# The Saving Story behind China's Trade Imbalance

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**Abstract**

China's mounting trade surplus is an indirect outcome of its extraordinarily rapid economic growth. High growth pulls up the saving rate. And saving beyond a level that can be absorbed by domestic investment is emitted as a capital outflow. The counterpart of a net capital outflow is necessarily a trade surplus, for saving shunted into foreign asset accumulation must derive from export revenue not spent on imports. To elucidate the relationship between saving and growth in China, a recursive vector autoregressive model is estimated for the period 1978 to 2006. The model accounts for 70 percent of the 12 percentage point increase in the national saving rate that occurred between 2000 and 2006. A breakdown of aggregate saving by households, enterprises, and government for the period 1992 to 2004 reveals that on all fronts saving rates are high in China relative to international norms and that responsibility for the recent rise in the saving rate is shared by households and enterprises. Policies to rebalance the economy toward consumption are poised to gain momentum, building on institutional foundations that have been laid. Currency appreciation stands to play a supporting role, restraining demand to counter the stimulatory impact of consumption-boosting fiscal policies.

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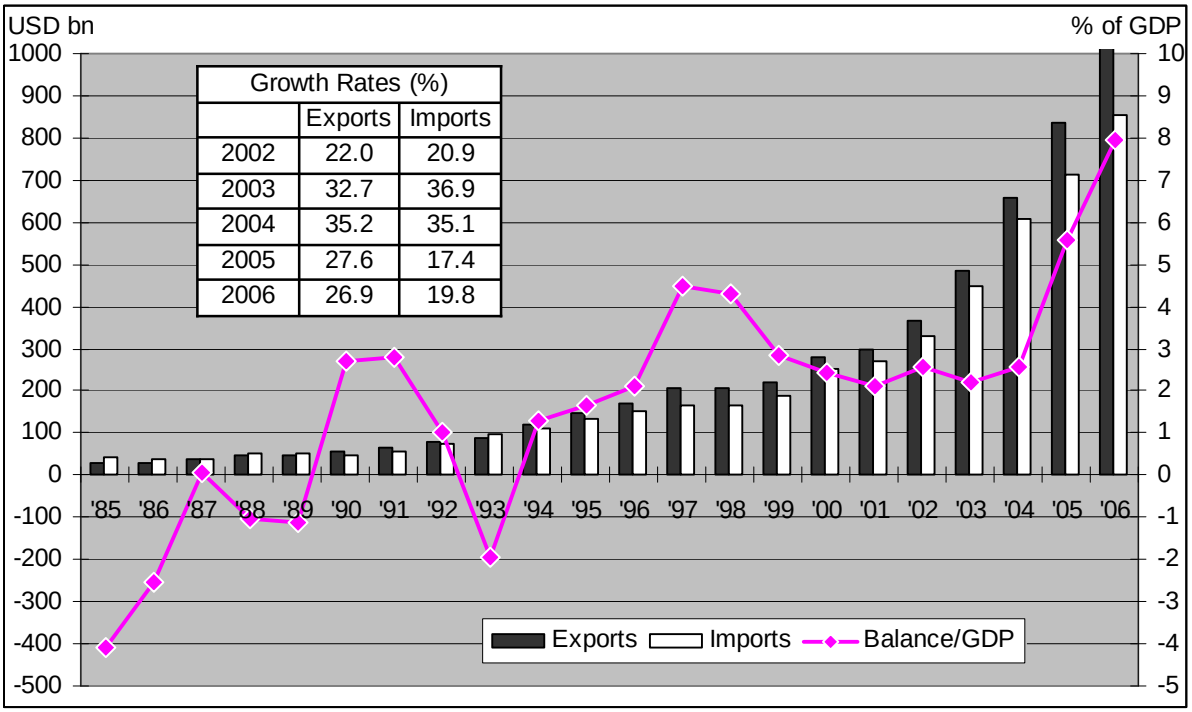
Economic imbalances have emerged forcefully in mid-2000s China in the context of extraordinarily rapid economic growth. The imbalance in the trade account shot upward suddenly starting from 2005. Through the early 2000's the trade surplus had been modest at around two and a half percent of gross domestic product or less (see Figure 1). But in 2005, it jumped to 5.6 percent of GDP and continued to climb to 8.0 percent in 2006. Both exports and imports rose at a fast clip in the wake of China's 2001 entry into the World Trade Organization with growth of imports actually outpacing that of exports in 2003. But in 2005 import growth slowed sharply as export growth pushed on, and the surplus flared open.

**Figure 1: Exports, Imports, and Trade Balance Share in GDP, 1985-2006**




| Growth Rates (%) | | |
|---|---|---|
| | Exports | Imports |
| 2002 | 22.0 | 20.9 |
| 2003 | 32.7 | 36.9 |
| 2004 | 35.2 | 35.1 |
| 2005 | 27.6 | 17.4 |
| 2006 | 26.9 | 19.8 |

Note: Trade magnitudes represent goods and non-factor services as reported in the balance of payments in US dollar terms. Conversion to common currency units for comparison with GDP is based on the yearly average exchange rate value.

Data sources: State Administration of Foreign Exchange & National Bureau of Statistics

Behind this increase in the trade surplus lies a domestic counterpart in saving rising faster than investment. Saving not absorbed in investment at home is directed abroad as a net capital outflow, where the counterpart of a net capital outflow is an excess of export revenues not spent on imports.[2] In China's case, the capital outflow has largely taken the form of

[2] Formally, the relationship between the trade balance and the domestic saving/investment balance can be derived from GDP accounting identities. Given GDP = $C + I + X - M$ and GDP = $C + S$ where $C$ is consumption inclusive of government, $I$ is investment inclusive of government, $X$ is exports of goods and non-factor services, $M$ is imports of goods and non-factor services, and $S$ is the saving residual with respect to GDP, it follows that $X - M = S - I$. Export revenues not spent on imports take the form of saving in excess of domestic investment sent abroad. Saving with respect to GDP is the basis for the aggregate analysis of Section III.

Alternatively, the external imbalance may be expressed in terms of the current account, saving in this formulation being defined with respect to national disposable income, NDI. The accounting identity is NDI = $C + I + X - M + Y_f$ where $Y_f$ is net foreign income from abroad inclusive of net unilateral transfers. The current

mounting foreign reserve assets held by the central bank. This accumulation of reserves would be mitigated if Chinese consumers increased their demand for goods and services. The increase in domestic consumption demand would be met by a combination of rising imports and diversion of resources from production for export to production for the domestic market. In consequence, the central bank would be relieved of having to absorb large excesses of foreign currency generated by the trade surplus in order to stabilize the exchange rate.

Driving the rise in the saving rate has been the exceptionally fast pace of economic growth China has experienced since 2001. The mutually reinforcing nature of the relationship between saving and growth is well-established as a general principle. The present study presents an estimation of the relationship for China for the period 1978 to 2006. A recursive vector autoregressive model is used to capture saving as a function of contemporaneous and lagged growth in GDP, with GDP growth in turn a function of lagged saving. Included as an exogenous variable in the model is the dependency ratio of young and old to working age population. The model performs well in predicting the rise in the saving rate in connection with the exogenous surge in growth that occurred from 2001 onward.

The model suggests strong momentum for high saving to continue going forward given persistence in saving behavior and China's demographic trends. Remedies for the imbalances are thus likely to be realized only over a period of years and only through policies that address directly or indirectly basic motives for saving. The Chinese government seems cognizant of this in withstanding foreign pressure to engineer hasty currency appreciation as a solution to the imbalances. The concern with too rapid appreciation of the currency is that growth will be slowed as export demand is choked off and import competition wipes out domestic producers. As long as the economy is growing rapidly in real terms and absorbing under-employed labor more productively without inflation emerging, there is good reason not to forestall the process with currency appreciation. With signs of overheating arguably apparent as of 2008, however, the exchange rate becomes a useful tool for restraining demand and inducing expenditure switching. Such restraint will become the more imperative as the Chinese government moves to increase consumption spending in the course of its program to rebalance the economy.

The exposition proceeds with an outline of the broad evidence for a causal link from growth to saving in Section I. Section II examines the historical patterns of saving and growth in China and explains the compilation of data series for the period 1978 to 2006 for use in the empirical analysis. Section III presents econometric results for a model of saving/growth interaction. Section IV delves into the composition of saving among households, enterprises, and government for the period 1992 to 2004. The policy strategy of the Chinese government for dealing with macro imbalances is discussed in Section V. Finally, conclusions are offered in Section VI.

## I. The Growth-Saving Link

The successful economies of East Asia have shown a common pattern of rising saving rates during their take-off periods. Figure 2 captures the experiences of Singapore, Korea, and Vietnam, all of which entered their high growth eras with much lower saving rates than did China. From such low starting points, the saving rates of these countries rose dramatically across the board. At its independence in 1965, Singapore had a saving rate of

