

Determinants of China's Private Consumption: An International Perspective

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INTRODUCTION

China's private consumption as a share of GDP has declined from around 55 percent in the early 1980s to around 37 percent in 2008. The decline in a country's share of private consumption during the early development stages is not in itself a surprise—savings naturally rise at early stages of development as households move away from subsistence levels of income and greater capital accumulation is needed to finance investment and growth. However, the size of the fall in China's private consumption share certainly stands out when compared with other countries.

Reasons put forward to explain this downward trend in private consumption relate both to households' saving rates and income as well as to purely statistical factors. Studies by Blanchard and Giavazzi (2005), Kuijs (2005), and Modigliani and Cao (2004) attribute the decline in private consumption to a rise in household saving rates, particularly precautionary saving and particularly by elderly households, in the face of limited health care, pension, and education benefits. Indeed, Chamon and Prasad (2010) find that it is the elderly who save the most in China, contrary to typical lifecycle patterns. Wei and Zhang (2009), on the other hand, attribute about half the increase in household saving rates during 1990–2007 to growing gender imbalances as the shrinking number of women relative to men fosters a more competitive marriage environment, one that requires higher and higher saving in households where the one child is a male. Aziz and Cui (2007) find that, rather than a higher saving *rate*, the fall in the share of private consumption is due to a decline in households' income as a share of GDP and that this decline is broad-based, reflecting income from wages, returns on saving, and government transfers. In this connection, Bai and Qian (2009) explain the decline in the labor share of income as mainly a statistical artifact resulting from changes in the way labor income is compiled.¹

¹The authors indicate that, after 2004, individual business owners' income was reclassified from labor income to capital income. This change explains 58 percent of the decline in the labor share of income during 1995–2004.

This chapter gauges the key determinants of China's private consumption in relation to GDP using data on the Chinese economy and evidence from other countries. The empirical framework relates the share of private consumption to that of household income in GDP as well as to other factors that could influence the household saving rate (including the old-age dependency ratio, the level of financial development, per capita GDP, the share of employment in the services sector, changes in the real exchange rate, and the real interest rate).

The model fits the historical profile of China's private consumption quite well and explains most of its evolution over the selected sample. The results show that around one-third of the fall in private consumption from 2000 to 2007 can be directly attributed to a fall in household income, while the remaining two-thirds are due to other factors that may affect, directly or indirectly, household saving rates and incomes. In addition, we find that the fit of the model is not enhanced by including a China-specific dummy variable.

The results suggest that efforts to further raise household income and the share of employment in the services sector, as well as to develop capital markets through liberalizing interest rates and creating alternative savings instruments, are likely to have the largest impact on consumption. However, there is also a role for other mechanisms to raise household income and mitigate household-specific risk, such as improving the health care and pension systems. In addition, the lack of any China-specific factor suggests that a small set of economic and social variables can adequately explain the behavior of Chinese consumers. In this sense, there is nothing "special" about China. Rather, the challenge is to explain why the conditioning variables—notably a low level of services sector employment, the level of financial sector development, and low real interest rates—are so different in China relative to other countries' historical experience.

The chapter is organized as follows. The next section provides an overview of the empirical framework. This is followed by an exploration of the role of the income share in explaining China's share of private consumption. The role of the saving rate in explaining China's share of private consumption is explored last.

EMPIRICAL FRAMEWORK

To explain the dynamics of private consumption in China, we use cross-country panel data and regress private consumption as a share of GDP on household income and public consumption (both as a share of GDP), the level of per capita GDP (to capture the level of development), real GDP growth, real interest rates, CPI inflation, the change in the terms of trade, the old-age dependency ratio, the change in the real effective exchange rate, the share of employment in the services sector, a measure of past foreign financing, and a measure of financial development. The goal is to use this panel data framework to assess the relative contributions to the dynamics of private consumption made by changes in income and other factors that affect the saving rate in China and, as well, to relate those factors to the broader international experience.

