CONSUMPTION RECOVERY AND ECONOMIC REBALANCING IN CHINA

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[Bullets] Boosting consumption has been a policy strategy for rebalancing of the Chinese economy. The official statistics, however, showed persistently declining consumption as a share of GDP during the past decade. In this paper, we attempt to provide a more complete picture of Chinese consumption by piecing together data from official and unofficial sources. Our estimation suggests that the consumption share rebounded from 2008, after a period of decline. This implies that that rebalancing of the Chinese economy is already under way, as a result of changes in factor markets leading to increases in household income and improvements in income distribution.

Introduction

Consumption has been at the centre of the debate about China’s growth model. “Under-consumption” is the mirror image of the other two major imbalance problems: large current account surpluses and high investment shares of GDP. Therefore, boosting consumption is often seen as a critical step toward a more balanced and sustainable economy.¹

According to the official statistics, the consumption share of GDP declined from 62% in 2000 to 47% in 2010 (Figure 1). Meanwhile, household consumption slid from 46% to 34% during the same period. This latest share was probably among the lowest in the world, especially compared with consumption shares of GDP elsewhere, 69% in India, 88% in the US, 79% in Japan and 68% in Korea in 2010.

Figure 1. Consumption share of GDP in China (%)

Source: CEIC Data Company and Barclays.

¹ Wen Jiabao, “Government work report”, delivered at the National People’s Congress meeting, March 5th, 2006.
Declining consumption share, however, is not a unique phenomenon in China, as Korea and Taiwan had similar experiences earlier (Figure 2). Korea’s consumption share dropped from about 85% at the beginning of the 1970s to around 62% at the end of the 1980s. And Taiwan’s share fell from around 75% in 1970s to as low as 62% by 1986. But a comparison of China with these other Asian economies raises two interesting questions: 1) why was consumption share in China systematically lower? And, 2) when will the Chinese share reach a turning point?

**Figure 2. Consumption share of GDP: Korea, Taiwan and China (%)**

Source: CEIC Data Company and Barclays.

In early 2006, the Chinese government formally incorporated the policy task of economic rebalancing into the 11th Five-Year Program (FYP). That policy achieved little, at least according to the official statistics. One of the key difficulties for policy analyses in China is poor quality of economic data, including consumption data. For example, some large consumption expenditure items such as tourism spending and overseas shopping are not fully reflected in official statistics. A recent landmark study by Wang and Woo (2011) suggests substantial underestimation of household income, GDP and household consumption.

In this paper, we try to gauge the true picture of Chinese consumption. We first analyse the three sets of consumer expenditure data reported by the National Bureau of Statistics (NBS): Retail sales, consumption reported in the household survey, and consumption in the national account. We draw two qualitative conclusions from this exercise. One, the official consumption data are likely underreported. And, two, growth rates of Chinese consumption are probably also underestimated.

We then recalculated China’s consumption shares of GDP using a weighted average of retail sales growth and service sales growth to proxy consumption growth, and applying results by Wang and Woo (2011). Our findings suggest that 1) total consumption expenditure was, on average, underreported by 5.7ppt, while the consumption share of GDP was underestimated by 3ppt 2) the consumption share of GDP declined during much of the past decade; but that 3) the consumption share actually picked up after 2008. The last finding is very important as it suggests that the long-awaited rebalancing of the Chinese economy is already underway.

This finding is certainly consistent with observed acceleration of both household income and retail sales in recent years. More fundamentally, it was probably contributed by reduced distortions in markets for labor, capital and energy. As Huang and Tao (2010) and Huang (2010) argued earlier, distortions in factor markets were the key causes of economic imbalances in China and, therefore, reduction of them probably contributed to narrowing of
trade surplus and rebound of consumption. Completion of economic rebalancing, however, depends on more aggressive policy actions eliminating distortions in factor markets.

This paper is organized as follows. Section II reviews the literature explaining weak consumption in China, including high saving ratio, low household income share and unequal income distribution. Section III presents some evidences of underestimation of consumption, by comparing different types of official consumption statistics and drawing from some independent research. Section IV recalculates China’s consumption shares of GDP for the period 2000-2010. Section V discusses possible factors contributing to short- and long-term recovery of Chinese consumption. And the final section concludes the paper.

Existing explanations for weak consumption in China

Why don’t the Chinese consume more? And why do the Chinese save so much? In fact, the same questions could be asked of other Asian populations that experienced periods in which the consumption share of GDP fell. In both Korea and Taiwan, for instance, the consumption shares fell throughout the 1960s and the 1970s but rebounded at the end of the 1980s. It appears that China is travelling along the same path but: 1) China is about 20 years behind the trajectories of Korea and Taiwan; and 2) China’s consumption shares are systematically lower than those of Korea and Taiwan at similar stages.