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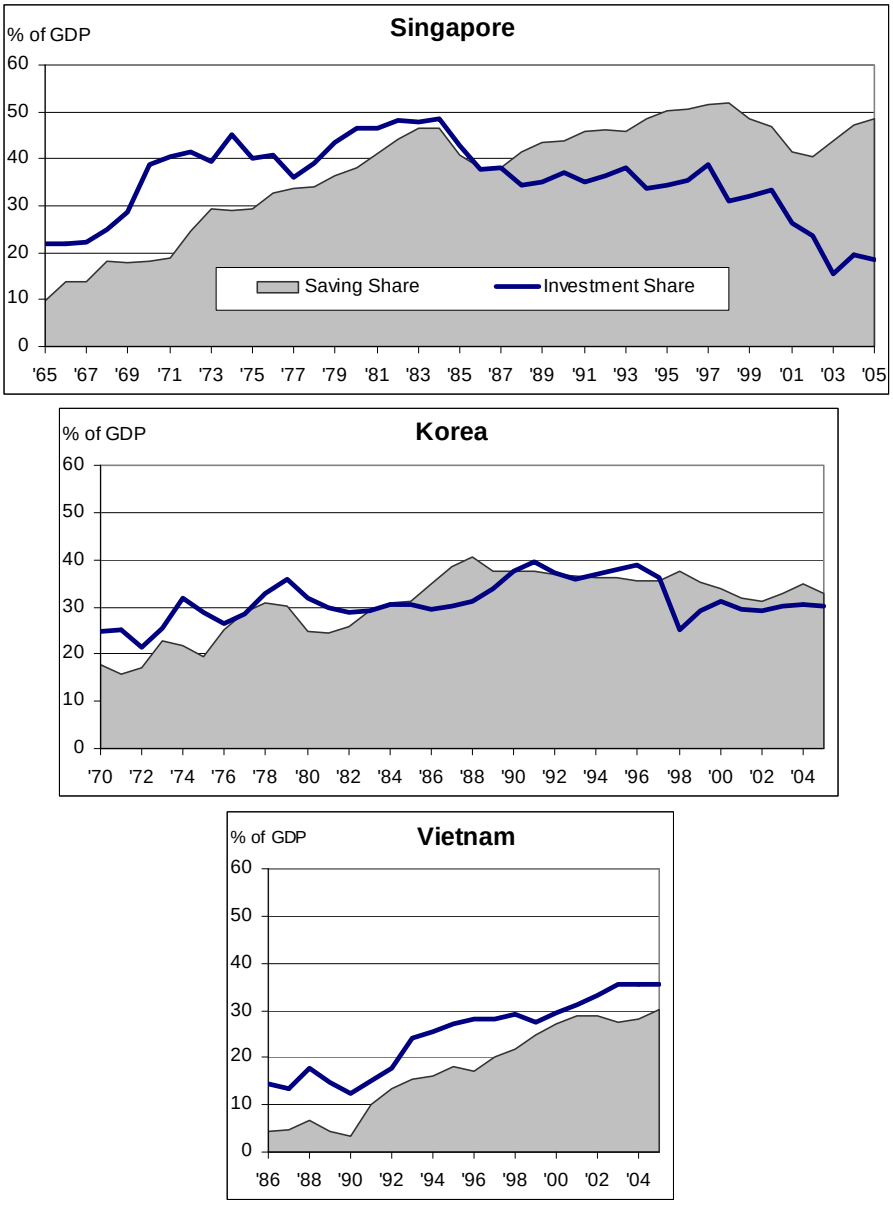
account, *CA*, is equal to $X - M + Y_f$, and the imbalance is given as $CA = S_{NDI} - I$ where $S_{NDI}$ is the saving residual with respect to NDI. Saving with respect to NDI is the basis for the decomposition of Section IV.

just 10 percent of GDP. The rate rose to 46 percent by 1984, then dropped during a recession, subsequently headed back up to over 50 percent before the Asian financial crisis and the bursting of the tech bubble dragged it down, only to be followed by yet another rebound when growth resumed once again. Korea in the early 1970s had a saving rate in the teens that climbed upward over the years to touch 40 percent in 1988. The latest East Asian nation to enter the fast lane is Vietnam which since 1990 has seen growth at a pace second only to China worldwide. In connection with this, its saving rate rose from less than five percent to 30 percent over a span of 15 years.

**Figure 2: Saving & Investment Shares in GDP for Singapore, Korea, and Vietnam**




Data source: World Bank World Development Indicators

At the outset of their economic take-offs, Singapore, Korea, and Vietnam all relied on capital inflows to sustain domestic investment rates over and above their low saving rates, and Vietnam does so still. Over time, investment rose faster than saving so that the gaps closed for Singapore and Korea and eventually reversed sharply in the case of Singapore.

Singapore now projects capital outflows far larger as a share of GDP than does China in consequence of a steep fall-off in domestic investment against continued high saving relative to GDP.

Across a broad spectrum of 98 countries a causal link from growth to saving has been established by Loayza, Schmidt-Hebbel, and Serven (2000). The authors apply panel data techniques, correcting for simultaneity and country-specific effects and controlling for a variety of factors, to a sample of some 1800 observations from the period 1965 to 1994.[3] They find that an increase in the real growth rate of gross national disposable income of one percentage point raises the national saving rate by an average of 0.45 percentage points one year hence. The ultimate effect is more than double that due to the tendency for saving increases to persist and the feedback effect of saving on growth. This result is essentially unaltered when the model is applied to private saving, and the authors find confirmation more generally of their maintained assumption "that the public saving rate is driven by the same determinants as the private saving rate."

Recent studies with respect to China have focused on household saving behavior. Modigliani and Cao (2004) tested the life-cycle hypothesis using aggregate time series data for the period 1953 to 2000 in what Modigliani called "a fitting conclusion to my life's work." The life-cycle model predicts that the saving rate will respond positively to both a decline in the dependency ratio and an increase in the rate of growth of per capita income. China's experience conforms vividly with these predictions, and the econometric results of Modigliani and Cao yield formal verification. China's household saving rate was below ten percent and trendless during the command economy era. It surged from 1978 onward to hit more than 30 percent by the mid-1990s coinciding with both the decline in the dependency ratio that followed from a drop in the birth rate and the rapid increase in income growth that accompanied reform and opening.

The Modigliani and Cao results are in part challenged by Horioka and Wan (2007) who make use of provincial level data for the period 1949 to 2004. The cross-sectional variation captured by the provincial data cast doubt on the claim that the dependency ratio has a bearing on saving. Confirmed though is the relationship between saving and growth with results similar in magnitude to those of Loayza et al from their cross-country panel estimation. To wit, the initial effect of a one percentage point increase in the growth rate is a rise of up to about half a percentage point in the saving rate with a long run effect double or more that. Horioka and Wan's results are also at odds with those of Kraay (2000). Though Kraay too uses provincial panel data, he finds saving not affected by income growth while affected as predicted by the dependency ratio. Horioka and Wan conclude that their dynamic panel techniques are superior to the two-stage least squares method of Kraay for discerning the true nature of the relationship.

Following these other recent studies, the econometric analysis herein retains a focus on the rate of economic growth and the dependency ratio to explain saving behavior as predicted by the life cycle model. For purposes of examining a single country undergoing rapid though cyclically uneven growth over a span of a few decades, these variables provide a plausible core basis for an understanding. The present study differs from other econometric studies of China in that the purview is national saving rather than household saving. The breakdown in national saving among households, enterprises, and government is analyzed in

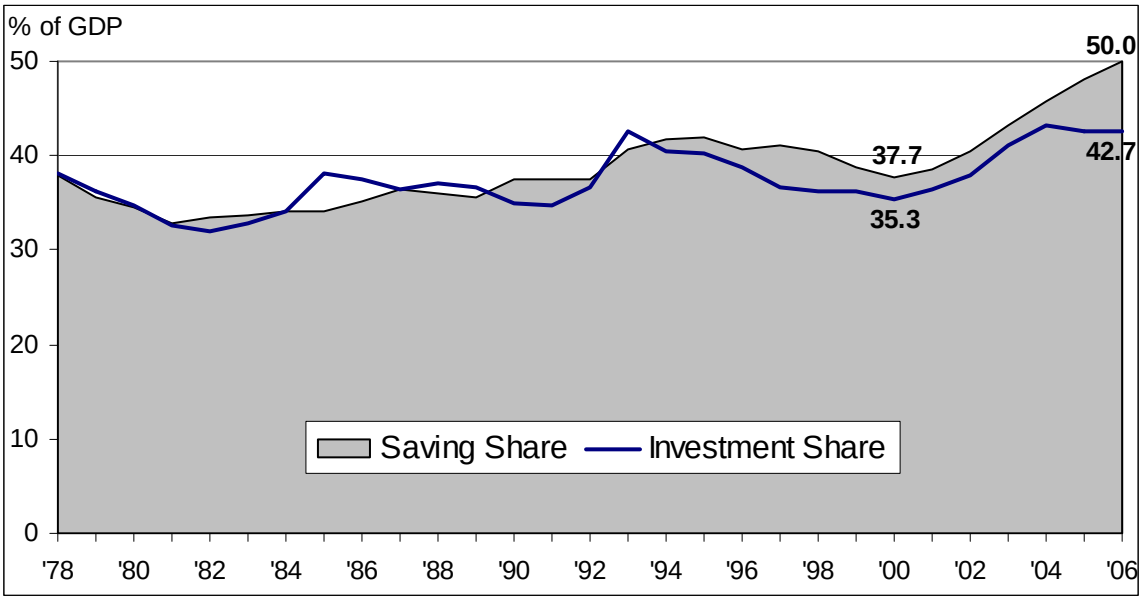
[3] Other factors important in explaining savings rate differentials across countries include the level of GDP per capita, the fiscal balance, pension availability, financial development, urbanization, and macroeconomic instability.

Section IV with attention given in qualitative terms to the broader array of factors that influence each source of saving.

## II. China's Saving, Investment, and Growth, 1978-2006

China started its reform and opening with national rates of saving and investment that were already very high, and eventually went dramatically higher (see Figure 3).[4] Until 1994 saving and investment dovetailed, resulting in net capital inflows in some years and outflows in others. From 1994 onward though, China has consistently generated a surplus of domestic saving over investment. The counterpart of this deficit in capital flows is the surplus in trade flows emanating unbroken over the same period (see Figure 1).[5]

**Figure 3: Saving & Investment Shares in GDP for China, 1978-2006**




Data Source: China National Bureau of Statistics

Woo (2005) pins the shift to chronic capital outflows in 1994 on the stance taken by then Vice Premier Zhu Rongji to clamp down on lending by state banks to state-owned enterprises in order to break the inflationary spiral that had taken hold. Reforms of the 1980s had set in motion a "liquidity tango", in Woo's terminology, whereby SOEs had unlimited desire to borrow and state-owned banks a matching proclivity to lend. The only way to contain lending under such circumstances is by administrative fiat. But, Woo argues, "whenever the hard budget constraint is imposed on SOEs, China's dysfunctional financial system would impart a deflationary bias to the economy and render China a capital exporting country by constraining the growth of aggregate demand to be less than the growth of aggregate supply." Investment demand, held in check by administrative controls on borrowing and lending, would fall short of available saving supply. The resulting shortfall in domestic aggregate demand was then met by exports.