To capture the potential for a nonlinear relationship between the regressors and private consumption, the reduced form of the consumption equation can be written as follows:

$$\frac{C}{Y} = 1 - \exp \left[\alpha_1 \left(\frac{Y}{N} \right)^{\alpha_2} + \alpha_3 \left(\frac{G}{Y} \right) + \alpha_4 \frac{\dot{Y}}{Y} + \alpha_5 r + \alpha_6 \pi + \alpha_7 \tau + \alpha_8 D + \alpha_9 s^* + \alpha_{10} f + \alpha_{11} \frac{L'}{L} + \alpha_{12} e + \alpha_{13} \frac{Y^h}{Y} \right] + \varepsilon^c \quad (1)$$

where Y^h is household income and Y is real GDP. Per capita GDP $\left(\frac{Y}{N} \right)$ and real GDP growth $\left(\frac{\dot{Y}}{Y} \right)$ capture saving behaviors at different stages of development (Modigliani, 1966) and the real interest rate (r) reflects the substitution or income effect from higher interest rates. Inflation (π) may increase consumption through the Pigou effect or lower it through its impact on interest rates and measured household income. Changes in the terms of trade (τ) through their impact on income could lower consumption if they are temporary, while the impact of permanent terms of trade shocks on private consumption is ambiguous. The old-age dependency ratio (D) captures the effects of demographics, with private consumption generally expected to increase as the dependency ratio rises. Public consumption (G) embeds Barro's (1981) idea that what matters to consumers is their effective consumption, which includes both public and private spending, and that consumers take into account public spending when they make their private spending decisions. Public spending could hence complement private spending. Public consumption could also entail some crowding-out effects, with higher deficit-financed expenditure dampening private spending. Changes in the real effective exchange rate (e) affect households' income and purchasing power and hence influence their spending decisions. A higher share of employment in the services sector (L') raises both labor income and the availability of services, both of which can raise private consumption. Foreign savings (s^*) capture the possibility that the availability of foreign financing could affect households' spending decisions. Financial development could increase private consumption by increasing the availability of financing sources and providing alternative instruments for saving with higher returns.

The model is estimated using the Generalized Method of Moments estimator with an unbalanced panel of 39 economies for a total of 515 observations.² To handle simultaneity, lagged values of the regressors are used as instruments. The real interest rates, changes in the terms of trade, the old-age dependency ratio, and the share of employment in the services sector are considered as exogenous

²The 39 economies are Argentina, Australia, Austria, Belgium, Brazil, Canada, Hong Kong SAR, Chile, Colombia, Denmark, Egypt, Finland, France, Germany, Greece, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, South Korea, Malaysia, Netherlands, New Zealand, Norway, Peru, Philippines, Portugal, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan Province of China, United Kingdom, United States, and China. The longest sample in the unbalanced panel starts in 1980 and ends in 2008.

TABLE 6.1
Determinants of Private Consumption for 39-Country Panel
(In percent of GDP)

Explanatory variables ^a	Coefficients ^b
GDP per capita ^c	
Intercept (b1)	0.1972 [.001] ***
Curvature (b2)	0.2372 [.000] ***
Public consumption/GDP	0.0093 [.000] ***
Real GDP growth	0.0067 [.001] ***
Real interest rate	-0.0023 [.088] *
Inflation	0.0031 [.138]
Change in terms of trade	0.0027 [.002] ***
Old-age dependency ratio	-0.0031 [.003] ***
Financial development ^d	-0.0106 [.034] **
Share of employment in service sector	-0.0094 [.000] ***
Change in real effective exchange rate	-0.0055 [.000] ***
External financing	0.0125 [.000] ***
Household disposable income/GDP	-0.0126 [.000] ***

Source: IMF staff estimates.

^aIn percentage point unless otherwise specified.

^bFigures in brackets are p-values. *, **, *** denote the 10 percent, 5 percent, and 1 percent significance levels, respectively.

^cIn thousands of US dollar (ppp).

