REBALANCING GROWTH IN ASIA

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ABSTRACT

Rebalancing growth patterns of Asian economies is an important component of the overall rebalancing effort that will be required in the world economy. In this paper, I provide an empirical characterization of the composition of GDP levels and growth rates for the key emerging markets and other developing economies in Asia. China has by far the lowest share of private consumption to GDP in Asia and, during this decade, has recorded the lowest rate of employment growth relative to GDP growth. Investment growth has dominated GDP growth in China during this decade but is also important in the cases of India and Vietnam.

To examine the global implications of domestic growth patterns in Asia, I analyze saving-investment balances, the composition of national savings, and the determinants of the evolution of household saving rates. During 2000-08, household saving rates (relative to household income) have risen gradually in China and India but fallen sharply in Korea. Corporate savings have surged across Asia during this period, becoming the main component of gross national savings in the region. In terms of sheer magnitudes, China's national savings and current account surpluses dominate the region's saving-investment balances. China accounts for just under half of GDP in Asia ex-Japan, but accounts for 60 percent of total gross national savings and nearly 90 percent of the current account surplus of the region. Finally, I discuss some policy implications that come out of the analysis on how to shift the patterns of growth, especially in China, from a welfare-enhancing perspective.

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I. Introduction

Rebalancing growth in developing Asia is an important component of the overall global rebalancing effort that will be required to stabilize the world financial and economic systems. There is little doubt that global macroeconomic imbalances served as tinder for the global financial crisis, although there are sharply contrasting views about whether it was the proximate determinant. This debate is not merely a semantic one and takes on particular importance in view of a plausible scenario in which the recovery from the financial crisis of 2008-09 is associated with a resurgence of global imbalances, particularly if the rest of the world relies on the U.S. to lead the recovery of global demand. There is also a divergence of views about whether global imbalances themselves are mainly the result of regulatory failures and undisciplined macroeconomic policies that encouraged excessive consumption in the U.S. and some other advanced economies or a savings glut caused by inappropriate policies in China and other emerging Asian economies. In any event, rebalancing growth in Asia may be in the direct interests of the countries in the regions themselves, and could also be important via feedback channels that involve greater stability of the world economy.

To make progress on this subject, we first need to consider what exactly is meant by rebalancing of growth. This in turn requires a characterization of growth patterns. In Section II of this paper, I provide an empirical characterization of recent growth patterns in the main emerging market economies and a few less developed economies in Asia. In the context of the discussion of global imbalances, a key issue is the role of domestic demand versus foreign demand in driving growth in these economies. In other words, how much are these economies relying on exports to drive domestic growth. A majority of Asian economies have recorded positive contributions of net exports to growth during this decade. Over the period 2000-08, net exports have on average contributed about 1.5 to 2 percentage points to GDP growth in Hong Kong, Singapore and Taiwan. For China, this contribution has averaged only 1.1 percentage points relative to average annual GDP growth of about 10 percent, even though exports themselves have climbed from 21 percent to 33 percent of GDP over this period. In terms of sheer volumes, of course, China's trade surplus of $295

billion in 2008 (6.8 percent of GDP) dominates aggregate Asian trade (excluding Japan) with the rest of the world.

There are other aspects of potential growth imbalances that also need to be considered. For instance, even if domestic demand is the key contributor to overall growth, there are very different implications if that growth is driven by consumption or by investment. In particular, growth in household labor income and the overall welfare implications of GDP growth can be affected by this composition. There may also be ancillary implications for employment growth, which in turn could have distributional consequences.

This analysis shows some striking patterns in Chinese growth during this decade, with investment accounting for half of GDP growth, the share of private consumption in overall GDP dropping to about one-third (the lowest in the sample of Asian countries), and employment growth amounting to an anemic 1 percent per year despite strong GDP growth. India and Vietnam also have relatively high contributions of investment growth to GDP growth, with one major difference relative to China being that these two countries finance part of their investment through net inflows of foreign capital (India's current account deficit is small relative to its GDP, Vietnam's current account deficit is much larger). These two countries also register among the highest GDP growth rates of the countries in the sample other than China but report better average employment growth rates than China.

In Section III, I provide a different perspective on the balance of growth that ties together the domestic and international implications by examining patterns of national savings and investment. An analysis of the evolution of saving-investment balances is of course relevant for understanding the dynamics of global imbalances. I also explore the different components of national savings attributable to households, corporations and the government.

One of the interesting results from this analysis is that corporate savings have risen markedly in China and other major Asian economies. In economies such as China and India, household saving rates have continued to rise (as a share of household disposable income) even as their shares in overall national savings have declined. In China, both national saving

and investment rates have risen sharply during this decade, with the former rising faster, resulting in an expanding current account surplus. India's saving and investment rates have risen in tandem, keeping the current account in deficit but at a low level relative to GDP.

In Section IV, I use the descriptive data from the previous section to anchor an analytical overview of the relative importance of the different forces that could affect household saving and consumption behavior. I discuss and evaluate the empirical evidence (both from the existing literature and, more specifically, for Asia) on the following channels/factors:

- Consumption smoothing over the life cycle
- Demographic factors
- Cultural factors
- Habit persistence
- Precautionary savings
- Underdevelopment of the financial system

In Section V, I provide a detailed case study of China using some macroeconomic perspectives as well as household-level data to illustrate many of the analytical points in the previous section. From 1995 to 2008, the average urban household saving rate in China rose by 11 percentage points, to about 28 percent of disposable income. Saving rates have increased across all demographic groups although the age profile of savings has shifted to an unusual pattern in recent years, with younger and older households having relatively high saving rates (i.e., a U-shaped age-saving profile rather than the normal hump-shaped one). Marcos Chamon and I (Chamon and Prasad, 2009) find that these patterns are best explained by the rising private burden of expenditures on housing, education, and health care. These effects and precautionary motives may have been amplified by financial underdevelopment, as reflected in constraints on borrowing against future income and low returns on financial assets. Drawing on the work of other authors, I also provide some comparative perspectives using micro data-based studies from other regional economies.

In Section VI, I broaden this discussion by examining possible reasons for the growth patterns and analyze policy choices that may account for them. Specifically, I consider how cross-country differences in saving rates (both changes and levels) can be attributed to

certain policy choices. The discussion will also be tied to effects of policies on investment rates and, hence, on current account balances. Specific policies and domestic factors examined will include:

- Level and nature of financial development
- Fiscal policies--government budget balance, spending on government consumption and investment
- Tax and transfer policies, including the social safety net (pensions, unemployment insurance)
- Level and composition of government expenditure (with particular focus on education and health care spending)
- Capital account liberalization (insofar as it influences government borrowing, external financing for domestic investment, and opportunities for international portfolio diversification)
- Other relevant macroeconomic and microeconomic policies

I conclude the paper with a summary of the main findings and a discussion of policy implications in Section VII.

At the outset, it is useful to lay out the scope of the empirical analysis in this paper. The analysis will largely focus on the developing economies of East Asia, Southeast Asia and South Asia. In particular, I will focus on the major emerging markets in these regions, including relatively more advanced economies such as Hong Kong, Korea (South) and Singapore. The macroeconomic data used in this paper are mostly at an annual frequency and are taken from one of the following databases: CEIC, IMF's International Financial Statistics, World Bank's World Development Indicators, and Penn World Tables 6.2. In most of the analysis, I focus on developments since 1990.

I complement the macroeconomic data with household-level data from some of my earlier work on China (joint with Marcos Chamon). To provide a comparative perspective, I will also discuss results from other micro data-based papers on household savings in Asia and present some preliminary results based on ADB's analysis of household data from the Philippines.

II. Composition of Growth

In this section, I characterize some of the key patterns of growth in the Asian economies and also examine related outcomes such as employment growth. It is useful to start off with a description of the evolution of the structure of GDP from a national accounts perspective. Table 1 shows the shares of different components of GDP for three years—1995, 2000 and 2008. The median share of private (household) consumption in Asian countries' GDP has fallen from 66 percent in 1995 to 57 percent in 2008. The shares of government consumption and investment have remained relatively stable. The big shift has been in net exports, which went from a median share of minus 6 percent in 1995 to 4 percent in 2008.

Among the major Asian economies, the most dramatic shift in the share of private consumption is recorded by China, where its share in GDP fell from 46 percent in 2000 to 35 percent in 2008. Singapore is the only other Asian economy where private consumption accounts for significantly less than half of GDP. In China, the shares of both investment and net exports rose markedly--by about 8 and 6 percentage points, respectively--from 2000 to 2008. There is a significant decline in the share of private consumption in India's GDP as well--the share fell from 64 percent in 2000 to 57 percent in 2008, with investment taking up the slack. In Vietnam, there is a surge in the share of investment, which is largely offset by a corresponding expansion of the trade deficit. Consistent with evidence from micro data that individual saving propensities tend to rise with income levels, there does seem to be a positive correlation between per capita income levels and the share of private consumption in GDP, with countries like Bangladesh, Cambodia, Pakistan, the Philippines and Sri Lanka having relatively high consumption ratios.

Table 2 shows average GDP growth rates over the period 2000-08 for each country in the sample. The next five columns show the contributions of different components—total consumption (which is further broken down into private and government consumption), investment and net exports—to overall GDP growth. The last column of the table shows employment growth in the formal sector.

Consumption is typically the largest component of GDP, so it is usually the case that consumption growth tends to track overall GDP growth. On average, total consumption growth (private and public) contributes about 3.7 percentage points to GDP growth, relative to median GDP growth in the sample of about 5.2 percent per annum.[1] In other words, consumption growth on average accounts for about three-quarters of GDP growth among the 15 countries in the sample.

There are three economies for which the contribution of consumption growth amounts to less than 50 percent of GDP growth, well below the sample average—China, Hong Kong and Taiwan. In China, the contribution of private consumption growth to GDP growth is less than one third, lower than in any other economy in the sample. At the other extreme is Sri Lanka, where consumption growth contributes about 4.8 percentage points, relative to GDP growth of 5.2 percent.

What is the relative importance of private versus government consumption in driving GDP growth? Private consumption growth clearly dominates total consumption growth in all countries, with the notable exception of China. On average (excluding China), private consumption growth accounts for four-fifths of the total growth contribution of consumption.

Investment growth on average accounts for about 1.4 percentage points of GDP growth. China, India and Vietnam all get high contributions from investment growth, nearly 5 percentage points per annum in the case of China and close to 4 percent in India and Vietnam. Nevertheless, it is worth noting that only in China is investment growth the dominant source of GDP growth. Another key difference between China, on the one hand, and India and Vietnam on the other, is that in China the investment is largely domestically financed while in the other two countries it is financed through foreign capital (as we will

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[1] I show medians rather than means in these calculations to mitigate the effects of outliers in these small samples. In any event, using means rather than medians made little difference to the patterns I discuss in the text. The reported averages treat each country as a unit; there is no weighting for country size.

see later, China now runs a large current account surplus while India and Vietnam have a deficit).

Another aspect of the balance of growth is related to dependence on external trade for growth. Here it is important to be careful about the use of the term "export-led growth." Even if a country has a very high level of exports relative to GDP, it could have a balanced trade account, which would mean that *net* exports were not contributing much to the bottom line in terms of GDP growth.

The penultimate column of Table 2 shows that, on average, net exports account for only a small fraction (0.4 percentage points) of overall GDP growth among the countries in the region. But this conceals a wide disparity across the individual countries. For six of the fifteen economies in the sample, net exports contributed one percentage point or more per annum to GDP growth. The average contribution of net exports to growth is negative in the cases of Cambodia, India, Sri Lanka and Vietnam.

It is interesting to note that, despite the popular characterization of China as relying on export-led growth, the direct contribution of net exports to GDP growth has amounted to only 1.1 percentage points per year over the period 2000-08, which is only about one tenth of overall GDP growth. The data in this table certainly do not look like prima facie evidence of export-led growth among the Asian economies in general, or China in particular. I will examine this issue in more detail below.

Employment Growth

A different way to think about the composition of growth is about how much employment is generated in the process of achieving that growth rate. The last column of Table 2 shows that the cross-sectional median of employment growth over the period 2000-08 was about 2 percent. The two economies with the lowest average rate of employment growth are China

and Taiwan. It is striking that in China net employment growth, at barely 1 percent per annum, was only about one-tenth the pace of output growth.[2]

In other words, the Chinese growth model, which has relied to a great extent on investment growth, has resulted in limited employment growth and a substantial increase in the capital-output ratio. It would seem that a growth model that generates high GDP growth but only minimal employment growth is not welfare-improving, especially in a less developed economy like China that has a high level of unemployment and underemployment. This is a subtle issue as high output growth and low employment growth together imply a high rate of labor productivity growth. This is certainly welfare-enhancing, especially if the growth in labor productivity is largely driven by growth in total factor productivity (TFP). Indeed, the calculations of Bosworth and Collins (2008) suggest that TFP growth has accounted for a substantial portion of labor productivity growth in China during the first half of this decade. Nevertheless, the low rate of employment growth is clearly a concern even to the Chinese authorities, as it has implications for economic but also social stability.

Dependence on Trade

Returning to the issue of dependence on export-led growth, I present some additional trade data in Table 3. The first three columns show, for 2000, the ratio of total trade (imports+exports), exports and the trade balance (exports-imports) to GDP. The measure of exports and imports used here includes goods and nonfactor services. The next three columns show the same three ratios, but for 2008. The average ratio of exports to GDP has remained stable at about 45 percent during this decade, suggesting a high level of dependence on exports. But the average ratio of the trade balance (or net exports), which is of relevance to the GDP bottom line, is in fact much smaller and on average about minus 1 percent of GDP. This is down from an average of about half a percent of GDP in 2007, reflecting the sharp compression of net exports from the region during 2008.

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[2] Prasad (2009) notes that, over the period 2000-06, growth in secondary and tertiary sector employment averaged a healthier 3 percent per annum, but this was largely offset by a decline in primary sector employment.

There is again a wide disparity among countries. For nearly half of the countries in the sample—Bangladesh, Cambodia, India, Laos, Pakistan, Sri Lanka and Vietnam—the trade balance has on average been negative during the 2000s. The largest average trade surpluses are recorded by Hong Kong, Malaysia and Singapore. China's exports and total trade have increased at a rate substantially higher than that of GDP over the last seven years. In part, this is due to WTO accession, which boosted China's exports to advanced western economies and also promoted its role as a processing hub for trade going from other Asian countries to the west. China's trade balance has risen sharply, from 2 percent of GDP in 2000 to 6.8 percent in 2008, although down from a peak of 9.3 percent in 2007.

What is the right way to look at a country's dependence on exports? This is again a subtle issue. It is true that for a country with a net trade balance of zero the direct contribution of external trade to GDP growth is zero. Nevertheless, even for such a country, the spillover benefits from the exporting sector and, indeed, from overall trade volumes could be quite large. Such benefits could include technology transfers associated with trade, scale efficiencies in production associated with larger market size, employment generation in downstream and upstream firms (suppliers, distributors), and increased efficiency in production due to greater competition. From this perspective, the average trade openness ratio of over 90 percent implies that Asian economies are in general very open to and are in a position to derive considerable benefits from international trade. While trade openness has increased in most Asian economies during the period 2000-08, the increase in the volume of trade has not kept pace with GDP growth in a few economies such as Indonesia, Laos, Malaysia, the Philippines and Sri Lanka.

