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Understanding Household Consumption in China

The Role of Urbanization and Other Factors

Abstract

In this paper we first examine the determinants of the consumption share in China's GDP and then analyze urban and rural household consumption expenditure patterns. Using international and China's regional data, we empirically assess the importance of urbanization, demographics, and income growth, among others, in explaining the recent declines in China's household consumption/GDP ratio. The effect of urbanization on consumption is found to be significant in both data sets and particularly large in China's regional data, while income growth and the age-structure of population also play large roles in determining the consumption/GDP ratio. Applying these empirical results, we project that the consumption share will stabilize over the next 15 years, with the effects of rapid urbanization and population aging gradually offsetting the effect of income growth. We also analyze the implications of urbanization for the spending pattern of Chinese households. Based on a careful comparison of urban and rural consumption patterns, we find that the household consumption mix has been gradually moving toward mid- to high-end consumer products and services. The future trends in household spending are also discussed.

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1. Introduction

China's total consumption/GDP ratio and household consumption/GDP ratio are relatively low internationally and have been declining over the last few years, attracting much attention from the government and researchers. According to World Bank data, China's household final consumption expenditure accounted for only 44.6% of GDP in 2003. Taking into account government consumption, China's total final consumption was 57.2% of GDP. These figures are quite low compared with data on developed countries like the US, the UK, Japan, and many developing economies in Asia (Table 1).

A low consumption rate implies a high saving rate. China's savings are channeled into investment through financial markets and also become a source of international lending in the form of current account surpluses. Hence, low consumption is believed to be one of the primary culprits for China's structural problems like excessive investment and over-reliance on exports. As final government consumption is largely determined by the government's fiscal policies, this paper will focus on household consumption.

Table 1: China's Final Consumption/GDP and Household Final Consumption/GDP Ratios Are Relatively Low

	Total Final Consumption	Household Final Consumption Expenditure	Household Final Consumption Expenditure
(As Percentages of GDP)	2003	2003	1980-2003 Average
US	86.0	70.8	66.7
Japan	74.4	56.9	56.1
UK	86.5	65.5	65.2
China	**57.2**	**44.6**	**48.8**
South Korea	66.9	53.6	54.0
Malaysia	57.7	43.7	48.5
Singapore	55.1	43.3	44.5
Thailand	67.3	56.7	55.3
India	75.3	64.0	70.2
World	**79.1**	**62.0**	**60.3**

Note: US and world data are up to 2002. Source: WDI, CICC Research

What are the determinants of a country's consumption/GDP ratio? Many possible factors come to mind. For example, the degree of urbanization has been found in previous literature to have a significant and negative effect on the saving rate (and thus a positive effect on the consumption rate). This is because in general the agricultural population has less diversified sources of income, and therefore tends to have higher precautionary saving. In addition to urbanization, a variety of other factors, such as the income level, the age structure of population, government social spending, and the development of the consumer credit market, can all in theory affect a country's propensity to consume.

Sorting out the effects of these individual factors thus is important for understanding the consumption behavior of Chinese households and its macroeconomic consequences. We analyze two datasets (one

international and one Chinese regional) to explain China's consumption from two different perspectives. In addition to shedding light on the recent consumption behavior, we also use the results from the empirical evidence to project future consumption trends.

The rest of the paper is organized as follows. In Section 2, we briefly describe the recent changes in consumption and urbanization in China. Section 3 and 4 present empirical results and use these results to explain recent changes in China's consumption, where some policy implications are also discussed. Section 5 turns to the structure of household spending, where we discuss the differences between urban and rural household consumption patterns and predict how the spending structure will evolve in the next 10-15 years. Section 6 summarizes the paper.

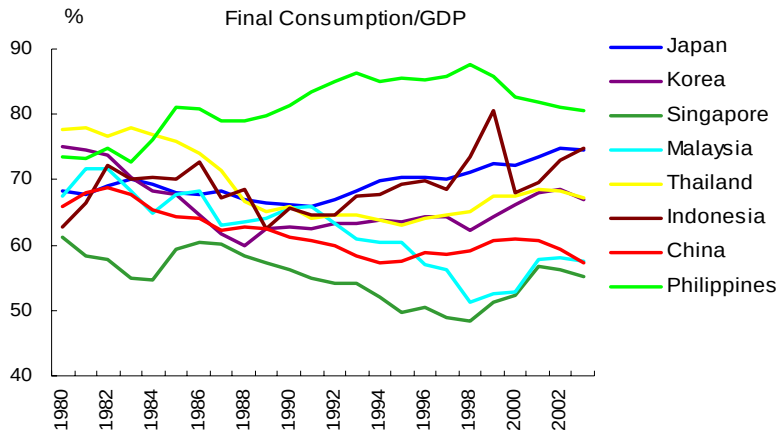
2. Consumption and Urbanization in China: An Overview

Consumption

China's household consumption/GDP ratio dropped significantly after the adoption of reform and opening policies and has followed a secular downward trend. During 1970~77, the household consumption/GDP ratio in China averaged at 63.4%, well above that of Japan (51.3%) and was comparable with those in South Korea, Thailand, Malaysia and Singapore. This ratio declined gradually from 54.2% in 1982 to 44.5% in 1994, rebounded modestly after 1995 and reached 47.9% in 2000, but slumped again after 2000 to 42.4% in 2004, a 25-year low (Charts 1 and 2). (World Bank statistics differ slightly from China's official data).

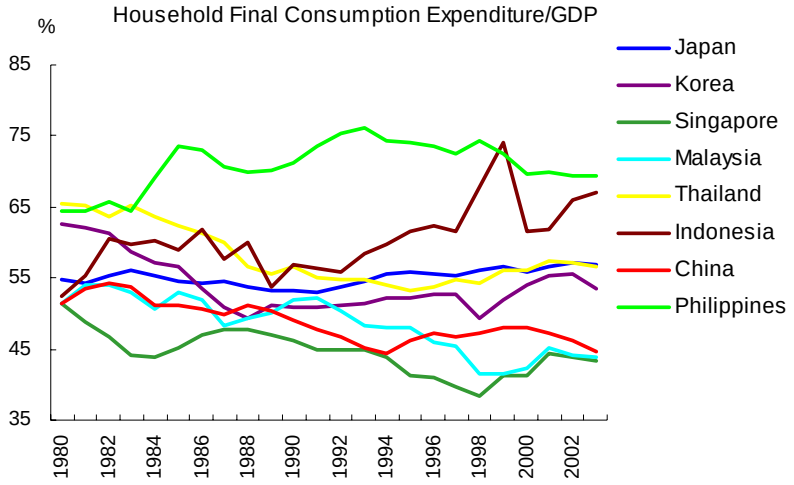
Changes in the consumption/GDP ratio only reflect changes in the **relative** growth rates of consumption and GDP. Chart 3 illustrates five-year average GDP and household consumption growth rates since 1980. As household consumption growth decelerated significantly during 2000~2003 and fell further behind GDP growth, the household consumption/GDP ratio also evidenced a large drop.

Chart 1: Final Consumption/GDP Ratio since 1980: China and Selected Asian Countries



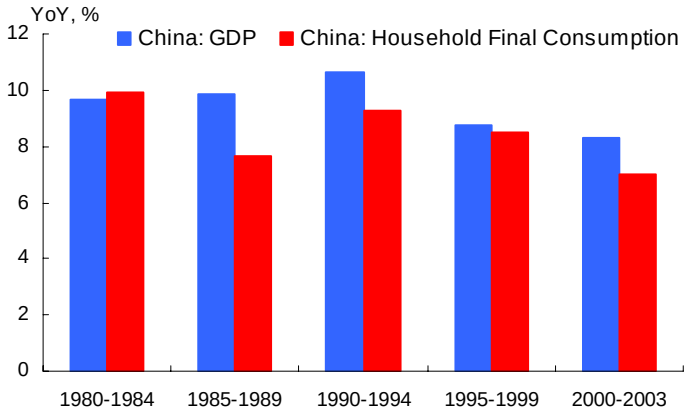
Source: WDI, CICC Research

Chart 2: Household Final Consumption Expenditure/GDP Ratio since 1980: China and Selected Asian Countries



Source: WDI, CICC Research

Chart 3: Growth of China's GDP and Household Final Consumption Expenditure since 1980



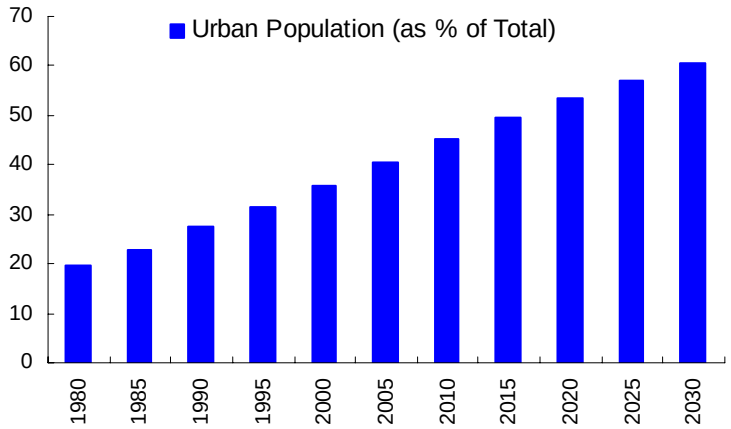
Source: WDI, CICC Research

The decline in household consumption/GDP ratio after 2000 and the slower growth of household consumption over 2000~03 are due in part to statistical errors. Along with China's strong economic growth in recent years, the service sector has become a growing part of the economy. The NBS' GDP revision is mostly on the tertiary sector, showing that the service sector has been increasingly underestimated since 1994. Growth of the tertiary sector was revised up by 1.2ppt on average for the 1994~1999 period and by 1.7ppt for the 2000~2004 period. Since a greater part of service output is for consumption, it is likely that household consumption has also been increasingly understated over the years. Thus, it is reasonable to assume that the decline of household consumption/GDP ratio since 2000 (Chart 2) is overstated. To accurately assess the extent of the overstatement, we have to wait for the NBS' detailed revised GDP data based on the expenditure approach.

