Rebalancing Growth in Asia[*]

Eswar S. Prasad

Cornell University, Brookings Institution and NBER

Abstract

While many Asian emerging markets now run current account surpluses, reducing Asia's overall excess savings is largely about modifying growth patterns and saving–investment balances in China. China accounts for about half of the total GDP in Asia ex-Japan but over two-thirds of the region's total savings and current account surplus. One feature shared by all Asian economies is the surge in corporate savings over the past decade. Household saving rates, by contrast, have increased in China and India but declined sharply in Korea. Contrary to the popular characterization of China as relying on export-led growth, GDP growth in China has been dominated by investment growth. A comparative analysis reveals that China's growth model has resulted in its having the lowest share of private consumption to GDP in the region and the lowest rate of employment growth relative to GDP growth.

I. Introduction

Rebalancing growth in emerging 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. 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 United States 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.

The objective of this paper is to examine the sources and implications of Asia's contribution to global macroeconomic imbalances. This in turn requires a characterization of growth patterns. In Section II of this paper, I provide an empirical characterization of the recent growth patterns in the main emerging market economies and a few less developed economies in the Asian region. 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? I find that a majority of Asian economies have recorded positive contributions of net exports to growth during this decade but the absolute magnitudes are not large. Over the period 2000–09, net exports have on average contributed about 1.2–2.3 percentage points to GDP growth in Hong Kong, Singapore and Taiwan. For China, this contribution has averaged only 1.1 percentage points relative to an average annual GDP growth of about 10%, even though exports themselves have climbed from 21% to 28% of GDP over this period.

One striking finding in this paper is that, contrary to the perception of China as depending on export-led growth, it is in fact investment that has dominated Chinese growth over the past decade. Net exports have made a significant contribution to growth only starting in the mid-2000s. This growth pattern has resulted in the share of private consumption in China's overall GDP declining to about one-third (the lowest in the sample of Asian countries), and employment growth amounting to an anaemic 1% per year despite strong GDP growth. India and Vietnam also have relatively high contributions of investment growth to GDP growth. These two countries also register the highest GDP growth rates among 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 of these growth patterns by examining the evolutions of national savings and investment. Savings have increased across the board in the region, driven by an increase in corporate savings. I find that corporate savings now

constitute the largest component of national savings in the Asian region. Trends in household saving rates are less uniform across countries. I show that, in China and India, household saving rates have continued to increase (as a share of household disposable income) while in Korea they have declined sharply. In China, the increase in savings has exceeded that of investment, leading to an increasing current account surplus. India's saving and investment rates have increased in tandem, keeping the current account in deficit but at a low level relative to GDP. In terms of sheer magnitudes, China's current account surplus now dominates the region's overall current account surplus.

In Section IV, I use the results from the previous section to anchor an analytical overview of the relative importance of the different forces that could affect household saving and consumption behaviour. 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 and cultural factors; habit persistence; precautionary savings; and 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 increased by 11 percentage points, to about 28% 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 (that is, a U-shaped age-saving profile rather than the normal hump-shaped one). I draw upon my joint research with Marcos Chamon (Chamon and Prasad 2010) to argue that these patterns are best explained by the increasing 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 the possible reasons for the growth patterns documented in this paper and analyse 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 is also tied to the effects of policies on investment rates and, hence, on current account balances. I conclude the paper in Section VII with a summary of the main findings and a discussion of policy implications.

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, South Korea and Singapore. The macroeconomic data used in this paper are mostly at an annual frequency and are taken from 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 China. To provide a comparative perspective, I will also discuss results from other micro data-based papers on household savings in Asia.

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 2009. The median share of private (household) consumption in Asian countries' GDP has declined from 66% in 1995 to 60% in 2009. The shares of government consumption and investment have remained relatively stable. The huge shift has been in net exports, which went from a median share of minus 6% in 1995 to 7.5% in 2009.

Among the major Asian economies, the most dramatic shift in the share of private consumption is recorded by China, where its share in GDP declined from 46% in 2000 to 35% in 2009. 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 increased markedly from 2000 to 2009 – by about 8 and 6 percentage points, respectively. There is a significant decline in the share of private consumption in India's GDP as well – the share declined from 64% in 2000 to 60% in 2009. Investment took up the slack and also compensated for the increase in the trade deficit as a share of GDP.[1] 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 increase with income levels, there does seem to be a positive correlation between per capita income levels and the share of private consumption in

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[1]For more on India's growth patterns, see Basu and Maertens (2007) and Bosworth et al. (2007).