In the case of China, the high level of exports to GDP and also the large trade balance indicate that exports have become an important contributor to growth, both through the direct and indirect channels discussed earlier. But this is a relatively recent phenomenon. As shown in Table 2, the average contribution of the trade balance to GDP growth since 2000 was only 1.1 percentage points. So there has clearly been an important shift in the Chinese economy towards greater export orientation and also greater reliance on external trade for domestic growth. In the next section, I will explore the global implications of this shift.

III. Savings-Investment Balances

The connection between domestic and global imbalances is through the current account, which represents the difference between national savings and national investment. It is of interest to examine not just evolution of the current account but its components as well. Figure 1 shows aggregate savings and investment balances for Asia ex-Japan. The aggregate savings to GDP ratio is the sum of national savings across the countries in the sample divided by the sum of national GDP for those countries, with both variables expressed in a common currency, converted at market exchange rates from domestic currency. The aggregate investment and current account data are constructed in a similar manner.

The top panel of Figure 1 shows that aggregate savings and investment have been rising in Asia since the early 2000s. The rate of increase in savings has been higher than that of investment, leading to a rising current account surplus, which rose to 6.7 percent of aggregate GDP by 2007, but then fell to 5.7 percent in 2008. The lower panel of Figure 1, which excludes China, shows that that country is a big driver of these patterns in the data (its current account balance to GDP ratio was 10 percent in 2008). The aggregates for the remaining countries show savings and investment rising gradually and in tandem, with the current account balance to GDP ratio remaining relatively flat in the 3-4 percent range since early 2000 (except in 2003, when it spiked up to nearly 5 percent) until 2008, when it fell to about 2 percent.

Figure 2 shows the overall current account balance for Asia ex-Japan in billions of U.S. dollars. The numbers in this figure represent the excess of savings over investment for the region as a whole. From the perspective of the discussion of global imbalances, it represents the contribution of the Asian region to the financing of current account deficits of industrial countries, including the United States. It is interesting to note that the total excess savings of this region amounted to only about $100 billion in the early 2000s. Excluding China, this figure stays roughly constant in the rest of the 2000s, through 2007-08. The big surge in the region's excess savings clearly comes from China as the aggregate current account balance

including China jumps to $500 billion by 2007-08, driven by massive Chinese current account surpluses that hit $440 billion in 2008.

Figure 3 shows the savings-investment balances for individual countries in the sample, with national savings, national investment, and the current account balances all expressed as ratios to national GDP. The countries are sorted by decreasing order of the current account balance to GDP ratio in 2008. The top panel of the figure contains data for 2008 (or the latest year for which data are available for each country) and the lower panel shows the corresponding data for 2000. To facilitate comparison, the order of countries is the same in the lower panel as in the upper panel.

One feature that is immediately obvious is that national saving rates are quite high on average across all of the Asian economies. Even in this group, China is clearly in a league of its own, with a national saving rate in excess of 50 percent of GDP. For most countries in the sample, saving rates have either increased or stayed roughly constant during this decade, with the exceptions of Korea, Cambodia and Vietnam, where the saving rate has declined by 2-3 percentage points. China experiences the sharpest jump in the national savings rate, nearly 20 percentage points in an eight-year period. It is interesting to note that Vietnam has a small decline in its saving rate but a spurt in its investment rate; these two factors together push its current account from a surplus in 2000 to a sizable deficit in 2008.

Components of Saving

Since saving dynamics are a key component of the story driving shifts in current account balances in the region, I attempt to explore in more detail the different components of national savings—savings by households, firms and the government.[3] Unfortunately, these data appear to be available only for a handful of countries. For these economies, Figure 4

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[3] Household savings is generally defined as the difference between household disposable income and household consumption expenditures. Retained earnings (profits that are not paid out as dividends) are counted as corporate savings. These can of course be used to internally finance investment projects (if retained earnings of all firms in a country equaled domestic investment financed by those retained earnings, the effect on the current account would be nil). Government savings includes amounts that are used to finance public investment.

shows the composition of savings in the latest year for which data are available (upper panel) and for 2000 (lower panel). In the case of China, corporate and government savings have both risen relative to GDP from 2000 to 2008. In the cases of Korea and the Philippines, household savings as a ratio to GDP drop significantly from 2000 to 2007/08. The increase in corporate savings in these two countries makes up for much of this decline, leading to a reasonably stable overall national savings rate. By contrast, in India there is a significant increase in the national saving rate from 2000 to 2008, with all three components contributing to this increase. Household and corporate savings have risen modestly and government saving, which had been negative in 2000, was positive in 2008.

In order to provide a broader regional perspective, in Figure 5 I show the breakdown of aggregate savings (as a percent of aggregate GDP) for a composite of the five Asian economies for which data are available. Aggregate savings have risen from 31 percent of total GDP in 2000 to 45 percent in 2008. A striking development is that, by 2006-07, corporate savings have become the dominant source of savings in the region, accounting for nearly half of aggregate savings.

In Figure 6, I present data on the composition of savings in the three largest economies in non-Japan Asia—China, India and Korea—over the period 2000-2008. Together, these three economies account for about three-quarters of GDP in Asia ex-Japan. In China, the share of corporate saving has increased markedly in recent years, accounting for almost half of national savings in 2007 and a slightly lower share in 2008. Interestingly, in India, household saving has remained the dominant source of national savings, amounting to about 20 percent of GDP since the early 2000s. Corporate savings have become increasingly important in India over the last few years. In Korea, household savings as a ratio to GDP have fallen quite sharply since the late 1990s, driving down overall national savings slightly.

A different perspective on household saving is provided by looking at the saving rate relative to household disposable income rather than GDP. This is the relevant metric for understanding household saving behavior as it abstracts from changes in the distribution of national income between labor and capital (such changes would affect the share of

household saving in GDP even if household saving as a share of disposable income remained constant. Figure 7 shows the household saving rates for China, Korea and India. The top panel shows data for China from the national accounts (which are incomplete and based on my estimates for 2006-08) and also from the household surveys, both for the aggregate economy as well as for urban and rural households separately. The survey-based measure shows that the household saving rate rose sharply during the second half of the 1990s and has continued to increase, although at a far slower pace, during the high-growth years of this decade. By 2008, it had climbed to about 28 percent of disposable income. The household saving rate in India has risen sharply over the last decade, from 20 percent of disposable income in 1998 to 32 percent in 2008. Indeed, India now seems to have the highest household saving rate among the Asian economies for which data are available. In contrast to China and India, the household saving rate in Korea has fallen considerably, from nearly 30 percent in the late 1990s to 7 percent in 2007.

The cross-country comparison shows that there are substantial differences across countries in terms of the evolution of overall saving rates as well as the sources of national saving. China accounts for about 62 percent of gross national savings in all of Asia ex-Japan in 2008. In terms of sheer magnitudes, the sharp increase in corporate savings and the evolution of Chinese savings clearly both play big roles in influencing overall saving patterns in Asia (see Table 4). Hence, I now look at the possible determinants of those two patterns in Asian savings. I start with a discussion of what could explain rising corporate savings in Asia. Since China accounts for the bulk of overall corporate saving in Asia, it is useful to begin with a discussion of the reasons for the rise in Chinese corporate savings.

Corporate Savings

Corporate savings largely reflect retained earnings, so understanding the profitability of firms is important for the story. Justin Lin (2009) has argued that in China the high level of corporate savings can partly be attributed to a financial structure dominated by state-owned banks and an equity market with restricted entry, both of which favor large firms. Similarly, Prasad (2009) notes that the repressed financial system in China provides cheap capital (low

real interest rates) to favored firms, most of which are large state-owned firms. In addition, subsidies on land and energy imply that there are massive state subsidies to these firms, which reduces input costs substantially. Combined with administrative monopolies in some sectors, this has led to high levels of profitability in some sectors, with the boom years until mid-2008 generating rising profits. In a fast-growing economy, retaining and reinvesting profits is clearly an attractive proposition when firms face an opportunity cost of funds that is very low.

The underdeveloped financial system also has a role to play in the high level of retained earnings among profitable Chinese firms. One of the aspects of financial repression involves a ceiling on deposit rates, which means that firms (like households) have faced very low or sometimes even slightly negative real rates of return on their bank deposits. This led some firms to use their profits to purchase shares on the equity market, which was booming and increased paper profits even more. Moreover, the lack of alternative financing mechanisms such as a deep corporate bond market has led firms to retain their earnings in order to finance future investment projects.

Another factor is that, until very recently, state-owned enterprises were not required to pay dividends to their shareholders or to the state, thereby creating an incentive for these firms to retain their profits rather than distribute them. Lin (2009) also notes that payouts from these large and profitable firms go disproportionately to the rich, who have higher saving propensities than the poor. This is another channel through which enterprise profits drive up national saving.

In short, the economic and financial structures in China have not only played a role in the profitability of firms but also led to these firms retaining these profits rather than distributing them to households. There are similar phenomena at play in some of the other Asian countries, although in many of them the sheer pace of economic growth in recent years (until about mid-2008) has led to rising corporate profitability. While there are common threads, there are also country-specific institutional features that drive the dynamics of

corporate savings in different countries. A more careful investigation of this issue is warranted in future work.

Household Savings

I now turn to an analysis of the evolution and determinants of household savings in the Asian economies. Interestingly, even though the share of household savings in total saving has declined, household savings as a share of disposable income has continued to rise in China and other countries. As the effects of the global slowdown permeate the Asian region and reduce corporate profitability, household savings could again regain its dominance. Since China is clearly crucial for understanding developments in Asia, I will begin with a detailed analysis of household savings in China and then discuss comparisons with a few other countries.

The rising household saving rate in China is of considerable interest from two perspectives. First, this phenomenon obviously has a key role to play in explaining the rising current account surplus. Second, understanding what is driving the rising household saving rate is also crucial for devising policy measures to stoke private consumption growth. In the next section, I review a number of potential explanations for the level and trend in household savings.

IV. Possible Determinants of Household Saving Patterns

In this section, I briefly review the main theoretical determinants of household saving rates.

• The life cycle permanent income (LCPY) hypothesis has implications for how savings should evolve over the life cycle for consumers who care about consumption smoothing (which is a natural implication of a concave utility function). The LCPY hypothesis implies that young workers should borrow against their future income, workers should have the highest saving rates when their incomes are highest in the latter stages of their careers, and retirees should start drawing down their savings upon retirement. This

implies a hump-shaped age-savings profile. The life cycle model is also relevant for countries (in terms of stages of development)—in principle, less developed countries with relatively low capital-labor ratios should be running current account deficits and borrowing more. But this model doesn't seem to work well at either the household or national levels.

- Demographic factors, in conjunction with the life cycle permanent income hypothesis, can generate shifts in saving patterns. An aging population means that the dependency ratio—the ratio of the dependent population to the working-age population is expected to rise—which could drive up saving rates. This could be particularly important for a country like China where the one-child policy is projected to generate a substantial demographic shift. There is limited evidence, however, that this factor is quantitatively important.

- Cultural factors. This is basically an explanation that people in some societies are just relatively more frugal and inclined to save more of their incomes (Zhou, 2009). It is clearly not a theoretically well-grounded explanation but has been resorted to by many economists in the absence of other models that can convincingly explain the high levels of savings in East Asian economies. Formal evidence in support of this factor is, however, scant.[4] Moreover, it cannot explain <u>rising</u> saving rates in economies like China.

- Habit persistence. This hypothesis implies that consumption reacts slowly to rising income because consumption may be influenced by previously established habits. This could explain why saving rates may increase during a period of rapid income growth. This hypothesis has been used to explain why rapidly-growing countries have relatively high saving rates (Carroll and Weil, 1994) but the evidence in favor of this hypothesis is weaker in household data (see, e.g., Dynan, 2000; Rhee, 2004).

- Precautionary savings. Rising macroeconomic uncertainty and/or household-level risk can raise saving rates. High saving rates among households with young household heads

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[4] It is obviously not easy to test this hypothesis. In an indirect test of the hypothesis, Carroll, Rhee, and Rhee (1994) compare the saving behavior of different immigrant groups in Canada and find no evidence of cultural effects on savings.

may be driven by the need to build an adequate buffer stock of savings to smooth adverse shocks to their income, while households with older heads may be concerned about job loss and skill obsolescence. This could be particularly relevant for economies such as China and Vietnam that are becoming more market-oriented, and where the level of household-specific employment and income uncertainty has risen, even though average income growth has been high. There is considerable evidence that precautionary (or buffer-stock) savings is empirically very important in explaining savings behavior of households.

- Savings related to financial underdevelopment. Recent research suggests that this is an important determinant of rising saving rates and it has also been identified by a number of authors (e.g., Caballero, Gourinchas and Farhi, 2008) as a driver of global macroeconomic imbalances. I now explore this factor in more detail.

Role of Financial System in High Savings Rate

There are multiple reasons why an underdeveloped financial system could in fact lead to a high savings rate.

- In a fast-growing economy where the desired consumption bundle shifts towards big-ticket durable goods such as cars and houses, inability to borrow against future income streams could lead to households saving more in order to self-finance their purchases.[5]

- Lack of diversification opportunities for financial assets could in fact lead households to save more for precautionary purposes.

- Financial repression, which results in low or negative real interest rates, could lead to higher savings—the real interest rate elasticity of savings could be negative if the income effect dominates the substitution effect. This is sometimes referred to in the literature as the "target savings hypothesis."

[5] Jappelli and Pagano (1994) construct a theoretical model and show that this effect can be generated for plausible parameter values. They also document some descriptive empirical evidence consistent with this hypothesis.

All of these factors could be exacerbated in an environment where greater macroeconomic and household-level uncertainty—because of enterprise restructuring and other aspects of the transition to a market economy—increases precautionary savings.

V. Evidence from Household Survey Data

I begin by discussing some results from an analysis of the determinants of the household saving rate in China. I then briefly summarize results for other countries in the region. The Chinese case is particularly interesting to analyze in greater depth, both because China is a very large economy and also due to its large current account surplus and dominant role in discussions of global imbalances.

China

Figure 7 shows that total Chinese household savings, as a ratio to disposable income, has been on a gradual upward trend since 1990, rising to about 27 percent in 2008. This has been driven largely by the rise in the saving rate of urban households. The saving rate based on national income accounts data show a similar upward trend in recent years. The discrepancy between the household saving rates taken from the national accounts data and the survey data can be attributed to differences in data coverage (very rich households typically get left out of the survey data) and definitional issues (imputed rents on owner-occupied housing are treated differently in the two sources).[6]

The remaining figures in this section depicting household-level data are based just on the Urban Household Surveys, which are clearly more relevant for explaining the changing pattern of Chinese household savings, and are drawn from analysis done by Chamon and Prasad (2009). Figure 8 shows that household saving rates have increased almost across the board, except at the lowest part of the household income distribution.

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[6] Such differences between the survey-based and national accounts-based household saving rates are present in virtually all countries, including the U.S., where both sources are available.

Figure 9 plots the saving rate as a function of the age of the head of household in the cross-section of households for 1990, 1995, 2000 and 2005. In 1990 (represented by the solid line), the age-saving profile exhibits a hump-shaped pattern, with the saving rate increasing with age, peaking at around age 50, and then declining with age. Such behavior is close to what life-cycle theory would predict, given borrowing constraints that limit borrowing against future income and rising labor earnings over some range of the working life. However, the age-saving profile starts to shift to a U-shaped pattern in the mid-1990s, and this pattern becomes more pronounced in the 2000s. That is, young households save a lot more of their income than was the case a decade ago. Saving rates then decline with age with a trough around the 40s, before rising as the household head approaches retirement age. This type of saving behavior—the relatively high saving rates at the early and late stages of the life cycle—is puzzling as it does not conform to the standard life cycle model, especially in the context of a fast-growing economy.