Urbanization

The pace of urbanization in China has been rapid. The percentage of population living in urban areas rose from 19.6% in 1980 to 43.0% in 2005. The United Nations projects that in 2030 China's urban population share will reach 60.5% (Chart 4).

Chart 4: Urbanization Rate Has Been Increasing



Note: Estimates beyond 2005 are from the UN. Source: WDI, UN, CICC Research

Across provinces, there is a large variation in the degree of urbanization. Generally speaking, the three northeastern provinces are more urbanized, which had around 50% or more of population living in urban areas in 2000. The southeast coast (Jiangsu, Zhejiang, Fujian, Guangdong, Hainan) all had urbanization rates above 40% and significantly higher than the national average, whereas all western provinces fell below the average level (Table 2).

Table 2: Urbanization Rates across Provinces (percent, 2000)

Nation	36.1	Henan	23.2
		Hubei	40.2
Beijing	77.5	Hunan	29.8
Tianjin	72.0	Guangdong	55.0
Hebei	26.1	Guangxi	28.2
Shanxi	34.9	Hainan	40.1
Inner Mongolia	42.7		
		Chongqing	33.1
Liaoning	54.2	Sichuan	26.7
Jilin	49.7	Guizhou	23.9
Heilongjiang	51.5	Yunnan	23.4
		Tibet	18.9
Shanghai	88.3		
Jiangsu	41.5	Shaanxi	32.3
Zhejiang	48.7	Gansu	24.0
Anhui	27.8	Qinghai	34.8
Fujian	41.6	Ningxia	32.4
Jiangxi	27.7	Xinjing	33.8
Shandong	38.0		

Note: National Bureau of Statistics, CICC Research

3. International Evidence and Implications for Household Consumption in China

Our international data set covers 161 countries over the period of 1980~2004. Through econometric analysis on this panel data set, we first identify key factors affecting the household consumption/GDP ratio, and then apply the findings to uncover the causes of the low household consumption/GDP ratio in China and its gradual decline over the last 20-plus years.

According to economic theories on consumption and savings, the basic determinants of the household consumption/saving ratio include income per capita, income growth, the real interest rate, inflation, demographics, urbanization, and the consumer credit system. Hence, we collected these data and conducted a regression analysis with household consumption/GDP ratio (in percentage points) as the dependent variable. To be precise, the household consumption/GDP ratio is not exactly the consumption rate because it also depends on the proportion of household disposable income in GDP. To deal with that, we included the government consumption/GDP ratio into our regression equation. Government consumption has to be financed by tax revenue or borrowing, and high government consumption will reduce household disposable income. Therefore, this variable has a negative effect on the household consumption/GDP ratio. Qualitatively speaking, the impacts of these variables on the household consumption/GDP ratio are mostly consistent with theoretical predications (Table 3).

Table 3: Regression Results: Determinants of Consumption/GDP Ratio

Dependent Variable	Household Consumption/GDP (%)				
	(a)	(b)	(c)	(d)	(e)
	All	All	Developing	All	All
log per capita GDP	**-6.654**	**-7.090**	**-7.332**	**-6.326**	**-0.816**
	(19.57)	(21.44)	(16.46)	(8.90)	(5.28)
per capita GDP Growth	**-0.091**	**-0.032**	**-0.057**	**-0.234**	**-0.565**
	(1.92)	(0.69)	(1.01)	(1.67)	(1.48)
Government Consumption/GDP	**-0.673**	**-0.821**	**-0.885**	**-1.190**	**-1.196**
	(17.20)	(20.79)	(17.97)	(10.40)	(5.96)
Real Interest Rate	**0.041**	**0.039**	**0.043**	**0.046**	**0.194**
	(3.96)	(3.85)	(3.53)	(0.95)	(1.50)
Inflation	**0.000**	**0.000**	**0.000**	**-0.043**	**-0.052**
	(0.47)	(0.39)	(0.41)	(1.50)	(0.88)
Credit to Private Sector/GDP	**0.017**	**0.059**	**0.036**	**0.018**	**0.028**
	(1.99)	(6.79)	(2.38)	(1.14)	(0.95)
Population Aged 0-14 (%)	**0.597**	**0.361**	**0.231**	**0.270**	**0.448**
	(9.74)	(5.83)	(2.59)	(2.11)	(1.63)
Population Aged 65+ (%)	**1.831**	**1.281**	**0.957**	**0.752**	**2.292**
	(14.86)	(10.15)	(4.32)	(2.97)	(4.30)
Urban Population (%)	**0.074**	**0.064**	**0.053**	**0.028**	**0.013**
	(4.39)	(3.91)	(2.39)	(0.79)	(0.17)
East and Southeast Asia		**-12.029**	**-12.917**	**-7.959**	**-2.410**
		(13.36)	(10.39)	(4.26)	(0.72)
Public Education and Health Spending/GDP (%)				**1.196**	**1.198**
				(5.00)	(2.47)
GINI Index					**0.349**
					(3.05)
R^2	0.445	0.480	0.375	0.532	0.760
Number of Observations	2663	2663	1951	437	75

Note: t statistic in the parenthesis.

Source: CICC Research

It is well known that household saving rates are relatively high in East and Southeast Asia. The six countries in this region in Table 1 all have consumption/GDP ratios below the world average, which may be partly due to cultural reasons. To address this problem, we added a dummy variable to represent these countries. As expected, the coefficient on this variable is negative and statistically significant. The household consumption/GDP ratios in these countries are on average about 12ppt below other nations. In light of this characteristic, we retain this dummy variable in our regressions.

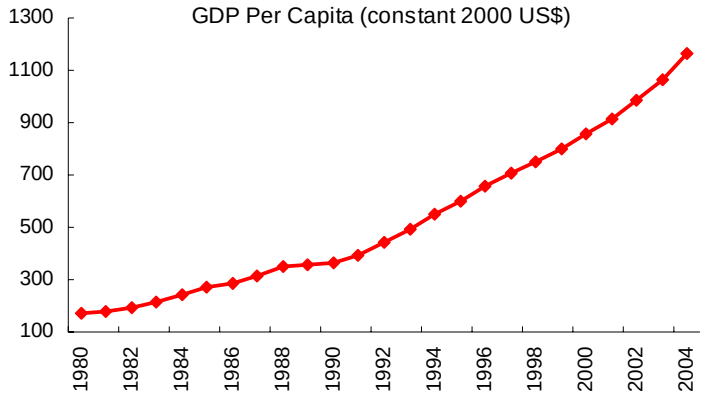
Rising income and declining share of 0~14-year olds in total population are the main reasons that household consumption/GDP ratio declines long-term

Among the various factors affecting the household consumption/GDP ratio, income per capita carries a negative, and statistically very significant, correlation coefficient with the ratio. In other words, a higher

income per capita would reduce the ratio. This is because part of the household consumption is subsistence consumption, which is necessary even when income is very low. In countries with low income per capita, subsistence consumption expenditure of course makes up a high proportion of income, leaving little room for savings. Hence, the household consumption/GDP ratio is high when income is low. As income grows, an increasing portion of income can be saved, so the growth of savings should outpace the growth of disposable income. This implies that the household consumption/GDP ratio falls as income rises.

The above result is key to understanding household consumption trends in China. To a large extent, the long-term decline of China's household consumption/GDP ratio since the beginning of reform/opening can be explained by strong economic growth and rising household income. At present, China's income level is still relatively low in the world, and subsistence consumption accounts for a relatively high proportion of household disposable income. On the other hand, a rapidly growing developing country needs fast capital accumulation, indirectly driving up demand for savings. Both effects tend to reduce the consumption/GDP ratio. The evidence from international data shows that a 1% rise in income per capita results in a 0.071ppt decline in the household consumption/GDP ratio. China's GDP per capita grew at an average annual rate of 8.2% over 1980~2004 (Chart 5). As a rough estimate, other things equal, income growth in China cumulatively reduced the household consumption/GDP ratio by 14.6ppt (0.071*8.2*25).

Chart 5: China's GDP per Capita Rose Rapidly after 1980



Source: WDI, CICC Research

Some other Asian countries had similar experiences when their economies experienced fast economic growth (Table 4). For example, South Korea and Singapore began taking off in the mid 1960s, and their household consumption ratios fell sharply over the next 20~30 years along with robust economic growth.