Table 1: Shares of Real GDP (in %)

Country	1995 Consumption Private	Government	Investment	Net exports	2000 Consumption Private	Government	Investment	Net exports	2009 Consumption Private	Government	Investment	Net exports
Bangladesh	84.5	4.6	18.9	− 6.4	73.1	4.2	23.8	− 3.8	66.1	5.2	27.0	− 0.8
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	61.7	8.4	20.0	8.2
India	66.3	11.1	24.6	− 1.5	64.2	12.9	25.9	− 1.9	59.5	11.5	34.9	− 6.1
Indonesia	–	–	–	–	61.7	6.5	22.2	10.5	57.4	9.0	23.4	10.3
Korea	57.9	12.7	38.5	− 8.8	54.0	12.1	31.0	3.2	53.0	15.1	24.1	7.5
Malaysia	–	–	–	–	43.8	10.2	26.9	19.2	53.7	14.5	17.4	14.4
Pakistan	–	–	–	–	75.4	8.6	17.2	− 1.2	69.6	11.0	16.0	1.9
Philippines	77.7	8.2	23.3	− 10.5	77.3	8.2	24.6	− 4.6	80.3	7.1	16.1	− 2.6
Singapore	42.3	8.4	33.2	15.6	42.2	10.8	33.3	13.6	39.7	11.4	28.1	22.6
Sri Lanka	74.1	10.5	24.2	− 8.9	72.1	10.5	28.0	− 10.6	64.3	17.6	23.8	− 6.5
Taiwan	59.8	16.2	22.4	1.0	60.4	13.9	23.1	2.7	58.2	12.2	16.8	14.1
Thailand	54.4	7.9	43.5	− 5.4	54.0	9.2	20.7	14.9	52.7	10.0	20.5	18.4
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	59.5	11.0	23.4	7.5
All excluding China	67.3	9.3	25.9	− 7.6	65.1	9.7	25.0	− 1.4	60.6	10.5	22.1	4.7
Asian emerging markets	58.9	10.7	30.5	− 3.4	60.4	10.2	25.4	2.7	57.4	11.4	20.5	8.2
Asian developing countries	74.1	8.2	24.2	− 8.9	72.6	5.9	25.9	− 7.2	67.1	5.9	25.4	− 8.0
International comparisons												
Germany	59.5	19.6	22.1	− 0.9	58.9	19.0	21.8	0.4	58.0	20.0	17.9	3.9
Japan	56.7	15.5	27.7	0.4	56.2	16.9	25.5	1.5	58.1	18.7	19.7	3.0
United States	67.7	16.2	17.2	− 0.9	68.7	14.4	20.8	− 3.9	71.1	16.4	15.2	− 2.7

Note: GDP contribution shares (in percentage points) for China and Vietnam are 2008 instead of 2009, Cambodia are 2005 instead of 2009, for Indonesia, Malaysia and Pakistan are 2001 instead of 2000, for Sri Lanka are 1996 instead of 1995. The unweighted medians are the cross-sectional medians of the data in the respective columns.
Source: CEIC, IMF's WEO and author's calculations.

GDP, with countries like Bangladesh, Cambodia, Pakistan, the Philippines and Vietnam having relatively high consumption ratios, higher than two-thirds of GDP.

Table 2 shows the average GDP growth rates over the period 2000–09 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; hence, consumption growth usually tends to track the overall GDP growth. On average, the total consumption growth (private and public) contributes about 3.6 percentage points to GDP growth, relative to the median GDP growth in the sample of about 4.9% per annum.[2] 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 at most half 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 below one-third, lower than in any other economy in the sample. Malaysia and Sri Lanka are at the other extreme, with consumption growth contributing more than nine-tenths of GDP growth.

What is the relative importance of private versus government consumption in driving GDP growth? Private consumption growth dominates the 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 percentage point of GDP growth. China, India and Vietnam all receive high contributions from investment growth, nearly 5 percentage points per annum in the case of China and 4% 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

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

Table 2: Contributions to Growth and Employment Growth, 2000–09 (in %)

Country	GDP growth	GDP growth contributions					Employ-ment growth
		Consumption			Invest-ment	Net exports	
		Total	Private	Govern-ment			
Bangladesh	5.8	3.6	3.2	0.4	1.9	0.2	3.3
Cambodia	9.2	6.9	6.7	0.2	2.5	− 0.5	5.7
China	10.2	4.1	2.8	1.3	5.0	1.1	0.9
Hong Kong	4.2	2.1	1.9	0.2	0.5	1.2	1.1
India	8.4	6.0	5.0	1.0	3.6	− 1.4	1.9
Indonesia	5.1	3.2	2.6	0.7	1.5	0.5	1.7
Korea	4.4	2.8	2.2	0.6	0.7	0.8	1.7
Malaysia	4.3	4.2	3.1	1.0	− 0.1	0.2	2.1
Pakistan	4.7	3.5	2.8	0.7	0.8	0.4	3.1
Philippines	4.6	3.9	3.7	0.2	0.4	0.5	2.3
Singapore	4.9	2.6	1.9	0.6	0.9	1.6	3.8
Sri Lanka	5.2	4.8	3.8	1.0	1.3	− 0.8	1.9
Taiwan	3.4	1.7	1.5	0.1	− 0.4	2.3	0.9
Thailand	4.1	2.5	2.1	0.4	1.0	0.7	1.6
Vietnam	7.3	5.3	4.8	0.5	4.3	− 2.4	2.3
Unweighted medians							
All countries	4.9	3.6	2.8	0.6	1.0	0.5	1.9
All excluding China	4.8	3.5	3.0	0.6	1.0	0.4	2.0
Asian emerging markets	4.6	3.2	2.6	0.6	0.8	0.7	1.7
Asian developing countries	6.5	5.0	4.3	0.4	2.2	− 0.7	2.8
International comparisons							
Germany	0.8	0.5	0.3	0.2	− 0.2	0.5	0.4
Japan	1.5	1.0	0.6	0.4	0.2	0.5	− 0.3
United States	1.9	2.0	1.7	0.3	− 0.1	0.0	0.3

