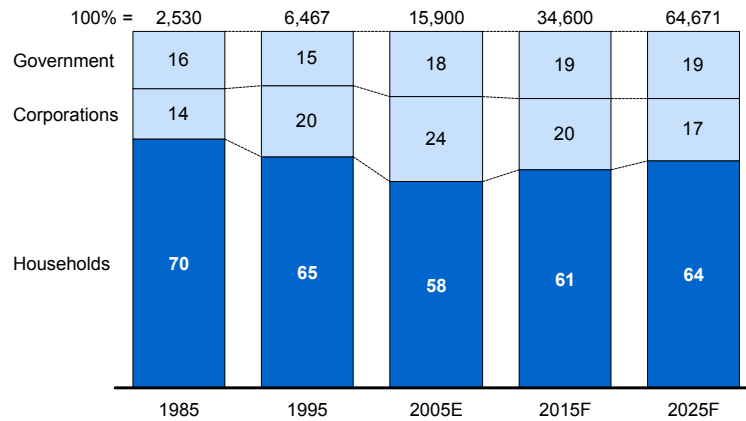


* Includes Hong Kong SAR, Korea, Singapore, Taiwan Province of China
Source: National Bureau of Statistics of China; CEIC; MGI China Consumer Demand Model, v2.0

Exhibit B.8

HOUSEHOLDS ARE EXPECTED TO REGAIN THEIR HISTORIC SHARE OF NATIONAL FACTOR INCOMES

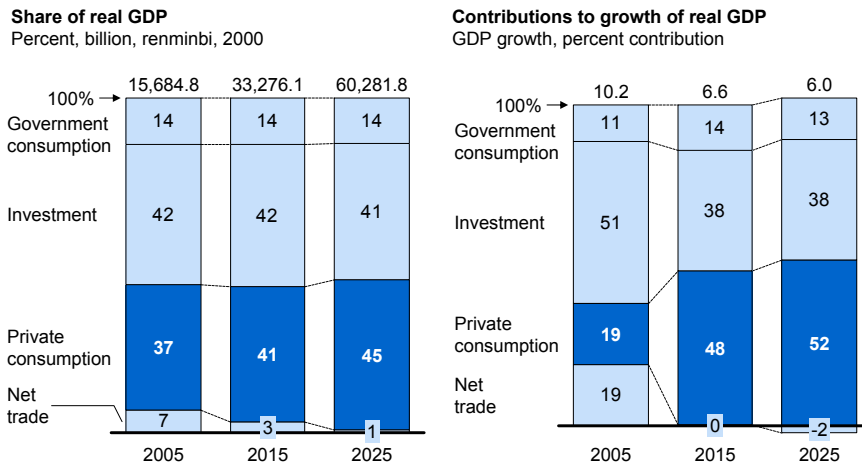
Distribution of real national factor incomes
Percent, billion, renminbi, 2000



Source: MGI China Consumer Demand Model, v2.0

Exhibit B.9

CHINA WILL SHIFT FROM AN INVESTMENT-DRIVEN TO A CONSUMPTION-LED ECONOMY



Source: National Bureau of Statistics of China; MGI China Consumer Demand Model, v2.0

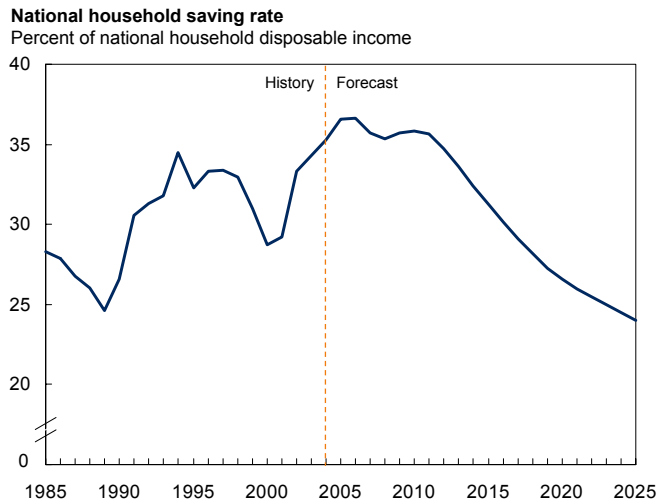
Continued growth in real household factor incomes will support growth in real disposable income over the forecast as the economy slows. Transfers from government, net of taxes, have historically been positive for the household sector and are expected to remain so over the forecast. At the national level, real disposable income is expected to grow 7.0 percent annually over the forecast.

Aggregate consumption. We expect growth in aggregate real consumption to bounce back to 7.9 percent annually over the forecast period, from its 4.9 percent annual increase between 2000 and 2005. Steady growth in real disposable income, increases in wealth, and a moderation of the increase in urban unemployment all support strong consumption growth going forward.⁴ With this growth (and a slowdown in the growth of investment), the consumption share of GDP will rise from its record low of 37 percent in 2005 to 45 percent in 2025. By the end of the forecast period, private consumption is the source of more than half of GDP growth, on the assumption that China is able to transition successfully to a more consumption-led economic growth model (Exhibit B.9).

⁴ We estimate national consumption relative to real final sales (GDP less inventory change). This is done for all components of GDP to ensure that they add up to the exogenous GDP forecast.

Exhibit B.10

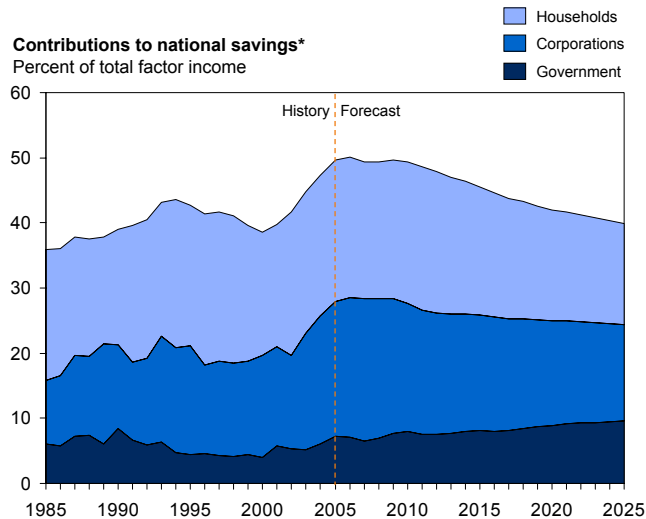
HOUSEHOLD SAVING RATE DECLINES OVER THE FORECAST



Source: MGI China Consumer Demand Model, v2.0

Exhibit B.11

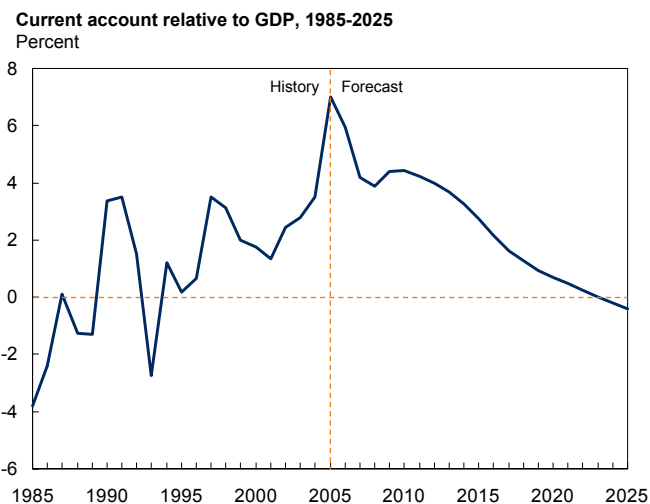
NATIONAL SAVINGS RATES WILL DECLINE BUT REMAIN AT VERY HIGH LEVELS



* Factor-income breakdown is available from 1992-2002; 1985-1991 and 2003-2005 are MGI estimates.
 ** Sum of current account and nominal gross investment.
 Source: NSB; MGI China Consumer Demand Model, v2.0