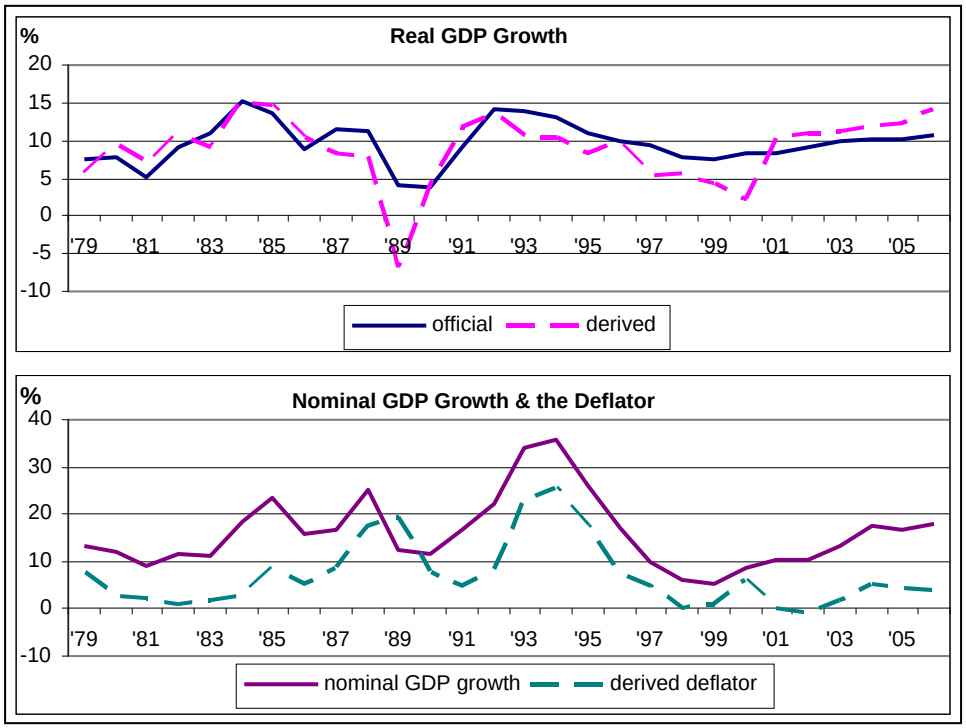
[4] Data for Section II are presented in Data Appendix Table A1.

[5] The saving/investment gap of Figure 3 should in principal match the trade imbalance of Figure 1. The numbers tally fairly closely but for the year 2006 when the saving/investment gap registers at 7.3 percent of GDP against a trade imbalance of 8.0 percent. Application of an annual average exchange rate to compute the trade balance ratio to GDP may be partially responsible for this discrepancy.

In a partially reformed economy where market-oriented macroeconomic levers such as interest rates and the exchange rate are not very effectual for use in stabilization policy, administrative controls on investment and lending become instrumental. The situation remains so in China to the present. Fears of overheating from 2005 onward prompted a tightening of controls on bank credit, project approvals, and land allocation. This slowed investment growth bringing it into line with GDP growth and stabilizing the ratio of investment to GDP at around 43 percent. Such an investment rate nevertheless remains extremely high, and commensurately has fueled a continued high rate of GDP growth. Following from that, the saving rate has continued to rise consequently diverging from the investment rate.

The year 2000 found saving and investment rates, for all their fluctuation over time, on par with late 1970s levels. From 2000 onward though, the saving rate tracked firmly upward to hit 50 percent in 2006 for an increase of more than 12 percentage points in just six years. That there is a growth rate story behind the steep rise in the saving rate from 2000 onward is not immediately obvious from official GDP figures. Only when a real GDP series is compiled by applying a suitable price index to nominal GDP, as is standard practice in other countries, does a clear association between growth and saving come to light. An alternative approach to real GDP measurement used by the Chinese statistical authority is a throwback to the planned economy. Businesses are required to report output value for the current year expressed in both current year prices and the prices of a prescribed base year. Since in today's market economy businesses do not otherwise have reason to keep track of current year output measured in base year prices the numbers they supply are likely to be off-the-cuff. And the resulting measure of real GDP is thus likely to be plagued with error. Fortunately, there is a ready remedy for this problem. Young (2003) lays out details of a methodology for constructing a GDP deflator from official price indexes for the three major sectors of the economy – agriculture, industry, and services. This methodology has been applied to obtain the real GDP growth rates shown in Figure 4.

**Figure 4: Official & Derived GDP Growth Rates, 1979-2006**




Data source: China National Bureau of Statistics

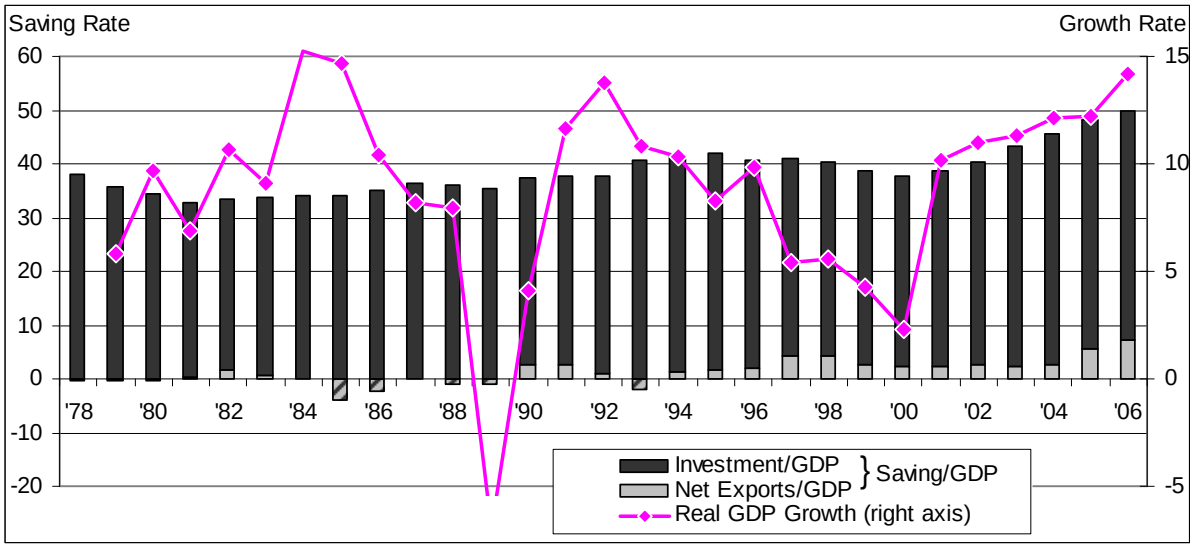
The derived real GDP growth series (upper panel dashed line) shows a more erratic pattern than the official series (upper panel solid line). The result arguably accords better with experience as perceived on the ground. In particular, a recession in 1989 is shown to have been extremely deep with the real rate of growth plummeting to -6.9 percent. Nominal growth dropped to 12.5 percent in that year from 25.3 percent in the preceding year (lower panel solid line) even as inflation carried on its momentum pushing up to 19.4 percent (lower panel dashed line). Inflationary pressures remained strong despite the weakening economy because the dual-track system of pricing which allowed free markets to operate in parallel with the state plan was giving way under the force of plan/market arbitrage. Street demonstrations, in part a reaction to corrupt officials exploiting the arbitrage opportunities of the transitional price system, pre-empted normal economic life for two months in cities all over the country. The eventual crackdown by the government brought a retrenchment in foreign engagement with China that strangled foreign direct investment and stymied trade growth. That a deep recession transpired is consistent with these observed realities.

The slowdown in growth of the late 1990s is also revealed by Figure 4 to have been more severe than official statistics suggest. Domestically, the economy was beset with massive lay-offs by state-owned enterprises and downsizing in government employment, and internationally, with the Asian financial crisis. Modest nominal growth was undermined by inflation that rose to 6.3 percent in 2000 to leave real growth at a meager 2.3 percent. Against this deterioration in growth, the rebound that accompanied China's entry into the World Trade Organization appears far more pronounced than the official figures let on. Indeed, officially reported real growth rates, though at double-digit levels, understate performance as reflected by the deflated nominal figures which reach as high as 14.2 percent in 2006.

The impressive growth of the post-2000 period has been sustained by forces Bottelier and Fosler (2007) describe as having a "flywheel effect". High profits have supported high investment which in turn has generated even more profits due to both economies of scale and strong labor productivity growth vis-à-vis stable wages. Wage increases have been inhibited by an abundant supply of labor emanating from a confluence of state sector lay-offs, rural-to-urban migration, and a demographic bulge entering the labor force. Sources of productivity growth include: restructuring of SOEs which have shed redundant labor, escaped responsibility for social welfare support, and sold off employee housing; privatization of industry; privatization of housing which has sparked a construction boom and facilitated worker mobility; financial sector reforms which have facilitated improved allocation of capital; falling logistics costs due to massive infrastructure development; and investment in technical, managerial, and labor upgrading. Bottelier and Fosler foresee the flywheel effect continuing for perhaps a few years more but ultimately slowing due to rising unit labor costs, exchange rate appreciation, and higher land and utility costs.

Juxtaposing the derived real GDP growth series against the domestic saving rate, an association between the two emerges visibly in Figure 5. Periods of high growth correspond to periods of rising saving rates. Growth reached a level of 15 percent in the mid-1980s and the saving rate pushed upward. Again in the early 1990s growth shot up to double-digit levels and the saving rate rose. The growth recession in the late 1990s then brought the saving rate back down. And finally the recent protracted period of extraordinary growth has seen the saving rate ascend to an unprecedented 50 percent.

**Figure 5: Saving Rate & Real GDP Growth Rate, 1978-2006**




Note: Height of the bar from the X-axis represents the domestic saving rate relative to GDP. Saving is made up of domestic investment and net exports where positive net exports imply a capital outflow. Negative net exports mean a capital inflow in part suppports domestic investment which is thus measured vertically from net exports below the axis.

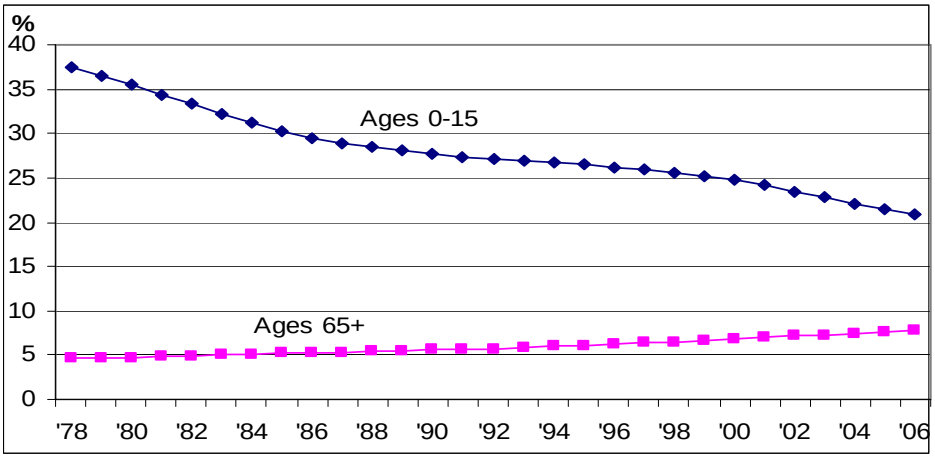
Data Source: China National Bureau of Statistics.