These simple age-saving plots of course mix together age, time and cohort effects. For instance, different cohorts could have different saving propensities that affect these profiles. Chamon and Prasad (2009) use an econometric procedure to disentangle these effects, while explicitly controlling for demographic factors (or, more precisely, for the demographic composition of households in the sample). Figure 10 shows separately the age, cohort and year effects on household income, consumption and savings, with all three variables measured in per capita terms.

The results in the left panels confirm that consumption (dashed line) tends to track income (solid line). The age effects show that income and consumption initially increase with age before steadily declining (after abstracting from the overall trend increase in these variables). The implied effect on the saving rate is similar to the saving rate profile as a function of age observed in the cross-section for the recent years (although the amplitude of the movements is smaller). It indicates that young households save substantially, but then saving rates gradually decline (by about 10 percentage points), reaching a trough around age 45. Saving rates increase rapidly after the age of the household head crosses the mid-40s and remain high even among much older households. The increase from age 45 to age 65 is

about 6 percentage points. This U-shaped pattern of savings is highly unusual and is a striking departure from the traditional hump-shaped pattern found in most other economies. It is also inconsistent with the life cycle/permanent income hypothesis.

The cohort profiles of income, consumption and savings suggest that younger and older cohorts had relatively higher income than those that were in their 20s and 30s in 1990. The resulting effect on savings suggests that the higher saving cohorts are those that were in their 40s and 50s in 1990 (saving about 7.5 percentage points more than later cohorts). This is an interesting result and may be capturing the fact that those cohorts may have been particularly hard hit by the reform process and bore the brunt of the increase in uncertainty associated with the move towards a market economy. The sharp increase in the saving rate in the later working years is also consistent with postponing retirement savings until retirement is near, which is the optimal response to rapid expected income growth.

Finally, consider the time profile of the saving rate. As expected, the (unrestricted) time effects point to upward trends in both income and consumption. Income grows more rapidly than consumption, resulting in a strong increasing trend in savings. Could this trend in savings be driven by the substantial demographic shifts that have taken place over the last two decades and that are likely to intensify over the next two decades (Figure 11)? The estimated time effects explain a 9 percentage point increase in the saving rate from 1990 to 2005. This is a large figure, particularly considering the host of life-cycle and demographic characteristics that are controlled for in the analysis, and accounts for most of the increase in average saving rates over this period. This suggests a limited role for demographic changes in explaining the rise in Chinese household savings over the last decade and a half.

Chamon and Prasad (2009) conclude that habit formation, demographics and the life-cycle hypothesis can not explain the rising household saving rate in China in the face of rapid income growth. Instead, the increasing private burden of education and health expenditures seem among the strongest candidates for explaining the increase in saving rates, at least during a transition period. Health expenditure-related risks can largely explain the dramatic increase in saving rates among elderly households. The uncertainty related to those

expenditures can also increase aggregate saving rates despite the higher consumption expenditures of the households suffering an adverse health shock. Their estimates suggest that the elimination of the risk of health expenditures exceeding 20 percent of income (through a catastrophic insurance scheme) would have lowered the median saving rate in 2005 by 3.5 percentage points, assuming no behavioral responses to such a scheme. Differences in saving behavior by households with children of different ages are consistent with expected future education expenditures increasing savings (or at least lowering consumption).

The effects of these shifts, together with precautionary motives stemming from state enterprise restructuring and market-oriented reforms, should eventually fade as households adjust their consumption plans and build-up a level of assets appropriate for this post-transition environment. This build-up in savings could have been smaller if financial markets were more developed. Financial frictions also strengthen precautionary saving motives, and borrowing constraints can play an important role in driving up saving rates despite rapid income growth, especially among younger households. Finally, Chamon and Prasad also find some weak indirect evidence in support of the "target saving" hypothesis, whereby Chinese households have high saving rates because they are targeting a certain level of wealth and the real return on their savings, most of which goes into bank deposits, is small (and has recently become negative).

What are the implications of these findings for the debate about how to "rebalance" China's growth by boosting domestic consumption? As financial markets develop, households should benefit from improvements in the ability to borrow against future income, better opportunities for portfolio diversification, and better rates of return on their savings. Another implication is related to government expenditures. Figure 12 shows that the ratios of total and nondefense expenditures have risen relative to GDP in recent years. However, as depicted in Figure 13, the share of social expenditures in total government expenditures remains low, which is not conducive to encouraging private consumption.

Improvements in the social safety net would pool the risks associated with idiosyncratic income shocks and health expenditures, reducing the need for households to save in order to self-insure against these risks. Increasing public provision of education could also lower household savings by reducing the need to accumulate assets to finance future education expenditures. Thus, policies that foster financial sector development and increased social expenditures could play an important role in helping to smooth consumption over the life cycle (Blanchard and Giavazzi, 2005). This would moderate household saving rates and help in rebalancing growth towards consumption.

Other Asian Economies

In this section, I discuss the work done by other authors on selected Asian economies, including some preliminary analysis done by the ADB using household-level data from the Philippines.

In India, the household saving rate has increased over the last decade, as documented by authors such as Athukorala and Sen (2003). Households tend to hold about half of their savings in physical savings (including livestock, land holdings and jewelry), with various forms of financial savings accounting for the other half (see Figure 7A).[7] Mohan (2008) notes that while gross financial savings of the household sector have risen in recent years households' financial liabilities have also been increasing rapidly, albeit from a low base. He points to data showing that households' gross financial savings rose from 13.8 per cent of GDP in 2004-05 to 18.3 per cent in 2006-07, while their financial liabilities rose from 3.8 per cent of GDP during 2004-05 to 6.8 per cent during 2006-07. He attributes both phenomena to financial development as well as the broadening of access to the financial system. Lanot and Lawrence (2005) test the proposition that greater availability of credit due to financial development should increase consumption expenditures in areas where such credit is required, including durables consumption, education and health. They do find a positive association of financial development variables with expenditures on durables goods,

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[7] Moulick (2008) provides some qualitative evidence on how lack of access to the formal financial system affects saving patterns among poor people in the North East region of India, including the level of household savings and the forms in which savings are held.

but the economic size of this relationship is small. Nair (2006), on the other hand, finds a statistically and economically significant effect of financial liberalization on household consumption.

Park and Rhee (2005) analyze data for Korea from the Family Income and Expenditure Surveys. They, too, find that there is a positive relationship between age of household head and the household saving rate, once the household head's age crosses the mid-40s. There is a decline in saving rates post retirement relative to the peak saving rates that are attained in the late 50s, but the average post-retirement saving rate is still quite high. These authors also conclude that increases in housing prices and increases in downpayment requirements can explain the rise in saving rates among households with relatively young household heads, a result that echoes the one reported by Chamon and Prasad (2009) for China.

Analysis of the Family Income and Expenditure Surveys for the Philippines shows that the household saving rate has declined over time, consistent with the national-level flow of funds data shown in Figure 4. The age-saving profile shows an interesting pattern, with almost a monotonic increase in saving rates in tandem with the age of the household head, even though age-income and age-consumption profiles tend to be hump-shaped just as in most other economies. Remarkably, saving rates are highest among households whose heads are past the normal retirement age. Controlling for time and cohort effects using the same procedure used on the Chinese household data discussed in the previous section confirms that there is almost a linear relationship between the average household saving rate and age of household head beyond age 46. From the age range in the mid-40s to the mid-60s, there is a four percentage point increase in the household saving rate (from 12 percent to 16 percent). Bersales and Mapa (2006) report similar results based on their analysis of the same dataset.

Deaton and Paxson (2000) show that the age-saving profile does have the traditional hump shape in Taiwan. Data from Taiwan also provide a nice natural experiment to test the impact of the provision of comprehensive national health insurance on saving rates. Chou, Lin and Hammitt (2003) find that the 1995 introduction of the National Health Insurance scheme

reduced household saving rates significantly (with declines of 9-14 percent in the average level of savings). In a subsequent study, these authors provide further evidence that precautionary saving is an important determinant of saving by Taiwanese households and that the provision of social health insurance substantially weakens the precautionary motive for saving (Chou, Liu and Hammitt, 2006). Athukorala and Tsai (2003) conclude that the increased availability of social security provisions and enhanced credit availability tend to reduce household saving in Taiwan.

Two common themes come out of the results from these studies based on household data. One is that a reliable social safety net, particularly the availability of health insurance, can reduce precautionary savings. This effect is particularly important for the elderly, who face rising life expectancy rates and rising health care costs. Besides, health care is a superior good and the demand for it is likely to rise as per capita income levels rise in the Asian region. Hence, the provision of comprehensive social health care can play an important role in influencing household saving behavior. The second theme is that financial development-- as reflected in the availability of instruments to insure against idiosyncratic income risk and smooth consumption and also the ability borrow against future income to finance current purchases of durables, including houses—can reduce household saving and stimulate private consumption.

The effects of a rising old-age dependency ratio on average household savings are, however, not entirely obvious. Based on the traditional version of the life cycle permanent income hypothesis, one would expect older individuals and households with older heads to be drawing down on their savings to finance post-retirement consumption. This would generate a negative relationship between the elderly dependency ratio and average household saving rates. For instance, Kim and Lee (2007) apply panel vector autoregression techniques to macroeconomic data from East Asian economies and provide some time series evidence that higher old-age dependency ratios lead to lower saving rates. Can this be squared with rising saving rates across all age groups and the high saving rates of the elderly that have been documented using the household-level data? One difference between microeconomic and macroeconomic data is that the concept of savings tends to be different because of

measurement as well as conceptual issues.[8] One also has to be careful in taking into account the factors driving family composition in different countries. In countries where it is the norm for elderly persons to live with their adult-age children, high household saving rates of households headed by older persons could reflect family composition rather than high individual saving rates of the elderly (this point is made by authors such as Deaton and Paxson, 2000; Szekely and Attanasio, 2001). Clearly, the aging of the population has complex effects on household savings.

VI. A Cross-Country Perspective on Factors Driving Saving Behavior

I now expand the discussion based on the analysis in the previous two sections to a broader set of countries. Figure 14 shows demographic projections for the countries in our sample. In virtually every country, the share of the elderly in the population is projected to increase, with particularly sharp increases in store by 2040 for China, Hong Kong and Korea. This could increase household saving rates in these countries in anticipation of rising dependency ratios and greater strains on public pension systems, although the evidence on China in the previous section did not indicate that demographic factors have been a major determinant of trends in saving rates, at least in the recent past. Interestingly, the share of the working-age population is actually projected to *increase* slightly over the next three decades in Bangladesh, Cambodia, India, Pakistan and the Philippines. This could have the opposite effects on savings behavior, other things being equal.

The household-data based analysis in the previous section suggested that financial underdevelopment can lead to a rising saving rate in a fast-growing economy. It is difficult to obtain a comprehensive measure of financial market development, so I resort to a rather crude measure—the sum of bank deposits, stock market capitalization and bond market capitalization, expressed as a ratio to GDP (Figure 15). Clearly, there is a huge gap between the most advanced economies in this group—Singapore, Taiwan and Hong Kong—and all others based on this measure of financial development.

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[8] For instance, the flow of services from owner-occupied housing is treated differently in the national income accounts than in household surveys. Household surveys also tend to undersample households near the top of the income distribution, who tend to have high saving rates.

There is a more important aspect to financial market efficiency that is relevant for many of the features of balanced growth and savings-investment balances discussed earlier. Consider the case of China, where capital is relatively cheap because financial repression and the government's policies have kept real interest rates low. Of course, this is not an entirely accurate picture of the availability of capital, because credit from the state-owned banking system has been preferentially directed towards state-owned enterprises rather than small and medium-sized private enterprises.

In addition to cheap capital, as noted earlier, the national government has subsidized energy prices and local governments have provided subsidized land. Given that energy and land are complementary factors of production for physical capital, this has created incentives for massive investment. This helps to explain the declining share of labor income in national income, which has fallen by almost 8 percentage points over the last decade, and also the low level of employment growth in China. Also, as discussed earlier, state-owned enterprises in China face the same low deposit rates as households and, until recently, were not required to pay dividends to the state or other shareholders. These firms therefore had an incentive to recycle their retained earnings into further investments. Indeed, given the subsidies mentioned above, it made sense for firms to self-finance even marginally productive projects.

Thus, an inefficient financial system can create a variety of imbalances that discourage consumption growth and hold down employment growth.

VII. Policy Implications

The analysis in this paper suggests a few avenues that could be pursued to rebalance growth in various dimensions that include promoting domestic demand growth (especially private consumption growth), reducing the dependence on external demand, and raising employment growth. I list below some preliminary suggestions for policymakers in Asian countries to rebalance growth as well as promote overall economic welfare. The relative importance of each of these recommendations of course depends on country-specific

circumstances and constraints. Nevertheless, the points below have broad relevance for a majority of the countries analyzed in this paper.

- *Social safety net.* Increasing spending on the social safety net and other government insurance mechanisms could help reduce precautionary motives for saving. This would help boost private consumption, especially in countries that have a relatively weak safety net and that are undergoing a change from a command economy to a more market-oriented one, which invariably involves an increase in employment risks at the level of the individual worker. Better provision and delivery of health care for older citizens is important to reduce the need for them to save more in order to self-insure. This will become increasingly relevant with lengthening life spans, the increasing cost of health care and rising dependency ratios of older persons to working-age persons.

- *Financial market development.* This includes the development of a broader array of financial markets including insurance, corporate bond markets and a variety of "plain vanilla" derivates markets (such as currency futures). The objective would be to provide a larger set of instruments for saving and borrowing, which would allow for more efficient risk sharing and intertemporal smoothing of consumption. It would also allow for more diversification opportunities across different types of income (labor versus financial income) and also across different types of assets. Firms would also need to rely less on retained earnings for financing their investment if a broader set of financing opportunities were available.

- *Improving financial system efficiency.* A better-functioning and well-regulated financial system could increase productive efficiency of capital by channeling funds into more productive uses, providing credit to corporations and entrepreneurs, and enabling more efficient risk sharing which would promote entrepreneurial activity. This would also help promote employment growth.

- *Financial inclusion.* An important aspect of financial development for many emerging markets, including China and India, is that of financial inclusion since a large segment of the

population, particularly in rural areas, does not have access to the formal financial system. This has implications not just for consumption and saving patterns, but also for economic welfare more broadly. Access to a formal financial system would generate better returns on savings and reduce the incentives for households to save more in order to self-insure against health and other risks.[9] It would also give small-scale entrepreneurs the opportunity to raise funds without having to create and use own savings.

- *Exchange rate policies.* In some countries that have tightly managed exchange rates, a more flexible exchange rate regime that allows the exchange rate to respond to productivity growth differentials relative to trading partner countries could generate positive wealth effects through favorable terms of trade changes. This would encourage private consumption and also reduce the reliance on foreign demand. A more flexible exchange rate, by creating space for more independent monetary policy, could also generate more macroeconomic stability, which in turn would have a more favorable effect on both output and employment growth.

There is no magic bullet for countries trying to rebalance growth away from an excessive dependence on exports and/or investment. A number of complementary policy measures, as laid out above, will be required to start and maintain momentum towards the objective of more balanced growth driven by domestic demand, which will not just prove beneficial for the concerned countries that take these steps but also help in promoting the stability of the international financial system.