Exhibit B.12

CURRENT ACCOUNT SURPLUS IS EXPECTED TO DECLINE FROM RECORD HIGHS



Source: MGI China Consumer Demand Model, v2.0

Aggregate savings. With household spending growing faster than disposable income, the household saving rate is expected to fall from its record highs over the forecast period (Exhibit B.10). This will also help bring down the national savings rate, although by international comparisons, it is still expected to remain very high (Exhibit B.11). A more detailed discussion about Chinese savings behavior can be found in Chapter 3 of this report.

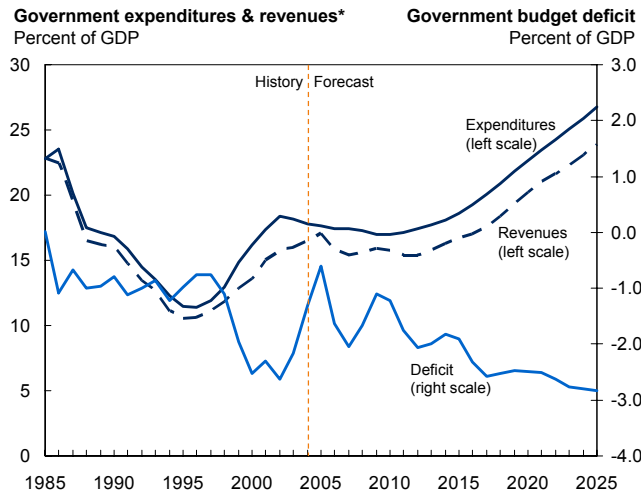
Wealth

Real wealth is an important driver of aggregate consumption and the distribution of income. Our definition of real wealth includes the net capital stock, the stock of money, and the stock of net foreign assets. Overall, a slowdown in the growth of investment spending and the monetary stock, combined with a gradual reduction of the current account surplus toward balance, will result in the wealth-to-GDP ratio stabilizing at approximately five times GDP over the forecast, compared with its 2005 level of four times GDP.

Rapid growth in investment in recent years has made the capital stock the largest component of wealth. In 2005, it accounted for 55 percent of total wealth. We expect the growth in investment spending to slow over the forecast period, consistent with the shift to a more consumer-driven economy as we have already

Exhibit B.13

RISING DEPENDENCY RATIO RAISES GOVERNMENT SPENDING BUT DEFICIT GRADUALLY DECLINES AS PROPORTION OF GDP



* Government expenditure figures are available through 2005.
Source: MGI China Consumer Demand Model, v2.0

discussed. As it will still account for roughly 40 percent of GDP in 2025, the capital stock will continue to grow, but at a reduced rate. The real money stock (measured by M2 divided by the GDP price deflator) accounts for an additional 40 percent of wealth in 2005. The money stock is expected to grow at roughly half of its historical pace during the forecast, consistent with the expected tightening of credit in China as the government attempts to engineer a “soft landing” and shift the economy away from investment-driven growth. Finally, in 2005, the current account surplus soared to \$160 billion, more than 7 percent of GDP, and double its 2004 value. Although the government recently announced that it is expecting another record surplus in 2006, we do not believe that current levels of surplus are sustainable and expect that in the near-term the current account will return to approximately its 2004 level, followed by a gradual decline over the two decades of the forecast period (Exhibit B.12). The expected long-term narrowing of the current account surplus is driven primarily by a decline in the trade surplus, reflecting an expected shift toward more domestically driven growth, an increase in imports as income per household rises and as the renminbi appreciates. With the current-account surplus shrinking over the forecast period, the impact of net foreign assets on wealth will diminish.

Government expenditures and revenues

Government expenditures are an important determinant of the distribution of income, particularly to the extent that they drive secondary- and higher-education enrollment and attainment. Government revenues have an impact on consumption, to the extent that tax policy is changed and this alters disposable income for households.

Government expenditures. There are two components of government expenditures. The first is government consumption (i.e., wages and salaries, and current services), which is captured by the government-spending component of GDP. As a policy variable, it is treated as exogenous over the forecast. Consistent with recent historical experience, we hold government consumption stable at approximately 14 percent of GDP. The second component of expenditures is transfer payments, primarily educational expenditures for the young, pension payments for the elderly, and support of the unemployed. Because the overall dependency rate is increasing toward the end of the forecast (see Exhibit B.2), and government consumption is relatively stable, total government expenditures are rising relative to GDP in the later years of the forecast.

Government revenue. Government revenue is composed of a combination of direct and indirect taxes.⁵ With the rate of government expenditures taken as exogenous, and the fact that government deficits in China have remained modest, we model the implicit tax rate based on a moving average of previous deficits relative to GDP. This implies that the government will move to raise taxes as deficits rise in relation to GDP. The deficit rises in later years, as increases in the tax rate are not sufficient to close the gap due to rising expenditures driven by the increases in the dependency ratio. However, the deficit as a proportion of real GDP shows a declining trend through the forecast period (Exhibit B.13).

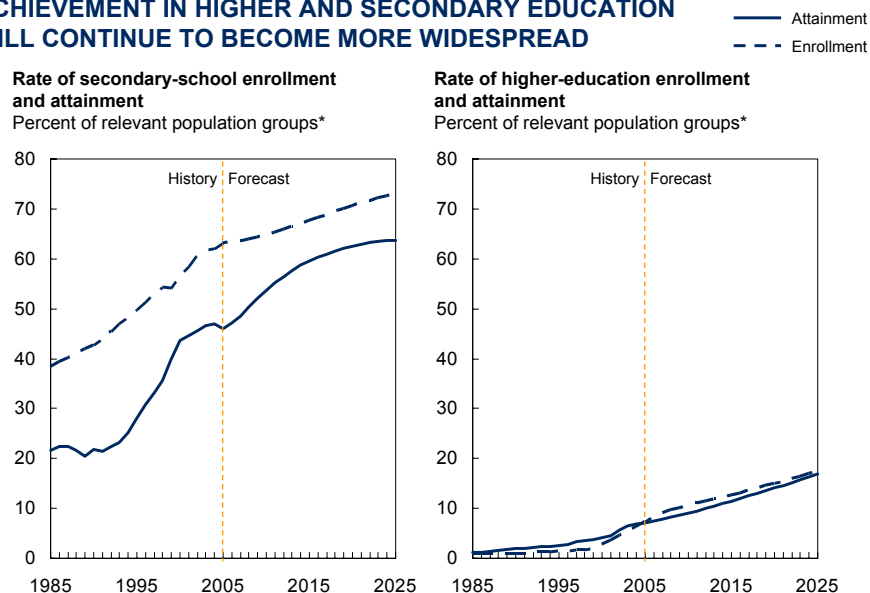
Educational enrollment and attainment.