The saving rate shows only a weak association with net exports. Net exports reflect the difference between saving and investment so the behavior of investment matters as well as that of saving. The recent powerful rise in net exports has followed from a saving increase in connection with a leveling off in investment. In contrast, through the early 2000's when the saving rate was already rising, the investment rate rose along with it and net exports held

stable. The period of a rising saving rate in the late 1980s showed a positive association with net exports, but that in the mid-1990s showed no connection.

Besides income growth, the other variable to be incorporated into the econometric analysis to explain saving is the dependency ratio. In China total fertility came down sharply beginning in the late 1970s inducing a long commanding slide in the share of the population age 15 and under (see Figure 6). Simultaneously, longer life spans raised the share of the population age 65 and older but along a much more gradual course. The two ratios show too little variation with respect to each other to yield separately discernible influences on the saving rate. For purposes of the econometric analysis then, they are merged into a single dependency ratio. The decline in this ratio overall is expected to contribute positively to the saving rate over time.

**Figure 6: Shares of Young and Old in Population, 1978-2006**




Data source: World Bank World Development Indicators

## III. Estimation of the Saving Response to Growth

Estimation of the saving response to growth is complicated by the two-way nature of causality that exists in principle. Not only does growth act on saving, but saving in turn acts on growth to the extent that higher saving is channeled through the domestic financial system to fund higher investment spending. In the first instance this higher investment spending is met by increased production of capital goods measured directly as an increase in GDP. Longer term, the increase in the capital stock contributes to an expansion in productive capacity that puts the economy on a higher growth path.

The degree to which effects operate in each direction can be assessed with Granger-causality Wald tests. Shown in Table 1 are test results generated from a reduced form vector autoregressive (VAR) model with two lags of each variable entered as regressors. Data are for the period 1978 to 2006, yielding 26 observations after allowing for calculation of growth rates and lags. Granger causality is rejected at the ten percent level for saving acting on growth but is not rejected at this level for growth acting on saving.

**Table 1: Granger-Causality Wald Test Results**

| Dependent Variable | Regressor | $Chi^2$ | Prob > $Chi^2$ |
|---|---|---|---|
| Growth | Saving | 3.55 | 0.17 |
| Saving | Growth | 5.12 | 0.077 |

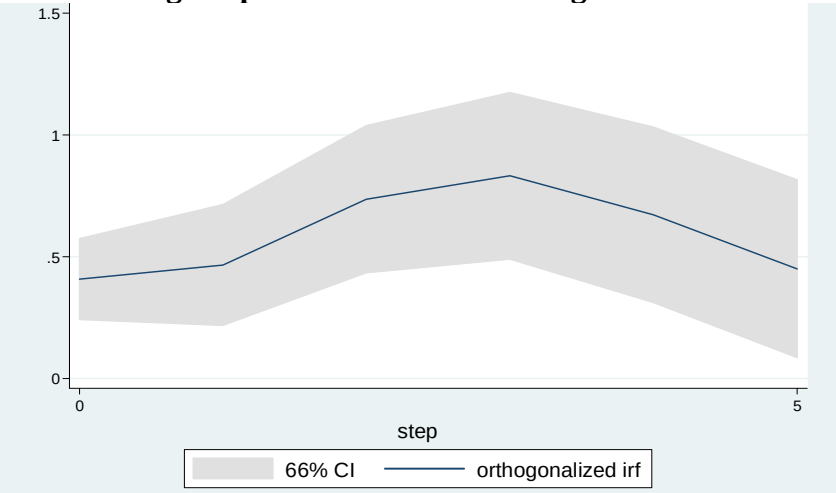
Including the dependency ratio as an exogenous variable in the reduced form VAR model yields a coefficient estimate in the saving equation that is significant both statistically and economically. The estimate indicates that a one percentage point decrease in the dependency ratio raises the saving rate by 0.45 percentage points with a standard error of 0.14. Given the rate at which the dependency ratio has been declining in China, there is thus strong underlying momentum for the saving rate to increase apart from cyclical movements in GDP growth. This will hold for some years to come until eventually the youth dependency ratio levels out and the rise in the elderly dependency ratio comes to dominate.

The reduced form model allows for only lagged values of the dependent variables to enter the equations whereas a contemporaneous effect of growth on saving seems likely. This effect can be incorporated with a recursive VAR model, still including two lags of each of the dependent variables and the exogenous dependency ratio. The model satisfies the stability condition with all eigenvalues lying inside the unit circle. The estimated model yields orthogonalized impulse-response functions as shown in Figures 7 and 8. Confidence intervals of one standard deviation are represented.[6]

Figure 7 indicates that a one percentage point shock to the growth rate boosts saving contemporaneously by 0.41 percentage points with the effect strengthening over time to 0.83 percentage points at three years. Beyond that, the influence fades out. The magnitude of the response is remarkably similar to the results obtained both by Loayza et al in their cross-country panel study and by Horioka and Wan in their work with Chinese provincial data (see Section II). More generally, the finding conforms with that common in the empirical literature of strong persistence in saving behavior as captured by high coefficient estimates on lagged values of saving.

[6] Presentation of results follows guidelines set forth by Stock and Watson (2001): "Standard practice in VAR analysis is to report results from Granger-causality tests, impulse responses, and forecast error variance decomposition. … Because of the complicated dynamics of the VAR, these statistics are more informative than the estimated VAR regression coefficients or $R^2$'s, which typically go unreported."

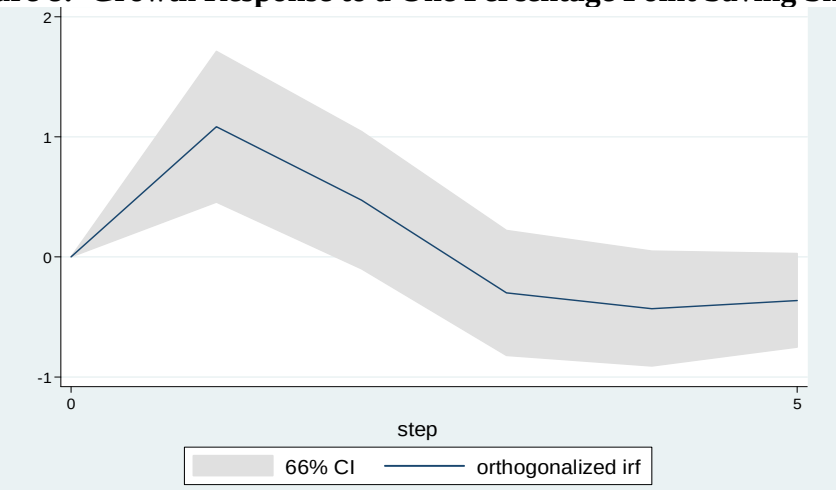
**Figure 7: Saving Response to a One Percentage Point Growth Shock**




Source: Stata generated output

By construction there is no contemporaneous impact of saving on growth (see Figure 8). At one year the growth rate rises by roughly one percentage point which is readily interpreted as the effect of higher investment spending entering the GDP measure. Beyond that the impact is soon dissipated. Taken together, Figures 7 and 8 suggest a positive feedback dynamic at work in sustaining the momentum of saving increases. Higher growth triggers higher saving which in turn stimulates a further boost to growth. And the persistence of saving behavior over time keeps the trend going.

**Figure 8: Growth Response to a One Percentage Point Saving Shock**

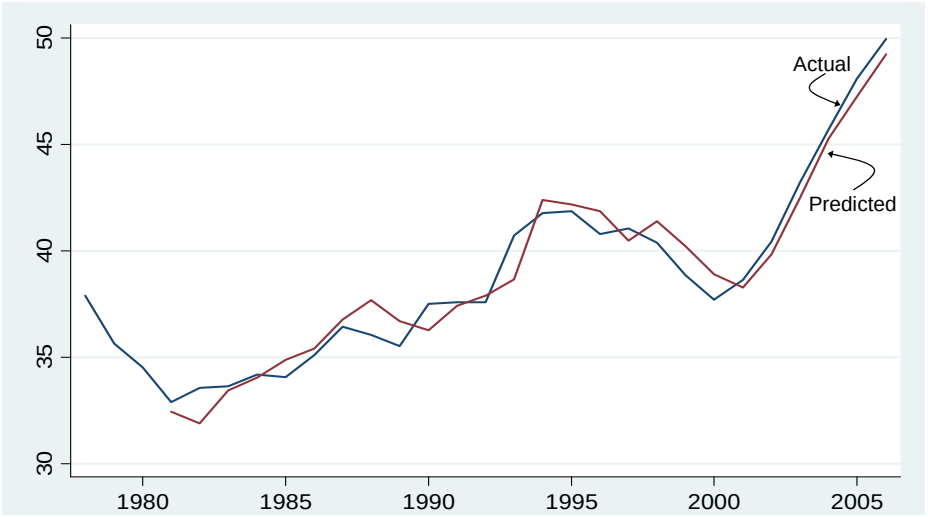



Source: Stata generated output

The estimated model has been applied to yield one step ahead predictions of the saving rate with the resulting path compared to the actual in Figure 9. The model does not perform well in predicting turning points due to their exogenous nature. It does better at finding the new trend following a change in direction and captures fairly well the spectacular increase in saving post-2000. One step ahead prediction means that the saving rate for, say, 2006 is predicted based on an actual saving rate in 2005 of 48.1 percent. Then given the 2006 growth rate of 14.2 percent, lagged values of the endogenous variables, and the current dependency ratio, the model predicts a saving rate for 2006 of 49.2 percent against an actual

value of 50.0 percent, thereby capturing about 61 percent of the observed increase. On average over the period 2001 to 2006 the model predicts increases in the saving rate of 1.43 percentage points a year versus actual increases of 2.05 percentage points a year thus picking up about 70 percent of the increase observed.