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[9] Doorslaer et. al. (2006) note that in most developing countries out-of-pocket payments continue to be the most important means of financing health care expenses. They argue that out-of-pocket payments on health care expose households to substantial financial risk and, sometimes, can result in impoverishment. The implication is that the absence of adequate government-financed health care can be a powerful incentive to increase private saving, especially with greater need for health care in aging populations with lengthening life spans.

Appendix: Rebalancing Growth

A key issue for the discussion of rebalancing growth is what exactly "balanced" growth would look like. More precisely, what does this concept imply in terms of the national saving rate, the structure of GDP (as captured by the composition of expenditure components or the sectoral distribution of value added), and the saving-investment balance. I will first discuss this concept in the context of a closed economy and then, as an illustration, review the implications in the particular case of China. This will lead to a broader discussion of these concepts in the context of an open economy.

The Golden Rule

While indicators such as GDP growth and household income growth are used as benchmarks for economic progress, what ultimately counts is economic welfare of the members of an economy. The key criterion that guides the discussion of efficiency and optimality thus has to be in terms of welfare of the representative household in the economy.

Consider a closed economy with identical agents whose utility function is defined over consumption and a single production technology with physical capital.[10] For a closed economy, the national saving rate is equal to the national investment rate. In this economy, the optimal rate of saving is given by the golden rule of capital accumulation. The optimal rate of saving is the rate that generates the highest level of steady state consumption. In its simplest form, this rule states that the marginal product of capital should be equal to the rate of labor force growth plus the rate of depreciation, which corresponds to the steady state with the highest level of consumption.

The intuition is fairly simple—if the marginal product of capital is more than enough to cover the depreciation of the extra unit of capital and to provide the new workers with an additional unit of capital, then it would be optimal to postpone consumption and increase saving. If, on the other hand, the marginal product of capital is not enough to cover depreciation and for providing the new workers with additional capital, then the saving rate (which, in a closed economy, is equal to the investment rate) should be reduced as there is otherwise an inefficient transfer of current consumption to future consumption.

Under fairly general assumptions about the production function, this rule is equivalent to a condition that the optimal rate of saving in the economy should be equal to the share of output produced by capital.

Implications for China

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[10] For the purposes of this appendix, I do not take distributional considerations into account. The same average level of consumption could have very different implications for average welfare depending on its distribution among the population. Also, for the purposes of this discussion, I focus on a utility function for the representative agent that is defined only over consumption and excluding leisure and other arguments that should be included in a fuller analysis.

A simple application of the golden rule would suggest that China's saving rate is not greatly out of line with this rule as the national saving rate is roughly equal to the share of capital in national income, both around 50 percent. The problem is that it is difficult to evaluate this proposition in an economy where the price of capital (the real interest rate) is not market-determined as the financial system remains repressed and under state control. Moreover, we do not have good measures of the marginal product of capital that could be used to evaluate the efficiency of investment. Thus, a mechanical application of the golden rule could be misleading. Indeed, as authors such as Aziz (2006) and Prasad (2009) have argued, the extensive government subsidies to capital (low interest rates) and its complements (land and energy) have artificially raised the capital share beyond efficient levels.

A further inkling of the inefficient level of saving and investment comes from the fact that the real interest rate on household savings has been very low or even slightly negative in recent years, making it difficult to justify the high and rising level of household savings on the basis of standard intertemporal models of consumption (see Chamon and Prasad, 2009). Lardy (2008) estimates that the real cost to households of this consequence of financial repression is nearly 4 percent of GDP per annum, which is transferred to the government and to enterprises via the state-owned banking system.

There are two other indicators of the inefficient pattern of growth from a welfare-enhancing perspective. One is the falling share of household income in national income. In principle, households are the ultimate owners of the firms in an economy and should be enjoying the benefits of higher profits if in fact investment is highly productive. But this is not what we see in the Chinese economy as the profitable state-owned enterprises were not (until recently) required to pay dividends either to the state or to shareholders. In other words, the full returns to investment do not eventually accrue to households. The second indicator is that private consumption growth has averaged eight percent per annum since the early 1990s, more than two percentage points below the average annual rate of GDP growth (see Aziz, 2006). This is of course reflected in the nearly seven percentage point decline in the share of household income in national income, and shows that households have not benefited fully from the high rate of GDP growth.

Open Economy

For an open economy, there are additional considerations that come into play. First of all, the relevant interest rate is no longer the domestic interest rate but the world interest rate. Indeed, with freely mobile capital, the two should be similar (after adjusting for currency premia, risk premia and transaction costs). As noted earlier, financial repression and restrictions on capital flows have kept the real interest in China low and below the world real interest rate for most of this decade. Thus, the required return on capital is lower in China, meaning that even projects that have an expected rate of return below the world real interest rate would get financed by the Chinese banking system.

Second, the life cycle model of consumption smoothing, as applied at the level of countries, suggests that countries should run current account deficits in the early stages of their life cycle. In other words, when they are less developed they tend to be labor rich and capital

poor, implying that the marginal product of capital should be higher than the world interest rate. Hence, it would be optimal for these countries to import capital, run current account deficits, and increase their growth rate through higher investment. To pay off their accumulated obligations, these countries would then run current account surpluses once they become more developed. Thus, current account deficits in early stages of development and current account surpluses in the advanced stages of development should be the norm.

The implication is that China, which is still a developing country with a relatively high labor to capital ratio, should be importing rather than exporting capital. A current account surplus thus appears to be prima facie evidence of sub-optimal saving and investment behavior relative to the predictions of the benchmark neoclassical model.

However, the benchmark neoclassical model does not do well when confronted with the data in terms of explaining the relationship between current account balances and growth. Indeed, Prasad, Rajan and Subramanian (2007) have documented that non-industrial countries that have smaller current account deficits or even current account surpluses have, on average, registered higher growth rates than those non-industrial countries that have run larger current account deficits. This is consistent with work by Aizenman, Pinto and Radziwill (2007) showing that developing countries that tend to rely more on domestic rather than foreign finance for their investment do better in terms of growth. Rodrik (2007) has argued that these results show the real constraint to growth in developing economies is not domestic savings, as presumed in the standard neoclassical model, but inadequate investment opportunities due to weak financial systems or other institutional weaknesses.

Thus, one cannot make a forthright case that China's current account surpluses are a problem in and of themselves. Indeed, China's current account surpluses were in fact rather modest during 2000-04, averaging only 2.5 percent of GDP. Since 2005, however, the current account surplus has surged, reaching 10.2 percent in 2008, largely as a result of a trade surplus of 6.8 percent of GDP. For a developing economy, this level of a current account surplus clearly points to a problem as it is virtually impossible to point to any standard determinants of medium-term current account balances—such as demographics, stage of development, financial development (see Chinn and Prasad, 2003)—that could justify a current account surplus of this size.

In summary, a variety of indicators—the declining share of labor income in national income, the very low share of private consumption in GDP, the slower rate of private consumption growth relative to national income growth, and the massive current account surplus—point to an economy that is out of balance from efficiency and welfare perspectives.

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Table 1. Shares of Real GDP
(in percent)

Country	1995 Consumption				2000 Consumption				2008 Consumption			
	Pvt.	Govt.	Invst.	Net X	Pvt.	Govt.	Invst.	Net X	Pvt.	Govt.	Invst.	Net X
Bangladesh	84.5	4.6	18.9	-6.4	73.1	4.2	23.8	-3.8	66.4	5.4	28.3	-3.4
Cambodia	--	--	--	--	88.8	5.2	16.9	-11.8	84.9	4.2	20.7	-9.5
China	44.9	13.3	40.3	1.6	46.4	15.9	35.3	2.4	35.3	13.3	43.5	7.9
Hong Kong	68.4	10.3	27.7	-9.5	66.0	10.1	25.4	-1.5	59.6	8.0	20.2	12.2
India	66.3	11.1	24.6	-1.5	64.2	12.9	25.9	-1.9	57.2	9.8	36.2	-4.3
Indonesia	--	--	--	--	61.7	6.5	22.2	10.5	57.2	8.1	23.9	9.6
Korea	57.9	12.7	38.5	-8.8	54.0	12.1	31.0	3.2	52.9	14.4	28.6	4.4
Malaysia	--	--	--	--	43.8	10.2	26.9	19.2	52.4	13.7	20.8	13.1
Pakistan	--	--	--	--	75.4	8.6	17.2	-1.2	68.6	13.2	19.4	-1.2
Philippines	77.7	8.2	23.3	-10.5	77.3	8.2	24.6	-4.6	78.1	6.6	18.1	1.4
Singapore	42.3	8.4	33.2	15.6	42.2	10.8	33.3	13.6	39.2	10.5	31.4	20.4
Sri Lanka	74.1	10.5	24.2	-8.9	72.1	10.5	28.0	-10.6	69.7	16.2	27.5	-13.4
Taiwan	59.8	16.2	22.4	1.0	60.4	13.9	23.1	2.7	54.4	11.3	17.0	17.3
Thailand	54.4	7.9	43.5	-5.4	54.0	9.2	20.7	14.9	51.8	8.9	23.4	15.4
Vietnam	73.1	8.2	27.2	-9.1	66.7	6.7	30.5	-3.7	68.1	6.6	44.1	-20.8
Unweighted medians:												
All Countries	66.3	10.3	27.2	-6.4	64.2	10.1	25.4	-1.2	57.2	9.8	23.9	4.4
All excl. China	67.3	9.3	25.9	-7.6	65.1	9.7	25.0	-1.4	58.4	9.3	23.6	2.9
International Comparisons:												
Germany	59.5	19.6	22.1	-0.9	58.9	19.0	21.8	0.4	54.7	18.4	20.3	6.8
Japan	56.7	15.5	27.7	0.4	56.2	16.9	25.5	1.5	55.5	17.6	23.2	4.9
U.S.	67.7	16.2	17.2	-0.9	68.7	14.4	20.8	-3.9	71.0	14.5	17.5	-3.3

Source: CEIC, IMF's WEO, and author's calculations.
Note: GDP contribution shares (in percentage points), for Cambodia are 2005 instead of 2008, for Indonesia, Malaysia and Pakistan are 2001 instead of 2000, for Sri Lanka are 1996 instead of 1995. In international comparison, Japan's 2008 investment is 2007 number due to lack of data. The unweighted medians are the cross-sectional medians of the data in respective columns.

Table 2. Contributions to Growth and Employment Growth, 2000-08
(in percent)

| Country | GDP Growth | GDP Growth Contributions | | | | | Employment Growth |
| | | Consumption | | | Investment | Net Exports | |
		Total	Private	Government			
Bangladesh	5.8	3.6	3.2	0.4	2.1	0.0	3.3
Cambodia	9.0	6.9	6.6	0.3	2.3	-0.4	5.7
China	10.2	4.1	2.8	1.3	5.0	1.1	0.9
Hong Kong	5.0	2.3	2.1	0.2	1.3	1.7	1.4
India	7.2	4.1	3.5	0.5	3.6	-0.3	1.9
Indonesia	5.2	3.1	2.5	0.6	1.4	0.4	1.6
Korea	4.9	2.5	1.9	0.6	1.0	1.4	1.7
Malaysia	5.1	4.6	3.5	1.1	0.4	0.1	2.1
Pakistan	4.9	3.7	2.7	1.0	1.1	0.1	3.1
Philippines	5.0	3.9	3.8	0.2	0.7	1.0	2.3
Singapore	5.5	2.8	2.1	0.6	1.5	1.5	4.1
Sri Lanka	5.2	4.8	3.8	1.0	1.3	-0.8	1.9
Taiwan	3.6	1.5	1.4	0.1	0.0	2.2	1.2
Thailand	4.8	2.7	2.4	0.4	1.5	0.5	1.6
Vietnam	7.5	5.3	4.8	0.5	4.3	-2.4	2.3
Unweighted medians:							
All Countries	5.2	3.7	2.8	0.5	1.4	0.4	1.9
All excl. China	5.1	3.6	2.9	0.5	1.3	0.2	2.0
International Comparisons:							
Germany	1.4	0.5	0.3	0.2	0.1	0.9	0.4
Japan	1.5	1.0	0.6	0.4	0.2	0.5	-0.1
U.S.	2.3	2.3	2.0	0.3	0.1	-0.1	0.7

Source: CEIC, IMF's WEO, ADB, and author's calculations.
Note: GDP growth rates (in percent) are annual averages over the period 2000-08. GDP growth contributions (in percentage points) are averages over the same period, except for Cambodia (2000-05), Indonesia and Malaysia and Pakistan (2001-08). Contributions may not sum exactly to GDP growth because of rounding error or, in the case of some countries like the Philippines, because the statistical discrepancy is large. Investment includes private and public investment. Employment growth rates (in percent) are also annual averages over the period 2000-08, except for Bangladesh (only 2000, 2003 and 2006), Cambodia and Vietnam (2000-06). India's employment data are only available for 2000 and 2005 from ADB. In international comparison, Japan's investment does not include 2008 number due to lack of data. The unweighted medians are the cross-sectional medians of the data in respective columns.

Table 3. Openness to Trade
(in percent of GDP)

Country	2000			2008		
	Total Trade	Exports	Trade Balance	Total Trade	Exports	Trade Balance
Bangladesh	33.2	14.0	-5.2	46.7	19.3	-8.1
Cambodia	111.6	49.8	-11.9	138.4	65.4	-7.6
China	39.6	20.8	2.0	59.2	33.0	6.8
Hong Kong	282.1	143.3	4.4	413.8	212.3	10.9
India	27.4	13.2	-0.9	54.3	24.0	-6.3
Indonesia	71.4	41.0	10.5	58.4	29.8	1.1
Korea	74.3	38.6	2.9	107.0	52.9	-1.2
Lao	49.9	19.1	-11.8	48.6	22.6	-3.5
Malaysia	220.4	119.8	19.2	183.7	103.5	23.2
Pakistan	28.1	13.4	-1.2	34.2	12.1	-10.0
Philippines	108.9	55.4	1.9	76.1	38.0	-0.2
Singapore	377.7	195.6	13.6	449.6	234.3	19.1
Sri Lanka	88.6	39.0	-10.6	64.7	25.5	-13.7
Taiwan	105.3	53.8	2.2	144.2	74.4	4.6
Thailand	124.9	66.8	8.6	150.1	76.4	2.8
Vietnam	112.5	55.0	-2.5	167.0	76.8	-16.5
Unweighted medians:						
All Countries	97.0	45.4	2.0	91.5	45.4	-0.7
All excl. China	105.3	49.8	1.9	107.0	52.9	-1.2
International Comparisons:						
Germany	66.4	33.5	0.5	86.7	46.7	6.7
Japan	21.2	11.3	1.5	36.2	18.3	0.4
U.S.	25.7	10.9	-3.8	30.5	12.8	-4.9

Source: CEIC, Asian Development Bank's Statistical Database System (SDBS), and author's calculations.
Note: Exports include both goods and services, total trade refers to the sum of exports and imports of goods and services. Most countries' latest data available year is 2008, except that Cambodia, Lao, and Vietnam have data only up to 2007 (though Vietnam's trade balance is 2008). The unweighted medians are the cross-sectional medians of the data in respective columns.