Public expenditures on education, science, and culture are an important driver of secondary- and higher-education-enrollment rates (measured as the number of enrolled students relative to the 15 to 24 population). Historically, these expenditures have averaged approximately 3 percent of GDP, but they are expected to fall slightly over the forecast as the target population falls. The impact of

5 The figures on taxes from NBS account for approximately 90 percent of published government revenue figures. We define the difference between government revenue relative to GDP and the implicit tax rate as the rate of other taxation. It is taken as exogenous in the forecast, held at its last historical value of 1.3 percent of GDP.

Exhibit B.14

ACHIEVEMENT IN HIGHER AND SECONDARY EDUCATION WILL CONTINUE TO BECOME MORE WIDESPREAD



* Enrollment is measured as a percent of 15 to 24 year old population; attainment is measured relative to 15 and above population.
Source: MGI China Consumer Demand Model, v2.0

the falling school-aged population is mitigated by increasing urbanization and a steady rate of overall public spending. The illiteracy rate has fallen to just over 10 percent between 1985 and 2005, and we forecast it to continue to decline to 6 percent by 2025.

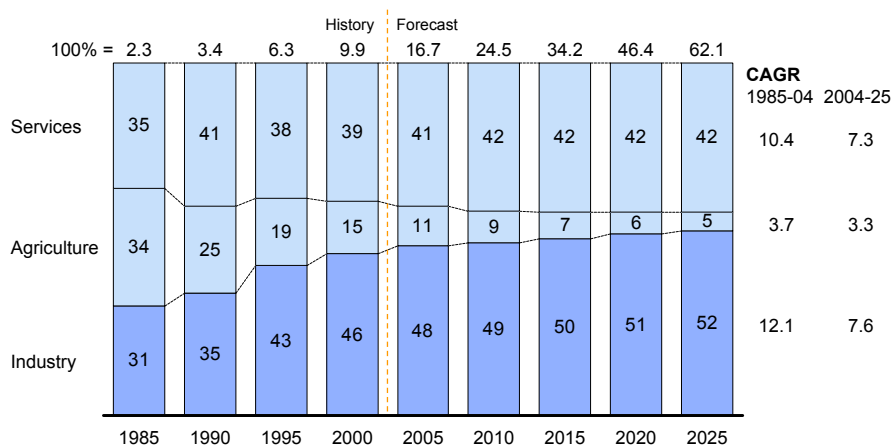
Secondary-school-enrollment rates increase steadily going forward, but at a rate slower than historically. This slowdown reflects the fact that enrollment rates are already high, as well as increasing rates of literacy. By 2025, more than 73 percent of the 15 and above population has achieved a secondary education as their highest level of attainment. In any year, attainment increases by the secondary-school-graduation rate, and decreases by the higher-educational-graduation rate.⁶ Driven by slower increases in secondary-educational attainment, higher-education-enrollment rates increase at 4.4 percent annually over the forecast, which is a little more than half their historical pace of growth. By 2025, nearly 17 percent of the 15 and above population will have graduated from institutions of higher education, a three-fold increase in 20 years (Exhibit B.14). Rates of secondary-school attainment impact urbanization, while higher-educational attainment impacts the distribution of household income and the unemployment rate.

⁶ Secondary- and higher-education-graduation rates are held at their historical averages of 28 percent and 24 percent respectively.

Exhibit B.15

INDUSTRY SHARE WILL CONTINUE TO RISE

Distribution of sector value added, 1985-2025
Percent, trillion, renminbi, 2000



Source: Global Insight

Value added by sector

The mix of output by sector is an important determinant of the urbanization rate. Going forward, we see that the agricultural share of real output is expected to continue to decrease, while the industry share will continue to rise gradually toward 52 percent (Exhibit B.15). We also forecast the share of financial services, which is an important indicator of the level of financial intermediation available in the economy. Because the level of financial intermediation indicates the degree of competition in this market, the share of financial services has a significant impact on the determination of interest rates.

MODEL-DETERMINED DEMOGRAPHIC DRIVERS

Using the top-line macroeconomic drivers from GI, and our model-determined economic drivers, we forecast a number of additional national and urban demographic variables that we require, in turn, to forecast the distribution of income and consumption by spending category.

Urbanization

The urbanization rate is defined as the proportion of the population living in urban areas. As noted in Chapter 1, the definition of urban areas varies widely across countries, and we have chosen to use the official definition supplied by the NBS. Urbanization is an important driver of the distribution of income, which, along with changes in household size, determines the number of households in urban areas.

The urbanization rate is expected to continue increasing steadily although, at 1.6 percent annually that we forecast for the next 20 years, the rate of increase is approximately half the 3.0 percent annual increase experienced between 1985 and 2005. Almost 60 percent of the total population will live in urban areas by 2025. Changes in the urbanization rate are driven by shifts in the composition of production in the economy and the level of secondary-educational attainment. A continued decline in the share of agriculture in total output, and a rise in the secondary-education attainment rates both increase the rate of urbanization over the forecast period.

Urban unemployment rate

Urban unemployment is the number of registered unemployed relative to the registered urban labor force. It helps determine overall government expenditures as well as net transfers to households. It also impacts aggregate consumption, as rising unemployment holds back spending. The urban unemployment rate is widely believed to underestimate actual unemployment because it counts only registered workers. As with the urbanization rate, we have chosen to use the official definition.