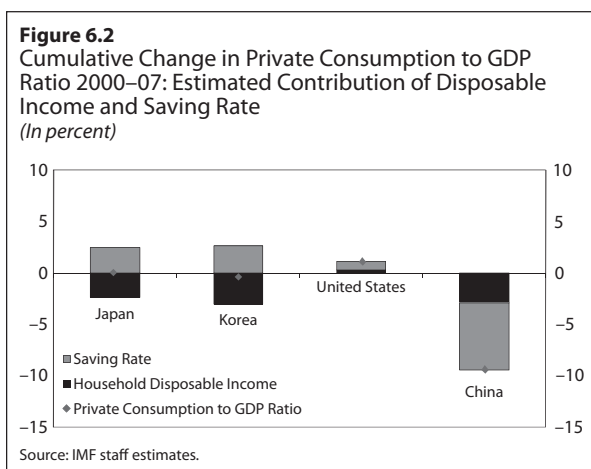
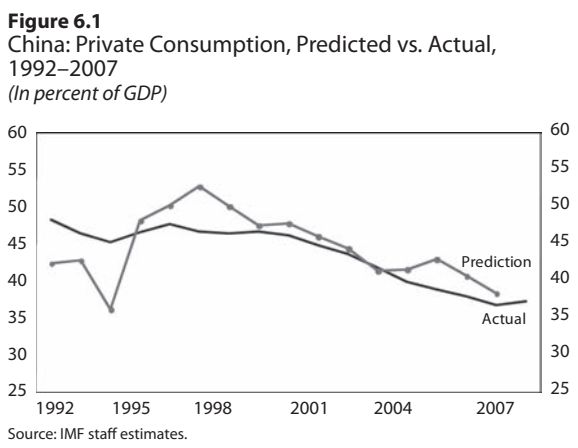
^dMeasured by stock market total value traded/GDP.

variables. The instrument set also includes country dummies, but no country dummies are included in the regression itself.

Table 6.1 shows the estimation result for the share of private consumption with positive (negative) coefficients indicating a negative (positive) impact of the associated explanatory variable. The results indicate that all the main regressors—except for inflation—have a significant impact on private consumption. The two sections following this one will discuss these factors in more detail.

Figure 6.1 shows that, even without accounting for China-specific factors beyond those captured by the various regressors, the trend decline in Chinese consumption over the last decade or so can be reasonably estimated by the model, even though the model is fitted on a cross-section of 39 economies, and so there is no guarantee in advance that there will be a good fit for any particular country. This suggests that the unexplained component behind China's declining consumption share may be relatively small. As such, rather than “culture” or “history,” a larger part of the explanation for China's low household saving lies in more conventional economic forces, such as China's rapid economic growth, declining labor share of income, relatively low level of financial development, relatively capital-intensive means of production, and low level of service employment.

One can decompose the estimate into how much of the change in consumption over a particular period has been due to changes in household



income versus other factors that may affect the saving rate. For China, around one-third of the change in consumption behavior from 2000–07 can be directly attributed to a decline in household income (Figure 6.2).³ This contrasts with developments in other countries in the region (e.g., Japan and Korea) where falling household income (as a share of GDP) was largely offset by a fall in the saving rate. In contrast, in the United States, the increase in private consumption can largely be attributed to a lower saving rate (with household income changing little as a share of GDP).

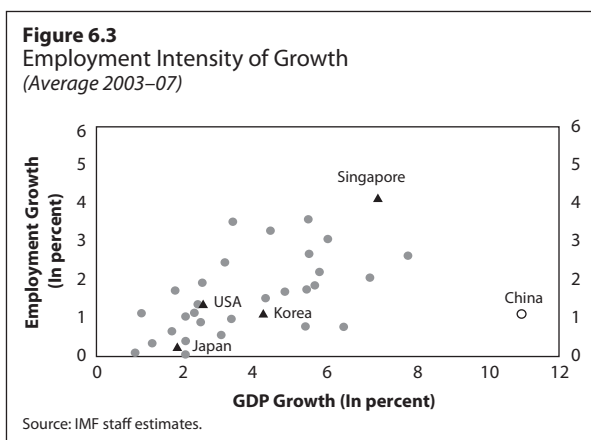
³A similar calculation for the 1992–2007 period would raise the contribution of households' income to the decline in private consumption to around 45 percent, a figure consistent with findings by Aziz and Cui (2007).