Table 4. GDP, Current Account Balance, and Household Saving, 2008

Country	Nominal GDP (USD billions)	Current Account Balance Value (USD billions)	Current Account Balance As percent of GDP	Gross National Savings Value (USD billions)	Gross National Savings As percent of GDP	Household Saving Value (USD billions)	Household Saving As percent of household disposable income
Bangladesh	81.9	0.8	0.9	19.8	26.9	--	--
Cambodia	11.2	-1.2	-10.9	0.8	13.1	--	--
China	4327.4	440.0	10.2	2333.4	53.9	1006.3	39.7
Hong Kong	215.6	30.6	14.2	74.3	34.5	--	--
India	1209.7	-33.3	-2.8	479.0	39.6	264.4	32.0
Indonesia	511.8	0.5	0.1	118.6	27.5	--	--
Korea	947.0	-6.4	-0.7	287.1	30.3	45.5	7.8
Malaysia	222.2	38.8	17.4	80.8	36.4	--	--
Pakistan	167.6	-14.0	-8.4	23.8	16.5	--	--
Philippines	168.6	4.2	2.5	32.4	19.2	4.0	3.3
Singapore	181.9	27.0	14.8	83.2	45.7	--	--
Sri Lanka	39.6	-3.7	-9.4	7.2	18.2	--	--
Taiwan	372.3	25.0	6.7	103.3	27.7	47.5	22.5
Thailand	273.2	-0.2	-0.1	79.4	32.3	19.2	12.4
Vietnam	89.8	-8.4	-9.4	25.4	35.7	--	--
Totals:							
All countries	8820.0	499.6	--	3748.6	--	1386.9	--
All excl China	4492.5	59.6	--	1415.2	--	380.6	--
Unweighted medians:							
All Countries	215.6	0.5	0.1	79.4	30.3	46.5	17.5
All excl. China	198.7	0.2	0.0	76.8	29.0	45.5	12.4
International Comparisons:							
Germany	3467.3	229.4	6.6	79.5	2.3	--	--
Japan	4910.3	158.5	3.2	344.1	7.0	157.5	20.3
U.S.	14265.0	-706.1	-4.9	1712.3	12.0	342.3	3.2

Source: CEIC, IMF's WEO, and author's calculations.
Note: Gross national saving data for Cambodia are from 2005, Bangladesh, Indonesia, Pakistan, Thailand and Vietnam are from 2007.
Household saving data for Korea, Taiwan, Thailand and Japan are from 2007. Korea household disposable income data was estimated from
data on income of Households & Private Unincorporated Enterprises. China's gross national savings and household savings numbers for 2008
are based on the author's estimates. The unweighted medians are the cross-sectional medians of the data in respective columns.

Figure 1. Aggregate Saving-Investment Balance for Developing Asia (in percent of GDP)
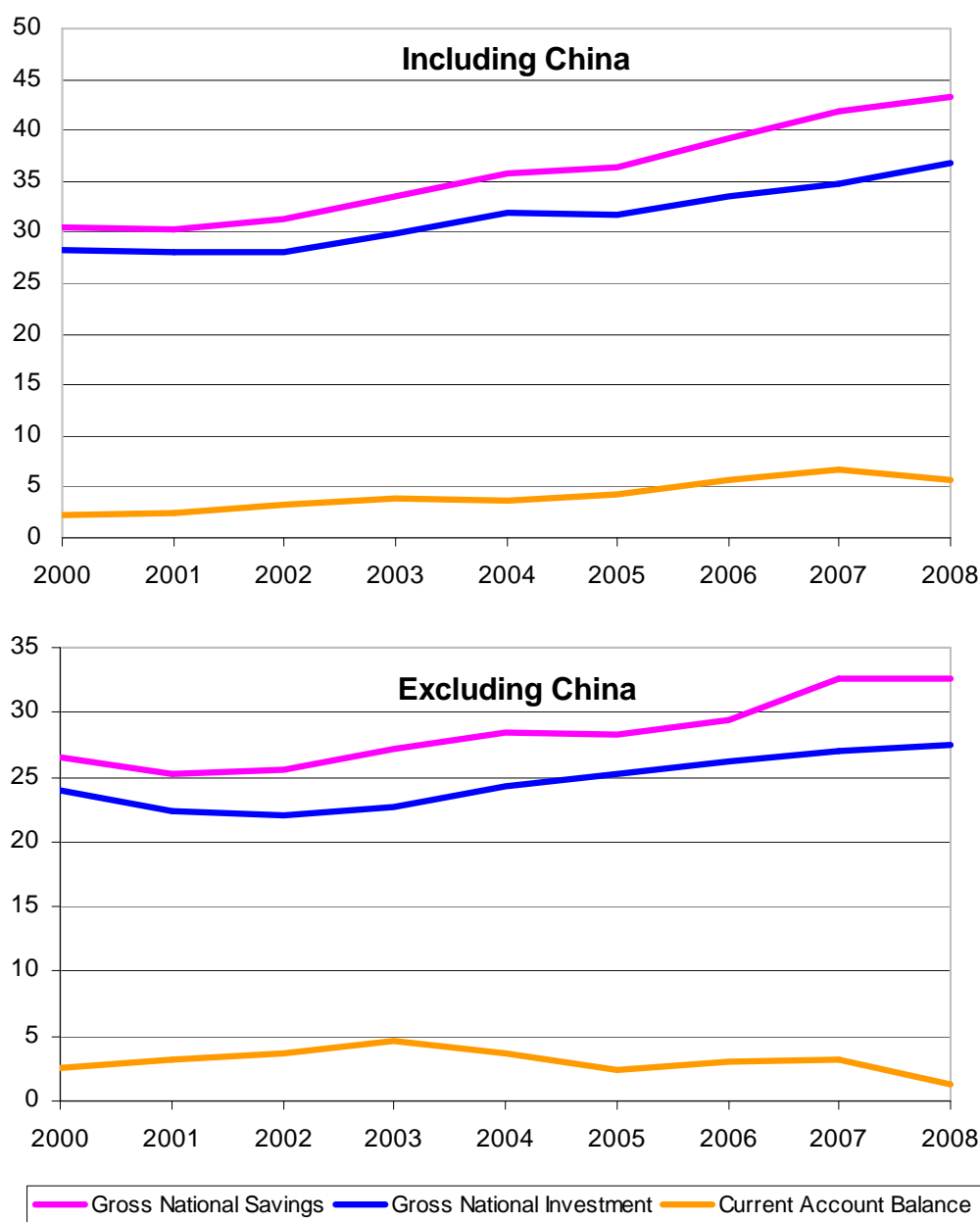
Source: CEIC, ADB and author's calculations.

Note: This figure shows aggregate savings, investment and current account balances for fifteen developing Asian economies, expressed as ratios of the aggregate nominal GDP (in a common currency, at market exchange rates) for that group of economies. The fifteen economies are as follows: Bangladesh, Cambodia, China, Hong Kong, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, and Vietnam. Gross national investment for China is calculated as a residual, based on current account and gross national savings data. This yields China's investment slightly lower than the gross national investment data directly from the national income accounts.

Figure 2. Aggregate Current Account and Trade Balances for Developing Asia
(billions of US dollars)

Current Account Balance for Region

Trade Balance for Region

Including China --- Excluding China
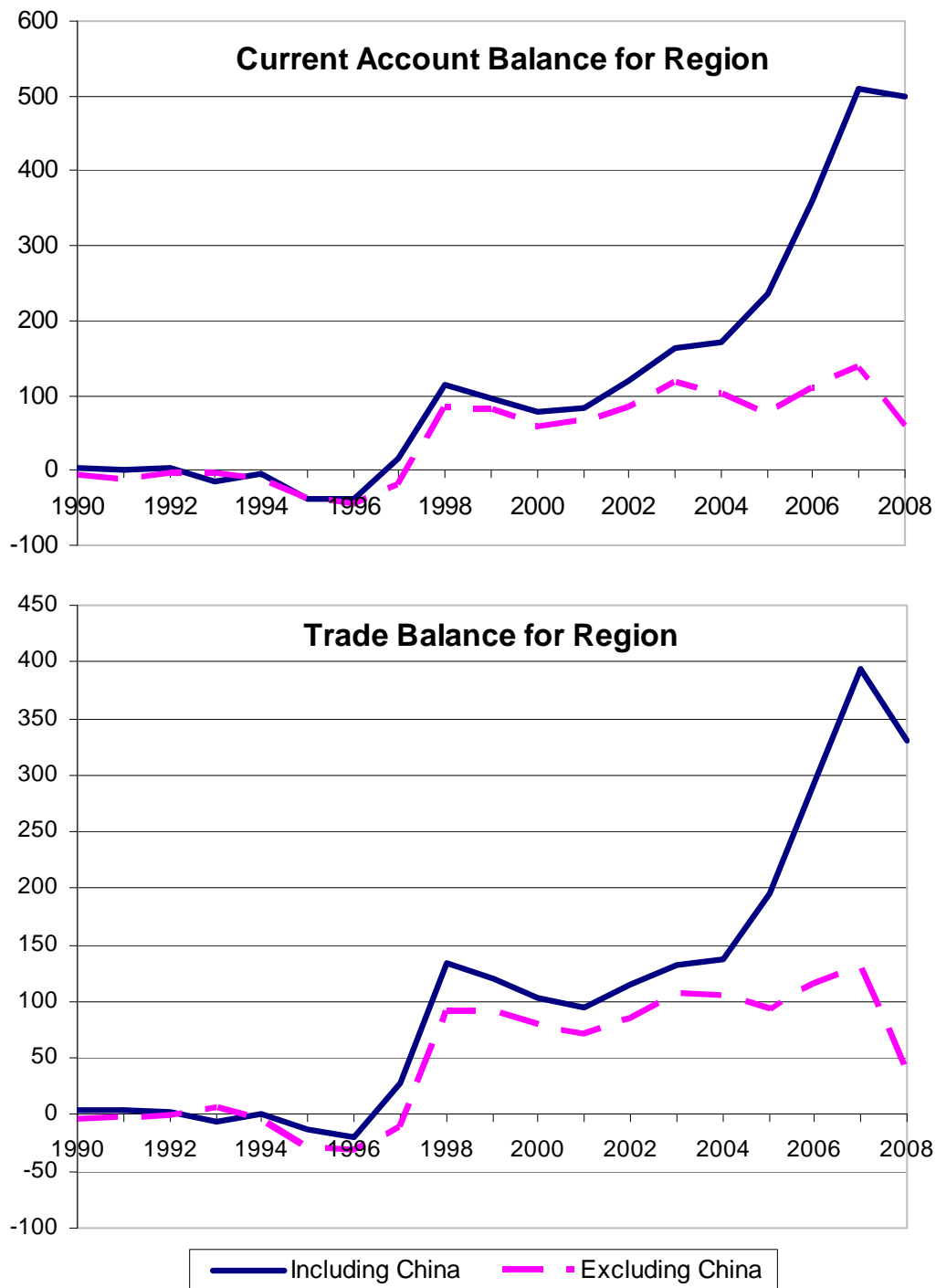
Source: IMF's WEO, CEIC and author's calculations.
Note: Developing Asia includes Bangladesh, Cambodia, China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan Province of China, Thailand, and Vietnam. For the trade balance, its 2006 and 2007 numbers do not include Bangladesh, and 2008 number does not include Bangladesh, Cambodia, Sri Lanka, and Vietnam, due to lack of data.

Figure 3. Savings-Investment Balances
(in percent of GDP)
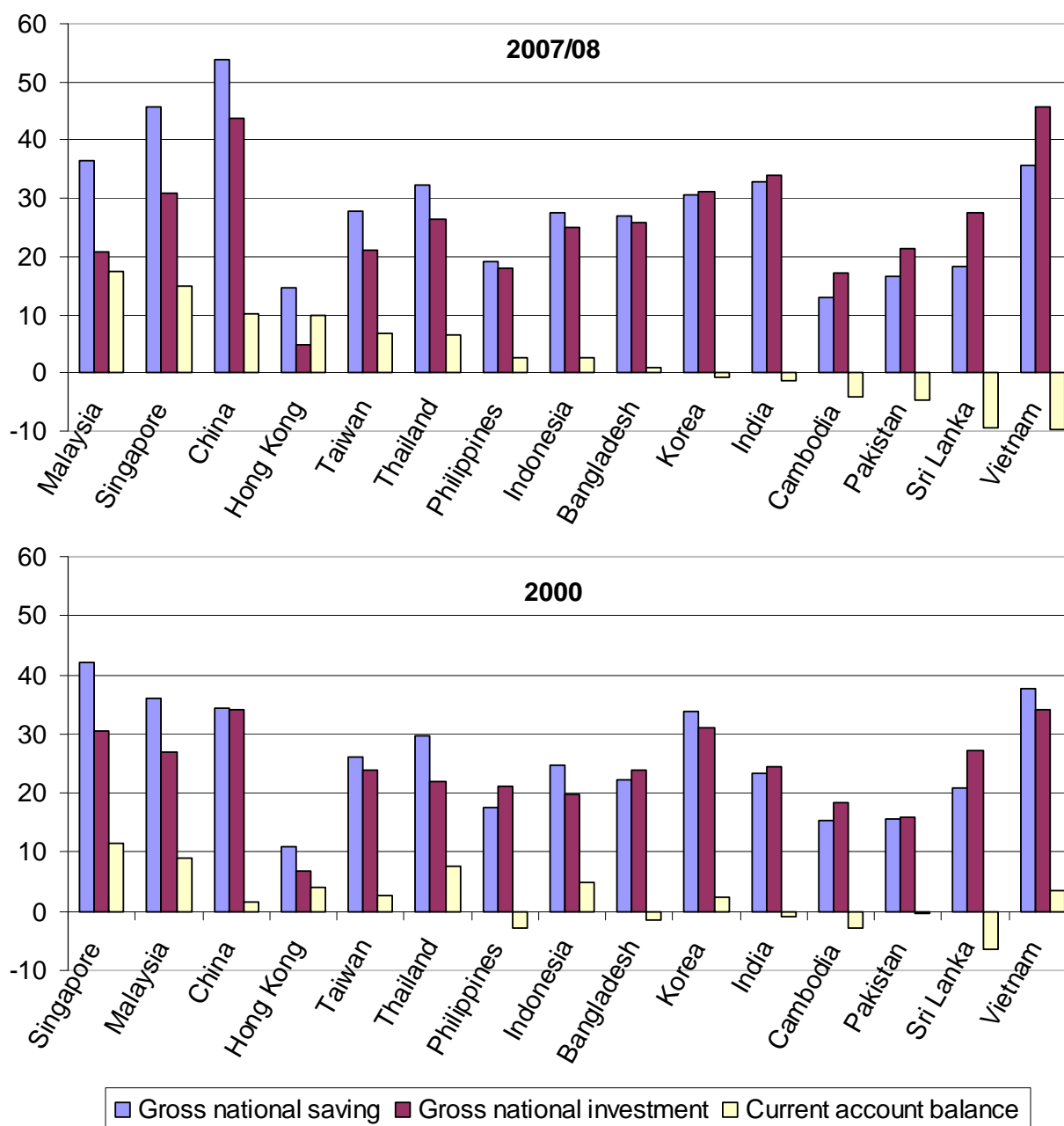
Source: CEIC and author's calculations.

Note: In both panels, the countries are sorted by decreasing order of current account balances in 2007 (as a percent of GDP). The upper panel data are 2005 for Cambodia, 2006 for Sri Lanka, 2008 for China (estimated), Hong Kong, India, Korea, Malaysia, Philippines, Singapore, Sri Lanka, and Taiwan, and 2007 for all the other countries.