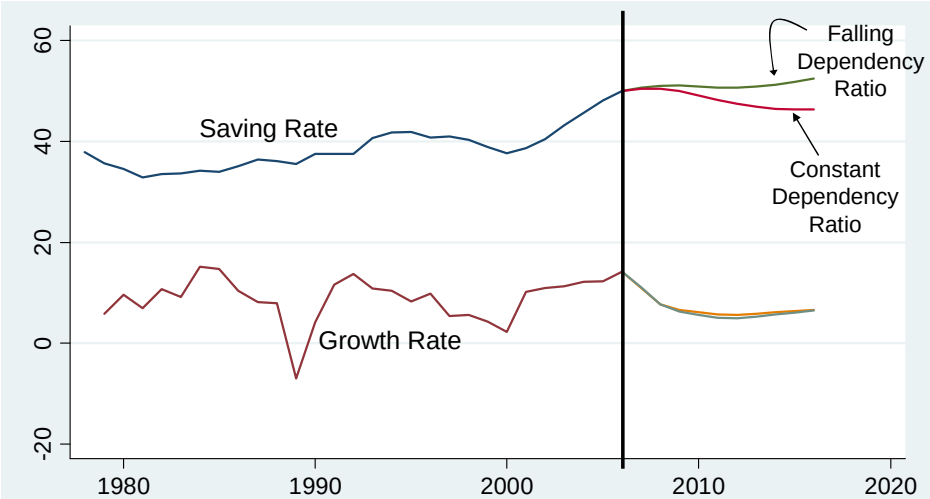
**Figure 9: One Step Ahead Prediction of Saving**




Source: Stata generated output

Ten year forecasts for saving and growth rates are presented in Figure 10. Two alternatives are considered for projecting the dependency ratio. One involves a straight line extrapolation of the current rate of decline which constitutes a lower bound beyond any outcome that could conceivably transpire. The other holds the 2006 dependency ratio constant conversely imposing an upper bound above any conceivable reality. The actual path for the dependency ratio must lie between these two extremes. For the growth rate forecast, the choice of dependency ratio makes no discernible difference, the rate wavering and coming out around six and a half percent in line with the historical norm. For the saving rate, the dependency ratio matters a great deal but even under the extreme assumption of no further decline, the saving rate is sustained at 46.4 percent after ten years.

**Figure 10: Saving & Growth Rate Ten Year Forecasts**




Source: Stata generated output

Strong saving momentum is a general outcome of models that capture persistence in saving behavior. As such, the model of this study predicts that even with a significant slowdown in the rate of growth, China's saving rate will tend to decline only gradually and then level out. Of course, many factors influence saving beyond those included explicitly in this model. Implicitly, these factors underlie the estimated relationship and changes in their values would cause the relationship to shift. To consider the nature of such underlying factors and how they might be affected by government policy, it is instructive to examine the breakdown in saving by households, enterprises, and government.

## IV. Saving Composition by Households, Enterprises, and Government

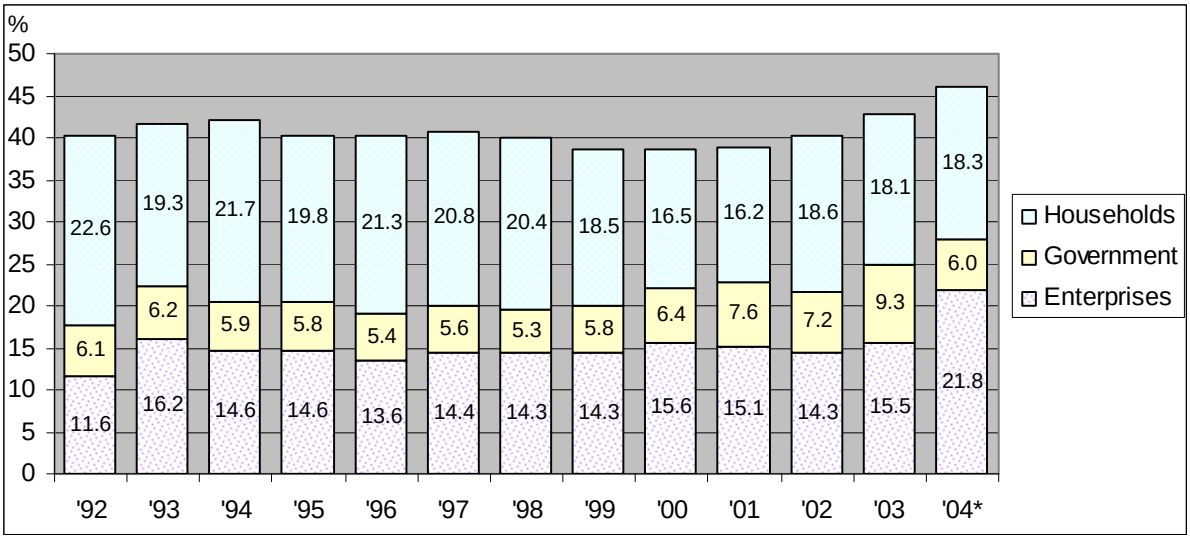
Just who is behind China's high saving rates has been the subject of controversy. At the outset of the reform era China's high national saving derived mainly from the state sector while saving by households was minuscule. Reform shifted the domestic terms of trade in favor of agriculture and otherwise stimulated growth in household incomes which resulted in the weight of saving moving toward households and away from the state sector. Modigliani and Cao track a rise in the household saving rate (measured as increases in wealth relative to income) from less than five percent in 1978 to more than 30 percent in 1994. Through the course of this radical reconfiguration in the locus of saving, the national saving rate in GDP remained reasonably stable (see Figure 3).

Despite the historical transformation in the sources of Chinese saving, Kuijs (2005) finds that in comparison with other countries China continues to exhibit a disproportionate reliance on enterprises and government for its national saving. To obtain series on saving shares for 1992-2001 he uses flow of funds tables from the National Bureau of Statistics. Because release of these tables lags that of other macroeconomic aggregates by two years, however, to generate values for 2002 and 2003 he extrapolates based on related data cautioning that the estimations "are subject to significant uncertainty." He applies this methodology further in Kuijs (2006) to extend the series to 2005. On the strength of this exercise, he concludes that "Rising enterprise saving has driven the increase in economy-wide saving in the last decade."

Shan (2006) challenges the position that Chinese firms are so highly profitable as Kuijs claims arguing that retained earnings "cannot be the main drivers of China's capacity-expansion and fixed-asset investment." His reinterpretation of official statistics indicates that Chinese enterprises perform poorly by global standards with regard to profitability. Moreover, he argues that profit margins have been squeezed over time as input costs have risen and excess capacity in product markets has kept cost increases from being passed on to consumers. In response, Hofmann and Kuijs (2006) hold their ground maintaining that profits have been large and rising relative to GDP quite apart from what may have happened to profit margins on sales or rates of return on investment. And they reiterate their message that "the impressive increase in saving over the last decade was largely due to rising enterprise profits."

Flow of funds tables available through 2004 permit a re-examination of this issue without recourse to extrapolation (see Figure 11).[7] Even relying on time series directly from a single source however, a discontinuity in measurement methods impedes interpretation of trends at 2004. In that year the approach to calculating GDP was revised resulting in a 16.81 percent increase in the product measure of GDP relative to the magnitude yielded for the same year by the previous approach. This translates into an increase in National Disposable Income (NDI), against which sectoral saving shares are measured, of 15.45 percent.

**Figure 11: Saving Shares in National Disposable Income by Source, 1992-2004**




*2004 marks a discontinuity with previous years due to revision in GDP measurement methods.

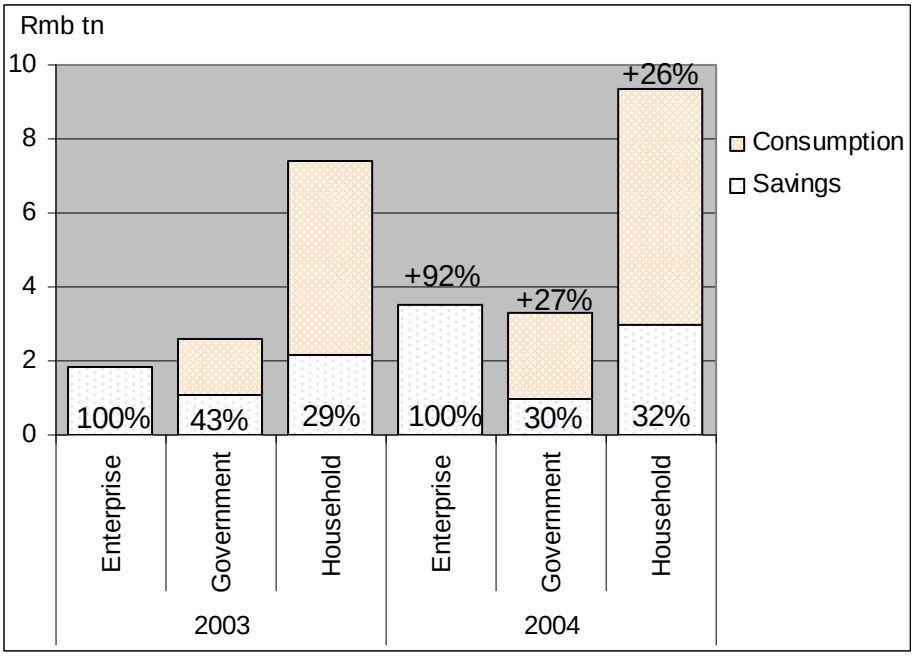
Data source: China National Bureau of Statistics

The flow of funds tables indicate that enterprises were not the driving force behind the saving share increase that took place from 2000 to 2003. Indeed enterprise saving was virtually unchanged as a share of NDI during this period. The most powerful contributor to the rising saving share over these years stands out as government. This is within the context of a trend that dates to 1999 when the government saving share in NDI was 5.8 percent against which by 2003 it had risen to 9.3 percent. A rebound in the household saving share was also a factor in the rising national saving rate of the early 2000s. By 2003 though, the share for households still fell short of its mid-1990s level.

[7] Data for Section IV are given in Data Appendix Table A2.

Interpretation of saving behavior across the divide in GDP measurement methods at 2004 must remain sketchy. It is likely that the discrete leap in the share of enterprise savings in NDI is due largely to expanded statistical coverage of enterprise activity rather than to changes in enterprise behavior (see Figure 12). Measured enterprise disposable income, attributable in its entirety to saving, nearly doubled in 2004 in contrast to increases for government and households of only about 25 percent. The saving share of household disposable income rose from 29 percent to 32 percent while that of government disposable income fell substantially from 43 percent to 30 percent.

**Figure 12: Saving and Consumption by Source, 2003-2004**




Data source: China National Bureau of Statistics

Does the jump in the enterprise saving share in NDI in 2004 ultimately validate Kuijs and Hofmann's claim that this source of saving drove the increase in national saving over the span of a decade? First, the premise is itself faulty since China's national saving rate did not rise over the course of a decade; rather from 1994 to 2000 it declined and then rebounded sharply thereafter. Further, in any accounting for the rising national saving rate from 2000 onward, the measurement discontinuity must be faced. Retrospective data conformable with the new GDP measurement approach have been released for GDP (each of expenditures and product measures separately) and for consumption. The implied aggregate saving rates out of national disposable income as seen retroactively differ little from those originally reported. Smoothing the enterprise saving share backward subject to the same aggregate would thus imply reducing the shares of government and/or households, but how this might be done is, as Kuijs puts it with respect to his own extrapolations, "subject to significant uncertainty." What can be affirmed in light of the 2004 numbers is that the enterprise contribution to national saving is indeed high by international standards. So too though are the contributions of households and government.[8] The upshot then is that there is room on all fronts for saving rates to find moderation over time.