One potential determinant is the “cultural factor” – populations of Asian countries, including China, have typically shown a strong preference for saving, possibly because of a particularly strong “bequest motive” (Harbaugh 2004). However, though this cultural factor may be an important determinant, it is perhaps not a dominant one. Otherwise, we would find it difficult to explain why Asia’s saving rates stayed at relatively low levels until economic growth accelerated. Even in China, the national savings rate rose sharply from around 35% in the early 1980s to well above 50% in the late 2000s. There are also significant variations in terms of saving rates among Asian nations.

In a broader analytical effort, World Bank’s Aart Kraay (2000) attempted to explain China’s unusually high saving rate. He first estimated a cross-section regression of gross national saving rates in a large sample of countries on a set of standard variables. He then expressed each of the explanatory variables for China as a deviation from the average across all countries and multiplied these deviations by the estimated coefficients. This yielded a measure of the extent to which differences in China’s saving rate from those of a “typical country” can be attributed to differences in known determinants of saving. After accounting for all these variables, however, Kraay found the regression under-predicting China’s saving rate by nearly 10pp.

Most policy discussions about weak consumption in China focus on three factors: precautionary household saving; household income share; and unequal income distribution among households.

First, economists such as Olivier Blanchard and Francesco Giavazzi (2005), and Louis Kuijs (2005) attributed China’s decline in private consumption to a rise in precautionary saving. China began its market-oriented economic reform in 1978, but it did not start reforming its social welfare system for another two decades. Before that, urban residents’ healthcare, pension, housing and education were all taken care of by either the state or their work units. By the mid-1990s, it had become clear that this system was not sustainable.

During the second half of the 1990s, the government implemented a wide range of reforms, establishing market-based pensions, unemployment benefits and healthcare systems. In the meantime, the government privatised a large number of small- and medium-sized loss-making state-owned enterprises (SOEs), laying off tens of millions of workers. All these
factors immediately boosted demand for precautionary saving – while the old state-supported social welfare systems were immediately dismantled, the new market-based systems have, even now, yet to start operating fully. Therefore, for households, the best protection against future uncertainties is their own savings.

The state and the working units gradually stopped the practice of allocating residential apartments to their employees. The development of the housing market probably had a big impact on saving behaviour during the past decade. The total housing-related spending, including money spent on housing purchases, has increased from about 10% of household disposable income in the late 1990s to about 25% in recent years (Figure 3). This represented a form of almost forced saving for households, although not all of it should be regarded as investment, as most apartments are purchased for own use.

**Figure 3.** Household saving ratio and share of housing-purchase expenditure in disposable income in China (%)

![Figure 3](image)

Source: CEIC Data Company and Barclays.

Second, to some other economists, such as the IMF’s Jahangir Aziz and Li Cui, a declining share of household income in national income, instead of a rising saving rate, was the key contributor to China’s weakening consumption problem (Aziz and Cui 2007). This is consistent with PBoC Governor Zhou Xiaochuan’s argument that, in recent years, the rapidly growing national saving was attributable mainly to changes in corporate saving, rather than household saving. If household income grows slower than GDP or GNP, naturally household consumption won’t be able to keep pace with the whole economy (Figure 4).

A declining share of household income is also in line with the argument by Huang (2010): factor market distortions capped growth of wages and investment returns and slowed growth of household income. Tsinghua University’s Chong-en Bai and Zhenjie Qian discovered that the labor income share declined by 10.7pp during 1995-2004, although more than half of the drop could be accounted for by changes in accounting method (Bai and Qian 2009a). Financial repression restricted households’ investment returns. Nicholas Lardy of Peterson Institute of International Economics, for example, found that China’s deposit rate regulation probably cost household income the equivalent of 5% of GDP (Lardy 2008).