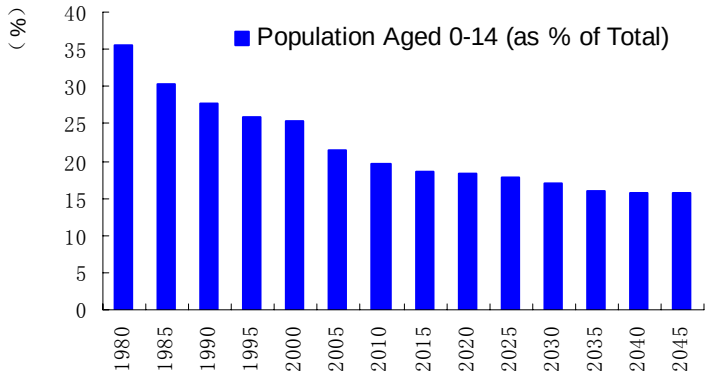
Table 4: Household Consumption/GDP Ratio Also Plunged in Other Countries

Country	Period	Starting Household Consumption/GDP Ratio (%)	Ending Household Consumption/GDP Ratio (%)	Change
South Korea	1964-90	84.4	51.8	-32.7
Malaysia	1981-97	57.1	45.4	-11.8
Singapore	1965-95	79.7	41.3	-38.4
Thailand	1979-96	67.5	54.3	-13.3

Source: WDI, CICC Research

Another steady trend in China after 1980 is the secular decline in the percentage of 0~14-year olds in total population, falling from 35.5% in 1980 to 23.1% in 2004 (Chart 6). As is well known, this is due to China's family planning policy implemented at the end of the 1970s. As few 0~14-year olds work and earn incomes, this is a pure consumer age group. Our analysis shows that each percentage point decline in the proportion of this age group results in a 0.36ppt fall in the household consumption/GDP ratio. We estimate this demographic trend may account for 4.5ppt of the decline of China's household consumption/GDP ratio in the past 25 years.

Chart 6: Children under 14 Making Up Less of the Population in Recent Years



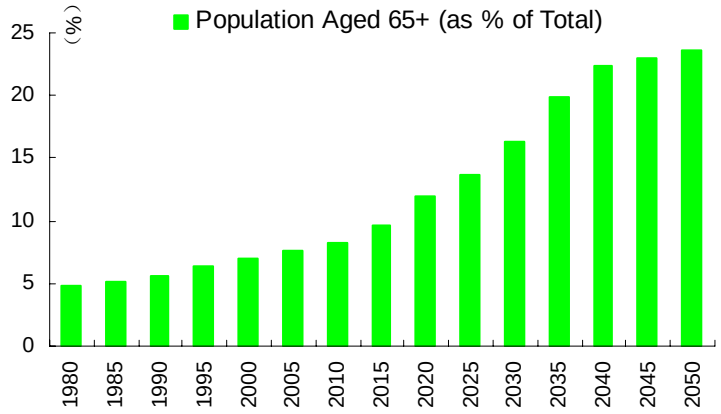
Note: Estimates beyond 2005 are from the UN Source: WDI, UN, CICC Research

Urbanization and greying population mitigate the decline in the household consumption/GDP ratio

From the estimated regression coefficients, we find that changes in the proportion of the >65-year age group has a relatively greater impact on the household consumption/GDP ratio. A percentage point rise in the proportion of this age group would raise the latter by 1.3ppt. Most people above 65 years old are retired with incomes much lower than their earnings before retirement. Hence, they have to scale down savings to supplement current consumption. In China, the proportion of this age group increased slowly from 4.7% in 1980 to 7.3% in 2004, somewhat mitigating the decline in the household consumption/GDP ratio. The UN projects that the aging of China's population will accelerate, and the

proportion of the >65-year age group may further rise to 11.9% in 15 years (2020, Chart 7). Therefore, this group will have an increasingly large impact on China's consumption.

Chart 7: Population Aging Will Accelerate in the Next 30 Years



Note: Estimates beyond 2005 are from the UN. Source: WDI, UN, CICC Research

Urbanization can raise households' propensity to consume. The income of rural populations is relatively less certain since they rely on fewer revenue sources, and are vulnerable to changes in natural conditions and fluctuations in the prices of agricultural products. As a basic rule of individual consumption behavior, people increase precautionary savings when their source of income becomes less certain. Other things being equal, a country with low urbanization would have a high savings rate, and thus a low household consumption/GDP ratio. Our results show that each percentage point increase in the portion of urban population would result in a 0.06ppt rise in the household consumption/GDP ratio.

As these trends continue, income growth will no longer dictate changes in China's household consumption/GDP ratio over the next 15 years

It is reasonable to assume that the growth of income per capita will slow over the next 10~15 years. The central government has reiterated that China should change its growth model and switch to a more scientific pattern of social and economic development. Besides simple GDP growth, the government will pay greater attention to more social/economic issues like energy conservation, environmental protection and income equality. In the past 25 years, the negative impact of rising income has been the key factor driving the consumption/GDP ratio changes. However, assuming that China's GDP per capita grows 7.0% over the next 15 years (still a high rate), rough calculations based on the regression results suggest that it will no longer dominate in the future.

The slower growth assumption aside, this is because China's demographic change will take a significant turn in the next 15 years. The decline in the percentage of the 0~14-year age group will decelerate significantly from 12.4ppt over 1980~2004 to only 3ppt over the next 15 years, according to UN forecasts. Meanwhile, the proportion of the over-65 age group may expand by 4.3ppt over the next 15 years, well above the 2.6ppt expansion recorded over the past 25 years. The faster aging process will continue until 2040 and slow down afterwards. Moreover, the UN also forecasts that China's urbanization will continue to progress at a steady pace, positively affecting consumption.

With the estimated elasticity coefficients, we compared the possible impacts of income growth,

demographic changes and urbanization on the household consumption/GDP ratio over 2006~2020 with those over 1980~2004 (Table 5). The purpose of this comparison was not to accurately measure the influence of each factor, but to gauge their relative magnitudes and reach more qualitative conclusions. As shown in Table 5, the consumption/GDP ratio will be subject to a greater influence by aging in the future, and a smaller impact from the decline in the percentage of the 0~14-year age group. Overall, the impacts of the three major secular social trends on consumption should largely offset each other over the next 15 years.

Table 5: Predicted Impacts of Income Growth, Demographics and Urbanization on the Household Consumption/GDP Ratio over 2006~2020

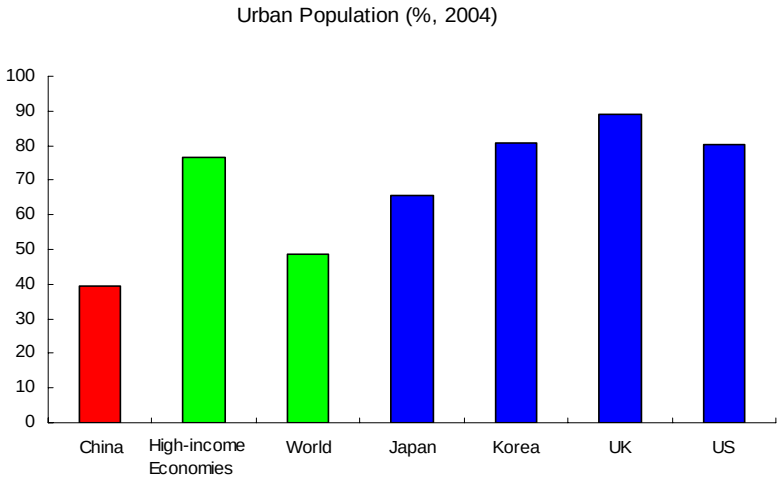
	Actual changes over 1980-2004	Estimated impacts on household consumption/GDP Ratio	Forecasted changes over 2006~2020	Estimated impacts on household consumption/GDP Ratio
Growth of Income Per Capita	8.2% each year	-14.56	7.0% each year	-7.46
Urbanization	From 19.6% in 1980 to 38.6% in 2004	1.22	From 40.5% in 2005 to 53.6% in 2020.	0.84
Percentage of Population Aged 0-14 in Total Population	From 35.5% in 1980 to 23.1% in 2004	-4.48	From 21.4% in 2005 to 18.4% in 2020.	-1.08
Percentage of Population Aged 65+ in Total Population	From 4.7% in 1980 to 7.3% in 2004	3.33	From 7.6% in 2005 to 11.9% in 2020.	5.51
Combined Effect		-14.48		-2.19

Source: WDI, UN, CICC Research

China's low urbanization rate, under-developed consumer credit market, and low government spending on health care and education have contributed to the low consumption/GDP ratio

Although the speed of urbanization in China has been rapid in recent years, its level remains relatively low due to a low base (Chart 8). In 2004, 39.6% of China's total population lived in urban areas, still well below the 48.6% world average and 67.1% in high-income countries. Among China's neighboring countries, the urban population ratio is 66.9% in Japan and 71.7% in South Korea. Assuming an elasticity of 0.064, the difference in urbanization between China and South Korea would result in a 2ppt gap in the household consumption/GDP ratio. In fact, the analysis of China's regional data in the following section shows that the elasticity of consumption to urbanization is as high as 0.25, suggesting that the progress of urbanization may boost consumption even more significantly in the near term.