Note: GDP growth rates (in %) are annual averages over the period 2000–09. GDP growth contributions (in percentage points) are averages over the same period, except for Cambodia (2000–05), Indonesia and Malaysia and Pakistan (2001–09). 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. Sri Lanka and Vietnam cover only 2000–08. Investment includes private and public investment. Employment growth rates (in %) are also annual averages over the period 2000–09, 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. The unweighted medians are the cross-sectional medians of the data in the respective columns.
Source: CEIC, IMF's WEO, ADB, and author's calculations.

foreign capital (as we will see later, China now runs a large current account surplus while India and Vietnam have deficits).

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 (0.5 percentage points) of the overall GDP growth among the countries in the region. But this conceals a wide disparity across countries. For four of the 15 economies in the sample (China, Hong Kong, Singapore and Taiwan), net exports contributed 1 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 2000–09, which is about one-tenth of the 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.

A. *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 2000–09 was about 2%. 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% per annum, was only about one-tenth the pace of output growth.[3]

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, which has a high level of unemployment and under-employment. This is a subtle issue, however, as high output growth and low employment growth together imply a high rate of labour productivity growth. This is certainly welfare-enhancing, especially if the growth in labour productivity is largely driven by growth in total factor productivity

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

(TFP). Indeed, the calculations of Bosworth and Collins (2008) suggest that TFP growth has accounted for a substantial portion of labour 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 not only economic but also social stability.

B. 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 2009. The average ratio of exports to GDP has remained stable at about 45% 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 0.3% of GDP, partly reflecting the sharp compression of net exports from the region during the worst of the global financial crisis in 2008–09.

   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 of over 10% relative to GDP in 2009 are recorded by Malaysia and Singapore. Despite the crisis, Hong Kong, Taiwan and Thailand register trade surpluses in the range of 8–10% of GDP. 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 promoted its role as a processing hub for trade going from other Asian countries to advanced economies in the west. China's trade balance has increased sharply, from 2% of GDP in 2000 to about 5% in 2009, although down from a peak of 9% 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, employ-ment generation in downstream and upstream firms (suppliers, distributors)

Table 3: Openness to Trade (in % of GDP)

Country	2000			2009		
	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	51.4	28.0	4.6
Hong Kong	282.1	143.3	4.4	383.7	195.5	7.3
India	27.4	13.2	− 0.9	46.3	20.4	− 5.5
Indonesia	71.4	41.0	10.5	47.7	25.9	4.1
Korea	74.3	38.6	2.9	103.1	54.0	4.9
Lao	49.9	19.1	− 11.8	48.6	22.6	− 3.5
Malaysia	220.4	119.8	19.2	159.9	89.2	18.4
Pakistan	28.1	13.4	− 1.2	34.7	13.6	− 7.5
Philippines	108.9	55.4	1.9	64.6	30.0	− 4.6
Singapore	377.7	195.6	13.6	407.8	214.2	20.7
Sri Lanka	88.6	39.0	− 10.6	64.7	25.5	− 13.7
Taiwan	105.3	53.8	2.2	122.3	65.6	8.9
Thailand	124.9	66.8	8.6	126.6	68.0	9.3
Vietnam	112.5	55.0	− 2.5	167.0	76.8	− 16.5
Unweighted medians						
All countries	97.0	45.4	2.0	83.9	42.0	0.3
All excluding China	105.3	49.8	1.9	103.1	54.0	− 3.5
Asian emerging markets	80.0	40.0	0.5	56.6	25.7	− 4.0
Asian developing countries	108.9	54.4	2.1	144.7	71.2	5.9
International comparisons						
Germany	66.4	33.5	0.5	80.3	42.5	4.8
Japan	21.2	11.3	1.5	26.1	13.3	0.4
United States	25.7	10.9	− 3.8	24.4	10.9	− 2.7

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 2009, except that Bangladesh, Cambodia, Lao, Sri Lanka and Vietnam have data only up to 2007 (although Vietnam's trade balance is 2008). The unweighted medians are the cross-sectional medians of the data in the respective columns.
Source: CEIC, Asian Development Bank's Statistical Database System (SDBS), EIU CountryData and author's calculations.

and increased efficiency in production due to greater competition. From this perspective, the average trade openness ratio of over 90% implies that Asian economies are in general very open to international trade and are in a position to derive considerable benefits from that. While trade openness has increased in most Asian economies during the period 2000–09, 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 the 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. Hence, 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 the evolution of the current account but its components as well. I first examine 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.