Figure 4. Components of National Savings Rates
(in percent of GDP)

Latest Year

(x-axis: China 2008, India 2008, Korea 2007/8, Philippines 2008, Taiwan 2007, Thailand 2007)

2000

(x-axis: China, India, Korea, Philippines, Taiwan, Thailand)

☐ Household savings   ☐ Corporate savings   ☐ Government savings   ☐ Unallocated savings
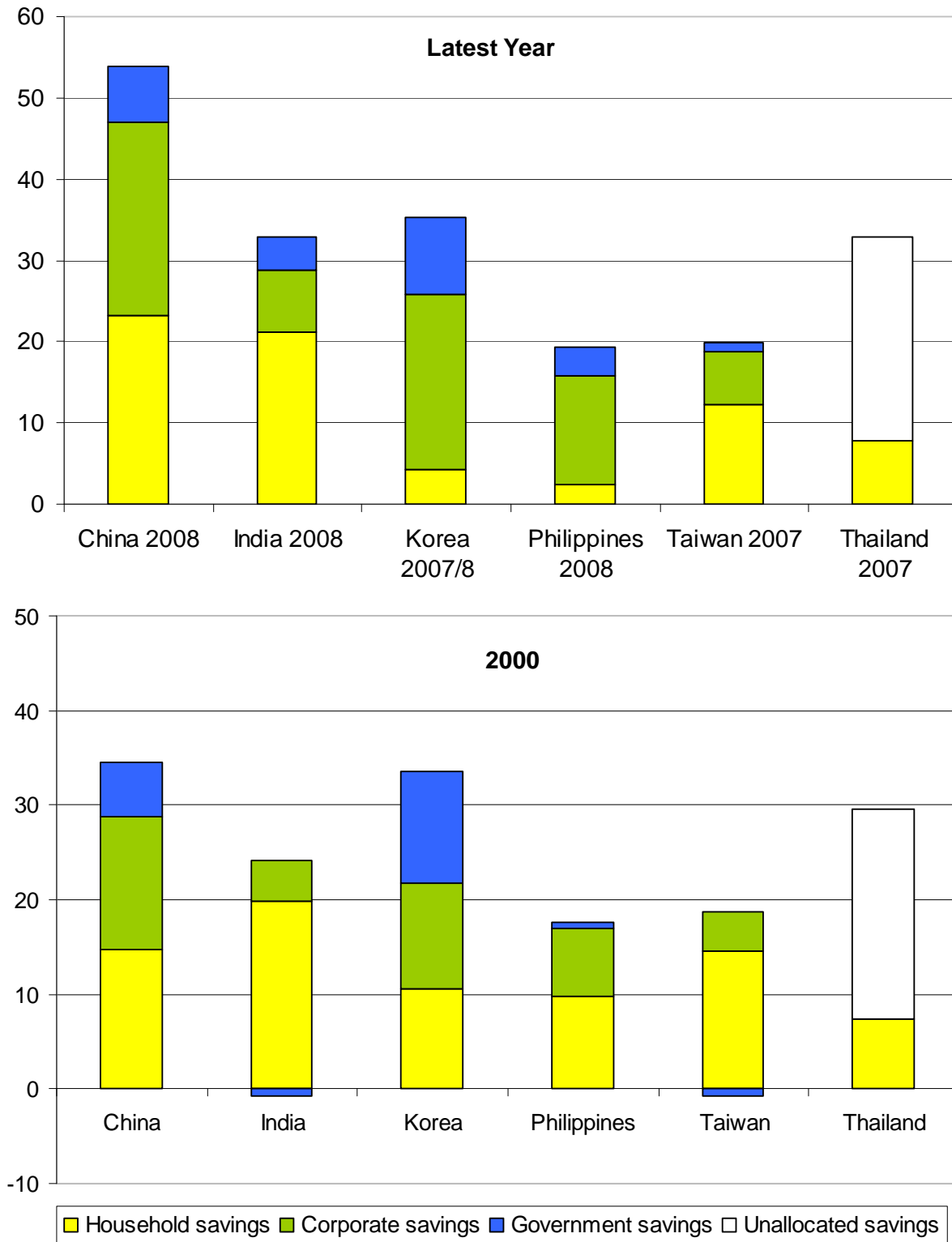
Source: CEIC, ADB and author's calculations.
Note: Korea's household saving rate is for 2007. The numbers for China for 2008 are based on the author's estimates.

Figure 5. Composition of Savings in Selected Asian Economies (in percent of GDP)
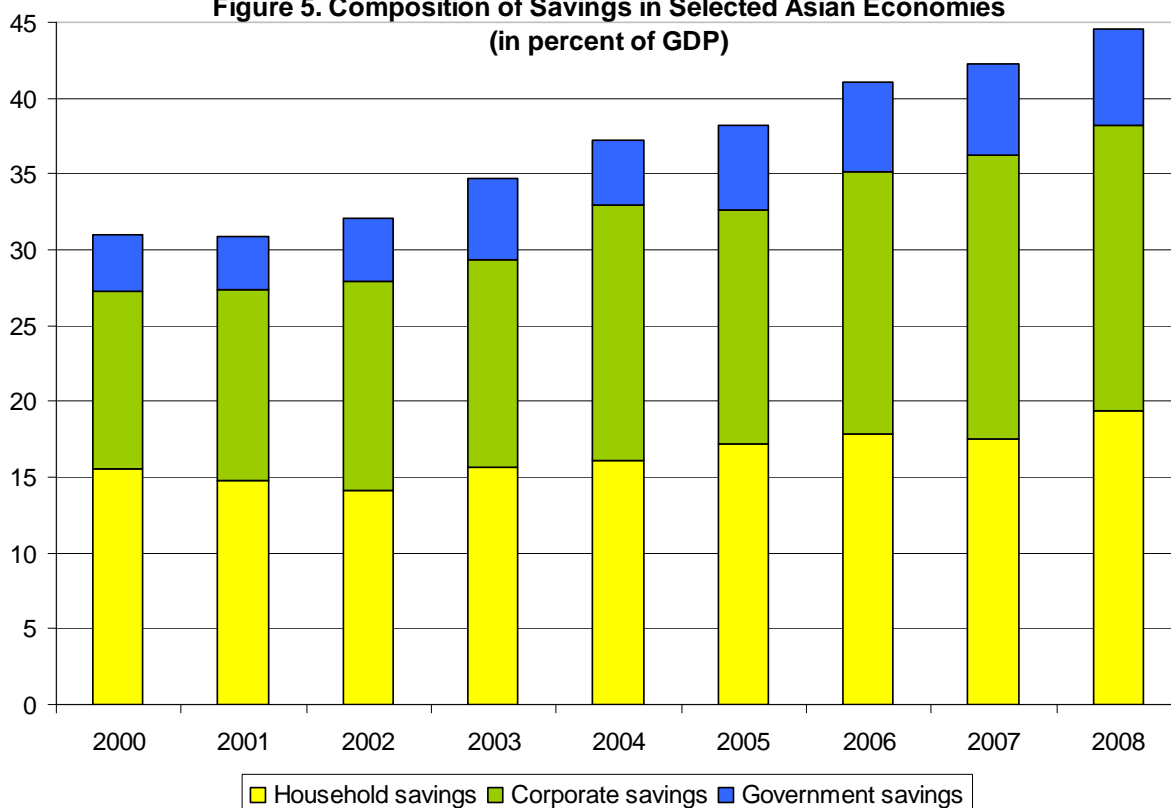
Source: CEIC, ADB and author's calculations.

Notes: This figure shows the composition of aggregate savings among a group of five Asian developing economies for which this breakdown was available on a consistent basis. The five economies are China, India, Korea, Philippines, and Taiwan. Savings in each category were expressed in a common currency (converted at market exchange rates), added up across the five economies, and then expressed as a ratio of aggregate nominal GDP in the five economies (also in the same common currency, converted at market exchange rates). The composition of China's savings for 2006-08 is based on the author's estimates. Korea's household savings and Taiwan's savings in 2008 are kept at the same levels they were at in 2007.

Figure 6. Composition of National Saving
(in percent of GDP)
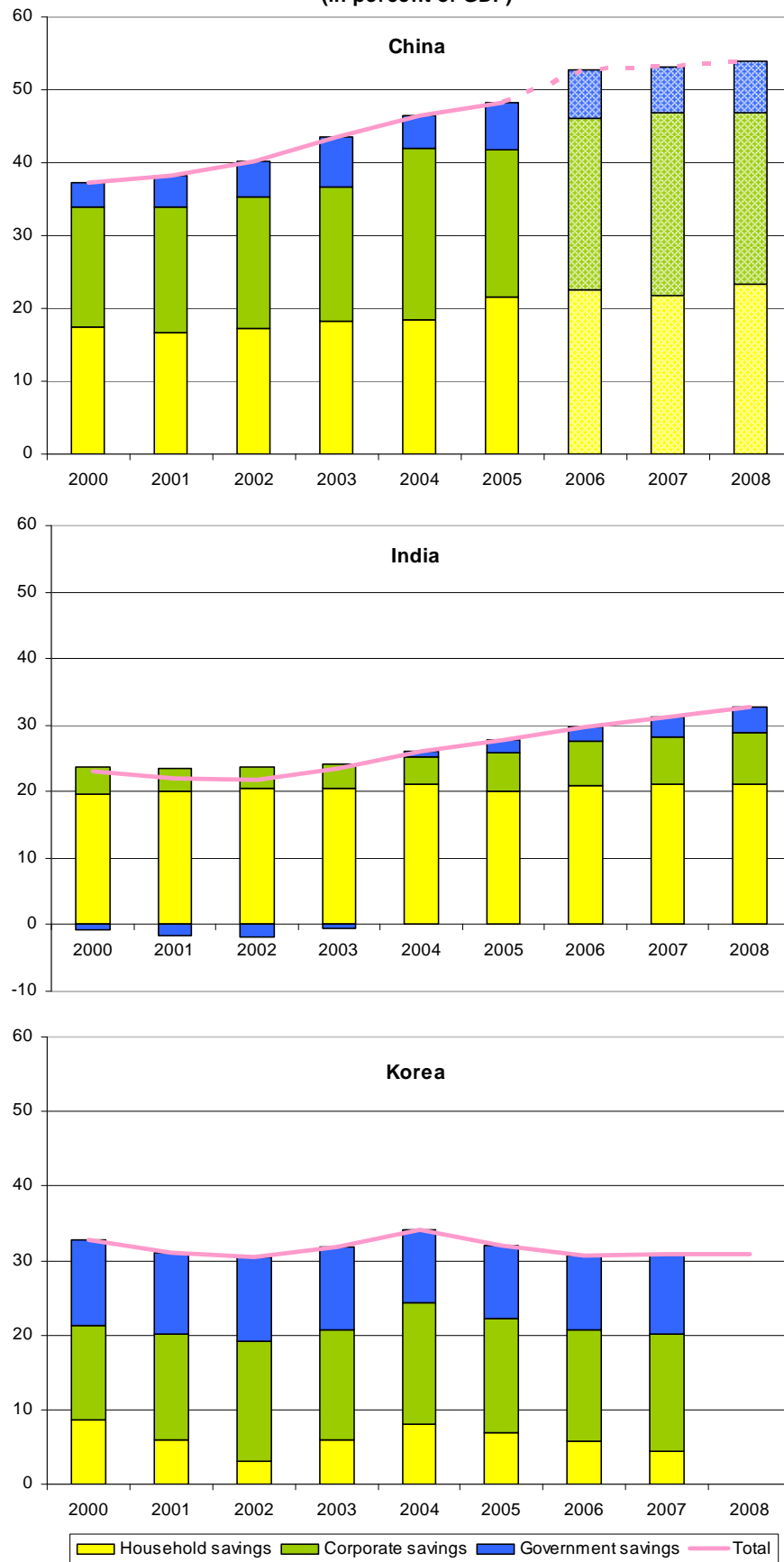
Source: CEIC, ADB and author's calculations.

Figure 7. Household Saving Rates
(as percent of household disposable income)
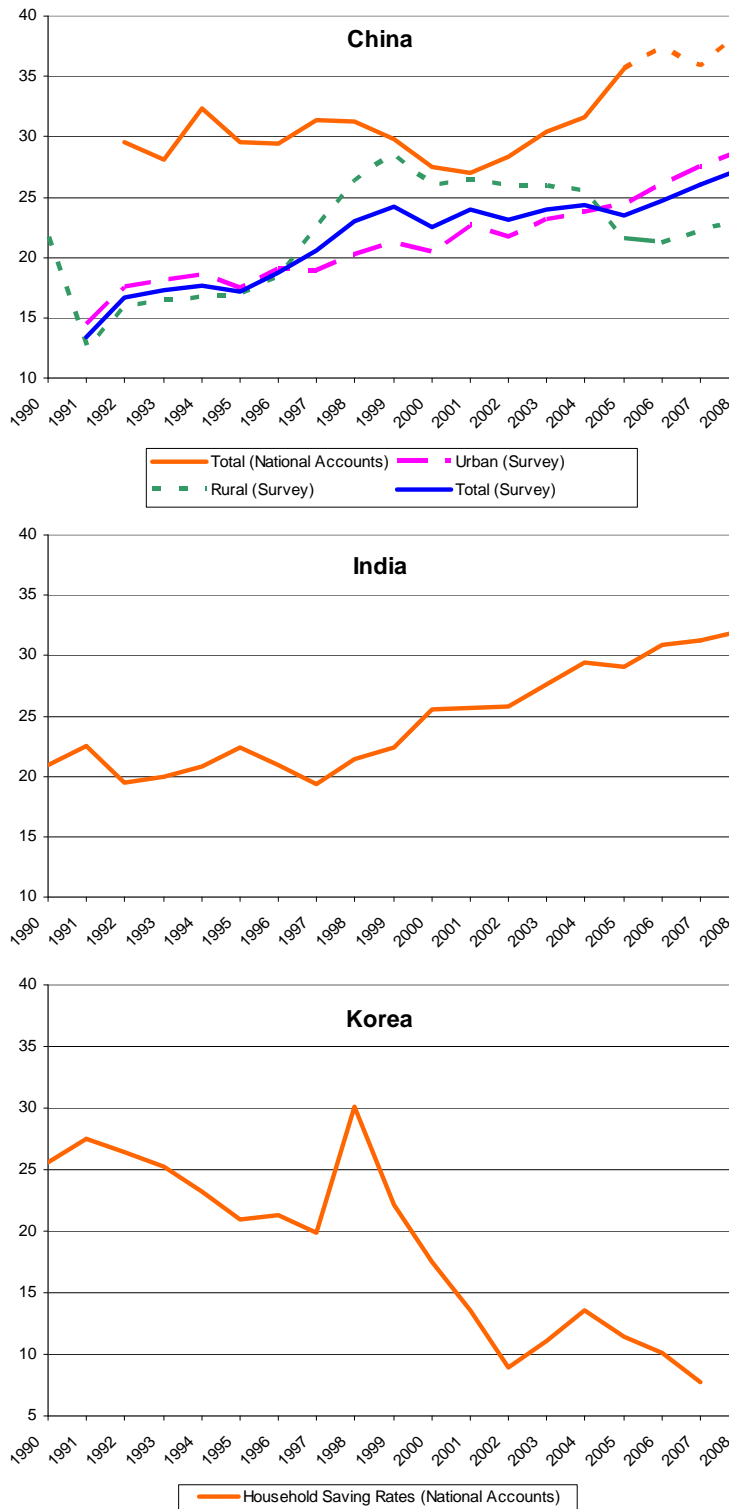
Source: CEIC and author's calculations.
Notes: China's household savings survey data are based on per capita income and
consumption, and population available through CEIC. Saving rates from the Urban
and Rural Household Surveys are expressed as a share of disposable income and
net income respectively. Data for Urban and Total are absent for 1990. Saving rates
from National Accounts (Flow of Funds) are expressed as a share of disposable
income, the data are absent for 1990-1991, and based on the author's estimates for
2006-08. India's income data is from personal disposable income; Korea's income
is from national disposable income: household and private unincorporated
enterprises.