Chart 8: China's Urbanization Rate Is Low Compared with International Levels

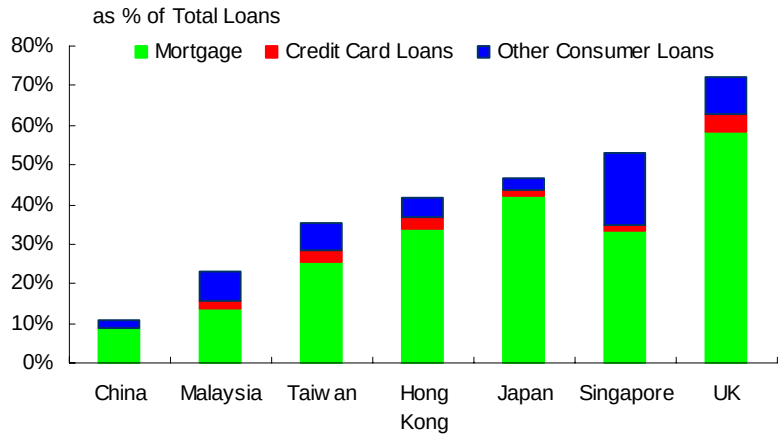


Source: WDI, UN, CICC Research

Credit to the private sector (CPS) as a proportion of GDP has significant positive effects on the household consumption/GDP ratio. The CPS/GDP ratio mainly measures the degree of liquidity constraints faced by households. As a matter of fact, consumer lending is the most appropriate variable for this purpose. However, the CPS/GDP ratio is often used as a proxy for consumer credit in academic research due to lack of data on consumer lending. China's CPS/GDP ratio was 141% in 2004, lower than that of the US (250%) and the average level in high-income countries (181.9%), but largely comparable with the world average (150%).

As noted, the CPS/GDP ratio is just a proxy for consumer lending. The consumer credit market in China is very much underdeveloped compared with advanced countries or neighboring economies. In developed nations, it is common for personal loans to be used to finance purchases of real estate, automobiles, other durable goods, or even higher education. By comparison, China's main personal credit database has just gone into operation. Credit card penetration is also low. Chart 9 illustrates that consumer lending (including home mortgage and credit card loans) accounts for a relatively lower proportion of total loans in China than in other countries. These figures suggest that more consumers in China are facing liquidity constraints.

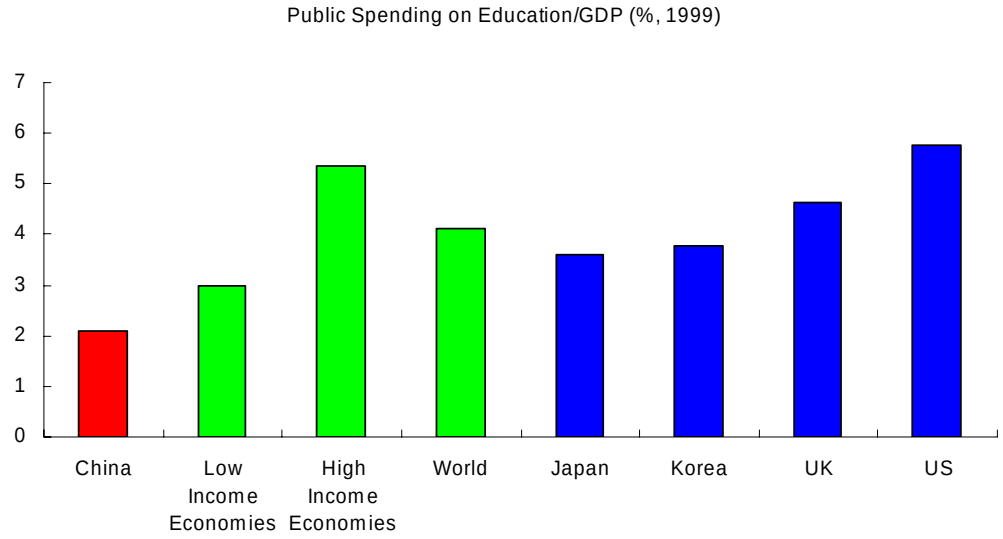
Chart 9: Share of Consumer Loans in Total Loans in China is Very Low



Source: Data from Various Central Banks, CEIC, CICC Research

As China is a developing country with low income and a huge population, it is understandable that its per capita public spending on education is low compared with international levels. Nonetheless, China's public spending on education also accounts for a much smaller percentage of GDP than the world average. According to statistics from the World Bank, public spending on education in China accounted for 2.08% of GDP in 1999, well below the 5.35% average in high-income countries. By comparison, this ratio was 5.74% in the US, 3.6% in Japan and 3.8% in South Korea. By the World Bank's income definition, China is already a middle income country, but its public spending on education/GDP ratio is even below the 2.98% average level among low-income countries (Chart 10).

Chart 10: Public Spending on Education/GDP Ratio in China and Selected Countries

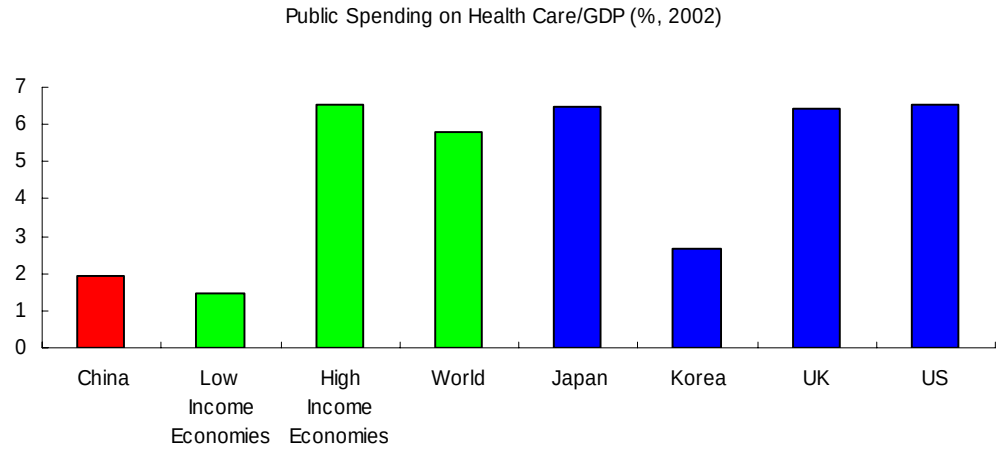


Source: WDI, CICC Research

Health uncertainties and high medical charges on some illnesses are one saving motive. The government can reduce this by improving its public health care system. Compared with international levels, the Chinese government's spending on health care is low as a proportion of GDP (Chart 11). In 2002, this ratio was 1.95% in China, well below the 5.81% world average and the 6.53% level among advanced countries.

Our analysis show that the household consumption/GDP ratio would rise by 1.2ppt for each percentage point increase in the government's spending on education and health care as a percentage of GDP. The Chinese government's spending on education and health care represented 4.02% of GDP in 1999, well below that of South Korea (5.92%), Japan (9.60%), US (11.56%, 2000), and the world average (9.55%).

Chart 11: Public Spending on Health Care/GDP Ratio in China and Selected Countries



Source: WDI, CICC Research

4. Additional Evidence from Chinese Regional Data

While evidence from international data helps us understand China's household consumption, the Chinese economy has been a unique transition economy since the government adopted reform and opening policies. Unlike other transition economies like those in Eastern Europe, China takes a gradual approach to economic reform and the transition toward a free market. The starting point and speed of reforms vary among different sectors and regions. This reform approach has unique impacts on China's household consumption, and these impacts thus have to be assessed based on China's own experience.

Our second data set are China's regional panel data covering 1995~2004, a period when many provincial/municipal data are available. The purposes of analyzing domestic provincial and time series data are twofold: (1) to determine whether the analysis of regional data produces similar results on factors affecting household consumption/GDP ratio to those based on international data; and (2) to reveal unique characteristics and changes in China, such as the SOE reform and rapid growth of the property market, amid China's concurrent transition and economic growth in recent years.