[8]Kuijs (2006) provides comparative figures for a number of other countries. Enterprise savings shares in GDP are given as: Japan, 19.4 percent; Korea, 14.8 percent; US, 10.3 percent; and India, 4.8 percent. Household

The revelation of high and to varying degrees rising saving rates among enterprises, households, and government suggests that a multiplicity of explanations for the aggregate phenomenon coexist. The high share of disposable income claimed by enterprises contributes directly to high saving since all income retained by enterprises is by its nature saved rather than consumed. Retained earnings are used either to support own investment or channeled through the financial system to finance the spending of deficit units. One reason for enterprise claims in NDI being disproportionately large in China is that the industrial sector accounts for such a major share of output (Kuijs 2006). Industry, being more capital intensive than agriculture or services, generates a greater share of value added from capital as opposed to labor. Income from capital tends to be saved at a higher rate than income from labor under any circumstances. In China in particular though, capital ownership resides to an unusually large degree with the state, and the state has only as of 2007 initiated a program to collect dividends and potentially mobilize returns to capital in support of public consumption.

High saving in both the enterprise and household sectors are further motivated by the need to rely on own-saving to finance lumpy expenditures given the formative stage of China's capital markets. For households this applies to starting a small business, pursuing higher education, or purchasing big ticket items like cars or newly privatized homes. For existing firms it applies to investment in plant and equipment for expansion. Also motivating earnings retention, institutional incentives encourage internal expansion rather than external redirection of investment funds in pursuit of the highest return. Career success for enterprise managers hinges on expanding their domains of power and influence. In a mature capitalist market economy, management hoarding cash or sinking it into low yielding expansion would invite take-over to restructure business activity and release assets to more productive uses. This does not happen in China. Nor do existing shareholders, whether state or non-state, stand attentive and ready to unload shares if returns are not forthcoming through dividend payouts or the promise of future earnings growth. Hence managers retain earnings and use them to expand capacity contributing to high saving and investment in the economy, if not particularly to efficiency in the allocation of capital.

With respect specifically to households, there are a number of theories of saving behavior that accord well with China's high saving rates. The life cycle hypothesis has been invoked in this and other studies to explain saving as responsive to the rate of economic growth and the dependency ratio. Both these factors have clearly been important in China's saving increase. Though the rate of economic growth is sure to moderate going forward from its recent fever pitch, the declining dependency ratio will maintain its momentum through the medium term thereby continuing to shore up saving. Like the life cycle hypothesis, the permanent income hypothesis also predicts that high growth will lift household saving rates and further emphasizes that unexpected gains in income will be channeled disproportionately into saving as consumption smoothing takes place over a lifetime. Certainly the double-digit growth rates of the post-2000 period would exceed normal expectations, and it follows that this would figure in the recent sharp rise in the saving rate.

Another notion that finds ready application to Chinese households is the precautionary motive for saving. The iron rice bowl of the command economy was shattered with reform as urban workers lost their jobs at state-owned enterprises and rural dwellers saw collective provision of social welfare services collapse. Households had to assume responsibility out-of-pocket for health care and education expenses and for subsistence in old age. In large numbers, farmers have been dispossessed of their land and urbanites uprooted

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savings shares are: Japan, 8.2 percent; Korea, 4.5 percent; US, 4.8 percent, and India, 22.0. Government savings shares are: Japan, -2.2 percent; Korea, 11.7 percent; US, -0.9 percent; and India, 1.5 percent.

from their homes at meager compensation to make way for urban development and renewal. The resulting sense of upheaval and insecurity provides powerful reason to accumulate a nest egg.

Finally there is the bequest motive which given the emphasis in Chinese culture on lineage may be particularly apropo. Of course, even Chinese households did not save much when they were poor and living under communism, but given a rise in the standard of living beyond subsistence and more attractive vehicles for wealth accumulation, the propensity can come to life. Indeed the severe lack of pre-existing private wealth as the reform era began set the stage for a strong take-off in personal saving to remedy the historical void of private property.

The third player in China's high national saving is government. Government saving comprises three elements: direct investment spending; capital transfers to enterprises; and any fiscal surplus. The balance on the Chinese government's consolidated state and local budget has in fact long been slightly negative for a dissaving effect, at least until 2007 when a deficit was budgeted but revenues came in with unexpected vigor due to surging economic growth. The flow of funds tables show the deficit peaking at 2.5 percent of NDI in 2001.[9] By 2004 it had dropped to 1.0 percent of NDI for a reduction in the dissaving effect of the fisc that accounts for the bulk of the increase in government saving shown in Figure 11. For government saving attributable to investment and capital transfers combined, the flow of funds tables show a fluctuating share in NDI at around 10 percent from 2001 to 2003, with this share dropping to 7.5 percent in 2004. In part the decline in 2004 is the outcome of the expanded statistical coverage of NDI which increases the denominator, but even as a share of government budgetary spending this component fell markedly from 47.4 percent in 2003 to 36.6 percent in 2004. Underlying the aggregate, the composition of government investment-oriented spending changed decisively over the post-2000 period. Capital transfers dropped from a peak of 6.3 percent of NDI in 2001 to 2.4 percent in 2004. Offsetting this decline to a degree, direct investment spending rose from 3.8 percent in 2001 to 5.7 percent in 2003 and then declined to 5.1 percent in 2004.

In sum, the government contribution to national saving came down through the early 2000s, even as dissaving due to the budget deficit shrank, largely because capital transfers to enterprises were scaled back greatly. The real force behind rising national saving from 2000 onward is traceable to enterprises and households. Many factors are at work in this. Some of these, such as the high growth rate and the declining dependency ratio, are not ready targets of policy. But others are. The policy scope for bringing down the saving rate and rebalancing the economy toward consumption is discussed in Section V.

## V. Policies for Rebalancing the Economy

In his March 2008 Work Report to the National People's Congress (NPC), Premier Wen Jiabao assessed the just completed first five-year term of the Hu-Wen leadership and laid out goals for the second term. Rebalancing the economy toward consumption ranked an explicit third on a list of nine broad goals, and other policies bearing implicitly on saving and consumption were to be found throughout the report. Taken in the aggregate the impact of public policy measures stands to be ultimately meaningful if not a quick fix. Indeed, the

[9] The government budget provides only a partial reckoning of fiscal activity in China since a large portion of the total takes place off the budget. For 2007, budgetary revenue amounted to about 21 percent of GDP (Wen 2008). Including off-budget activity raises the share of government in GDP to about 31-32 percent (Lu 2008). The flow of funds tables reflect shares on the budgetary scale of measurement.

essence of China's reform and opening strategy has always been gradualism, and a shift in behavior of this nature requires institution building that necessarily takes time.

Policies associated directly in the Work Report with the goal of rebalancing the economy purport to act quickly but do not hold much promise for actually achieving the desired end. The attention is on administratively restraining investment through controls on access to land, credit, and markets, such that "Haphazard investment and unneeded development projects … will be resolutely stopped, and market access will be tightened and capital requirements will be increased for industries whose development is discouraged. Work on illegal projects will be resolutely stopped." As highlighted in Figure 3, past experience has shown that investment growth can indeed be abruptly slowed given sufficient will on the part of the authorities. But this does not necessarily translate into consumption increases, and in fact precedent (1985, 1989, 1993, 2004) lies generally with the saving rate rising and the trade balance absorbing the resulting shortfall in domestic demand. The report of the National Development Reform Commission, also delivered to the NPC in March 2008, proposed a number of policies explicitly aimed at stimulating consumption which similarly stand to be of minor quantitative import. These include establishing "a mechanism to ensure regular wage increases and regular payment of wages"; improving the "consumption environment", for example by upgrading the distribution system and ensuring product quality; and stimulating consumption of services, for example through lower admission prices to public venues.

Of greater significance for boosting consumption is a diverse body of policies that fall within the domain of the fiscal system. One dimension of this is tax cuts and subsidies that favor low income households whose marginal propensity to consume tends to be high. Listed second only to economic growth among achievements of the first five-year term of the Hu-Wen administration is the elimination of the agriculture tax, which was fully phased out nationwide by the end of 2006. The pre-eminence accorded this achievement is symbolic of the leadership's emphasis on social equity. The Work Report notes that eliminating the agriculture tax ended "the centuries-old practice of farmers paying taxes" and relates this to four straight years of increases in grain output. Though the share of revenue from the agriculture tax as it figures in the sub-national fiscal budget would appear to have been small at only 3.8 percent in 2003 before the phase-out began, this number belies the impact of the tax on farmers in poor agriculture-dependent regions. Lu and Wiemer (2005) point to "unevenness in tax application and underreporting of revenue collection to higher authorities" given that funds from the agriculture tax were largely retained for use at the village and township levels where authorities not only had incentive to boost revenues but also had leeway to do so since the tax applied based on cultivated acreage to imputed output including that self-consumed. As a share of marketed output value then, the burden on poor farmers was often quite onerous. Returning these monies to the household would be expected to fuel consumption spending.

Elimination of the agriculture tax left an obvious void in the fiscal system at the rural village and township level that had to be filled. The broader context for this was an on-going evolution of the fiscal system away from its historic role of managing resource allocation under a command economy to a very different role in support of public service delivery and the mobilization of income transfers (China Development Research Foundation 2005). A comprehensive tax reform undertaken in 1994 shifted the bulk of fiscal revenue collection to the center providing the overarching means to direct transfers from richer to poorer regions. But having the means to transfer funds is of little use if the administrative capacity does not exist to ensure proper utilization of the funds. For some years efforts have been underway to develop institutional frameworks to enable a stronger public sector role in health care,

education, and social insurance. Pilot projects have been launched to experiment with different organizational models, and the size and scope of activities has gradually been enlarged. With its second term, the Hu-Wen administration appears poised to scale up these programs in a major way. This has significance for increasing consumption through two channels: one is the shift in the government's own direct outlays on consumption versus investment; the other is the mitigation of the precautionary motive for household saving thus encouraging more private consumption out of current income.