In another study, Chong-en Bai and Zhenjie Qian found that households’ share in national disposable income reached its peak in 1996 and then dropped by 12.7pp by 2005 (Bai and Qian 2009b). Of this total decline, wage income and asset-related income contributed 6.0pp and 3.2pp, respectively. During the period 1996-2005, the share of government revenue increased steadily. Such changes are obviously unfavourable for consumption.
And, third, unequal income distribution is another potential factor contributing to weak consumption. There has been noticeable deterioration in income distribution during the reform period. The Gini coefficient of household income distribution rose to 0.47 in recent years from below 0.3 in the 1980s (Huang 2010). Meanwhile, if we divide all urban households equally into five groups by income, the gap in household income between the top 20% group and the bottom 20% group widened from 3.6 times in 2000 to 5.7 times in 2008. In rural areas, the gap between the two groups grew from 6.5 times in 2000 to 7.5 times in 2008. And unequal income distribution is negative for household consumption simply because wealthy households’ propensity to consume is much lower.

Likely underreporting of China’s official consumption data

The three set of official consumption statistics

Knowing how to read Chinese statistics has been a lifelong challenge for economists monitoring the Chinese economy. In the past, the quality of GDP and CPI data was frequently debated. But the quality of the consumption numbers may be equally unreliable. To gauge the “true picture” of Chinese consumption, its absolute size of consumer spending, consumption share of GDP, and time trajectory of that share. we first take a look at how the official statistics are compiled in China.

The NBS has three sets of data concerning consumption:

- Retail sales, collected from retail outlets (this will be referred to as retail sales hereafter);
- Household survey, sampled from households (this will be referred to as survey consumption hereafter);
- Consumption, reconciled in national account (this will be referred to as GDP consumption hereafter).

These three sets of information are related but are not exactly the same. For example, retail sales data cover a range of goods sold in shops. But they represent only part of the consumption basket. Service products, such as education, medical care and tourism, are not covered in retail sales. Meanwhile, retail sales also include certain producer goods, such as building materials, petroleum and chemicals. In addition, retail sales cover data on both household and public consumption.
Survey consumption data are directly collected from households, which, by definition, should be a more reliable source of information. However, survey data are often subject to a set of technical problems, such as representativeness of the selected households. Pricing of self-produced goods is also a common problem. The Chinese statistical system is underdeveloped for service sector information. Most importantly, as identified by Wang and Woo, households may accidentally or deliberately underreport consumption expenditure.

GDP consumption data should be consistent with other macroeconomic variables. But they are derived data. In estimating consumption, consisting of government and household consumption, NBS starts mainly from the household survey consumption data, while making reference to the retail sales data. This means that the GDP consumption data may be subject to the same types of problems as the household survey.

To gain some insight into how the NBS modified the household survey data to reach household consumption under the GDP data, we compare the two sets for urban and rural households (Table 1). In general, during 2004-2009, urban household consumption data under the GDP system were on average 20% greater than household survey data. The three enlarged items are residence (by 100% since 2006, likely to take into account missing rental equivalent), healthcare services (by more than 50% in 2008-09) and other items including financial and insurance services (by 170-200% in 07-09) likely to take account of underreporting of the services consumption. Downward revisions were done, interestingly by the same magnitude in the same year since 2006, for all the other items, including food, clothing, household facilities, transport, and recreation.

Table 1. Comparison of urban household (HH) consumption by sector, GDP and survey data

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Food</th>
<th>Clothing</th>
<th>Residenc e</th>
<th>HH facilities</th>
<th>Medical</th>
<th>Transport etc</th>
<th>Recreation etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>4,753</td>
<td>1,527</td>
<td>374</td>
<td>675</td>
<td>225</td>
<td>414</td>
<td>459</td>
<td>565</td>
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<tr>
<td>2005</td>
<td>5,328</td>
<td>1,662</td>
<td>440</td>
<td>777</td>
<td>247</td>
<td>479</td>
<td>546</td>
<td>606</td>
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<tr>
<td>2006</td>
<td>6,084</td>
<td>1,773</td>
<td>514</td>
<td>1,076</td>
<td>284</td>
<td>526</td>
<td>653</td>
<td>685</td>
</tr>
<tr>
<td>2007</td>
<td>7,149</td>
<td>2,124</td>
<td>610</td>
<td>1,231</td>
<td>352</td>
<td>616</td>
<td>795</td>
<td>778</td>
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<tr>
<td>2008</td>
<td>8,310</td>
<td>2,557</td>
<td>700</td>
<td>1,457</td>
<td>415</td>
<td>758</td>
<td>851</td>
<td>815</td>
</tr>
<tr>
<td>2009</td>
<td>9,230</td>
<td>2,715</td>
<td>779</td>
<td>1,617</td>
<td>477</td>
<td>887</td>
<td>1,034</td>
<td>905</td>
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</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Food</th>
<th>Clothing</th>
<th>Residenc e</th>
<th>HH facilities</th>
<th>Medical</th>
<th>Transport etc</th>
<th>Recreation etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>3,899</td>
<td>1,471</td>
<td>373</td>
<td>398</td>
<td>221</td>
<td>287</td>
<td>458</td>
<td>561</td>
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<tr>
<td>2005</td>
<td>4,465</td>
<td>1,638</td>
<td>450</td>
<td>455</td>
<td>251</td>
<td>338</td>
<td>560</td>
<td>617</td>
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<tr>
<td>2006</td>
<td>5,069</td>
<td>1,814</td>
<td>526</td>
<td>527</td>
<td>291</td>
<td>362</td>
<td>669</td>
<td>701</td>
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<tr>
<td>2007</td>
<td>6,062</td>
<td>2,200</td>
<td>632</td>
<td>596</td>
<td>365</td>
<td>424</td>
<td>823</td>
<td>806</td>
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<tr>
<td>2008</td>
<td>7,016</td>
<td>2,658</td>
<td>728</td>
<td>715</td>
<td>432</td>
<td>491</td>
<td>884</td>
<td>848</td>
</tr>
<tr>
<td>2009</td>
<td>7,912</td>
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<td>828</td>
<td>793</td>
<td>508</td>
<td>552</td>
<td>1,085</td>
<td>950</td>
</tr>
</tbody>
</table>