Table 6: Regression Results from Chinese Regional Data

Dependent Variable	Household Consumption/GDP (%)			
	(a)	(b)	(c)	(d)
log per capita GDP	**-17.202**	**-18.408**	**-18.391**	**-17.536**
	(14.98)	(16.17)	(15.47)	(13.29)
per capita GDP Growth	**-0.203**	**-0.311**	**-0.315**	**-0.383**
	(1.49)	(2.34)	(2.38)	(2.62)
Provincial Gov Consumption/GDP (%)	**0.085**	**0.110**	**0.129**	**0.106**
	(1.64)	(2.19)	(2.38)	(1.85)
Inflation	**-0.080**	**-0.061**	**-0.061**	**-0.050**
	(1.67)	(1.31)	(1.25)	(0.97)
Population Aged 0-14 (%)	**0.088**	**0.099**	**0.133**	**0.089**
	(0.93)	(1.09)	(1.44)	(0.85)
Population Aged 65+ (%)	**0.886**	**0.679**	**0.786**	**0.701**
	(4.38)	(3.39)	(3.16)	(3.27)
Urban Population (%)	**0.251**	**0.257**	**0.283**	**0.247**
	(7.92)	(8.42)	(8.34)	(6.55)
Coastal Dummy	**-2.276**	**-2.449**	**-2.712**	**-2.380**
	(3.36)	(3.75)	(3.96)	(3.07)
Public-sector Employees (%)		**-0.138**	**-0.160**	**-0.137**
		(4.43)	(5.05)	(4.17)
Residential Real Estate Inv/GDP (%)			**-0.277**	
			(2.13)	
log Housing Price				**-0.792**
				(0.65)
R^2	0.782	0.799	0.812	0.805
N	245	245	222	191

Note: t statistic in the parenthesis

Source: WDI, CICC Research

Qualitatively speaking, the analysis of regional data yielded similar results on most of the factors influencing the household consumption/GDP ratio (Table 6). For example, the correlation to household consumption/GDP ratio is negative and statistically insignificant for the growth of GDP per capita, and positive and statistically significant for the percentage of the >65-year age group in total population.[1] The only difference is that the effect of the percentage of the 0~14-year age group was found to be

[1] *Calculations based on Chinese and international data yielded different coefficients for the same variable. Regressions based on domestic provincial data are applicable to only near-term, small changes, since such data have limited regional and time coverage. We believe that results based on international data in the previous section are more reasonable.*

statistically insignificant in the regional data, although it is still positive. We ran separate regressions on coastal and inland data (Appendix Table A1), and found that the regression based on coastal data yielded a positive and statistically significant coefficient on this variable, the same as the international data. The results are different (negative and statistically insignificant), however, in the regression using data on inland regions.

The effect of urbanization on the consumption/GDP ratio is greater in the regional data than in the international data. A one-percentage-point increase in the urbanization rate raises the consumption/GDP ratio by about 0.25 percentage points. This suggests that speeding up the urbanization process is an effective way to raise the consumption share of GDP and increase the contribution of domestic demand to GDP growth.

Two additional results are worth noting. First, uncertainty brought about by economic reforms hurts consumption. It is difficult to find a single variable to represent China's multi-dimensional and multi-layered reforms. Reform measures affecting current and future personal income and benefits are more relevant as far as consumption is concerned. The SOE reform is a typical example. As a prolonged process, SOE reform has caused substantial uncertainty and insecurity among employees who might be affected. To represent the impact of SOE reform on consumption, we introduced a new variable into our regression: the ratio of the number of public-sector employees to the total employee number (the PSE/total employee ratio). The regression generates a statistically significant coefficient of -0.13 on the PSE/total employee ratio. In other words, each percentage point increase in this ratio would reduce the household consumption/GDP ratio by 0.13ppt, ceteris paribus.

The impact of SOE reform on consumption is somewhat related to the results on public education and health care discussed in the previous section. To some extent, improving the public health care and education systems can reduce the uncertainties of SOE reform. Moreover, well-established social welfare and social security systems can alleviate the sense of insecurity among SOE employees. Therefore, improvements in the public education, healthcare care, and social security systems can not only promote China's social harmony and stability, but also boost household consumption and stimulate domestic demand in the mid-to-long term.

Another finding is that residential real estate investment significantly crowds out household consumption. Each percentage point increase in the residential real estate investment/GDP ratio lowers the household consumption/GDP ratio by about 0.28ppt. Rising property prices also have some negative effect on consumption. In recent years, real estate prices have soared in some regions. We use prices of real estate built by commercial property development companies ("property prices" [2]) to represent aggregate property prices. Regression results show that a 10% increase in property prices would depress the household consumption/GDP ratio by 0.08ppt. In spite of the small magnitude, it indicates that higher property prices did not produce the "wealth effect" on total consumption. A possible reason is that higher property prices prompted potential buyers to save more, reducing their current consumption. This effect has more than offset the wealth effect on households that have already owned real estate and the purchases of other housing-related goods.

5. Consumption Structure of Chinese Urban and Rural Households

In this section, we begin by analyzing the current state of and recent changes in consumption structure among Chinese urban and rural households. We then predict the future changes in consumption of mid-to-low income households by comparing spending patterns of urban and rural household. Moreover, considering the changes in South Korea's household consumption behavior since 1985, we also make

[2] *Unless otherwise specified, all "property prices" in this report refer to prices of real estate built by commercial property development companies.*

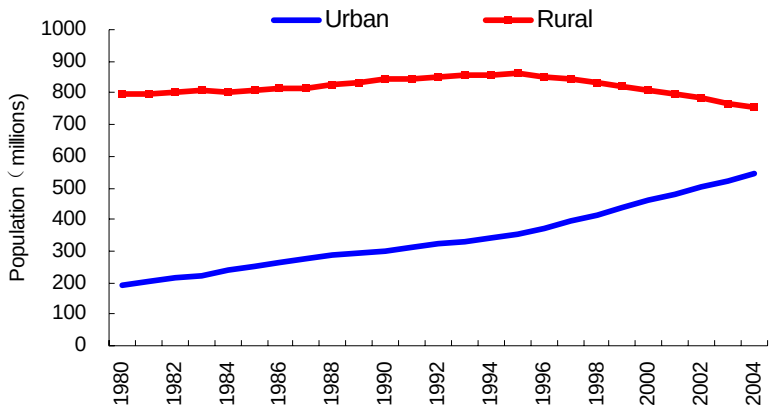
some predictions on how the consumption patterns of Chinese households will evolve in the next ten years.

5.1 Recent Changes in Urban/Rural Household Income & Consumption Structure

As urbanization progresses, urban household consumption will determine consumption trends in China

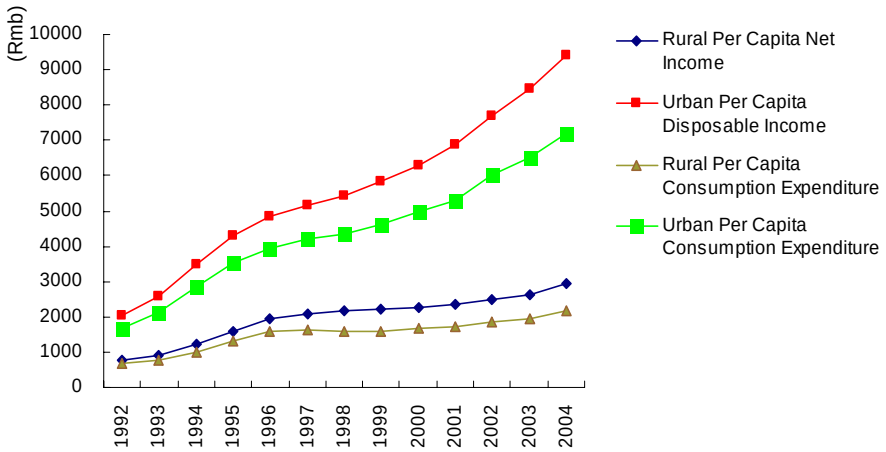
China's urban population reached 543 million in 2004, accounting for 41.8% of the total (Chart 12). Disposable income per capita reached Rmb9,422 among urban residents and Rmb2,936 among rural residents while consumption expenditure per capita was Rmb7,182 in urban areas and Rmb2,185 in rural areas (Chart 13). Measured by either income or expenditure, the aggregate purchasing power of urban residents is about three times that of rural residents. Taking into account population size, the total purchasing power in urban areas is twice as much as that in rural areas.

Chart 12: Urban and Rural Population in China (1980~2004)



Source: CEIC, CICC Research

Chart 13: Disposable Income and Consumption Expenditure Per Capita in Urban and Rural Areas (1992~2004)

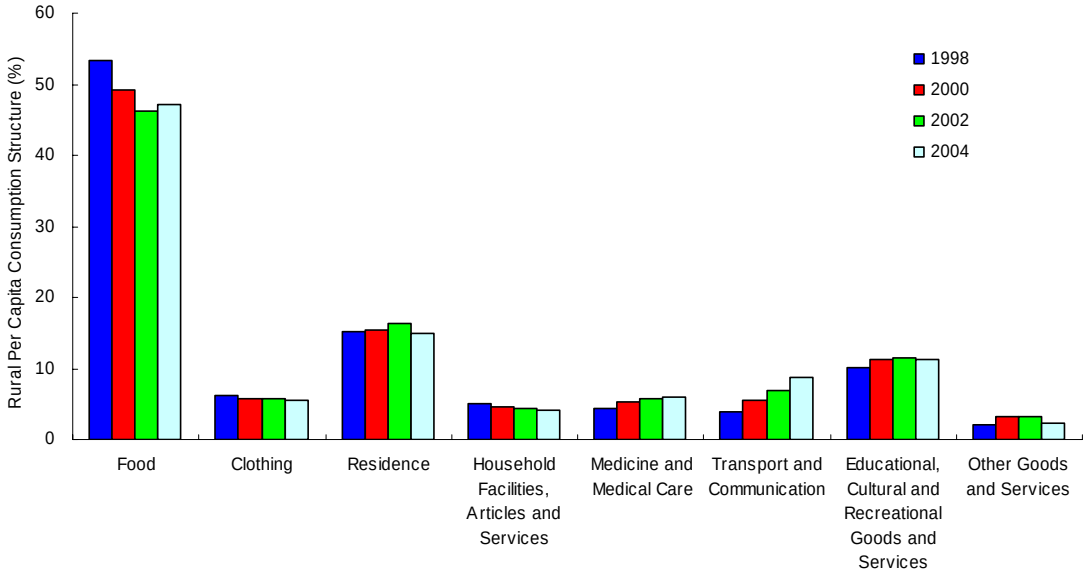


Source: National Bureau of Statistics, CICC Research

Households spending more on transportation, communication, medical care, educational and recreational goods and services and less on food and clothing