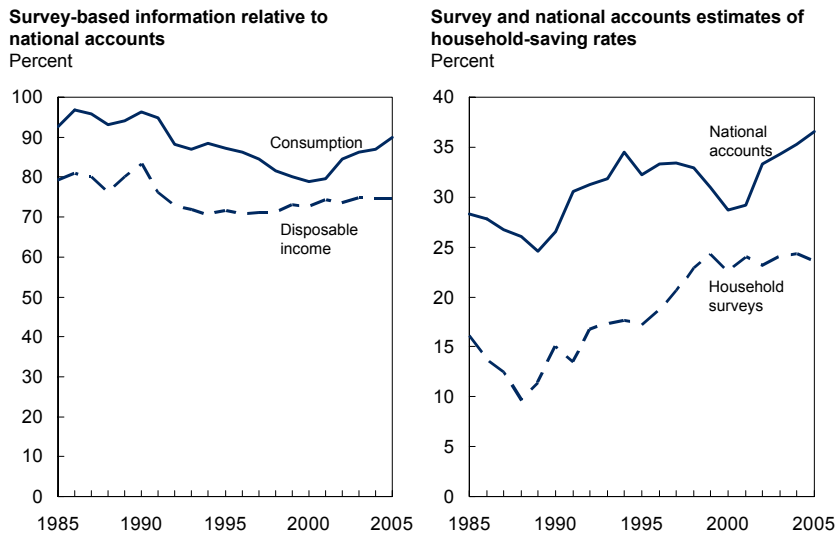
Urban unemployment has been climbing steadily since 1985, reaching 3 percent in 2000. By 2005, the unemployment rate increased to 4.2 percent. Over the forecast, we expect urban unemployment to rise steadily to 5.7 percent in 2025, as rates of urbanization increase.

Households and household size

A household is defined by the NBS as people living together and acting as one economic unit. At the national level, household size combines with population to determine the total number of households. Similarly, urban household size combines with the rate of urbanization to determine the number of households in urban areas. In addition, urban household size is an important driver of the

Exhibit B.16

HOUSEHOLD-SURVEYS UNDERESTIMATE INCOME, CONSUMPTION, AND SAVINGS RELATIVE TO NATIONAL ACCOUNTS



Source: NBS; MGI China Consumer Demand Model, v2.0

distribution of households by income classes, top-line urban consumption by category, and the distribution of consumption across income classes.

Between 1985 and 2005, average household size at the national level fell from 4.7 persons to 3.5. We expect national household size to continue to fall but at a more moderate rate, reaching 2.7 by 2025. As in the past, continued increases in national disposable income per capita causes individuals to form new households going forward.

Urban household size is consistently below the national level, reflecting higher incomes in urban areas. Urban household size stood at 3.8 persons in 1985, but fell to 2.96 by 2005, and is expected to continue dropping to 2.35 by 2025. Urban household size is estimated relative to national household size, and is driven by the relative cost of housing and utilities. A rising relative cost of housing and utilities will tend to increase the average household size by making it more expensive for new households to form.

LINKING MACROECONOMIC AND HOUSEHOLD SURVEY INFORMATION

Across countries, household surveys have been found to underestimate household income and consumption levels relative to the aggregate estimates

published in the national accounts.⁷ For income, underestimates are frequently attributed to incomplete accounting of all income streams (which importantly include informal-economy income) and the under-sampling of wealthy individuals. For consumption, the reasons for underestimates include incomplete accounting of expenditures (“recall” problems), differences in definition (for instance, cash expenditures on health-care captured in the household survey versus the total cost of health-care services), and the inclusion of imputed items such as rents in the national accounts. Furthermore, national accounts estimates are subject to sometimes substantial revision, while survey information is not.

This is also true for the Household Income and Expenditure Survey in China. Aggregating the survey-based information on consumption and disposable income for urban and rural areas, and comparing this with aggregate figures published in the national accounts, we find that, on average, the surveys capture approximately 90 percent of spending, and 75 percent of income. One consequence of this is that savings rates measured by the household surveys are much lower than those implied by the national accounts, although the time-series pattern is very similar (Exhibit B.16).

In linking the macroeconomic and microeconomic survey-based information, we have used econometric techniques to model the relationships between macroeconomic indicators and the relevant variables from the surveys. For example, we have related the time-series pattern of personal income for urban households to income per household at the aggregate level. We believe that this approach gives us the best picture of urban household activity based on the available information. We have therefore decided not to impose an adding-up restriction which scales up the survey data to match the national aggregates. This is because we do not have specific data to pinpoint the sources of the underreporting, and scaling the survey data would necessarily assume that underreporting is proportionally the same in urban and rural areas, as well as across income classes. As a consequence, our estimates of income and spending at the urban level are likely to be conservative.

URBAN TOTAL INCOME, CONSUMPTION AND SAVINGS

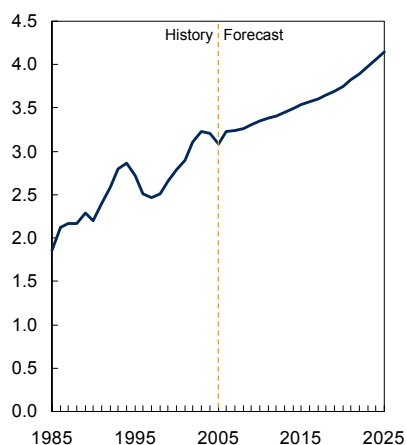
The model links urban household income to our aggregate forecasts by projecting personal income per household at the urban level with factor income per

⁷ See the FAQ for the Consumer Expenditure Survey in the United States, (<http://www.bls.gov/cex/csxfaqs.htm#q20>); Attansio and Banks, “Trends in Household Savings: A Tale of Two Countries,” Institute for Fiscal Studies, 1998.

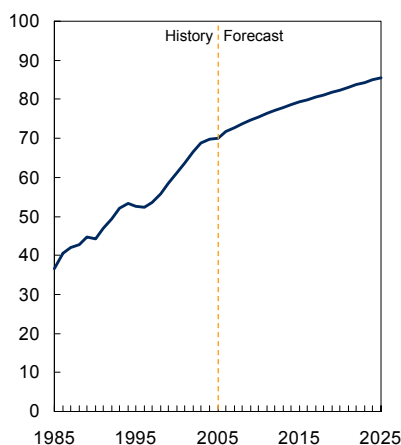
Exhibit B.17

URBAN PER-CAPITA INCOME CONTINUES TO OUTPACE THAT IN RURAL AREAS

Average urban per capita relative to rural per-capita disposable income, 1985-2025*
Ratio



Share of total disposable income captured by urban households, 1985-2025*
Percent



* Rural per-capita income is estimated as a residual from our forecasts of aggregate income and urban disposable income. Calculation assumes that underreporting in rural and urban surveys is equal.

Source: NBS; MGI China Consumer Demand Model, v2.0

household at the national level. Personal income per household provides our top-level constraint for the distribution of personal and disposable income as discussed below. Disposable income in urban areas is computed as personal income less taxes and net transfers.⁸

Driven by the slowdown in factor income growth, total real disposable income in urban areas will grow at 8.0 percent annually over the forecast, compared with 11.7 percent annually between 1985 and 2005. To approximate how well urban areas are doing relative to rural areas, we can assume that the survey reporting error is the same in both areas. Doing so, we find that income growth in urban areas will continue to exceed the national average, so that per-capita disposable income will continue to increase more quickly than in rural areas. However, the pace of growth in urban areas will be closer to the national average, so that the share of disposable income captured there will increase less quickly than in the past (Exhibit B.17).⁹

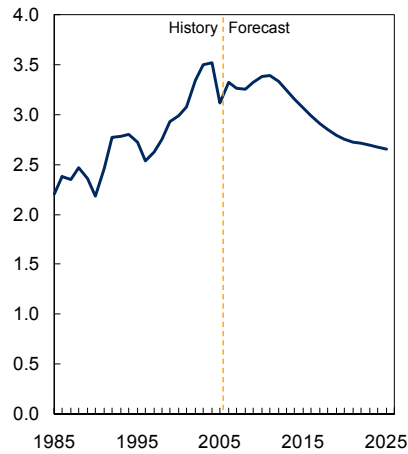
8 Disposable income in urban areas is calculated bottom-up as the sum of disposable income by quantile.