THE ROLE OF THE HOUSEHOLD SHARE OF INCOME

The share of household disposable income in GDP has declined in China from about 59 percent in 1992 to 53 percent in 2007. Not only is China's share of household income low relative to international comparators, but it seems also to have fallen faster than that of other economies. The decline in China's disposable income share reflects falling real wages, investment income, and transfers (Aziz and Cui, 2007). Looking at each of these factors in turn suggests the following:

- *Labor income.* The labor share of income fell to less than 49 percent in 2008 from around 54 percent in 1997 (based on flow of funds data). The fall is nearly twice as large when provincial data are used (from 51 percent to 40 percent). The fall reflects mostly sluggish employment growth, as wages have generally outpaced productivity over the past 10 years. China's rapid GDP growth has generated relatively little employment compared with other countries (Figure 6.3) and this, in turn, has suppressed household income.

The low employment intensity of growth results from China's export-oriented growth which, combined with a low cost of capital, favors more capital-intensive means of production. As shown in Chapter 5, China has a far lower share of employment in the services sector than one would expect from other economies' experience and China's fundamentals (Figure 6.4). On a sectoral basis, the primary, secondary, and tertiary sectors account for 41 percent, 27 percent, and 32 percent of employment, respectively, as of 2008.⁴ With the services sector typically being more labor intensive, China's export-oriented growth has naturally



⁴Preliminary estimates from the second economic census indicate that the size of the services sector was underestimated. Nevertheless, that underestimate is unlikely to change the fact that the share of employment in the services sector in China is far lower than international experiences and China's fundamentals would suggest.

Figure 6.4
Service Sector Share of Employment, China, Japan,
Korea, and the United States

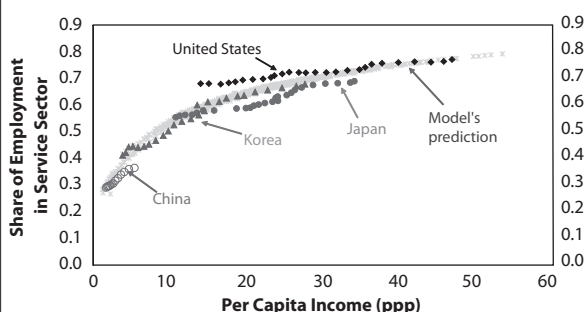
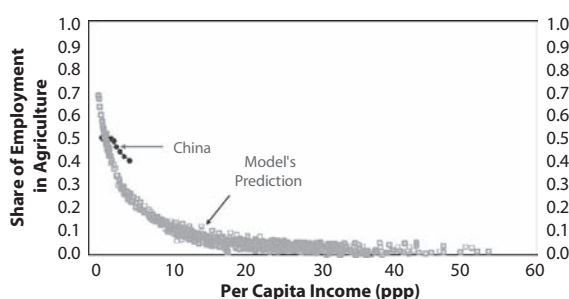