Source: CEIC Data Company and Barclays.

Changes to rural household data were relatively insignificant but equally interesting. Overall, rural household consumption was only about one-third of urban household consumption. Compared with the household survey data, rural household consumption under the GDP system was revised up by an average of 5%. The main upward revisions occurred to almost every category in recent years. Special revisions were done again to the residence and healthcare sectors, like for the urban household data, while the upward revisions to all the...
other sectors were identical during the same year. It is noteworthy that healthcare expenditure was revised up by 19% in 2009, compared with 9% and 5% previously. The revision to residence expenditure suddenly turned to a negative 11% in 2009 after years of upward revision, which raises questions about data consistency.

The adjustment can also be seen from comparison of growth rates for GDP consumption and survey consumption (Table 2). In estimating the GDP consumption data, the NBS effectively raised growth rates for household facility and services, residence and healthcare but lowered growth rates for transport and recreation. The last change was somewhat surprising as recreation spending, especially that on tourism, has been growing very rapidly.

Table 2. Comparison of total household consumption by sectors, GDP and survey data (%y/y)

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Clothing</th>
<th>HH facility</th>
<th>Transport etc</th>
<th>Residence</th>
<th>Medical</th>
<th>Recreation etc</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDP Consumption Data</strong></td>
<td></td>
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<tr>
<td>2005</td>
<td>8.8</td>
<td>17.6</td>
<td>9.9</td>
<td>19.0</td>
<td>15.1</td>
<td>15.7</td>
<td>7.2</td>
</tr>
<tr>
<td>2006</td>
<td>6.7</td>
<td>16.7</td>
<td>14.9</td>
<td>19.8</td>
<td>38.6</td>
<td>9.9</td>
<td>13.1</td>
</tr>
<tr>
<td>2007</td>
<td>19.8</td>
<td>18.8</td>
<td>24.1</td>
<td>21.6</td>
<td>14.4</td>
<td>17.0</td>
<td>13.6</td>
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<tr>
<td>2008</td>
<td>20.4</td>
<td>14.7</td>
<td>17.9</td>
<td>7.0</td>
<td>18.4</td>
<td>23.1</td>
<td>4.8</td>
</tr>
<tr>
<td>2009</td>
<td>6.2</td>
<td>11.3</td>
<td>14.9</td>
<td>21.5</td>
<td>11.0</td>
<td>17.0</td>
<td>11.0</td>
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<td>2005-09</td>
<td>12.4</td>
<td>15.8</td>
<td>16.3</td>
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<td>19.5</td>
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<td><strong>Household Survey Data</strong></td>
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<td>2005</td>
<td>7.0</td>
<td>17.7</td>
<td>11.6</td>
<td>22.5</td>
<td>12.9</td>
<td>12.6</td>
<td>12.2</td>
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<tr>
<td>2006</td>
<td>7.5</td>
<td>14.5</td>
<td>11.5</td>
<td>18.1</td>
<td>12.4</td>
<td>6.1</td>
<td>14.0</td>
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<tr>
<td>2007</td>
<td>15.7</td>
<td>18.2</td>
<td>17.0</td>
<td>21.3</td>
<td>11.7</td>
<td>15.1</td>
<td>14.9</td>
</tr>
<tr>
<td>2008</td>
<td>16.6</td>
<td>13.8</td>
<td>11.5</td>
<td>7.6</td>
<td>17.9</td>
<td>13.7</td>
<td>7.3</td>
</tr>
<tr>
<td>2009</td>
<td>9.9</td>
<td>13.2</td>
<td>12.6</td>
<td>21.7</td>
<td>9.4</td>
<td>12.1</td>
<td>12.7</td>
</tr>
<tr>
<td>2010</td>
<td>11.3</td>
<td>17.3</td>
<td>17.4</td>
<td>22.8</td>
<td>13.5</td>
<td>7.6</td>
<td>16.1</td>
</tr>
<tr>
<td>2005-09</td>
<td>11.3</td>
<td>15.5</td>
<td>12.8</td>
<td>18.2</td>
<td>12.9</td>
<td>11.9</td>
<td>12.2</td>
</tr>
</tbody>
</table>