9 Note that the definition of urban areas used by the NBS discussed in Chapter 1 has three implications for the interpretation of our analysis of urban household income, detailed in Box 1 of Chapter 1.

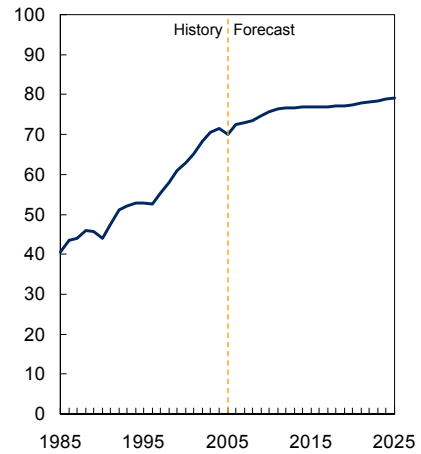
Exhibit B.18

URBAN PER-CAPITA SPENDING ALSO CONTINUES TO OUTSTRIP THAT OF RURAL AREAS

Average urban relative to rural per-capita spending, 1985-2025*
Ratio



Share of total consumption captured by urban households, 1985-2025*
Percent

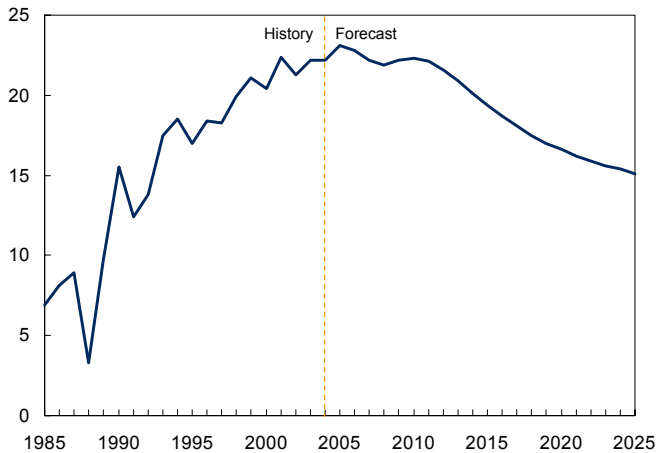


* Rural per-capita income is estimated as a residual from our forecasts of aggregate income and urban disposable income. Calculation assumes that underreporting in rural and urban surveys is equal.
Source: NBS; MGI China Consumer Demand Model, v2.0

Exhibit B.19

URBAN HOUSEHOLD SAVING RATE DECLINES OVER THE FORECAST PERIOD

Urban household saving rate, 1985-2025
Percent of urban household disposable income



Source: MGI China Consumer Demand Model, v2.0

In a similar fashion to urban personal income, we link urban household consumption to our aggregate forecasts by projecting the consumption disposable-income ratio at the urban level with the consumption disposable-income ratio at the aggregate level. We expect real consumption per household in urban areas to increase 5.3 percent annually over the forecast, considerably faster than the 4.5 percent annual increase between 2000 and 2005. As with disposable income, we can approximate how well urban areas are doing relative to rural areas in terms of spending by assuming that the survey reporting error is the same in both areas. Doing so, we find that consumption growth in urban areas will continue to outpace the rate of rural spending by a considerable margin (Exhibit B.18). However, consumption growth in urban areas will be closer to the national average. So, in a similar way to disposable income, the share of total consumption captured by urban Chinese will increase less quickly than in the past.

With consumption growth in urban areas exceeding disposable-income growth, the urban household saving rate will drop from its current historic highs over the forecast (Exhibit B.19). Changing patterns of consumption and savings are discussed in greater detail in Chapter 3.

URBAN DISTRIBUTIONS

To develop forecasts of category-by-category spending across income classes, the model first forecasts the quantile distributions of key national and urban economic and demographic drivers. Doing so enables us to translate our national and urban perspectives into forecasts of disposable income and, ultimately, household spending by quantile. The quantiles that we analyze are reported in the Household Income and Expenditure Survey and are defined to contain a fixed percentage of households. For example, the “less than 5 percent” quantile contains the 5 percent of households with the lowest average household income, while the “90 percent and above” quantile contains the 10 percent of households with the highest average income.¹⁰

To develop our forecast of quantile distributions, we used pooled cross-section time-series techniques. This allows us to leverage a combination of annual household surveys back to 1985 and national and urban time-series data. In all cases, we estimate the income-quantile-specific variables relative to the urban totals, allowing us to help ensure that the quantile estimates aggregate to the

¹⁰ The Household Income and Expenditure Surveys provide information on the less than 5, 5-10, 10-20, 20-40, 40-60, 60-80, 80-90, and 90 percent and above quantiles.

urban totals.¹¹ For example, average household size by income quantile is forecast relative to average urban household size.

Distribution of household size

The quantile distribution of household size is an important driver of the distribution of consumption and the distribution of household employment. The household size of any quantile relative to the urban average is driven primarily by relative disposable income. Relative household size falls as relative income increases across quantiles. The spread of household sizes from the highest quantile to the lowest narrows over history from 1.3 to 0.8 persons as incomes across all classes rise. Over the forecast, the gap increases to 0.9 persons by 2010 where it remains for the rest of the forecast. Higher-income groups capture more of the income created in the economy over the next five years.

Distribution of household employment

The labor-force participation of households, measured as the number of employees divided by household size, is an important driver of the income distribution. Over the forecast period, labor-force participation for each quantile is determined by its relative household size (the supply of available labor) and the growth in real GDP (a proxy for overall labor market demand). In 2004, the average participation rate across all urban households was 52 percent.¹² Quantiles with higher income have higher participation rates. In 2004, the top 10 percent of households had a participation rate of 60 percent, while, for the bottom 5 percent of households, it was 37 percent. This distribution reflects the smaller household sizes of the higher quantiles, and perhaps the lower level of registered employment in the lower income quantiles. Going forward, these distributional differences are expected to remain largely stable.

Distribution of household personal and disposable income

The distribution of personal income across quantiles is the underlying determinant of the distribution of disposable income by quantile and fixed-income brackets. It is therefore the primary driver of the income and consumption distributions in our modeling framework. Personal income by quantile, measured relative to the urban total, is driven by four factors: relative household size by quantile; the change in the urban unemployment rate; the change in the rate of higher-educ-

11 This is also required for the “synthetic equation” approach we use for fixed-bracket forecasts discussed below.

12 Participation rates at the household level are volatile over history because of methodological changes in the survey.

tional attainment; and the income generated by wealth. Disposable income is, by definition, personal income, less taxes and transfers. Since disposable income is computed at the quantile level, total urban disposable income is computed bottom-up based on this distribution. Real disposable income at all levels is calculated with the consumption-price deflator (see Chapter 4 for an additional discussion of the drivers and sensitivities of income distribution).