Figure 6.5
Agriculture Sector Share of Employment,
China vs. Model Prediction

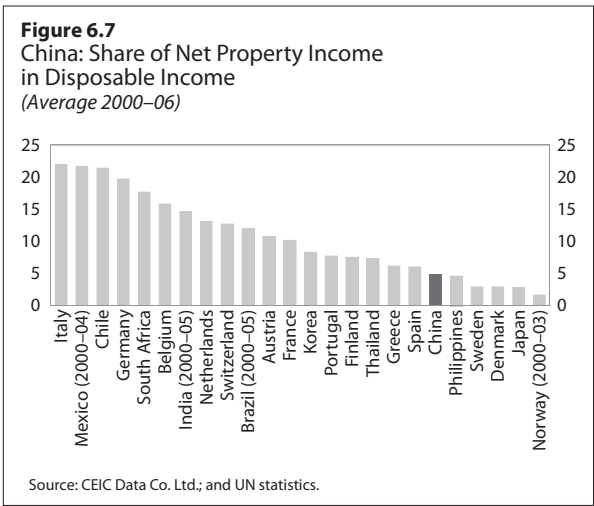
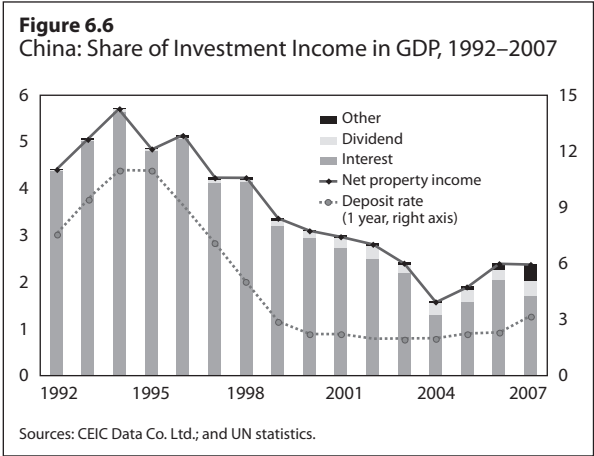


translated into relatively low employment growth compared with other economies.

As a corollary to the relatively low share of employment in its services sector, China has a larger share of employment in agriculture than one would expect from international comparators (Figure 6.5). This feature implies that shifting labor out of agriculture toward services, including labor intensive services, could raise the aggregate labor share. The above arguments suggest that greater employment creation, especially in the services sector, could raise the household share of income and hence boost private consumption. Other Asian economies that have also relied heavily on exports in the past, such as Japan and Korea, experienced a significant transfer of labor to the services sector during the course of their development, something that is not being seen in China. In Japan, for example, the share of employment in services rose to around 60 percent by the end of Japan's longest expansion period (in 1987) from around 38 percent in 1955. In Korea, the transfer

of labor to the services sector was even larger, with the share of employment in services rising to around 65 percent in 1995 from around 30 percent in 1961.

- *Investment Income.* Households' investment income has also fallen as a share of GDP since the early 1990s. It represents 2½ percent of GDP, down from about 5 percent in the early 1990s (Figure 6.6). The share of investment income is also low in China compared to the levels in other countries (Figure 6.7). Households' investment income mainly consists of interest income, which accounts for around 80 percent of investment income. Dividends and other sources of property income play a minor role, since the underdeveloped financial system has limited alternative investment instruments. The decline in interest income seems to have been mostly driven by

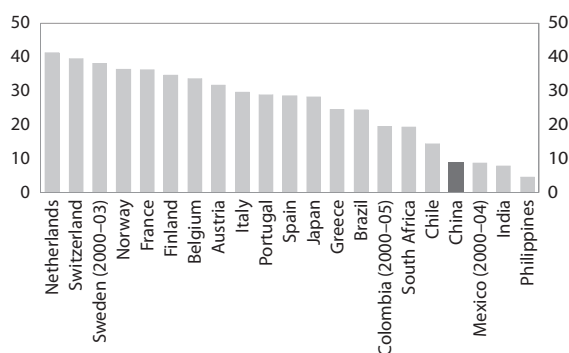


the fall in deposit rates. Deposit rates, like lending rates, are administered: deposit rates are subject to a ceiling, while lending rates are subject to a floor. Lending and deposit rates are kept low, while ensuring that banks benefit from comfortable interest margins. This favors investment at the expense of consumption, with households effectively subsidizing borrowers. Higher deposit rates could be best achieved within the context of a broader strategy of interest rate liberalization. Indeed, Porter and others (2009) show that interest rate liberalization in China would likely result in higher interest rates, which would discourage marginal investment, improve the effectiveness of intermediation and monetary transmission, and enhance access to financial services by underserved sectors. China's low share of property income in GDP (by international standards) suggests some room for further expansion, which could be achieved by providing alternative instruments for saving.