Source: CEIC, Barclays Capital

Underreporting of the goods and services consumption

Despite the adjustment already made in the official GDP consumption statistics, we present evidences suggesting both the official consumption level and growth rate are still likely to be underestimated.

The first relates to the gap between the real growth of retail sales and consumption expenditure in GDP data. Until 2000, retail sales grew slower than consumption expenditure. But after 2000, this relationship reversed (Figure 5). During 2001-2010, retail sales grew faster than consumption expenditure by an average of 4.1pp. The gap was 7.6pp in 2008 and 2009 and narrowed somewhat to 5.9pp in 2010. Differences between the two variables may not be surprising given their different definitions.
However, the same discrepancies still exist even if we go down to specific categories. Taking household facility consumption as an example, retail sales showed an average growth of 22.3% during 2005-2009, GDP consumption data showed growth of 16.3%, while household survey data showed growth of 12.8% (Figure 6). The difference between the first two was particularly puzzling: where did the sold household facilities go if nobody consumed them?

Also, given the significant overlaps between retail sales and consumption, we find the derived consumption-related retail sales level and the implied growth rate of the non-retail consumption expenditure contradict either the official data or common sense. Over 2006-2010, we estimate about 80% of the total retail sales value is for consumption and accounts for 60% of total consumption (in GDP data).

Two observations can be made if the retail sales figures are reliable. One, the proportion of consumption-based retail sales to GDP actually picked up forcefully, from 26.7% in 2008 to 32% in 2010 (Figure 7). This probably means that consumption has actually strengthened during the past couple of years, both in absolute size and relative GDP. This is consistent with our general observation, but is in contrast to the official data which point to a continuous decline in the consumption share of GDP. Two, the remaining 40% of consumption consists mainly of service products (plus self-supplied farm products). Using the above shares, we derive an implied average growth rate of 1.4% for service consumption.
In some years, such as in 2008 and 2009, the growth rate would be significantly negative. But, this is highly implausible.

**Figure 7.** Consumption-related retail sales as % GDP (%)

![Graph showing consumption-related retail sales as % GDP from 1997 to 2009.](image)

Source: CEIC Data Company and Barclays.

The second piece of evidence is potential underreporting of service expenditure. One main area frequently discussed is tourism spending. According to the annual statistical report of the State Tourism Bureau, in 2007, total domestic tourism revenue was CNY777bn, up 24.7% from a year ago. Of this total revenue, spending by urban residents was CNY555bn, while that by rural residents was CNY222bn (Figure 8). Total domestic tourism spending, reported by the tourism agency, was almost equivalent to spending on recreation, education and cultural activities, recorded by the Statistics Bureau – CNY998bn using GDP-by-expenditure data or CNY746bn using household survey data.

**Figure 8.** Number of domestic tourists and their spending

![Graph showing number of tourists and tourist revenue from 1994 to 2010.](image)

Source: CEIC Data Company and Barclays.

The tourism agency also reported a total of 41 million outgoing Chinese tourists in 2007. Outgoing tourists’ spending has two parts: tourism expenditure and overseas shopping. Assuming outgoing tourists’ average spending was three times domestic urban tourists’ average spending, the total amount would be CNY112bn. Overseas shopping, however, is much more difficult to estimate. According to Bain & Company (2011), Chinese spending on luxury goods increased by 35% in 2011. Chinese consumers spent €23.5bn on luxury goods at home, if their spending in Macau, Hong Kong and Taiwan are included. They probably spent a further €12.5bn in overseas markets (Luxury and Brands, 2011). These, combined,
account for almost 20% of the global sales of luxury goods. In other words, overseas’ spending of at least CNY200-300bn was not reported in the official statistics.