Announcement in 2004 that the agriculture tax was to be eliminated followed just two years after a nationwide reform mandated that a vast plethora of rural fees and taxes be rolled into the agriculture tax. The impact of this was manifest in a near doubling of revenue generated by the agriculture tax in 2002 (Lu and Wiemer 2005). To then turn around and eliminate this consolidated source of local revenue posed a severe threat to fiscal viability in agriculture-dependent rural localities. This problem was meant to be overcome through a combination of (i) relocating responsibility for public service delivery upward from the villages and townships to the counties and (ii) transfering fiscal resources both via the center across provinces and within provinces across counties to ensure that those regions with weak local tax bases were adequately endowed with funds. The fiscal infrastructure to accomplish this has to some extent been playing catch-up with the loss of locally generated revenues.

The profound nature of this shift in responsibility for rural public welfare services merits emphasis. Not until 2002 did the central government incorporate into its budget provision for spending on rural education, health, and income support (Lu 2008). Responsibility for these services in rural areas had always resided with sub-national units. Initially, transfers were mobilized on a small scale to allow capacity for service delivery to develop. The Work Report notes that as of 2007 free nine-year compulsory education is being universally provided in rural areas while construction of schools and dormitories is receiving increased funding. Counties now foot the bill for teacher salaries which have been standardized. Extension of free compulsory education to urban areas is slated for 2008. In health care, the Rural Cooperative Medical Scheme (RCMS) was by 2007 established in 86 percent of counties for coverage of 730 million people. Typically individuals contribute Rmb10 per year (1USD=7Rmb) and central and local governments an additional Rmb40 with the contribution of the center varying depending on local incomes. Now that an operational framework for the RCMS is in place, funding is to be boosted sharply, with a doubling projected within two years. A nationwide plan for urban health insurance is expected to be rolled out in 2008, widespread pilot programs having laid the groundwork over a number of years.

A systematic accounting of state budgetary outlays on social welfare programs is difficult to piece together from spotty information releases. Sourcing press reports ultimately, Green (2008) tabulates nominal spending increases in 2007 of 29.3 percent for education, 38.9 percent for health, and 22.8 percent for social security and employment. These are hefty increases which nevertheless leave levels of public spending extremely low relative to GDP: 2.86 percent for education; 0.80 percent for health; and 2.19 percent for social security and employment. The upshot is that significant latitude remains for further increases, especially within the context of a generally buoyant fiscal system that has been generating revenues well above budgetary targets, in 2007 for example, resulting in an unanticipated surplus of 0.7 percent of GDP. Institutional capacity to manage higher social welfare outlays remains a constraint that has limited the pace of program expansion thus far and will continue to do so going forward but the pace may quicken as programs once established can be scaled up.

Expansion of the old age insurance system also promises to mitigate the need for private saving. In its formative state, the system relies on a mix of government, employer, and self funding with trial programs still taking shape at provincial level. The Work Report puts the number of urban workers covered in 2007 at 200 million and states ambitions of beginning experiments for coverage in rural areas and developing coverage for rural migrants.

A role for the government budget in channeling saving of SOEs into public consumption spending via dividend payments to the state has long been advocated by the World Bank (Kuijs, Mako, and Zhang 2005), among others. As of 2007, a program for this has finally come to fruition. Naughton (2008) argues though that it is testament to the power of SOEs how little they have conceded thus far. The giant SOE holding companies that account directly to the central State Asset Supervision and Administration Commission (SASAC) have strong incentive to enlarge their own domains through retaining and reinvesting their own earnings. These 152 conglomerates in 2007 earned profits totaling more than 4 percent of GDP. For most of these enterprises the remittance rate is set at just 5 percent of after-tax profit, although for some with monopoly positions – and these account for the bulk of overall profits – the rate is 10 percent while for others exemption has been granted. Implementation has proceeded gradually, and the share of after-tax profits actually remitted in 2007 on the basis of 2006 earnings was only about 2 percent. In 2008 the payment by centrally administered SOEs is projected by Naughton to reach Rmb 60 billion with local SOEs to contribute another Rmb 20 billion, for a share of about 0.3 percent in GDP.

Beyond the realm of the state budget, institutional development in the financial sector has important implications for saving behavior. If the financial system is able to fund business start-ups and other lumpy expenditures, private entities will be relieved of having to save first in order to undertake such spending. China's banking system has undergone dramatic transformation in recent years. Large state-owned banks have been restructured as joint stock companies, and have then taken on foreign strategic investors and listed on stock exchanges. Non-performing loan ratios have been reduced to levels of under 10 percent and profitability has leapt. Anderson (2008) judges that "whether we look at macroeconomic regulation, banking supervision, internal operational controls, or the quality of borrowers in the system, we find strong improvement in every area." That said, banking reform has yet to reach the rural economy with the fourth of the state's big four banks, the Agriculture Bank, still awaiting restructuring and thousands of rural credit cooperatives still in need of clean up (Kurtzig 2007). Progress also awaits in the liberalization of interest rates and the development of market-based mechanisms for controlling loan growth. These developments will facilitate the proper pricing of risk thereby allowing private borrowers to better compete for funds. Bond markets remain an open frontier and equity markets are in need of rationalization. Again then, in the financial sector the story is one of paths broken but much ground yet to be traversed.

From a vantage point of mid-2006, Lardy (2006) has assessed China's prospects for altering its development strategy so as to rely more on consumption and less on investment and net exports. He concludes that the transition to a more consumption-driven growth path "is off to a slow start" and "likely to be substantially delayed." His message is that: "First, the tax burden on rural residents has not declined significantly. Second, income taxes paid by urban residents are too modest for cuts to have a perceptible effect on consumption. And despite much lip service to increasing the provision of social services financed through the budget, there is little evidence that a fundamental shift in government spending priorities is underway." That assessment was fair enough at the time of writing. As of 2008 though, there is a case to be made that momentum is gaining. Institutions for delivery of public social

welfare services have been put in place and the fiscal capacity exists to ramp up funding for larger scale implementation of programs. Similarly a structure has been established for centrally governed SOEs to remit profits with this structure due to be replicated at lower levels. Finally, there has been important progress in reorienting the financial sector toward the pursuit of profits, and following from this the capacity to lend effectively to the private sector can be expected to develop.

Lardy points to another front on which he believes policy has not been exercised as needed to bring about the rebalancing of the Chinese economy, and that is the exchange rate. He maintains that "a more flexible exchange rate policy" is necessary to allow the central bank greater leeway for raising interest rates which in turn "will lead, on average, to a lower rate of investment." He argues further that "a reduction in the rate of investment is a critical component of the policies to transition to a more consumption-driven growth path." But in fact too much investment has not been the crux of the problem. Rather, the very success of administrative restraints on investment is what has caused the saving/ investment gap to open and the trade surplus to explode. Without a link to saving, as opposed to investment, exchange rate flexibility does not offer the desired resolution to China's external imbalance.

For exchange rate flexibility, or more to the point in the Chinese case appreciation of the renminbi (in real effective terms), to bring about a rebalancing in the external account, there must be a mechanism whereby consumption is posited to supplant saving. A plausible story in view of the emphasis in this study on growth as a driving force in China's saving rate rise is one of currency appreciation leading to slower domestic output growth due to diminished export marketability and increased competition from imports. It is then the economic slowdown that checks the saving rate as output growth lags growth in consumption. Other theories of how the exchange rate might in principle affect consumption seem less than compelling in the Chinese context. Under conditions of market determined interest rates, anticipated appreciation in a country's currency would imply a lower domestic interest rate to preserve parity, and in response the saving rate would be expected to fall. In China, however, interest rates are subject to administrative controls and any link to saving through this channel is doubtful. In principle, further, consumption might be conjectured to increase due to a real wealth effect as currency appreciation raised the value of assets denominated in domestic currency units relative to the prices of internationally traded goods. But again the power of this effect to drive consumption behavior in China to any significant degree seems unlikely.

Is renminbi appreciation then an attractive strategy for bringing down China's national saving rate when the mechanism involved depends on damping growth? The answer to this question hinges on the state of internal balance in the economy. When overheating is a problem and inflation is rearing up, the restraining effect on growth of currency appreciation is to be welcomed. In China as of 2008, although supply shocks have amplified the headline inflation numbers, inflationary pressures appear to be building in response to secular forces (Kroeber 2008)and restraint is thus in order. Over the longer span of time that China has exhibited large and growing trade surpluses, however, extremely rapid real output growth has been accompanied by low or no inflation. To inhibit growth under these circumstances would undermine job creation and slow the rise of incomes. This would be welfare diminishing regardless of whether the growth in incomes were being channeled into consumption or saving (provided, that is, that the saving/ consumption choice arrived at is a valid reflection of societal preferences).

In any case though, the effect on the saving rate of any acceptable slowdown in the growth rate would be small and gradual judging by the econometric analysis reported in this study. Even a drop in the growth rate to a historic norm of 6.5 percent is seen to result in

only a modest decline in the saving rate from its current high benchmark (see Figure 10). The likely outcome then of strong currency appreciation would be slower growth and a nevertheless sustained large trade surplus reflecting a persistent saving/ investment gap.[10] The exchange rate in and of itself does not within this paradigm present an attractive or promising instrument for rebalancing the Chinese economy toward consumption. There is an important sense, however, in which it can come into play as part of a coordinated program that combines fiscal measures to stimulate consumption with currency appreciation to counter the expansionary effect of a stimulus on aggregate demand. This combination preserves stability in aggregate demand while achieving expenditure switching from domestic to foreign goods. Thus it maintains internal balance while reducing the external imbalance associated with a current account surplus.[11]

## VI. Conclusion

China's saving rate shot up to a vertiginous 50 percent of GDP by 2006 from a rather less outlandish 38 percent just six years earlier. With the investment rate in 2006 at 42.7 percent, the ratio of net exports to GDP as reflected in the national accounts reached 7.3 percent. Currency appreciation is advocated by many observers as the key to ameliorating the trade surplus. The explanation for how this might work must simultaneously account for a narrowing of the saving/ investment gap. The story would appear to depend on a decline in exports and a rise in import competition curtailing output growth such that consumption rises faster than output and the saving rate is moderated. But the empirics of the relationship between growth and saving presented in this study do not portend a quick impact on the saving rate through this channel. Nor would a slowing of real growth induced by currency appreciation necessarily be a painless route to lowering the saving rate.