Aggregate savings and investment have been increasing in Asia since the early 2000s.[4] The rate of increase in savings has been higher than that of investment, resulting in a large current account surplus, which increased to 6.7% of aggregate GDP by 2007 but then declined to 5% in 2009. China is a big driver of these patterns in the data. The aggregates for the remaining countries show savings and investment increasing gradually and in tandem, with the current account balance to GDP ratio remaining relatively flat in the 3–4% range since early 2000 until 2009 (except in 2003, when it spiked up to nearly 5%).

Figure 1 shows the overall current account balance for Asia ex-Japan in billions of US dollars. The numbers in this figure represent the absolute amounts of excess of savings over investment for the region as a whole. From the perspective of the discussion of global imbalances, they represent 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 US$100 billion in the early 2000s. Excluding China, this figure remains roughly constant in the rest of the 2000s, through 2007–09. The huge surge in the region's excess savings clearly comes from China as the aggregate current account balance including China jumps to US$500

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[4]See figure 1 in the NBER working paper version of this paper.
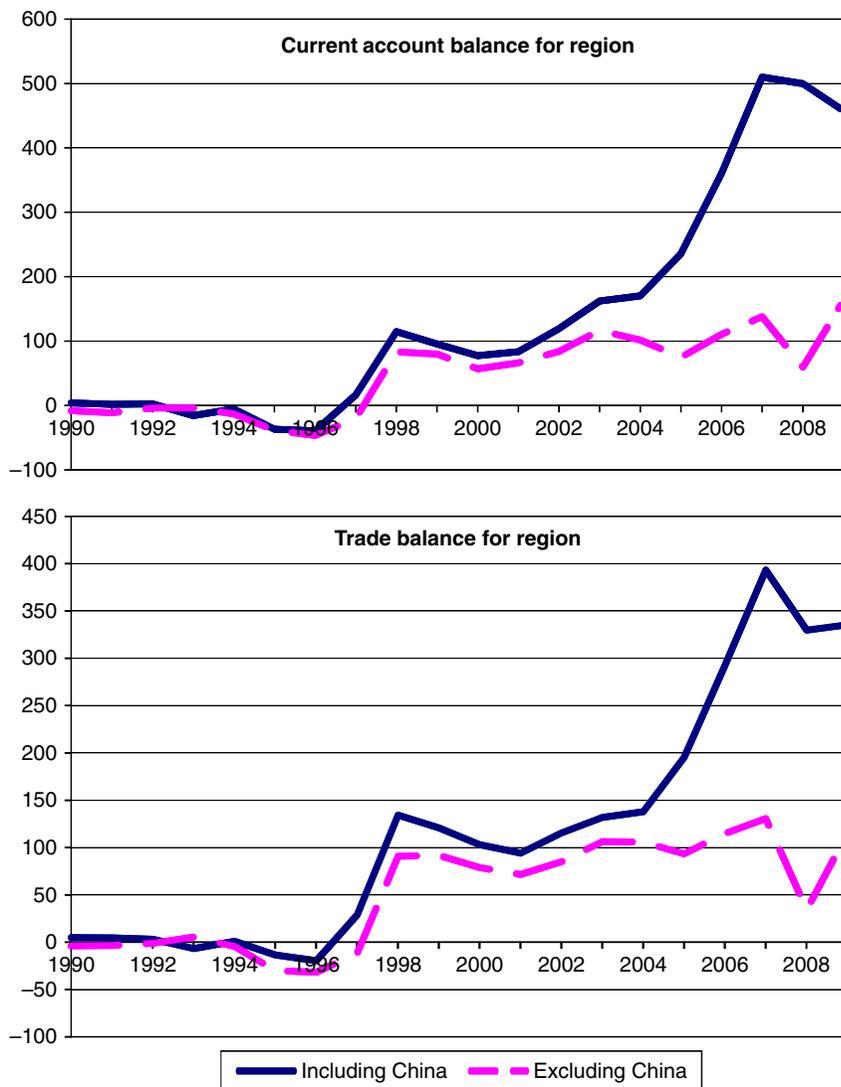
Figure 1: Aggregate current account and trade balances for developing Asia (billions of US dollars)

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. For both data series, 2008 and 2009 numbers do not include Bangladesh, Cambodia, Sri Lanka and Vietnam, due to lack of data.
Source: IMF'sWEO, CEIC and author's calculations.

billion by 2007–08, driven by massive Chinese current account surpluses that hit US\$436 billion in 2008. The region's overall current account surplus declined by about US\$40 billion in 2009, with a decline of about US\$140 billion in China's surplus partially offset by increases in other countries' surpluses.[5]

Figure 2 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 2009 or the latest year for which data are available for each country. The top panel of the figure contains data for that year and the lower panel shows the corresponding data for 2000. To facilitate comparison, the order of countries is the same in both panels.

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% of GDP. For most countries in the sample, saving rates have either increased or remained roughly constant during this decade, with the exceptions of Korea, Cambodia, Sri Lanka 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 2009.