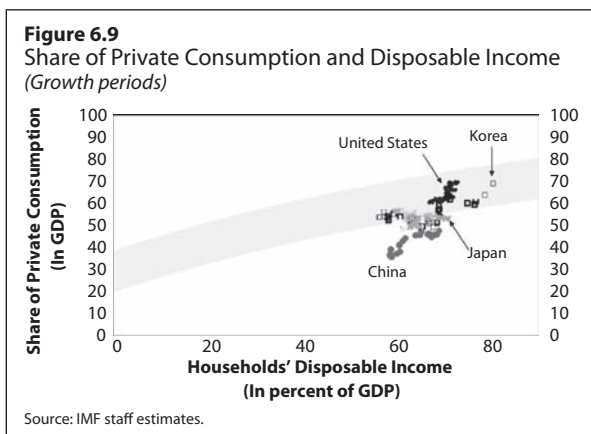
- *Transfers.* Net transfers to households have fallen to $\frac{1}{3}$ percent of GDP, down from $2\frac{1}{2}$ percent of GDP in 1992. Gross transfers also stand well below international comparators (Figure 6.8). The low share of transfers results in large part from the state-owned enterprise reform of the late 1990s, which created a void in social safety nets that the government has been able to fill only gradually.

In sum, the falling shares of labor income, investment income, and transfers have held back household disposable income and private consumption. However, the decline in the share of household income does not fully explain why China's share of private consumption is smaller than that of international comparators. China's share falls outside the range of estimates based on equation (1) (highlighted area in Figure 6.9), and the gap has been widening over time, indicating that the household saving rate has also been rising.

Figure 6.8
Share of Current Transfer in Disposable Income
(Average 2000–06)



Sources: CEIC Data Co. Ltd.; and UN statistics.



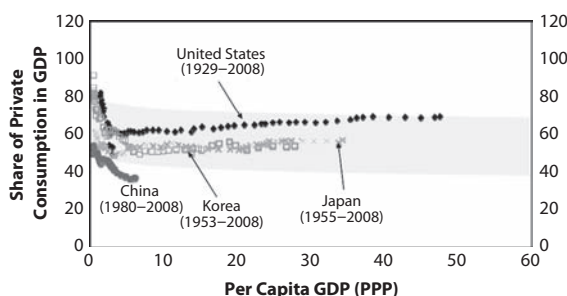
THE ROLE OF THE SAVING RATE

A stylized fact from the behavior of other countries is that the consumption share in GDP falls as per capita GDP rises at the lowest levels of per capita income. The consumption share declines in part because, at lower levels of income, household income is generally at subsistence level, leaving little room for saving. In this regard, China is no different from other countries. A large part of the decline in China's private consumption has been a natural result of China's rapid pace of economic development. Indeed, on average across countries, the consumption share declines steadily as countries get richer, and it eventually stabilizes when per capita GDP is around \$2,500 to \$3,000 on a PPP basis. Looking back to 1980, China's share of private consumption in GDP was on the low side, but nevertheless it was broadly consistent with other international comparators at similar levels of development. However, the consumption share in China then fell at a faster pace than would be suggested by the cross-country model, and by 2008 it was substantially below the level in other countries (Figure 6.10). This rate of decline of consumption is not unprecedented. Indeed, Korea, Japan, and the United States saw similar rapid reductions in consumption as a share of GDP when their income per capita rose, although their starting points were at initial levels of consumption that were much higher than China's was in 1980.

What are the main factors, then, after controlling for the level of per capita income, that have led to this rapid fall in consumption? There are six factors, as follows:

- *Employment in services.* The empirical results suggest that the consumption share could increase by $3\frac{1}{2}$ percentage points for every 10 percentage point increase in the share of employment in the services sector. Employment in the services sector increases the labor share of income since the services sector is, in general, more labor-intensive than other industries. The higher share of income raises aggregate consumption. This effect of a rise in the

Figure 6.10
Share of Private Consumption and Per Capita GDP
(Growth periods)



Source: IMF staff estimates.