The hidden household income

The third piece of evidence relates to households’ spending on housing. Judging from the latest data, we think the NBS probably has already adjusted official data to take care of this underreporting problem. China did not have a commercial residential housing market until the late 1990s. Before that, most houses/apartments were either self-built or allocated by work units. After the housing reform started in 1998, households had to begin to purchase their own apartments. This became a major drag on Chinese households. Housing purchases, of course, should be regarded mainly as investment, not consumption. But this new item squeezed consumption expenditure by substantially raising the household savings rate.

However, if the houses purchased are for ‘own use’, then they are not entirely for investment and the rental equivalent cost should be treated as consumption expenditure. In a typical market economy such as the US, spending on rental equivalent accounts for about 30% of total consumption expenditure. The problem is that China does not have a well-developed secondary housing market. In particular, the home ownership ratio (inclusive of self-built and state-allocated apartments) ratio is close to 90%, so the household survey data show very small spending on actual housing rental. Household survey data confirm actual spending on housing-related items at around 2.5% of disposable income. In the national accounts data, housing-related expenses are about 18% of total consumer spending. This is certainly more realistic than the survey data but, we think, probably still underestimates actual expenditure.

The last piece of evidence was brought about by a landmark study on China’s hidden household income (Wang and Woo 2011). Through two consecutive household surveys, one in 2005 and the other in 2008, this study concluded that household income was substantially underreported. The authors suggested several explanations for the underreporting, including technical survey problems, tax avoidance and corruption.

By selecting a set of more than 1,500 households from the NBS sample, Wang and Woo went out to conduct their own surveys. In order to avoid the problem of some households’ unwillingness to report full income, Wang’s surveyors started by asking about detailed expenditure items. They then used Engel’s law, the well established correlation between household income and food expenditure, to estimate households’ actual income levels (Table 3).

<table>
<thead>
<tr>
<th>Table 3. Ratio of estimated income to official income in 2005 and 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household distribution</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Bottom 10%</td>
</tr>
<tr>
<td>10%-20%</td>
</tr>
<tr>
<td>20%-40%</td>
</tr>
<tr>
<td>40%-60%</td>
</tr>
<tr>
<td>60%-80%</td>
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<tr>
<td>80%-90%</td>
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<tr>
<td>Top 10%</td>
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<tr>
<td>Total</td>
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</tbody>
</table>


By doing this, they reached at least two very important conclusions. One, if Wang and Woo’s results are to be trusted, then China’s household income was significantly underestimated in official statistics, by 77.7% in 2005 and 90.4% in 2008. And, two, the underreporting was
disproportionately concentrated in the high-income groups. In fact, the top 10% group’s income was underreported by 218.7% and accounted for 62.5% of the total income underestimation.

Wang and Woo’s findings have some broad implications. First, income distribution among the Chinese households was much more unequal than the official statistics recognise. The income of the wealthiest 10% of Chinese households is really 65 times that of the poorest 10% instead of the 23 times reported in official statistics. Given that the high-income households have much higher saving rates, unequal income distribution naturally contributes to weak consumption.

Second, the size of the Chinese economy is underestimated. According to Wang, NBS provides two sets of household income, one based on household survey data and the other based on flow of funds data in the national account. In 2008, NBS reported roughly CNY13trn of household income from its household survey. The national account reported about CNY18trn, roughly CNY5trn more than the household survey. Wang’s study estimated total household income of CNY23trn, another CNY5trn more than the national account estimate. He reckoned that about 40% of the underreported income was income transferred among households, while the remaining 60% was likely unreported in GDP. These figures imply an underestimation of Chinese GDP by 10%.

Finally, consumption was likely also underreported. In order to hide their income, wealthy households would probably choose not to report some consumption items, especially their spending on luxurious goods. Wang and Woo estimated that household consumption was underreported by 20% in 2008. Since household income was underestimated by 27.8%, compared with the national account data, the household saving rate was actually even higher. This means that households’ consumption rate was even lower than what was reported by official statistics. The household consumption share of GDP, however, was actually slightly higher, at 38.2%, instead of the officially reported 35%.

Recalculating China’s consumption share of GDP

In order to gauge the true picture of consumption in China, we try to re-estimate the consumption shares of GDP in China for the period 2010-2010. We first calculate a proxy for consumption growth, which is a weighted average of consumption-related retail sales growth and service sales growth. The estimated growth rates are, in general, in between retail sales growth rates and consumption growth rates.