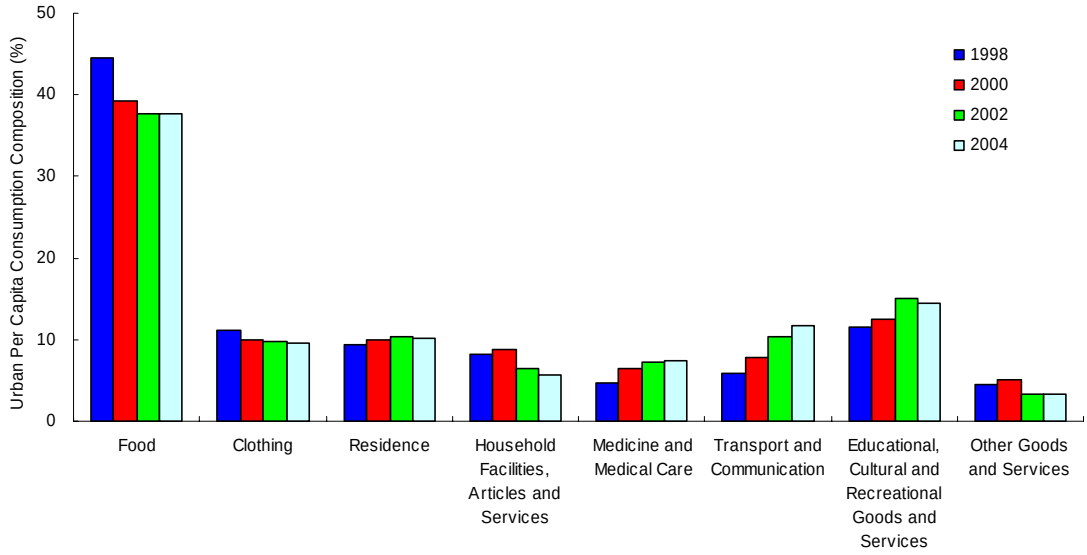
Recent changes in urban and rural consumption patterns have some features in common. Basic items (such as food and clothing) have seen their shares declining (Charts 14 and 15). Overall, food, clothing and residence still accounted for a substantial portion of expenditure per capita in rural areas (67.6% in 2004). The proportion of food dropped from 53.4% in 1998 to 47.2% in 2004 while that of clothing declined from 6.2% to 5.5%. In urban areas, the proportion of food is relatively low but still declined from 44.5% in 1998 to 37.7% in 2004, while that of clothing fell from 11.1% down to 9.6%. On the other hand, spending on medicine and medical care, transportation and communication, as well as educational, cultural and recreational goods and services rose in both urban and rural areas. The share of transportation and communication in total spending grew the most by 5.8ppt in urban areas from 5.9% in 1998 to 11.7% in 2004, and by 5.0ppt in rural areas from 3.8% in 1998 to 8.8% in 2004.

Chart 14: Spending Structure in Rural Households (1998~2004)



Source: National Bureau of Statistics, CICC Research

Chart 15: Spending Structure of Urban Households (1998~2004)



Source: National Bureau of Statistics, CICC Research

Since the changes in spending composition may result from price fluctuations and changes in relative prices, we also calculate the average real annual growth rate (i.e., adjusted for inflation) of consumption expenditure per capita for each item (Table 7). From 1998 to 2004, the average real growth rate of consumption expenditure per capita was 8.2% in urban areas and 4.6% in rural areas. In both rural and urban areas, real consumption growth exceeded the average level in medicine/medial care, transportation and communication, and educational, cultural and recreational goods and services. Therefore, increases of these broad items' shares in total consumption are not entirely driven by price changes.

In particular, real consumption growth in transportation and communication was as high as 26.2% in urban areas and 25.0% in rural areas per year, well above the average consumption expenditure growth. For example, urban households' average expenditure on transportation and communication rose from Rmb114.7 and Rmb142.4 respectively in 1998 to Rmb389.0 and Rmb454.5 in 2004. Meanwhile, the urban telecom related consumer price index plummeted by almost 30%. Thus, the real growth of communication expenditure substantially exceeded its nominal growth.

The price factor has a larger impact on the real growth in clothing and residence. In both urban and rural areas, clothing expenditure grew slightly faster in real terms than the average consumption growth, but its share in total consumption was shrinking. This is because clothing prices were declining in the period under scrutiny. In contrast, residential expenditure accounted for an increasing portion of total consumption in urban areas due to significant increases in residence-related prices. If we adjust for price changes, the real growth of residential expenditure was in fact below the average.

Table 7: Average Real Annual Growth of Per Capita Consumption Expenditure (1998~2004)

	Urban	Rural
Consumption expenditure	8.2	4.6
Food	5.1	2.1
Residence	7.0	3.6
Household facilities, articles & services	5.1	3.3
Clothing	8.4	5.3
Medicine and medical care	17.8	10.6
Educational, cultural and recreational goods and services	12.9	6.5
Transportation and communication	26.2	25.0

Source: National Bureau of Statistics, CEIC, CICC Research

In order to have a clearer view of the growth of expenditure on each item relative to disposable income growth, we calculate the income elasticity of expenditure using data from 31 provinces and municipalities over the period of 1998~2004. The income elasticity of consumption expenditure is defined as the percentage change in expenditure for each 1% rise in disposable income. If the income elasticity for one item is greater than unity, it means that its nominal growth exceeds income growth.

As shown in Table 8, the income elasticity exceeds one in both rural and urban areas for residence, medicine and medical care, transportation and communication, educational, cultural and recreational goods and services. In particular, expenditure on transportation and communication has an income elasticity of 1.7 in rural areas and 1.6 in urban areas. It indicates that consumption expenditure on transportation and communication will grow at a higher-than-average rate as incomes increase. The income elasticity is less than one for food and clothing in both rural/urban areas. For household facilities, articles and services, the elasticity is greater than one in rural areas and less than one in urban areas.

Table 8: Income Elasticity of Expenditure

	Rural	Urban
Food	0.64	0.86
Clothing	0.81	0.47
Residence	1.20	1.06
Household facilities, articles and services	1.09	0.81
Medicine and medical care	1.19	1.12
Transportation and communication	1.71	1.59
Educational, cultural and recreational goods and services	1.35	1.18

Other goods and services	1.19	0.67

Source: National Bureau of Statistics, CEIC, CICC Research

Table 9 lists urban household consumption expenditure on more detailed items—their shares in total consumption (2004), and real growth rates over 1998~2004. Besides medicine and medical care, transportation and communication, educational, cultural and recreational goods and services, expenditure on dining outside not only took up a relatively large share of total expenditure (7.4% in 2004) but also recorded a high annual growth rate (14.9%). Items marked in blue in Table 9 grew more rapidly than the 8.2% average growth.

Table 9: Urban Households' Consumption Expenditure: Shares and Growth Rates over 1998~2004

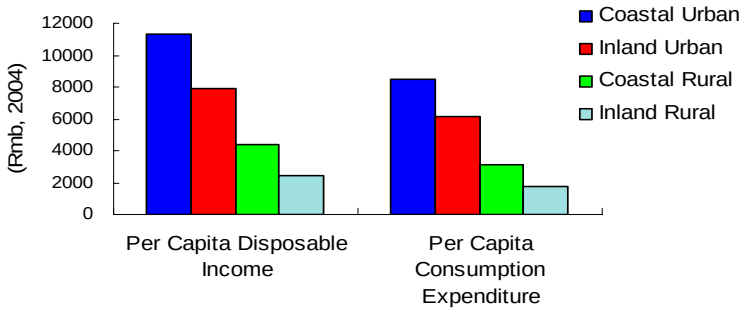
Item	Percentage in FY04 Consumption Expenditure	Average real growth over 1998-2004	Item	Percentage in FY04 Consumption Expenditure	Average real growth over 1998-2004
Consumption Expenditure	-	8.2			
Food	37.7	5.1	**Household facilities, articles and services**	5.7	5.1
Grains	3.3	-0.4	Durable consumer goods	2.8	4.5
Starches and tubers	0.3	-1.3	Room decorations	0.2	4.8
Beans and related products	0.5	-1.6	Bed articles	0.5	10.2
Oils and fats	1.2	3.9	Household articles for daily use	1.8	9.7
Meat, poultry and related products	7.3	2.2	Furniture materials	0.0	-6.7
Eggs	0.9	0.6	Household services	0.4	0.7
Aquatic products	2.5	3.8	**Medicine and medical care**	7.4	18.2
Vegetables	3.6	2.3	**Transportation & communication**	11.7	26.2
Condiments	0.5	3.4	Transportation	5.4	24.6
Sugar	0.4	2.9	Communication	6.3	28.7
Dried and fresh melons and fruits	2.6	7.6	**Educational, cultural and recreational goods and services**	14.4	12.9
Cake	0.8	6.2	Educational, cultural and recreational goods	3.6	13.1
Milk and dairy products	1.8	19.1	**Residence**	10.2	7.0
Other food	0.9	11.6	Water, electricity, fuel and others	6.3	6.3
Dining out	7.4	14.9			
Clothing	9.6	8.4			
Garment	6.9	10.7			
Clothing materials	0.1	-17.9			
Footwear	2.1	5.5			

Source: National Bureau of Statistics, CEIC, CICC Research

5.2 Spending Patterns among Different Regions and Income Groups

Per capita income is generally higher in coastal areas than in inland areas. As shown in Chart 16, per capita income of urban households in the twelve coastal provinces was Rmb11,287 in 2004, 1.4 times that in the inland urban areas (Rmb7,889). Per capita income of rural households in coastal areas (Rmb4,377) was 1.8 times as much as that in inland areas (Rmb2,394). Since coastal areas are more urbanized, they are major parts of China's household consumption market.