Figure 7a. India: Breakdown of Household Savings by Type of Saving Instrument, 2008
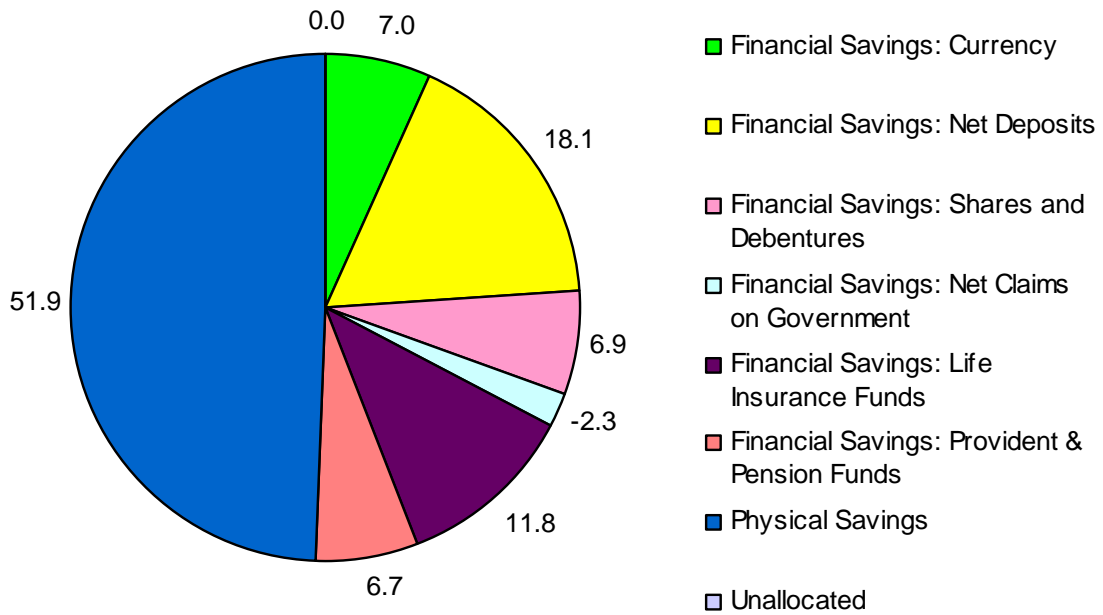
Source: CEIC and author's calculations.

Note: This chart shows the breakdown of gross domestic savings of households in India for 2008.

Figure 8. Saving Rate and Share of Total Savings by Income Quintile

Saving Rate

Cumulative Share of Total Savings

Income Decile

1995   2000   2005
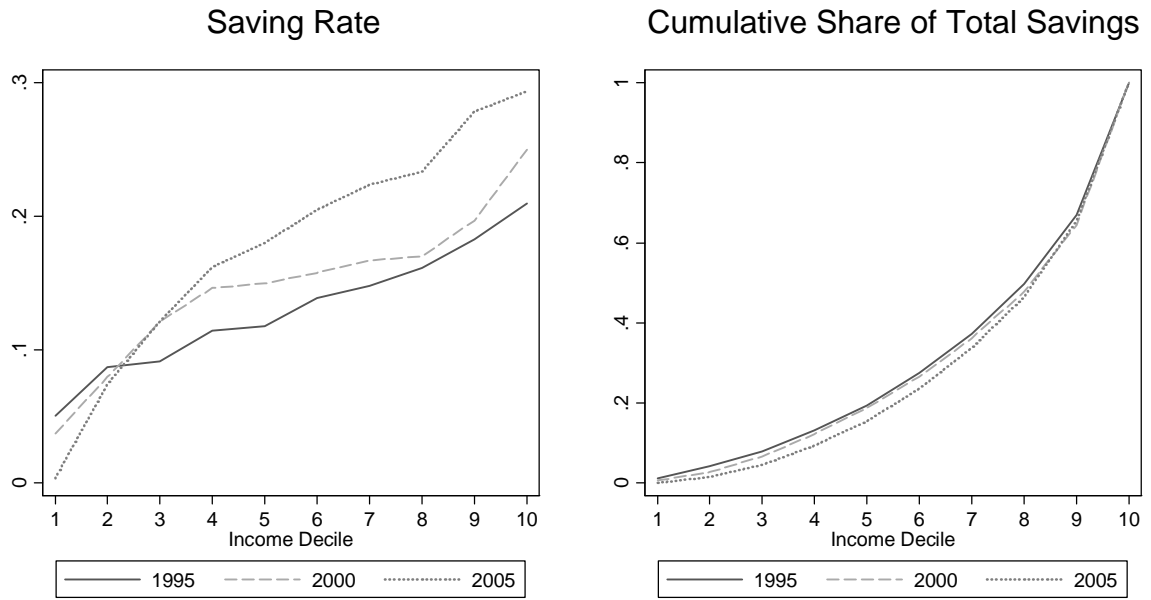
Figure 9. Average Saving Rates by Age of Head of Household

(Saving Rate = 1 − Consumption/Disposable Income)
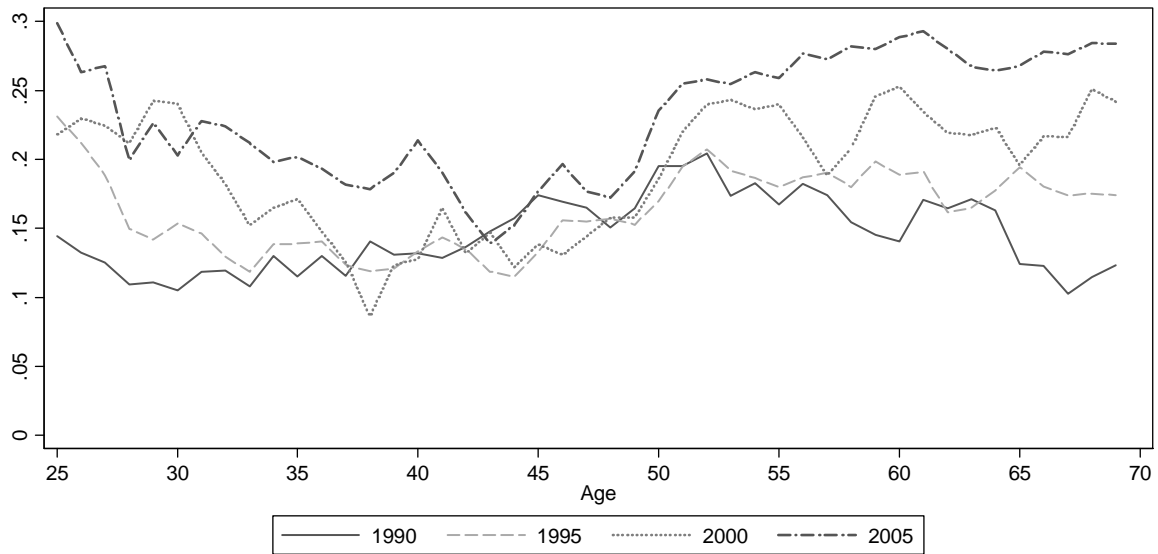
Note: Income and consumption profiles were smoothed by a 3-year moving average (the averages for each age were combined with those for the ages immediately above and below).

Figure 10. Age, Cohort, and Year Effects on Income, Consumption, and Saving Rates
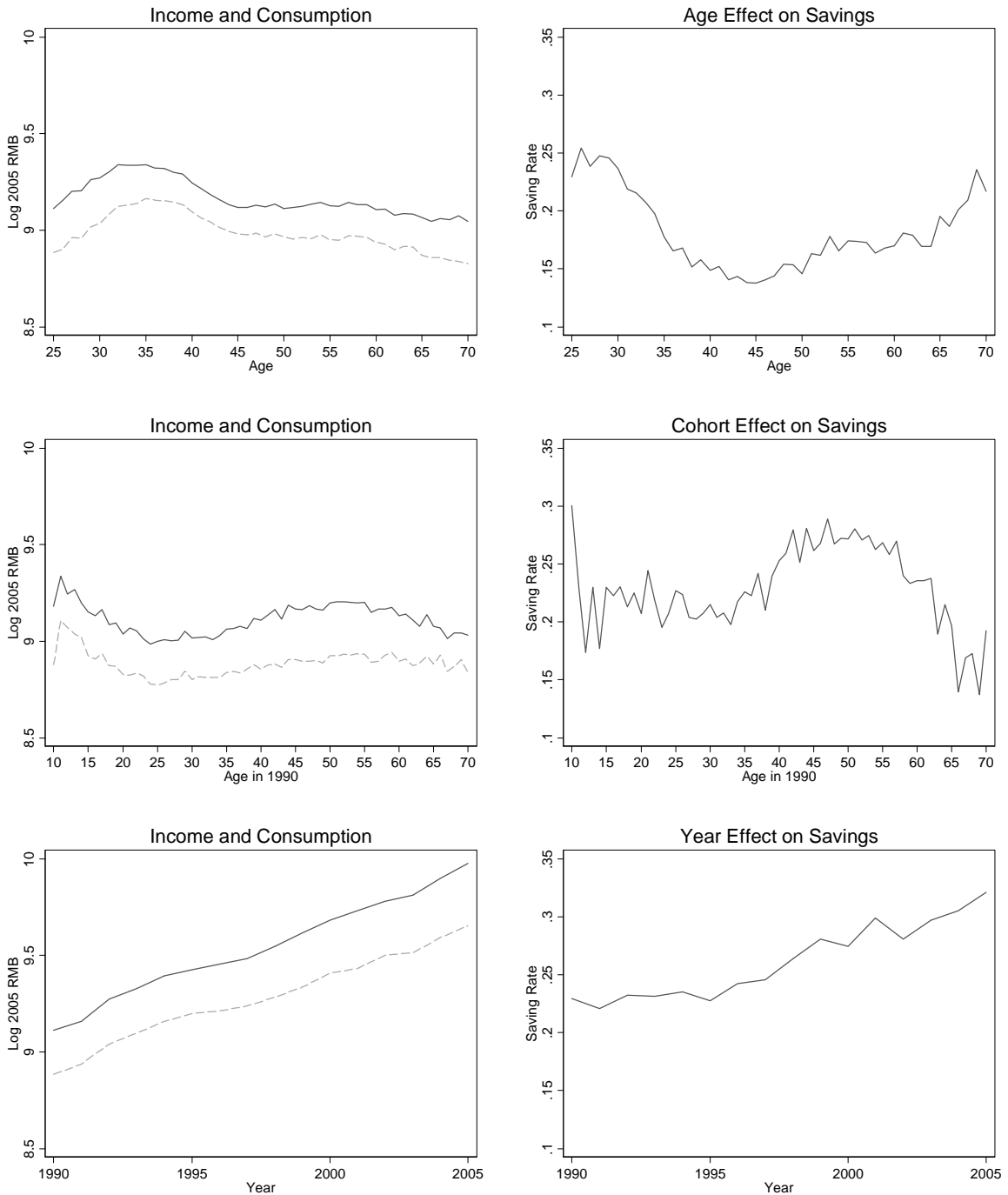
Note: Effects based on a regression of average log(Y) and log(C) on a vector of age, cohort dummies and time dummies. Cohort dummies constrained to add to zero and be orthogonal to a linear trend. Log(Household Size), and share of household members aged 0-4, 5-9, 10-14, 15-19 and 20+ used as controls. Reference household is one that was 25 years old in 1990. Each profile displayed holds the other two effects constant at their respective levels for the baseline household. For example, the age profile shows how income, consumption, and savings vary with age holding the cohort effect constant at its level for households aged 25 in 1990, and the year effect constant at its 1990 level.

Figure 11. Age Distribution of the Chinese Population: Estimates and Projections
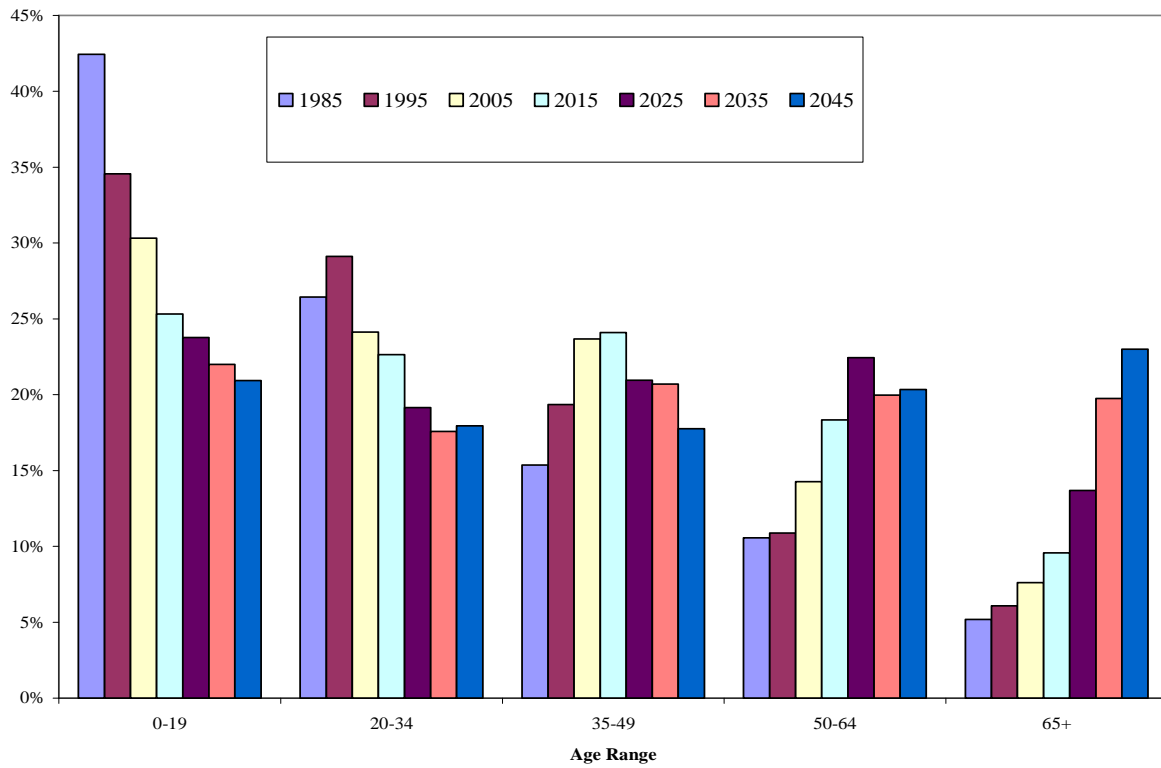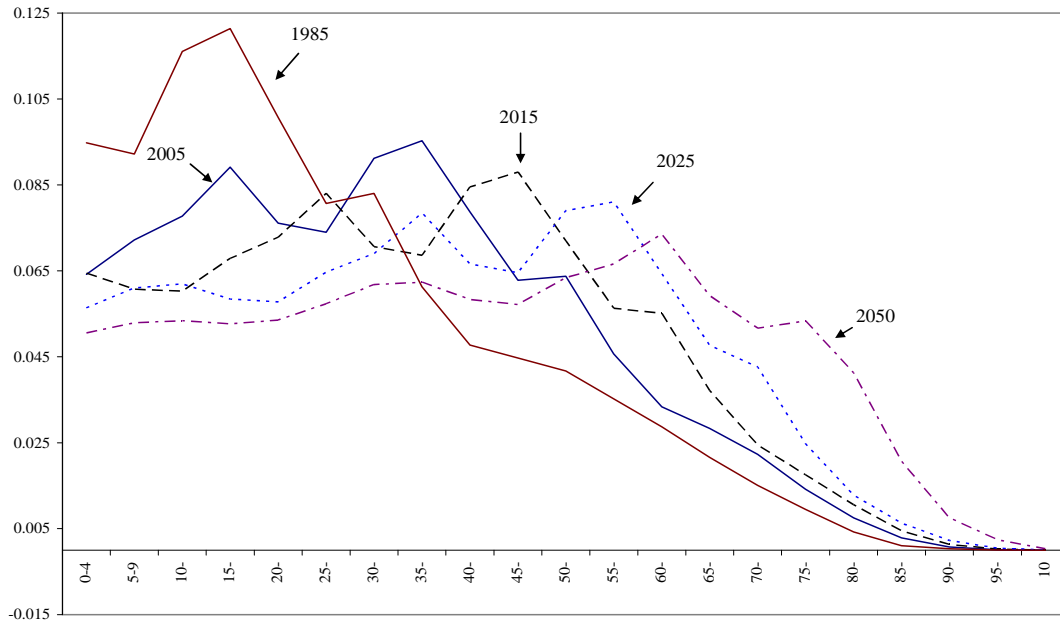
Source: U.N. Population Division.