A. Components of Saving

As saving dynamics are a key driving force behind 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.[6] Unfortunately, these data appear to be available only for a handful of countries. For these economies, Figure 3 shows the composition of savings in the latest year for which data are available (upper panel) and for 2000 (lower

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[5]For more details on China's current account dynamics and China's approach to capital account liberalization strategy, see Prasad et al. (2005) and Prasad and Wei (2007).

[6]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 equalled 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.
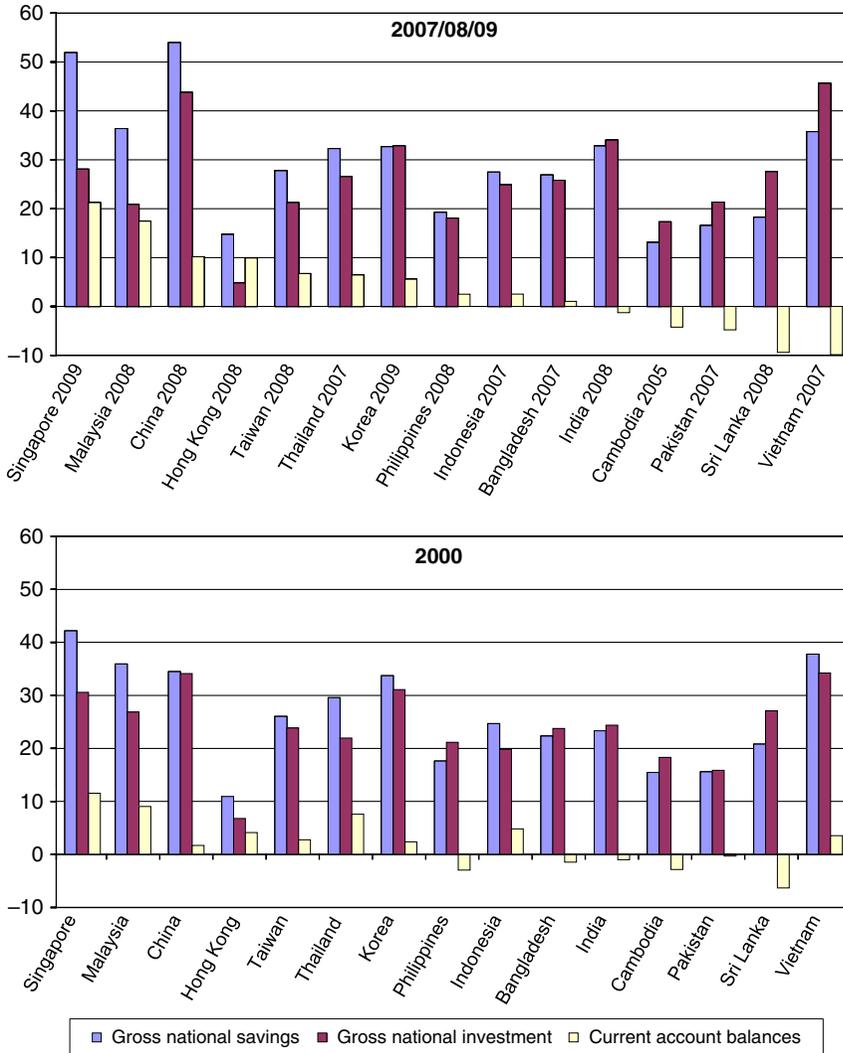
Figure 2: Savings–investment balances (in % of GDP)

Note: In both panels, the countries are sorted by decreasing order of the latest current account balances (as a % of GDP).
Source: CEIC and author's calculations.

panel). In the case of China, both corporate and government savings have increased relative to GDP from 2000 to 2008. In the cases of Korea and the Philippines, household savings as a ratio to GDP decline significantly from 2000 to 2008. The increase in corporate savings in these two countries makes up for much of this decline, leading to a reasonably stable overall national
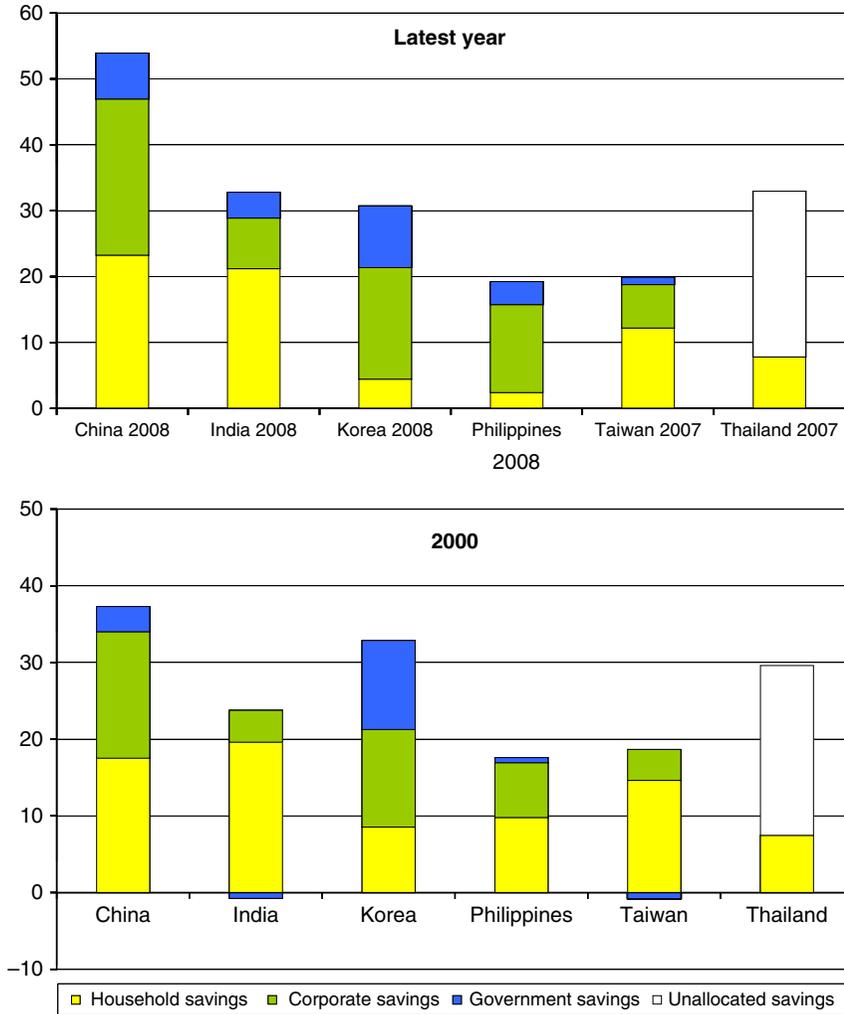
Figure 3: Components of national savings rates (in % of GDP)