To compute disposable income, the net tax and transfer rates by quantile are modeled relative to the national tax rate, which stabilized between 14 and 16 percent after 1995. Tax and transfer rates by quantile are tightly clustered until 2002 when a more dispersed pattern emerges.¹³ The net tax and transfer rates become steadily more progressive over the forecast period. By 2025, the “over 90 percent” quantile pays over 16 percent, compared with 5.6 percent for the “bottom 10” quantile. Key drivers of the distribution of net tax and transfer rates by quantile are relative household size and relative personal income.

URBAN CONSUMPTION BY CATEGORY AND ITS DISTRIBUTION

The Household Income and Expenditure Survey divides per-household spending into eight broad, and 18 detailed, subcategories. To forecast household consumption, we first construct projections of consumption by category. We then estimate the distribution of each consumption category across quantiles. Finally, we employ an iterative algorithm to ensure that consumption across categories and quantiles aggregate to the appropriate totals.

Consumption by category

Consumption by category, which is always measured on an average per-household basis, is modeled in a top-down fashion. This helps ensure that forecasts of category consumption can be constrained to total consumption. Broad categories are estimated relative to average consumption per household for all urban households. The detailed categories are modeled constrained to their respective broad categories. For example, food-services consumption is constrained and modeled relative to food consumption, while food consumption is constrained and modeled relative to total urban consumption.

This top-down approach is also used when we specify relative prices—prices in a detailed category are modeled relative to the broad category, and prices in the

¹³ This might be due to methodological changes in the data-collection process (see the Data Sources and Methodology sections of this Appendix).

broad category are modeled relative to the overall price index. Category-level prices are estimated as linear functions of agriculture, industry, and services sector prices, which we take as exogenous.

We specify an equation for each consumption category. In addition to average disposable income per household and relative prices, in categories where financing plays a role, such as household items, personal goods, and transportation and communication, we include long-term interest-rate forecasts as a driver. Additional drivers such as urbanization and educational enrollment are also used where appropriate. See Chapter 3 and Appendix A for a full description of our consumption forecasts at the product-category level.

Distribution of category consumption

To estimate the quantile distribution of consumption by category, we combine our estimates of the income distribution with those of category consumption. The distribution of each category by quantile is modeled relative to total category consumption and is driven by relative disposable income and relative household size by quantile. Implicitly, we assume that each quantile is equally sensitive to relative prices.

Although our specifications, which are based on relative quantities, keep our forecasts of consumption by quantile from diverging significantly from the forecast total, we must ensure that adding up is imposed. This is accomplished with an iterative proportional-fitting algorithm, which ensures that the forecast satisfies two constraints. First, the sum of consumption by income quantile in a given category equals the total estimated consumption in that category. Second, the shares of category consumption in a given income class total 100 percent. Once these constraints are met, the quantile-based consumption forecasts are complete.

FIXED-BRACKET TRANSFORMATION

A limitation of the quantile model is that the quantiles are defined across households, so the income cut-off point between quantiles changes over time. This restricts our ability to understand the evolution of income distribution and identify customer segments with specific amounts of real disposable income to spend. More meaningful comparisons are possible when we transform the data into fixed brackets based on constant inflation-adjusted cut-off points. To do this, we estimate the underlying income distribution using a model based upon the Dagum function. Once we have estimated the Dagum distribution, we employ “synthetic equations” to estimate consumption per household by category, based upon the fixed-bracket distribution.

Estimating the Dagum distribution

The Dagum function is a closed-form invertible, cumulative distribution function, which has been found to provide accurate estimates of income distribution in more than 60 countries.¹⁴ The four-parameter cumulative distribution function derived by Dagum¹⁵ may be written as:

$$F(x) = \alpha + \frac{(1 - \alpha)}{(1 + \lambda x^{-\delta})^\beta}$$

where x is the share of total urban disposable income, β and δ are shape parameters, which reduce inequality as they increase, and λ is a scale parameter. The scale parameter allows us to estimate the function with different monetary units while leaving the other parameters unchanged. This allows for direct comparison of income distributions across time and between countries. The fourth parameter, α , can be used to adjust the distribution for null or negative income.¹⁶ As the cross-sectional data used in this model do not have these null or negative values, we assume $\alpha=0$ and estimate a three-parameter version of the distribution.

The Dagum function produces estimates of household quantiles given any disposable-income share; the inverted Dagum function produces disposable income shares, based upon household quantile cut-off information. Since we have quantile information from the survey, and we want to estimate the distribution of disposable income by fixed-brackets cut-offs, we estimate the parameters of the inverted Dagum function using non-linear least squares for each year in the sample. As we do not have access to the underlying micro-survey data, and this limits the available observations for any year, we pool the observations for the current year with those of the prior and following year. In addition, because of limited information in the upper tail, we impose a constraint during the estimation procedure that ensures the upper tail of our estimate is well-behaved, and the distribution remains bounded.

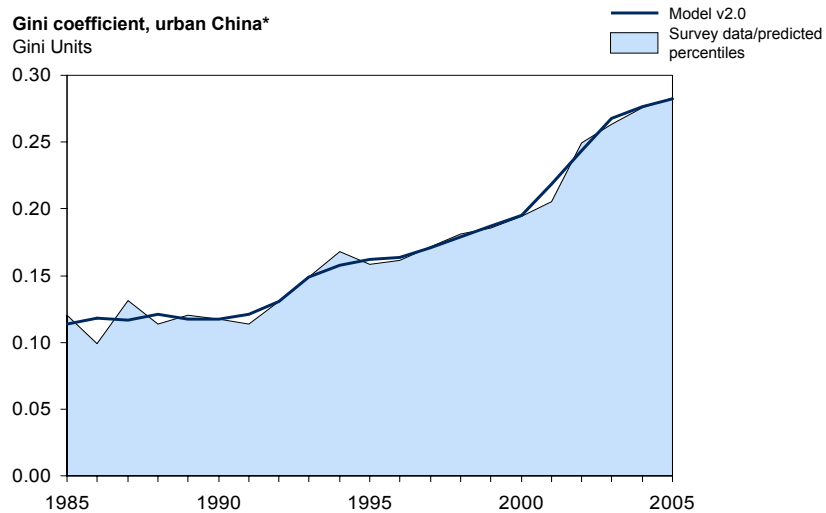
14 Campano, F. and Salvatore, D., "Income Distribution," *Oxford University Press*, 2006, pg. 51. Dagum derived the function based on several observed properties of income distributions. Income distributions are consistently skewed rightwards and unimodal; distributions have a small number of households with null or negative income; and the income elasticity of the cumulative distribution function falls monotonically as incomes increase.