The Chinese government has eschewed narrow reliance on the exchange rate to address macro imbalances and turned attention instead toward developing institutions to promote consumption. The process is a gradual one, in keeping with the general tenor of China's reform history. One element of the rebalancing strategy addresses the precautionary motive for saving in promoting a social welfare system to provide health insurance, old age support, and minimum income guarantees. Such a system is being constructed anew from the remnants of its command economy predecessor. Significant progress has been made in reconstituting the Rural Cooperative Medical Scheme which is now operative throughout most of the Chinese countryside. On this foundation funding is to be doubled in the space of two years. An urban health insurance system is in the pilot stage, and an old age insurance program is also taking form and primed for expansion.

China's fiscal system is buoyant and structured to carry out transfers from high to low income areas as a result of the tax reform in 1994 that shifted the bulk of revenue collection to the center. The problem in the implementation of such transfers has been the lack of institutional capacity at the local level to deliver public services. With elimination of the agriculture tax in 2006, a commitment was made to shift responsibility for program management upward to the counties. This is where real capacity building can take place for the implementation of a social welfare system. Much progress has been made in laying the groundwork with funding at very limited levels initially. The fiscal resources exist to send

[10] For a similar view, see MacKinnon (2007).

[11] The analysis of internal and external balance using policy instruments of fiscal spending and exchange rate manipulation is famously explicated in Swan (1963). A textbook rendering of the Swan diagram is provided in Krugman and Obstfeld (2006: 502-506).

much larger funding streams into the pipeline when and as such monies can be absorbed productively.

A program to collect dividends from state-owned enterprises will further act through the fiscal system to reduce saving by supporting public consumption directly and/or permitting lower taxes on households which would stimulate private consumption. The program saw a partial roll-out in 2007 with full implementation at the central level to take place in 2008 and local counterpart programs to follow.

One of the most impressive reform achievements of recent years has been the turn around of the banking system. Balance sheets of the big state-owned banks, with the exception of the Agriculture Bank, are now reasonably healthy and profits are strengthening. The reorientation of banks away from government directed lending and toward profit-making business activity will help to moderate saving. As the capacity of banks to assess and price risk on private sector loans develops, the need for households and businesses to save in order to self-finance lumpy expenditures will diminish.

Reliance on institutional development to achieve a rebalancing of the economy toward higher consumption and lower saving does not promise quick results. But forces that have been carefully set in motion are now poised to gain momentum. Indeed, already in 2007, consumption contributed more to the increase in GDP at 4.5 percentage points than did investment at 4.4 percentage points in a reversal of the pattern prevailing for some years (National Development and Reform Commission 2008). A reduction of the national saving rate to a level last observed as recently as 2003 when it stood at 43.2 percent of GDP would, given a maintained level of domestic investment at the 2004-2006 status quo, completely eliminate the trade surplus. This is a plausible scenario within the medium term. It rests on a combination of a slowing of the growth rate from double digit levels; an acceleration of the development of social welfare programs so as to mitigate the precautionary motive for saving; and continued advances in financial sector development so as to provide more efficient financing of private investment and consumption expenditures.

A role for currency appreciation can potentially come into play in this process. Fiscal spending increases on social welfare programs along with tax cuts and subsidies to favor low income households have an expansionary impact on aggregate demand. In a context where inflationary pressures are mounting, currency appreciation can be an effective countervailing measure to maintain internal balance and preserve the fiscal latitude to push forward. Such a combination of fiscal stimulus and currency appreciation holds the power to move the economy toward balance both externally and internally at the same time.

# Data Appendix

## Table A1: Aggregates, Growth Rates, and Demographics, 1978-2006

| | Aggregates | | | | Growth Rates | | | Demographics | |
|---|---|---|---|---|---|---|---|---|---|
| | GDP (Rmb bn) | Consumption (Rmb bn) | Investment (Gross Capital Formation) (Rmb bn) | Net Exports (Rmb bn) | Official Real GDP Growth (% p.a.) | Derived Deflator (Previous year=100) | Derived Real GDP Growth (% p.a.) | Population Ages 0-15 (% of total) | Population Ages 65+ (% of total) |
| 1978 | 360.6 | 223.9 | 137.8 | -1.1 | 11.7 | 101.1 | -- | 37.5 | 4.6 |
| 1979 | 409.3 | 263.4 | 147.9 | -2.0 | 7.6 | 107.7 | 5.8 | 36.5 | 4.7 |
| 1980 | 459.3 | 300.8 | 160.0 | -1.5 | 7.8 | 102.6 | 9.6 | 35.5 | 4.7 |
| 1981 | 500.9 | 336.2 | 163.0 | 1.7 | 5.2 | 102.2 | 6.9 | 34.4 | 4.8 |
| 1982 | 559.0 | 371.5 | 178.4 | 9.1 | 9.1 | 100.9 | 10.7 | 33.3 | 4.9 |
| 1983 | 621.6 | 412.6 | 203.9 | 5.1 | 10.9 | 102.1 | 9.1 | 32.2 | 5.0 |
| 1984 | 736.3 | 484.6 | 251.5 | 0.1 | 15.2 | 103.2 | 15.2 | 31.2 | 5.1 |
| 1985 | 907.7 | 598.6 | 345.8 | -36.7 | 13.5 | 108.6 | 14.7 | 30.3 | 5.2 |
| 1986 | 1,050.9 | 682.2 | 394.2 | -25.5 | 8.8 | 105.3 | 10.4 | 29.6 | 5.3 |
| 1987 | 1,227.7 | 780.5 | 446.2 | 1.1 | 11.6 | 108.6 | 8.2 | 28.9 | 5.3 |
| 1988 | 1,538.9 | 984.0 | 570.0 | -15.1 | 11.3 | 117.4 | 7.9 | 28.5 | 5.4 |
| 1989 | 1,731.1 | 1,116.4 | 633.3 | -18.6 | 4.1 | 119.4 | -6.9 | 28.0 | 5.5 |
| 1990 | 1,934.8 | 1,209.1 | 674.7 | 51.0 | 3.8 | 107.6 | 4.1 | 27.7 | 5.6 |
| 1991 | 2,257.7 | 1,409.2 | 786.8 | 61.8 | 9.2 | 105.0 | 11.7 | 27.4 | 5.7 |
| 1992 | 2,756.5 | 1,720.3 | 1,008.6 | 27.6 | 14.2 | 108.4 | 13.7 | 27.1 | 5.7 |
| 1993 | 3,693.8 | 2,190.0 | 1,571.8 | -68.0 | 14.0 | 123.2 | 10.8 | 26.9 | 5.8 |
| 1994 | 5,021.7 | 2,924.2 | 2,034.1 | 63.4 | 13.1 | 125.6 | 10.4 | 26.7 | 6.0 |
| 1995 | 6,321.7 | 3,674.8 | 2,547.0 | 99.9 | 10.9 | 117.6 | 8.3 | 26.4 | 6.1 |
| 1996 | 7,416.4 | 4,392.0 | 2,878.5 | 145.9 | 10.0 | 107.5 | 9.8 | 26.2 | 6.2 |
| 1997 | 8,165.9 | 4,814.1 | 2,996.8 | 355.0 | 9.3 | 104.7 | 5.4 | 25.9 | 6.4 |
| 1998 | 8,653.2 | 5,158.8 | 3,131.4 | 362.9 | 7.8 | 100.4 | 5.6 | 25.6 | 6.5 |
| 1999 | 9,096.4 | 5,563.7 | 3,295.2 | 237.6 | 7.6 | 100.8 | 4.3 | 25.3 | 6.7 |
| 2000 | 9,874.9 | 6,151.6 | 3,484.3 | 239.0 | 8.4 | 106.3 | 2.3 | 24.8 | 6.8 |
| 2001 | 10,897.2 | 6,687.8 | 3,976.9 | 232.5 | 8.3 | 100.2 | 10.2 | 24.2 | 7.0 |
| 2002 | 12,035.0 | 7,169.1 | 4,556.5 | 309.4 | 9.1 | 99.5 | 11.0 | 23.5 | 7.2 |
| 2003 | 13,639.9 | 7,745.0 | 5,596.3 | 298.6 | 10.0 | 102.0 | 11.3 | 22.7 | 7.3 |
| 2004 | 16,028.0 | 8,703.3 | 6,916.8 | 407.9 | 10.1 | 105.4 | 12.2 | 22.0 | 7.5 |
| 2005 | 18,670.1 | 9,691.8 | 7,956.0 | 1,022.3 | 10.2 | 104.2 | 12.2 | 21.4 | 7.6 |
| 2006 | 22,049.8 | 11,032.3 | 9,409.9 | 1,607.6 | 10.7 | 103.9 | 14.2 | 20.9 | 7.7 |

Sources: National Bureau of Statistics; World Bank World Development Indicators.

## Table A2: Components of Gross National Disposable Income & Saving, 1992-2004

in Rmb bn

| | Gross National Disposable Income | | | | Savings | | | |
|---|---|---|---|---|---|---|---|---|
| | Total | Households | Enterprises | Government | Total | Households | Enterprises | Government |
| 1992 | 2,671 | 1,849 | 308 | 513 | 1,075 | 603 | 308 | 164 |
| 1993 | 3,463 | 2,237 | 559 | 666 | 1,445 | 669 | 559 | 216 |
| 1994 | 4,709 | 3,145 | 687 | 876 | 1,987 | 1,022 | 687 | 278 |
| 1995 | 5,781 | 3,928 | 847 | 1,007 | 2,329 | 1,144 | 847 | 338 |
| 1996 | 6,703 | 4,644 | 909 | 1,149 | 2,702 | 1,429 | 909 | 364 |
| 1997 | 7,357 | 5,012 | 1,057 | 1,288 | 2,999 | 1,527 | 1,057 | 415 |
| 1998 | 7,732 | 5,269 | 1,108 | 1,356 | 3,092 | 1,577 | 1,108 | 407 |
| 1999 | 8,099 | 5,435 | 1,159 | 1,505 | 3,127 | 1,502 | 1,159 | 466 |
| 2000 | 8,881 | 5,756 | 1,390 | 1,735 | 3,419 | 1,465 | 1,390 | 565 |
| 2001 | 9,643 | 6,150 | 1,460 | 2,033 | 3,750 | 1,560 | 1,460 | 730 |
| 2002 | 10,501 | 6,845 | 1,504 | 2,152 | 4,221 | 1,957 | 1,504 | 760 |
| 2003 | 11,820 | 7,409 | 1,829 | 2,582 | 5,071 | 2,140 | 1,829 | 1,102 |
| 2004 | 16,148 | 9,339 | 3,518 | 3,292 | 7,445 | 2,955 | 3,518 | 972 |

Source: National Bureau of Statistics.

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