Note: The numbers for China for 2008 are based on the author's estimates.
Source: CEIC, ADB and author's calculations.

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 increased modestly, and government saving, which had been negative in 2000, was positive in 2008. Combining data from these five economies, aggregate savings (as a percent of aggregate GDP) have increased from 31% of the total GDP in 2000 to 45% in 2008. A striking development is that by 2006,

corporate savings had become a dominant source of savings in the region, accounting for nearly half of aggregate savings. Corporate savings remain strong in 2007–08.

In Figure 4, I present data on the composition of savings in the three largest economies in non-Japan Asia – China, India and Korea – over the period 2000–08. 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 the 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% 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 declined quite sharply since the late 1990s, driving down the 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 behaviour as it abstracts from changes in the distribution of national income between labour 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 5 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 increased sharply during the second half of the 1990s and has continued to increase, although at a slower pace, during the high-growth years of this decade. By 2008, it had climbed to about 28% of disposable income. The household saving rate in India has increased sharply over the last decade, from 20% of disposable income in 1998 to 32% 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 declined considerably, from nearly 30% in the late 1990s to 7% in 2008.

The cross-country comparison shows that there are substantial differences across countries in terms of the evolution of the overall saving rates as well as the sources of national saving. China accounts for about 62% of the 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 huge roles in influencing the 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
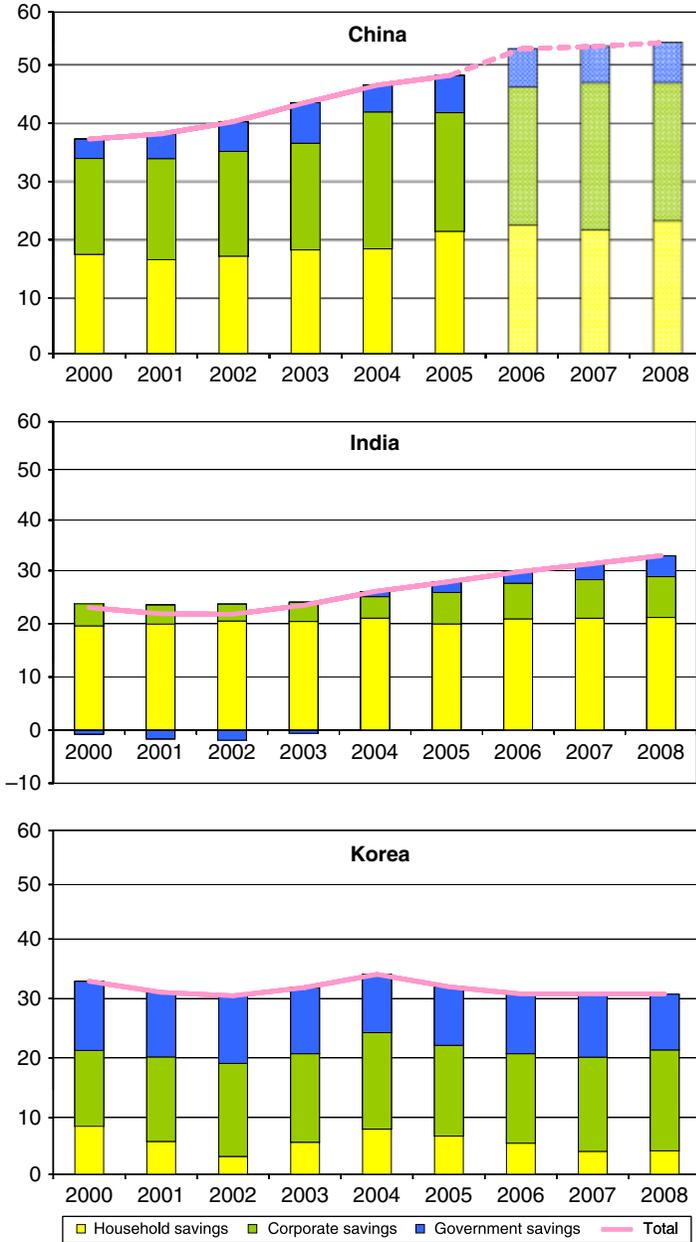