We then generate two sets of shares: the first starts with the official share in 2000 and then derives the shares for the remaining years applying both GDP and re-estimated consumption growth rates; and the second starts with the adjusted consumption share in 2008, based on Wang and Woo’s finding, and then derives the shares of the remaining years.

In the first set where we adopt the official consumption share for 2000, the estimated share declined from 62% in 2000 to 49% in 2007-08, consistent with the official data, but then rebounded markedly in the following years (Figure 9).
When applying Wang and Woo’s data, we first extrapolate the GDP underestimation by an additional percentage point in every three years, based on findings of underestimation by 9% in 2005 and 10% in 2008. Wang and Woo suggested that household consumption was underestimated by 20% in 2008. In that year, the official statistics reported total consumption share of GDP at 48%, of which household consumption was 35% of GDP and government consumption was 13% of GDP. These imply that the adjusted household consumption was 38.2% of GDP and total consumption was 50% of GDP. We take this as the starting point and then derive consumption data for the other years by applying the estimated growth rates for consumption (Figure 10).

In this last set of the estimates, we find some very clear and consistent results: 1) the consumption share of GDP declined continuously during the years before 2008, which was consistent with the official statistics; 2) the share was systemically higher than the official share, which means that the official statistics overstated the weak consumption problem; and 3) the share already picked up after 2008. These findings imply that rebalancing of the Chinese economy has already started.
Will consumption improvement be sustained?

This analysis, originally documented in Huang, Chang and Yang (2011), encountered serious criticisms. Examples include articles such as South China Morning Post’s “Optimists’ view on China’s economy suffers from fatal flaws” (January 30, 2012), Financial Times (FT) website ft.com/alphaville’s "China is not rebalancing a) yet, or b) enough”, and Nicholas Lardy’s column “China’s rebalancing will not be automatic” on eastasiaforum.org. But there were also some more sympathetic reviews of the subject, including The Economist’s “The incredible shrinking surplus: At least one of China’s economic imbalance is narrowing” (February 18, 2012) and Financial News’ “All hail the Chinese shopper” (February 27, 2012).

There are generally three broad criticisms of our analysis. First, some simply expressed disbelief about possible rebalancing of the economy. They argued that if investment share of GDP was still so high, how could it be possible that consumption share was already on the rise? By implication, these analysts at least believed the official data on investment ratio. And this requires a whole different debate about reliability of the official Chinese statistics.

Second, retail sales growth might have significantly overstated consumption growth for some technical reasons. For instance, the NBS survey normally covers only sizable retail shops. Retail sales growth could overstate consumption growth if small retailers were absorbed by these sizable retail shops. Alternatively, small businesses might have to purchase directly from the retail stores. These are realistic problems that could cause bias to the retail sales data. However, unless there were massive structural shifts during the past several years, these technical factors were probably insufficient to explain the widening gap between retail sales and consumption growth.

And, finally, several analysts pointed out that there was not enough change in distortions of factor costs to support the case of rebalancing. They argued that wages had not grown enough, the currency had not appreciated enough and the interest rates had remained highly regulated. This criticism went directly to the heart of our analysis – factor cost distortion. However, our key argument is that reductions of factor cost distortions were exactly the reason why the economy started to rebalance during the past years.

Huang and Tao (2010) and Huang (2010) argued that the fundamental cause of the imbalance problems, including weak consumption, was widespread and serious distortions in factor markets. These distortions, by repressing production costs, subsidised producers, investors and exporters and, at the same time, taxed consumers. Stagnation of wage income and low deposit rates depressed household income and its share in national income. Such distortions also worsened income distribution among households.

A strong implication of the above analysis is that one key to economic rebalancing lies in liberalisation of factor markets. We have argued that the reason why rebalancing did not take place during the earlier years was because the government relied mainly on administrative measures to correct the imbalances. Without changing distortions in the factor markets, incentives for producers, investors, exporters and consumers remained unchanged.

But the incentive structure started to change during the past years. First, wages have started to grow more rapidly, as a result of a tightening labour market. Labour shortages first emerged in China in 2004, although the problem, especially the shortage of unskilled workers, worsened in 2009, after a brief disruption in 2008 as a result of the global financial

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2 Ft.com/alphaville actually posted three article on the above-mentioned Barcalys Capital report. The first article introduced the issue. The second article detailed our analysis. And this third article challenged our proposition, drawing mainly on commentaries by Michael Pettis.
crisis. This was evidenced by competition for migrant workers by both coastal and inland cities, significant upward revision of minimum wages across the country and an acceleration of wage growth. After a long period of decline and stagnation, wage income as a share of GDP began to pick up after 2008 (Figure 11).