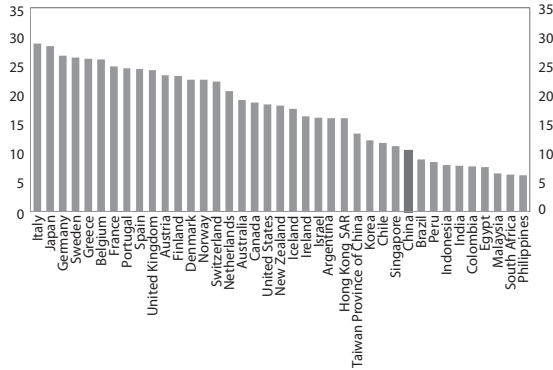
employment share of services is even larger when the increase in the services sector is accompanied by higher wages brought about by structural reforms that raise productivity. In addition to this demand effect, the employment in services variable captures supply-side effects related to the increased availability of services, with households increasing their consumption as new and better services become available. Overall, structural reforms that level the playing field between the tradable and nontradable sectors, increase contestability in markets, and improve access to financing could raise productivity in the services sector and at the same time enhance the quality of services.

- *Real exchange rate.* An appreciating exchange rate increases the share of private consumption, even after controlling for the effect it would have on household income. The independent effect of the exchange rate is significant, with the share of consumption increasing by around 2 percentage points for every 10 percent appreciation in the real effective exchange rate.
- *Financial development and real interest rates.* Greater financial development tends to increase consumption, perhaps highlighting the impact that alternative investment instruments have on reducing precautionary savings or that greater access to financing can have on consumption itself, particularly for people who are credit constrained. China's financial system is large but not very developed, and it is dominated by banks. The dominance of state-owned banks suggests that savings are not efficiently used, with the banking sector assets lent primarily to state-owned enterprises (Arora, 2009, and Feyzioglu, 2009). Efforts have been made toward liberalization (for example, interbank repo lending rates and bond market yields were liberalized in the late 1990s). Despite the large market capitalization of stock markets in China (\$3.5 trillion on average in 2008), only one company was listed for every million persons, as compared with around 40 (on average) for the sampled economies. Bond markets also remain relatively underdeveloped. Developing capital markets through corporate bond markets, mutual funds,

and broader equity ownership could broaden the range of saving instruments for households' saving and offer a variety of insurance products to help pool risks. That, in turn, would facilitate higher consumption. Moreover, since the real interest rate is estimated to have a positive impact on the share of private consumption, a liberalization of interest rates would further promote private consumption, since it likely would lead to higher deposit rates (Porter and others, 2009).

- *Public consumption.* The share of private consumption is found to decline with increases in public consumption. The reason could be that to some extent public consumption substitutes for private consumption across the selected economies. An alternative explanation could be that public consumption captures crowding-out behavior, with households reducing their spending in the face of higher deficit-financed spending. However, for China this result is inconsistent with alternative evidence from provincial data, which suggests that government spending on health (but not on education) reduces urban household saving (discussed further in Chapter 7).
- *Demographics.* The evidence in Table 6.1 suggests that the consumption share rises with the dependency ratio across economies as older people draw down their lifetime savings. China's lower dependency ratio versus that of other countries has a depressing effect on its relative private consumption share (Figure 6.11). However, despite the expectation of a rising dependency ratio in China in the coming years, it is unclear that this will translate into higher consumption. Indeed, contrary to theory and the behavior in other countries, the evidence suggests that average urban household saving rates in China are in fact highest among both the youngest and the oldest households (Chamon and Prasad, 2010). Therefore, the aging of the population in China and the increase in the dependency ratio may not necessarily lead

Figure 6.11
Old-Age Dependency Ratios



Source: World Bank, World Development Indicator database.

to an increase in consumption. This highlights the importance of implementing measures to reduce precautionary saving among the elderly, such as pension and health care reform, so that the rising dependency ratio could help increase consumption over time.