Figure 4: Composition of national saving (in % of GDP)
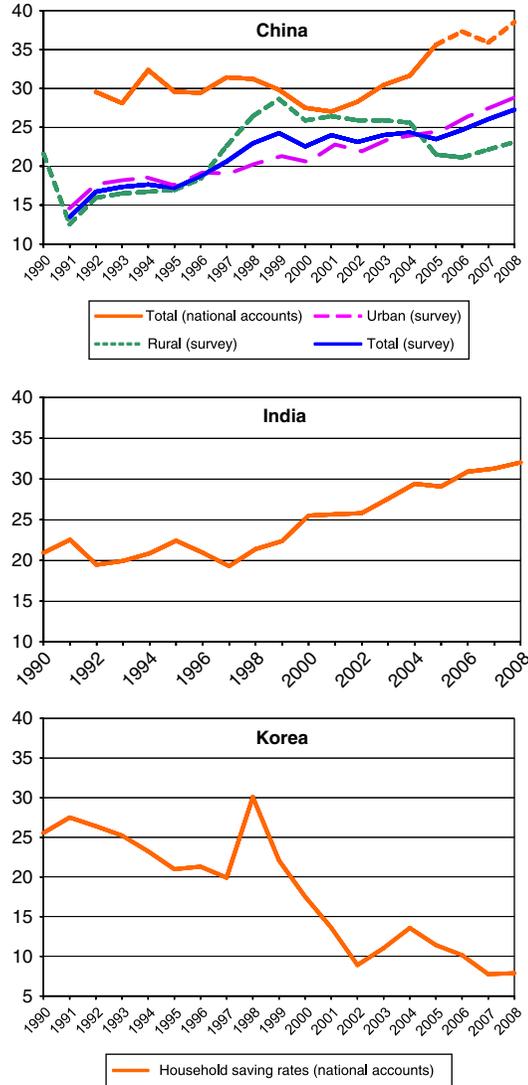
Source: CEIC, ADB and author's calculations.

Figure 5: Household saving rates (as % of household disposable income)

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 1990–91, and based on the author's estimates for 2006–08. India's income data are from personal disposable income; Korea's income is from national disposable income: household and private unincorporated enterprises.
Source: CEIC and author's calculations.

Table 4: GDP, Current Account Balance and Household Saving, 2009

Country	Nominal GDP (USD billions)	Current account balance		Gross national savings	
		Value (USD billions)	As % of GDP	Value (USD billions)	As % of GDP
Bangladesh	89.5	2.9	3.3	24.5	27.4
Cambodia	10.4	− 1.1	− 10.2	1.3	12.3
China	4,909.0	297.1	6.1	2,567.4	52.3
Hong Kong	210.5	18.4	8.7	65.9	31.3
India	1,296.2	− 31.5	− 2.4	403.1	31.1
Indonesia	540.3	10.6	2.0	177.9	32.9
Korea	832.5	42.7	5.1	258.5	31.0
Malaysia	192.8	30.3	15.7	58.2	30.2
Pakistan	162.0	− 2.7	− 1.6	26.9	16.6
Philippines	161.1	8.6	5.3	32.1	20.0
Singapore	182.2	24.2	13.3	73.1	40.1
Sri Lanka	42.0	− 1.6	− 3.9	7.9	18.9
Taiwan	378.5	42.1	11.1	107.9	28.5
Thailand	264.0	20.3	7.7	78.0	29.5
Vietnam	93.2	− 6.1	− 6.6	29.4	31.6
Totals:					
All countries	9,364.2	454.0	–	3,912.2	–
All excl China	4,455.2	156.9	–	1,344.8	–
Unweighted medians					
All countries	192.8	10.6	5.1	65.9	30.2
All excluding China	187.5	9.6	4.2	62.1	29.9
International comparisons					
Germany	3,356.5	135.0	4.0	708.5	21.1
Japan	5,067.0	140.6	2.8	1,171.9	23.1
United States	14,256.3	− 378.5	− 2.7	1,208.9	8.5

Note: Gross national saving data for Cambodia are from 2005, Bangladesh, Indonesia, Pakistan, Thailand and Vietnam are from 2007. Household saving data for China, Taiwan, Thailand and Japan are from 2007. 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 the respective columns.
Source: CEIC, IMF's WEO and author's calculations.

could explain increasing corporate savings in Asia. As China accounts for the bulk of overall corporate saving in Asia, it is useful to begin with a discussion of the reasons for the increase in Chinese corporate savings.