**Figure 11.** Wage income as a share of GDP has picked up

![Graph showing wage income as a share of GDP](source: CEIC Data Company and Barclays.)

Second, households’ investment returns also increased rapidly in recent years. During the earlier years, bank deposits were the only available investment for ordinary households. The very low deposit rates, especially often negative real deposit rates, capped household income. This started to change in recent years. Although the authorities did not liberalise the deposit rate, the balance sheet activities, especially wealth management products (WMPs), began to grow rapidly. Growth of off-balance sheet activities, was, in fact, a form of de facto interest rate liberalisation as it introduced market-based interest rates to financial intermediation.

As a result of these changes, household income started to improve significantly. Unfortunately, this improvement was observed in daily life but not reflected in official statistics, which continued to report a declining share of household income in GDP. However, if we apply Wang’s finding of underestimation of household income and extrapolate 55% underestimation in 2005 and 66% underestimation in 2008 to cover the whole period 2005-2010, we find that the household income share of GDP actually picked up after 2008 (Figure 12). This was consistent with our findings of a pickup of consumption during the same years. Meanwhile, increases in wage and interest rate income should also be favourable for income distribution among households.

More importantly, changes in fundamental factors also suggest that the recent consumption improvement is secular and structural. Trying to gauge the determinants of China’s private consumption (over GDP), IMF’s Kai Guo and Papa N’Diaye (2010) estimated an unbalanced panel of 39 economies over 1980-2008. They found that their baseline specification fits China’s consumption profile well. Their results suggest China’s low consumption share is nothing too ‘special’ given the low level of the conditioning variables such as service sector employment and financial development. They estimate that around one third of the fall in private consumption share from 2000-2007 can be attributed to a decline in household income share, while the remaining two-thirds are due to other factors that either directly or indirectly affect the household savings rate or income.
Application of their research findings paints a very promising picture for Chinese consumption in the years ahead (Figure 14), for example:

- Household disposable income/GDP (+): Changes and reforms in factor markets and government policies will likely further lift shares of household income of GDP;
- Real effective exchange rates (+): Appreciation of renminbi will probably be a long-term trend;
- Share of service employment (+): Faster development of the service sector should raise employment share of services;
- Old age-dependency ratio (+): Aging is one of the most serious demographic challenges facing the Chinese economy;
- GDP growth (-): As the economy matures, its growth rate should slow naturally;
- Financial development/real interest rates (+): Reform of repressive financial policies should be favourable for development of the financial system and removal of negative real interest rates.

Obviously, most of the above trends, other than population aging and growth moderation, are conditional on government policy actions. But we are confident that these will take place, especially if we take a medium-term perspective. Indeed, with boosting domestic consumption being the key policy priority in the 12FYP, the government has set more binding targets than they did in the 11FYP in the areas of raising household income levels, improving social safety net and promoting service sector development.
Some concluding remarks

Our analyses suggest that Chinese consumption has already started to improve over the past three years, in contrast to the continuous weakening as reported by the official statistics. This implies that the long-awaited rebalancing of the Chinese economy is already taking place. On our estimates, the investment share of GDP was 42% in 2010, compared with the officially reported 48.6% (Figure 20).

This finding is consistent with the main theme of the arguments made by Huang (2010), Huang and Tao (2010) and Huang, Chang and Yang (2011). The rebalancing of the Chinese economy depends critically on the correction of factor market distortions, a trend that we believe has actually been taking place during the past years, evidenced by rapid growth of wages, rising energy and other resource costs, and the increased role of market-based interest rates.

Our analyses also found underreporting of consumption. The second set of the estimates above reveal several interesting findings: total consumption expenditure was, on average, underreported by 5.7ppt, while the consumption share of GDP was underestimated by 3ppt. The extent of underestimation rose significantly over 2009-10. This estimation was based on findings by Wang and Woo (2011). However, the key conclusion that consumption probably has already started to recover is not conditional on the Wang-Woo results.

We believe that recent strengthening of consumption is only the beginning of a long-term process. Changes like population ageing, moderation of economic growth and appreciation of real effective exchange rates should all be favourable for consumption growth. In addition, policies facilitating a growing proportion of household disposable income to GDP, financial liberalisation and service sector development should also be positive for boosting consumption expenditure. In general, further liberalisation of the economy, especially the factor markets, is key to a rebalancing and sustainable growth of the economy.
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