- *Pensions.* Available information on the sampled economies suggests that most of them introduced pension systems after World War II and have undertaken major reforms to their systems, particularly with regard to the replacement rates (Table 6.2). However, because of data limitations (especially on the time dimension of pension data), we have not included in equation (1) a variable to control for the role pensions play in households' consumption. Nevertheless, Figures 6.12 and 6.13 show a positive relationship between the residual in equation (1) and key features of pension systems, such as coverage ratios and replacement rates. The effect of pension coverage appears to die out as economies get close to full coverage, but

Figure 6.12
Pension System Replacement Ratios

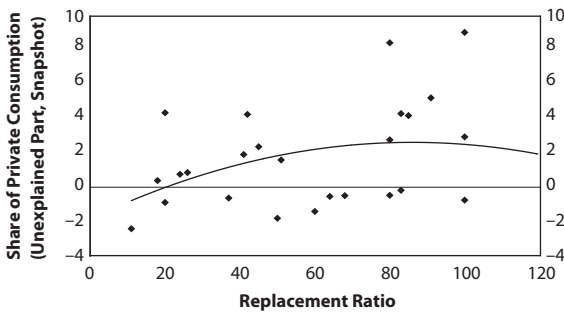


Figure 6.13
Pension System Coverage

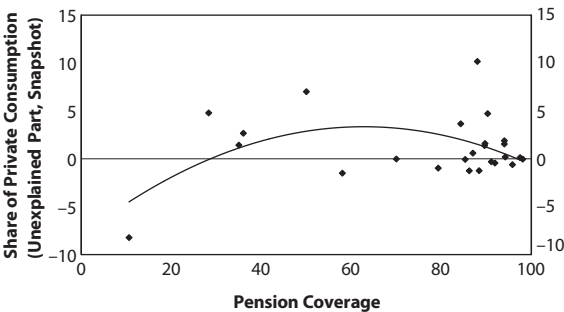


TABLE 6.2

International Pension Comparison			
	Pension introduced ^a	Most recent major reform ^a	Contributors / Labor Force ^b
Argentina	1946	2008	53.0
Australia	1908	1991	
Austria	1906	1955	95.8
Belgium	1900	1967	86.2
Brazil	1936	1991	36.0
Canada	1927	1952	91.9
China, P.R.: Hong Kong	1973	2000	
Chile	1924	1980	70.0
Colombia	1965	1993	35.0
Denmark	1891		89.6
Egypt	1950	1975	50.0
Finland	1937	1956	90.3
France	1910	1945	88.4
Germany	1889	2002	94.2
Greece	1934	1951	88.0
Iceland	1909	2007	92.0
India	1952	1995	10.6
Indonesia	1977	1992	8.0
Ireland	1908		79.3
Israel	1957	1974	
Italy	1919	1995	87.0
Japan	1941	1959	97.5
Korea, Republic of	1973	2007	58.0
Malaysia	1951	1991	48.7
Netherlands	1901	1957	91.7
New Zealand	1898	2001	
Norway	1936	1997	94.0
Peru	1936	1992	20.0
Philippines	1954		28.3
Portugal	1935	2007	84.3
Singapore	1955	2001	73.0
South Africa	1928	2004	
Spain	1919	1994	85.3
Sweden	1913	1998	91.1
Switzerland	1946		98.1
Taiwan Province of China	1950	2008	
United Kingdom	1908	1995	89.7
United States	1935		94.0

^aSocial Security Administration, 2009.

^bPalacios and Pallares-Miralles, 2000.

non-negligible gains could be made during the transition (with coverage explaining about 20 percent of the residual). The relationship between the residual and the replacement rate is also non-negligible. This result suggests that government efforts to expand the coverage of the pension system to include rural and urban workers could help lift private consumption (Dunaway and Arora, 2007).

CONCLUSION

The analysis presented in this chapter finds that China's share of private consumption in GDP is low when compared with benchmarks derived from international comparators. China's low share of private consumption in GDP can be largely explained by its relatively low share of household income and by other factors that influence household saving rates, including the level of development, the share of employment in the services sector, the level of financial development, and changes in the real exchange rate.

The analysis also suggests that the current level of consumption is not preordained and somehow special to China due to its historical or cultural background. Instead, policy efforts in a range of areas can yield results in bringing China back to a level of household consumption that is more consistent with countries that are or were at similar levels of development. In particular, efforts to further increase household income, develop capital markets—including liberalizing interest rates and creating alternative saving instruments—and raise the share of employment in the services sector can generate tangible results.

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