Figure 12. China's Government Expenditure
(in percent of GDP)
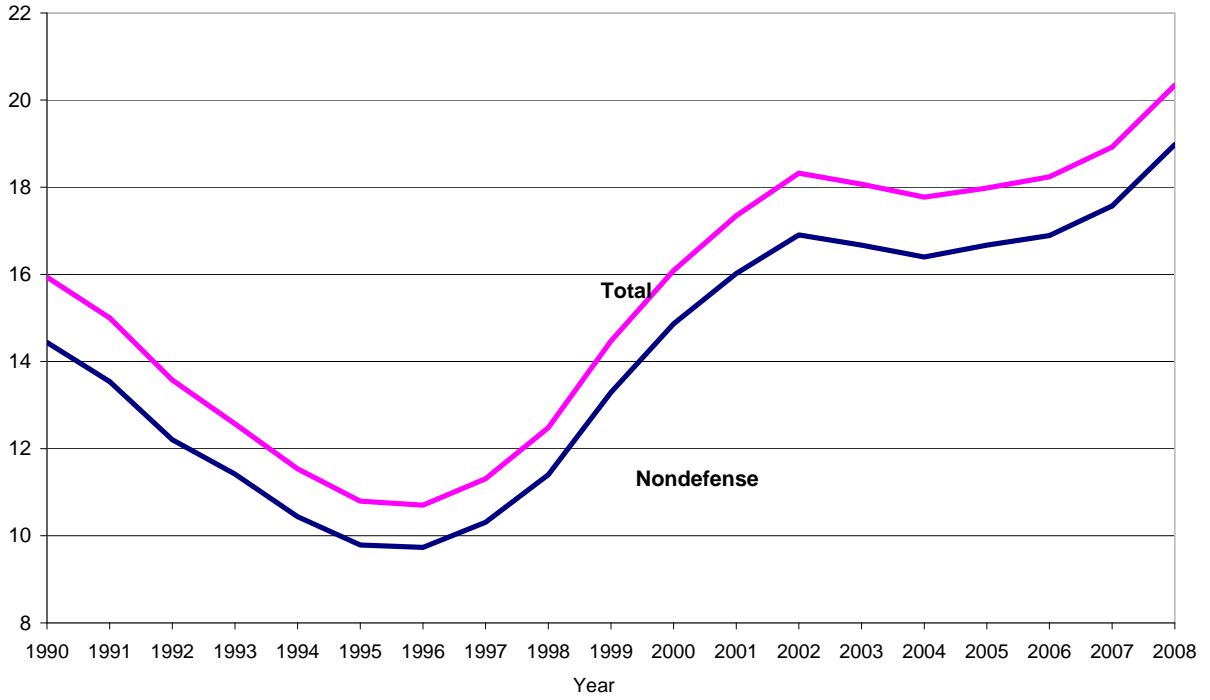
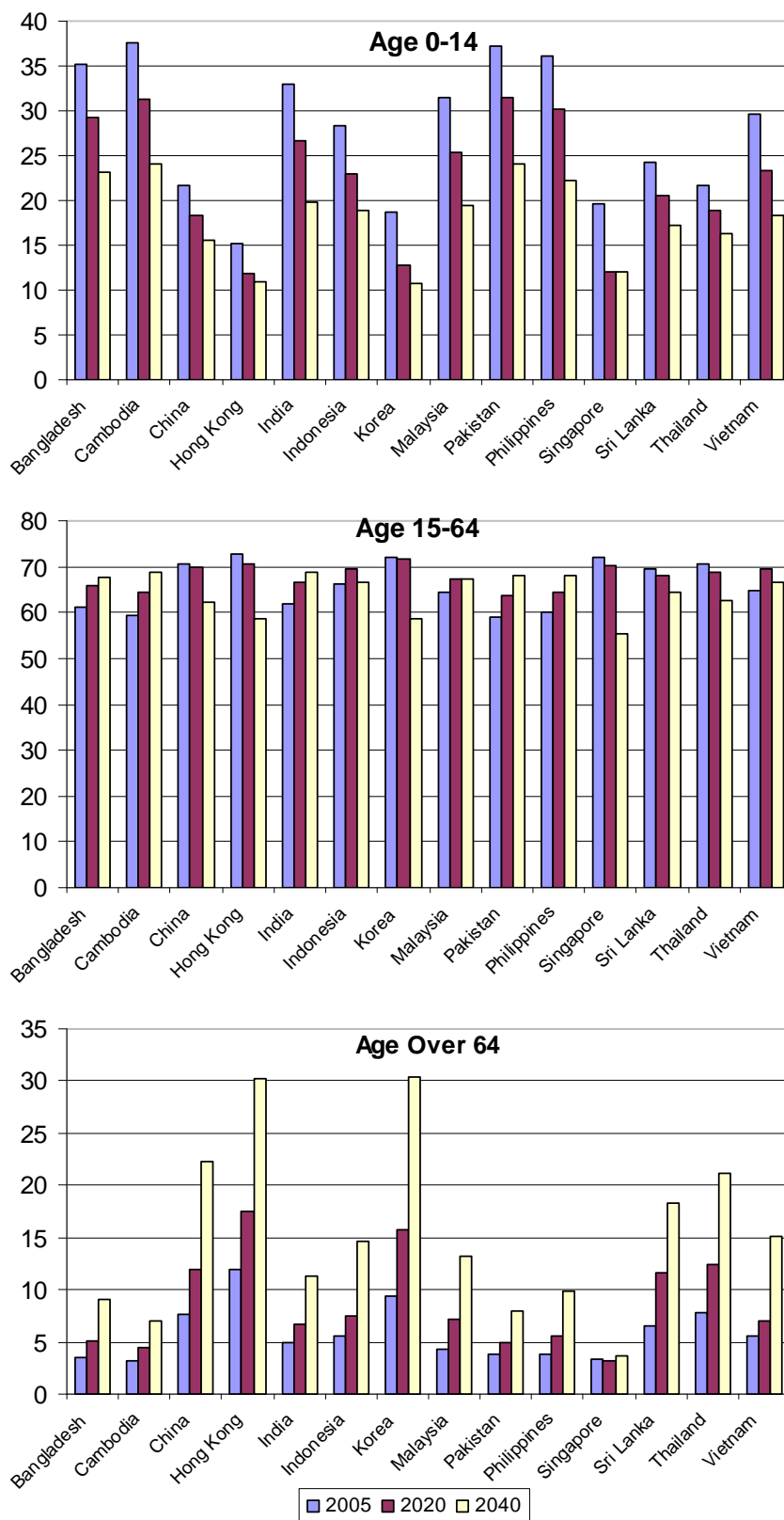Source: CEIC and author's calculations.

Figure 13. China Government Expenditure Components
(in percent of total government expenditure)
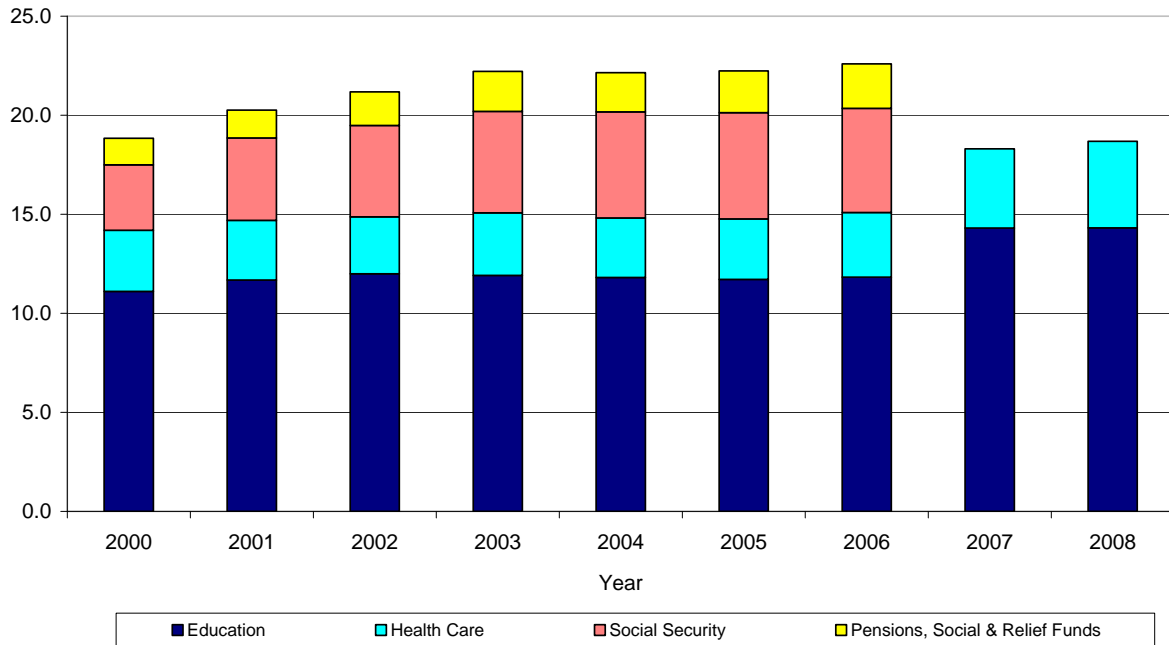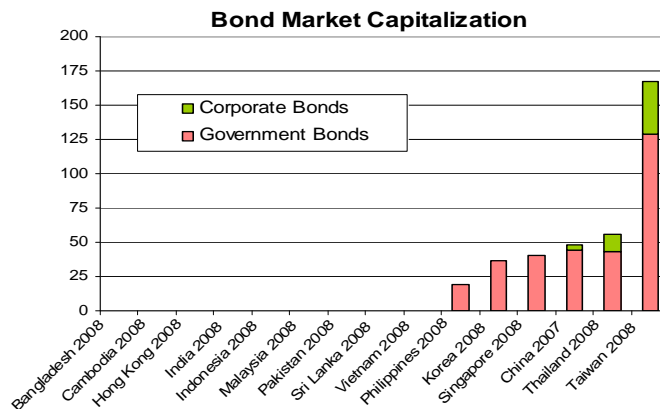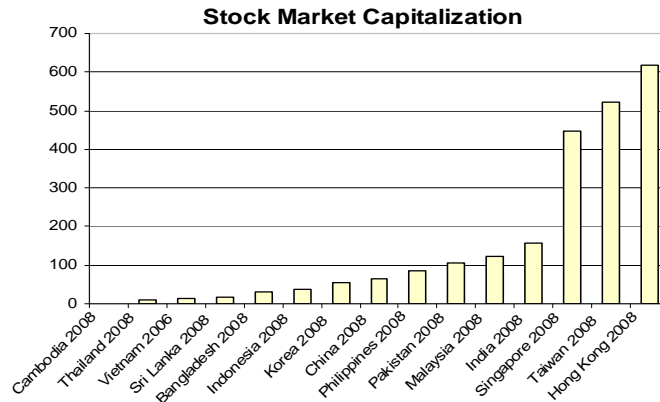

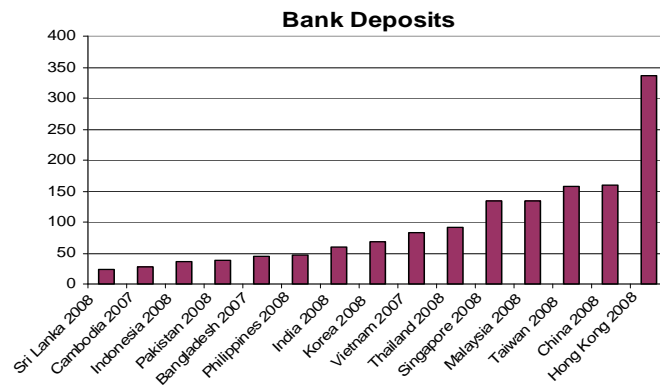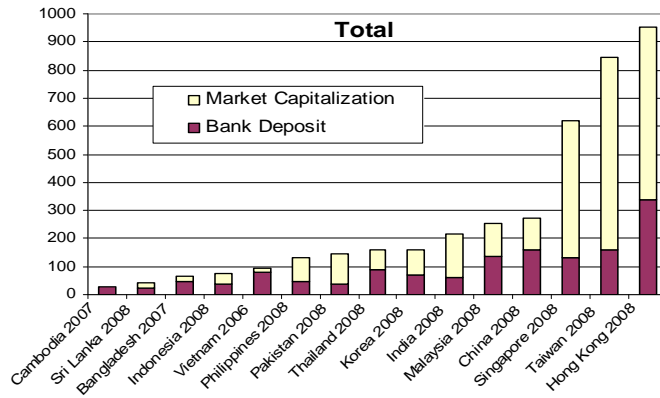Source: CEIC and author's calculations.
Note: Government expenditure on social security and on pensions, social and relief funds are absent for 2007 and 2008.

Figure 14. Demographic Projections
(shares of dependent and working-age populations in total population, in percent)

Age 0-14

Age 15-64

Age Over 64

Legend: 2005, 2020, 2040

Source: World Population Prospects, The 2006 Revision, United Nations Population Division.

Figure 15. Bank Deposits, Stock and Bond Market Capitalization
(in percent of GDP, latest year)

Source: CEIC and author's calculations.
Note: Limited bond market capitalization data are available, and here government bonds include Treasury bills and other public bonds. Singapore's corporate bond data is from 2007.