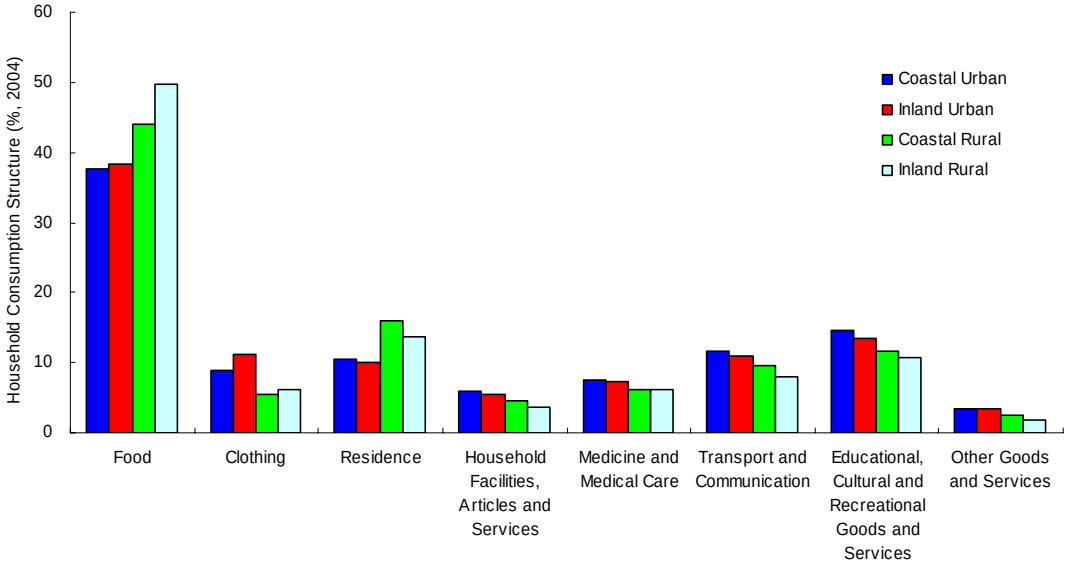
Chart 16: Rural and Urban Household Income and Consumption Expenditure in Coastal and Inland Areas



Source: National Bureau of Statistics, CICC Research

Differences in the spending patterns in coastal urban, inland urban, coastal rural and inland rural areas mainly reflect the impact of income on consumption structure. As income grows, expenditure shifts away from food and residence (subsistence consumption) to household facilities and articles, medicine and medical care, transportation and communication, and educational, cultural and recreational goods and services. Chart 17 clearly shows this trend.

Chart 17: Rural and Urban Household Consumption Patterns in Coastal and Inland Areas



Source: National Bureau of Statistics, CICC Research

5.3 Future Consumption Structure Changes in China

Over the next 10 years, Chinese households demand for medicine and medical care, transportation, and educational, cultural and recreational goods and services will continue to grow quickly. Expenditure on clothing and household articles and services will maintain the same pace as the average consumption growth. Food/residence consumption will continue to shrink.

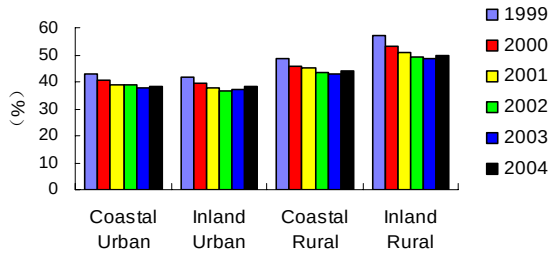
Given the ladder-shaped income distribution among China's coastal urban, inland urban, coastal rural and inland rural areas, comparing the spending patterns of the four regions can help us better predict future changes in household consumption in the country's lower-income regions. Over 1992~2004, the average real growth rate of China's disposable income per capita was 7.5% in urban areas and 5.9% in rural areas. Roughly, in terms of income, a lower-income region is about 5~10 years behind the next higher income region.

Chart 18 shows some clear trends for some items in the four areas. Over 1999~2004, the four regions followed almost identical trends in the expenditure shares of food, household facilities, articles and services, medicine and medical care, transportation and communication, as well as educational, cultural and recreational goods and services. A cross-regional comparison shows a linear relationship between income and the shares of these categories in total consumption. For instance, expenditure on transportation and communication followed the same trend in inland rural and coastal rural areas, but its share in total expenditure in inland rural areas was slightly lower than that in coastal rural areas each year.

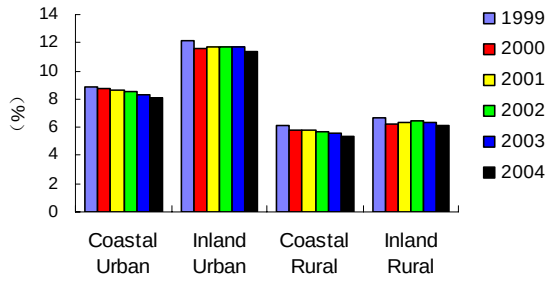
For the above-mentioned consumption items, we can use recent changes in the household spending pattern in high-income coastal urban regions to forecast changes over the next 5~10 years in coastal or inland rural areas. As income increases, in lower-income regions, household expenditure on household facilities, articles and services, medicine and medical care, transportation and communication, and educational, cultural and recreational goods and services will have above average growth, while food expenditure will grow more slowly than the average. However, this approach is less applicable to clothing and residence, since expenditure on clothing or residence is not significantly correlated with the regional income level.

Chart 18: Cross-Regional Comparison in Consumption Structure

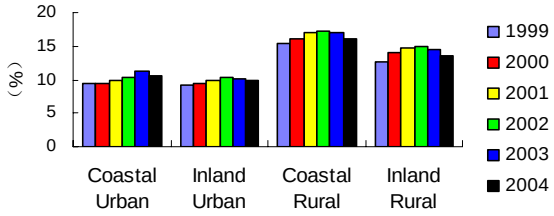
Regional Consumption Expenditure on Food (%)



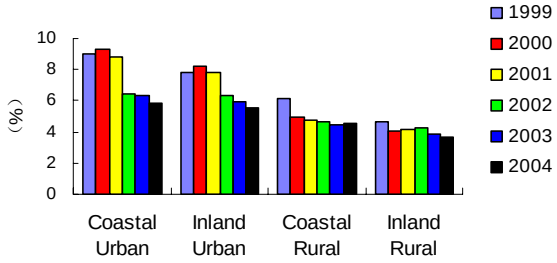
Regional Consumption Expenditure on Clothing(%)



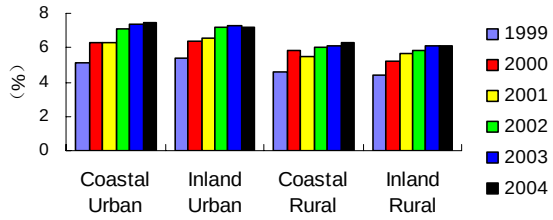
Regional Consumption Expenditure on Residence (%)



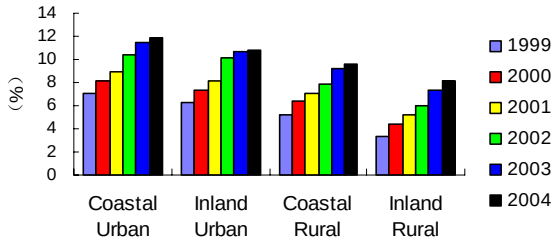
Regional Consumption Expenditure on Household Facilities, Articles and Services (%)



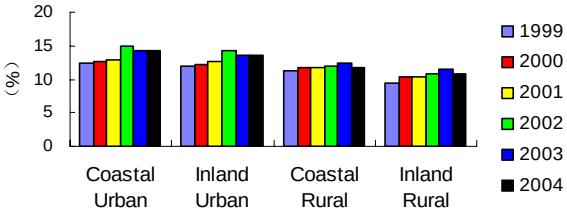
Regional Consumption Expenditure on Medicine and Medical Care (%)



Regional Consumption Expenditure on Transportation and Communications (%)



Regional Consumption Expenditure on Educational, Cultural and Recreational Goods and Services (%)