15 Dagum, C., "A New Model of Personal Income Distribution: Specification and Estimation", *Economie Applique*, Vol 30, 1977, pp. 413-437.

16 Gertel, H et al., "Unemployment and Income Distribution Analysis", paper presented at the AAEP Annual Conference, 2001.

Exhibit B.20

ESTIMATES OF FIXED-BRACKET INCOME DISTRIBUTION TRACKS UNDERLYING PERCENTILE DISTRIBUTION WELL



* Dagum function was aggregated to match percentile brackets from the survey eliminating any distortions from granularity of the grid size. Gini's calculated with 10,000 point grid are approximately three Gini points higher.
Source: MGI China Consumer Demand Model, v2.0

Once we have an estimate of the Dagum parameters, we create a fine grid with the same number of households, and use the Dagum function to estimate the share of total disposable income held by each cell in the grid.¹⁷ Since we know total urban disposable income and the number of households in each grid point, we can calculate the percentage of households and their total disposable income for any level of income per household we define as a fixed-bracket cutoff point. For example, if we define a cutoff of 25,000 renminbi per household, we can “walk up” the grid, calculating for each grid point the average household income. Once we reach the cutoff, we can aggregate the number of households and the total disposable income that characterizes that income class. Proceeding in this way, our estimates of the Gini coefficient, a summary measure of income distribution, is extremely close to values calculated using the underlying quantile data (Exhibit B.20).

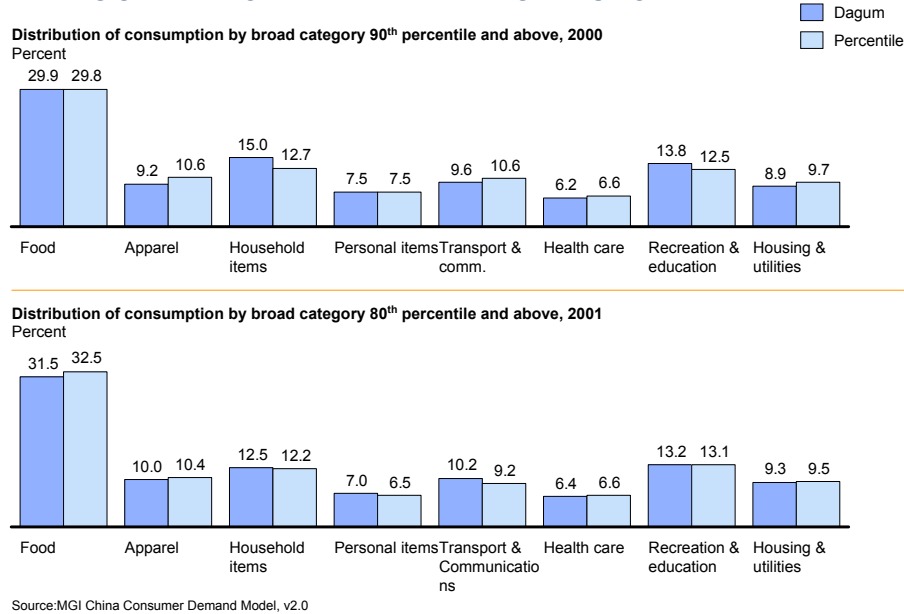
The synthetic equation approach

To produce forecasts of category consumption by fixed-bracket income class, we leverage the equations estimated using quantile-based information. This “synthetic equation” approach is possible because we have specified our category

¹⁷ Each grid point in our operational model contained 1/100th of a percent of total households.

Exhibit B.21

DISTRIBUTION OF CONSUMPTION USING THE FIXED-BRACKET DATA IS SIMILAR TO THE PERCENTILE DISTRIBUTION



distribution equations in relative terms. As described above, for each consumption category, the average consumption per household by quantile, relative to average consumption per household for all urban households, is regressed against average income per household and average household size by quantile, relative to their all-urban per-household averages. Thus, we can use relative household income by quantile or fixed bracket, and the equations are valid. This approach works as long as all parameter estimates in the pooled cross-section time-series specifications have common coefficients across income classes (i.e., there is no allowance for fixed effects).¹⁸

As in the percentile model, we use the iterative proportional-fitting algorithm to ensure that the consumption shares for a given bracket add up to 100 percent, and that total consumption by bracket equals total consumption by category. The distribution of the consumption shares based on our estimate of the Dagum distribution is extremely close to the percentile-based shares (Exhibit B.21). Once this process is completed for each year from 1985 to 2025, the forecast of category consumption by fixed-income bracket is complete.

¹⁸ Note that distribution of household size is also relative to disposable income so the same argument would apply.

DATA SOURCES AND METHODOLOGY

In this section, we describe the data sources used in the urban China model. As the data is assembled from multiple sources with varying coverage, we also describe the process used to develop a consistent historical database. This section is divided into three sections:

- Data sources
- Reconciling sources and methodologies
- Imputing data

Data Sources

The China National Bureau of Statistics (NBS) is the primary source of data for the model, supplemented by World Development Indicators (WDI), United Nations (UN) Population Division, International Monetary Fund (IMF), Global Insight (GI), and Haver Analytics.

While there is general agreement among sources, there are some discrepancies and differences in coverage. For example, data published by the NBS begins in 1978 and is sparsely reported until 1989. In this case, complementary data from international sources are available. Thus, we maximize the coverage and completeness of the data reported directly by the NBS with the data compiled by the international agencies.

Data on four concepts were collected:

1. *Macroeconomic data.* The model uses data on the components of GDP, the financial sector, and the labor market. GDP by sector and expenditure were obtained from the 2005 NBS Yearbook, WDI and GI's World Economic and World Industry Services. Revisions to GDP at factor cost and expenditure, published through June, 2006, were fully incorporated into the model. Financial data on exchange rates, interest rates, and the balance of payments were obtained from the IMF International Financial Statistics via GI. Employment and labor force data were obtained from the 2005 NBS Yearbook.
2. *Socio-demographic data.* Population and education data were obtained from similar sources. Overall population and urbanization rates were obtained from the NBS, WDI, and the UN. Detailed population data were obtained from the WDI and the UN. Detailed population projections were obtained from

the UN. Primary and secondary enrollment, attainment, and graduation data were obtained from the NBS.

3. *Household income and expenditure data.* The Household Income and Expenditure Surveys (HIES) from the NBS provided the underlying data for 1985 to 2004 on income by seven percentile groups and several expenditure categories. The definition and detail of the expenditure categories varies over time. Additionally, HIES provides information on household size and employment by percentile group.
4. *Price data.* The NBS Yearbooks provide price series on expenditure categories for 1985 to 2004. The definitions of these categories vary over time. Deflators for the components of GDP by expenditure were obtained from WDI. Deflators for value added by sector were obtained from NBS.

We developed a consistent database by developing processes to reconcile the different sources and those methodologies that vary over time.