Source: National Bureau of Statistics, CICC Research

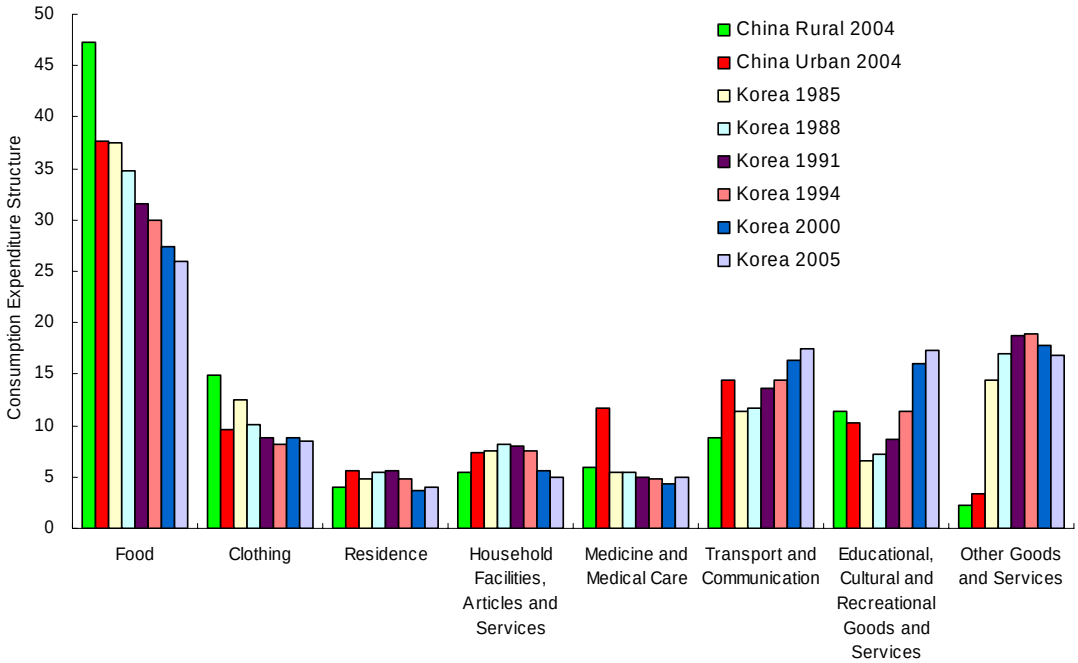
Changes in South Korea's household spending patterns since 1985 may also provide some hint as to household consumption trends in China. According to the World Bank's constant-price PPP data,

China's per capita income was US$5,085 in 2004, approaching South Korea's US$5,114 in 1981. Chinese urban households have a higher income, similar to the South Korean level in the mid to late 1980s. However, we only made a rough comparison, since purchasing power adjustments are often controversial, Chinese and South Korean statistical details are not fully compatible, and the choices of consumer goods change over time. We illustrate the consumption structure in Chinese urban and rural areas in 2004 and that of South Korean households in selected years after 1985 (Chart 19).

As shown in Chart 19, the expenditure structure of Chinese urban households in 2004 is similar to that of South Korean households in 1985. In particular, households in the two countries spent roughly equal shares of total expenditure on food and clothing. The shares of expenditure on medicine and medical care, and educational, cultural and recreational goods and services are larger in China. Meanwhile, the proportion of spending on "other" items is much larger in South Korea, likely due to different classifications used in the household survey.

In South Korea, the shares of spending on transportation and communication, and educational, cultural and recreational goods and services have been rising since 1985, while those on food and clothing gradually declined. This is similar to the trends observed in China in recent years, and suggests that such changes in consumer spending in China may continue for quite some time into the future. As Table 10 shows, the real annual growth in South Korea's consumption of transportation and communication stayed above the average consumption growth rate during 1985~1996 and reached 18.0% over 1985~1990. Spending growth in educational, cultural and recreational goods and services, medicine and medical care, and furniture also exceeded the average rate over the period of 1985~1996

Chart 19: China's Consumption Structure in 2004 and South Korea's after 1985



Source: National Bureau of Statistics, CEIC, CICC Research

Unlike in China, South Korean households' share of expenditure on medicine and medical care had declined slowly after 1985. We believe this is in large part due to changes in the relative prices of medicine and medical care. Compared with other consumption categories, the consumer prices of medicine and medical care recorded the slowest growth in Korea over 1985~1995. Looking at real annual growth (Table 10), we find that spending on medicine and medical care grew 13.6% over 1985~1990, far above the 10.8% average consumption growth. Over 1991~1996, spending on medicine and medical care grew at the same pace as the average growth. Taking into account South Korea's experience and the accelerating population aging in China, we believe that Chinese households' demand for medicine and medical care will continue to grow at an above-average rate for the next 10~15 years.

Table 10: Real Growth of Household Consumption Expenditure in Korea after 1985

	1985-1996	1985-90	1991-96
Consumption expenditure	8.5	10.8	6.6
Food and beverage	5.1	6.3	4.2
Residence	5.4	8.4	2.9
Water, electricity and gas	7.0	8.4	5.8
Furniture and Utensils	9.7	15.3	5.0
Clothing	8.1	8.7	7.6
Medicine and medical care	9.7	13.6	6.4
Educational, cultural and recreational goods and services	8.8	9.5	8.2
Transportation and communication	14.8	18.0	12.0
Others	13.1	17.9	9.0

Source: CEIC, CICC Research

In China, the income elasticity of expenditure for clothing was less than one in 1998~2004 but the real growth is slightly above average consumption growth. In South Korea, the growth of expenditure on clothing was largely on a par with the average household consumption growth over 1985~1996. Overall, we expect Chinese households' expenditure on clothing will grow at the same pace as the average rate in the future. Although the share of household facilities, articles and services in Chinese household spending declined, higher-income coastal urban households still spent a bigger share on this than other regions. In South Korea, spending on this category increased faster than the average after 1985. Therefore, the growth of Chinese households' expenditure on household facilities, articles and services may slightly outpace or be the same as the average in the future. Finally, the income elasticity of expenditure on residence is greater than one, but this is mostly due to rising prices. The real growth is below average. The cross-regional comparison within China and the Korean experience after 1985 both suggest that expenditure on residence will grow at a slower rate than average spending growth.

6. Summary

The paper focuses on two aspects of household consumption in China: the consumption propensity and spending structure. In explaining the share of consumption in GDP, we draw implications from the analysis of two data sets for the change pattern of the consumption/GDP ratio. The income level, demographics and urbanization all have significant effects on the consumption propensity of Chinese households. And changes in these factors over time have contributed the recent declines in the consumption/GDP ratio. Looking forward, rising urbanization and population aging will increasingly, though gradually, offsetting the effects of rising income and falling proportion of young population. In

addition, still a low degree of urbanization, an underdeveloped consumer credit market, low public spending on health and education all contributed to the low consumption/GDP ratio in China.

Urbanization also brings about significant changes to the structure of consumption. In analyzing the household spending patterns, we find that urban households spend a smaller share of their expenditure on necessary items such as food and clothing, a larger share on health care, education, transportation and telecommunication. The spending on the latter items also rises as income increases. Using the differences in urban and rural household between coastal and inland areas, we predict that consumption growth over the next 10 years will be the strongest in transportation, medicine and medical care, and educational, cultural and recreational goods and services, followed by clothing and household facilities, articles and services. Growth will be relatively slower in food and residential costs (rent, water, electricity and fuel).

Appendix

Table A1: Determinants of Consumption/GDP (Separate Regressions for Coastal and Inland Regions)

Dependent Variable	Household Consumption/GDP					
	(a)	(b)	(c)	(d)	(e)	(f)
	Coastal	Coastal	Coastal	Inland	Inland	Inland
log GDP Per Capita	-15.764	-15.187	-14.189	-19.064	-19.074	-18.104
	(7.99)	(6.74)	(5.22)	(12.09)	(11.30)	(9.68)
Growth of GDP Per Capita	-0.266	-0.248	-0.319	-0.481	-0.439	-0.527
	(1.64)	(1.45)	(1.63)	(2.65)	(2.40)	(2.68)
Provincial Government' Expenditure/GD	0.221	0.237	0.253	0.102	0.096	0.102
	(2.47)	(2.20)	(2.01)	(1.52)	(1.27)	(1.35)
Inflation	-0.107	-0.102	-0.102	0.018	-0.007	0.031
	(1.74)	(1.33)	(1.27)	(0.29)	(0.10)	(0.44)
Population Aged 0-14 as a Percentage o	0.466	0.48	0.542	-0.236	-0.221	-0.166
	(4.77)	(4.65)	(3.92)	(1.24)	(1.11)	(0.78)
Population Aged 65+ as a Percentage of	1.272	1.279	1.21	0.795	0.689	0.795
	(5.70)	(5.51)	(4.85)	(1.90)	(1.55)	(1.72)
Percentage of Urban Population	0.205	0.209	0.247	0.284	0.278	0.27
	(5.96)	(5.52)	(5.22)	(3.84)	(3.58)	(3.37)
Percentage of Public-Sector Employees	-0.153	-0.143	-0.11	0.002	-0.035	-0.049
	(3.89)	(3.48)	(2.25)	(0.04)	(0.55)	(0.79)
Residential Real Estate Investment/GDP		-0.101			-0.089	
		(0.68)			(0.35)	
log Residential Property Price			-2.611			-0.841
			(1.51)			(0.45)
R^2	0.833	0.826	0.813	0.622	0.631	0.623
Number of Observations	97	91	77	148	131	114

Source: CEIC, CICC Research

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