Reconciling sources

The macroeconomic and the socio-demographic data from different sources were calibrated using a hierarchical splicing process. A key principle of this process is that we use a “ratio-preserving” method, which incorporates information from the source beyond the series of interest. This process involved the following steps:

- Ranking sources by authoritativeness, using the NBS data as the most authoritative, and the World Bank WDI as the next preferred source.
- Constructing a ratio, using a reference series for each variable of interest and each source. For example, to add additional history to the national consumption data published by NBS, we use the ratio of consumption to GDP. The same ratio is constructed using NBS, WDI and GI data.
- Interpolating the gaps in the series using the ratios from the preferred source. For each gap, we look at the points of overlap between the source and the base series to calculate a scaling factor. This factor can be applied to the spliced series so it smoothly matches the base series.

Reconciling methodologies

There are differences in the household survey design and coverage, which create discontinuities in the income, expenditure, category prices, and expenditure by

category series. The household survey has three distinct subsamples (1985-1992 and 1994; 1993 and 1995-2001; and 2002-2004), each of which have coherent definitions and measurement techniques. The Consumer Price Index (CPI) data, used to calculate the price series, have similar subsamples.

We use a number of techniques to mitigate, but not eliminate, the discontinuities in the income and expenditure series, and the category price and expenditure series.

Income and expenditures. There are two sets of discontinuities in the income expenditures series, which occur when the subsamples switch (1992-1994; and 2002). The discontinuities were handled in different ways:

- The 1992 to 1994 discontinuity occurs because the subsamples are alternating during these years. We interpolated a “fitted” value for 1994 using the 1993, 1995 to 2001 subsample. Then we calibrated the income and expenditure series in the 1985-1992 and 1994 subsample to the interpolated 1994 value. Category-consumption series were scaled by preserving the share of consumption over the subsamples.
- Applying a similar process to the 2002 discontinuity would have made comparisons with “as-published” data impossible for 85 percent of the sample because of definitional changes. The discontinuity was therefore explicitly accounted for during the estimation process.

Category prices and expenditures. Expenditure and price-category definitions also varied over time. Further, the price-category definitions did not precisely match the expenditure definitions. In both cases, we followed a similar process to produce consistent series:

- Using the definitions in place since 2002, which are more closely aligned with international conventions, we created broad consumption categories.
- Prior years’ consumption series were appended to the post-2002 series using the concept that most closely approximates the 2002 definitions.
- For prices, the categories may be weighted-averages of subcategories, while expenditures are the total of subcategories.

Imputing data

The data reconciliation process produced consistent and nearly complete historical expenditure and consumer-price data for eight broad categories for 1985 to 2004. As we have just discussed, gaps in the base NBS series were estimated and filled, using data from other sources, but no other sources were available to fill prices and consumption at the detailed category level. To impute this data, a three-step procedure was followed:

1. Estimating an econometric model using available data. Detailed prices were estimated as the weighted averages of sectoral output price indices (e.g. price indices for the agriculture and service sectors). Detailed expenditures were estimated using category-specific variables, income, and the estimated prices.
2. Generating back-casts of all variables. The model is then solved over the 1985 to 2004 period.
3. Splicing the back-casts onto the existing series. Using the ratio-preserving technique used above, the back-cast ratio of the detailed to the broad category is spliced onto the actual ratio.

MODEL REVISIONS

Earlier this year, the *McKinsey Quarterly* published an article based on the results of Version 1.0 of MGI's China Consumer Demand model.¹⁹ Since then, the NBS has released new and revised GDP by expenditure data; GI has updated the endogenous variables we use in our forecasts; and we have had the opportunity to refine our modeling on a number of fronts. The collective impact of these changes on our views about the emerging Chinese consumer has been to accelerate the pace at which the middle class develops. The changes incorporated in the period between the *Quarterly* article and publication of this report were the following:

NBS data revisions

In January, 2006, the NBS released revised estimates for GDP at factor cost for the years 1993-2004. No information was provided on GDP by expenditure, so we estimated the components of final demand, taking into account the sectoral composition of the new GDP estimates. Because much of the revision to GDP

¹⁹ See Diana Farrell, Ulrich A. Gersch, and Elizabeth Stephenson, "The value of China's emerging middle class," *The McKinsey Quarterly* 2006 Special Edition: Serving the new Chinese consumer, pp. 60-69, (http://www.mckinseyquarterly.com/article_page.aspx?ar=1798).

at factor cost was to the services sector, we, along with other outside observers, assumed that there would be a substantial upward revision to private consumption when the GDP by expenditure data were released.²⁰ In March, 2006, revised numbers for GDP by expenditure for 2004 were released; in May, the 2005 GDP by expenditure numbers were published. These releases did not show substantial upward revisions to private consumption. This substantially altered our view of recent macroeconomic performance, and caused us to revise our estimates of the 1993-2003 period (for which no updated GDP by expenditure information has been released). Because of the top-down nature of our modeling strategy described in detail above, these changes had a significant impact on our projections in Version 2.0 of the model and this has been encapsulated in this report.

Updated forecasts from Global Insight

The revisions to GDP along with incoming quarterly data from China, has caused GI to revise up significantly their growth projections for the years 2006-2015, with smaller changes thereafter. For 2006, the growth forecast was revised up from 8.4 percent to 9.9 percent; for 2007, from 8.2 to 8.9 percent. For 2008-2015, the new forecast had annual growth between 10 and 20 basis points higher than the earlier forecast. In Version 2.0 of our model, higher GDP growth translates directly to stronger income and consumption growth.

Methodological refinements

In the current version (Version 2.0) of our model, we have incorporated the flow-of-funds data published in the statistical abstract, which allows us more precisely to estimate national savings as well as the aggregate savings behavior of households, corporations, and government. Because the revised GDP by expenditure data implies private-consumption shares at record lows, this additional element of our model allows us to understand more precisely how the forecast has to evolve so that consumption rebounds, and China develops a more consumer-driven economy. Relative to our Version 1.0 forecast, the national and household saving rates are now forecast to fall toward more sustainable levels from their current record highs.

A second methodological refinement involves a new estimation procedure for the parameters of the Dagum function, which we use to specify our income distribu-

²⁰ Kuijs, Luis, "How Will China's Saving-Investment Balance Evolve?" *World Bank Policy Research Working Paper* 3958, July 2006.

tion. Because of the limited sample information, particularly at the tails of the distribution, Version 1.0 of the model used a Pareto Distribution (a distribution widely used to model the upper tails of income distributions) to help estimate the top 3-5 percent of our income distribution. The Dagum and Pareto distributions were combined to form our estimate of the fixed-bracket income distribution. This method, however, created some issues at the splice point of the two distributions. In the current version, we have implemented a new approach to estimating the Dagum distribution, which eliminates the need to use the Pareto distribution in the upper tail. This procedure, which involves estimating the income cutoff point at the 99th percentile, effectively creates a constraint on the tail of the distribution function, ensuring that it is well-behaved and the Dagum distribution remains bounded. This greatly improves the accuracy of the Dagum estimates (see Exhibits B.20 and B.21).



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