B. *Corporate Savings*

Corporate savings largely reflect retained earnings; hence, 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 favour large firms. Similarly, Prasad (2009) notes that the repressed financial system in China provides cheap capital (low real interest rates) to favoured 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, this has led to high levels of profitability in some sectors, with rapid profit growth until mid-2008. In a fast-growing economy, retaining and reinvesting profits is clearly an attractive proposition when firms face a low opportunity cost of funds.

The underdeveloped financial system also contributes to 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. Paper profits increased even more as a result. 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 recently, state-owned enterprises were not required to pay dividends to their shareholders or to the state, thereby leading 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 increasing corporate profitability. While there are common threads, country-specific institutional features also drive the dynamics of corporate savings in different countries. A more careful investigation of this issue is warranted in future work.[7]

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[7] Bayoumi et al. (2010) contend that Chinese firms do not have a significantly higher savings rate (as a share of total assets) than the global average, noting that the increasing corporate savings rate in China is consistent with a global trend.

C. Household Savings

Next, I 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 increase 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. As 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 increasing 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 increasing 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 in the latter stages of their careers when their incomes are the highest, 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 the stages of development) – in principle, less developed countries with relatively low capital–labour ratios should be running current account deficits and borrowing more. But this model does not seem to work well at either the household or the national level.

- Demographic factors, in conjunction with the LCPY hypothesis, can generate shifts in saving patterns. An ageing population means that the dependency ratio – the ratio of the dependent population to the working-age population – is expected to increase, 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.[8] Moreover, it cannot explain increasing saving rates in economies like China.

- Habit persistence. This hypothesis implies that consumption reacts slowly to increasing 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 favour of this hypothesis is weaker in household data (see e.g. Dynan 2000).

- Precautionary savings. Increasing macroeconomic uncertainty and/or household-level risk can increase saving rates. High saving rates among households with young household heads 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 that are becoming more market-oriented, such as China and Vietnam, and where the level of household-specific employment and income uncertainty has increased despite high average income growth (see Chamon et al. 2010). There is considerable evidence that precautionary (or buffer-stock) savings is empirically very important in explaining savings behaviour of households.

- Savings related to financial underdevelopment. Recent research suggests that this is an important determinant of increasing 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.

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

A. *Role of Financial System in a 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.[9]
- The 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'.
- 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 analyse 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.

A. *China*

Figure 5 shows that the total Chinese household savings, as a ratio to disposable income, has been on a gradual upward trend since 1990, increasing to about 27% in 2008 (based on household survey data). This has been driven largely by the increase in the saving rate of urban households. The saving rate based on national income accounts data shows a similar upward trend in recent years. The discrepancy between the household saving rates taken from the national accounts data and the survey data

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[9] 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.
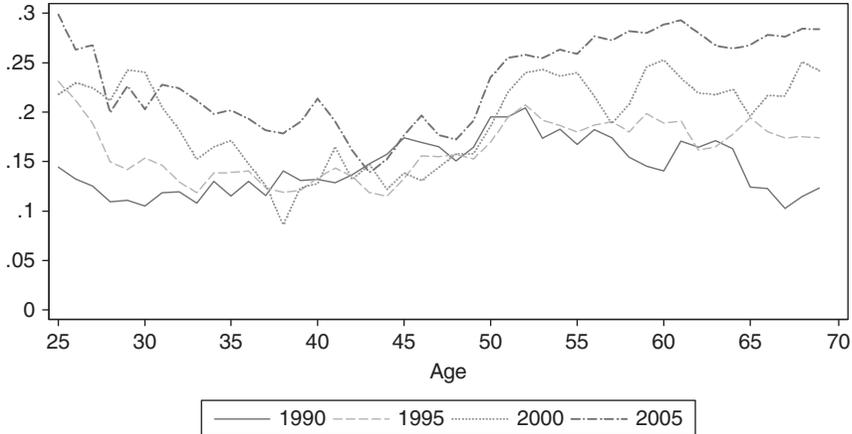
Figure 6: China: Saving rates by age of head of household (saving rate = 1 − consumption/disposable income)

Note: Income and consumption profiles were smoothed by a three-year moving average (the averages for each age were combined with those for the ages immediately above and below).

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).[10]

The remaining figures in this section depicting household-level data are drawn from analysis carried out by Chamon and Prasad (2010) and are based just on the urban household surveys, which are clearly more relevant for explaining the changing pattern of Chinese household savings.

Figure 6 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. This behaviour is close to what life-cycle theory would predict, given the constraints that limit borrowing against future income and increasing labour 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

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

the case a decade ago. Saving rates then decline with age, with a trough around the 40s, before increasing as the household head approaches retirement age. This type of saving behaviour – 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 mix together age, time and cohort effects. For instance, different cohorts could have different saving propensities that affect these profiles. Chamon and Prasad (2010) 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 7 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 LCPY hypothesis.

The cohort profiles of income, consumption and savings suggest that younger and older cohorts had a 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
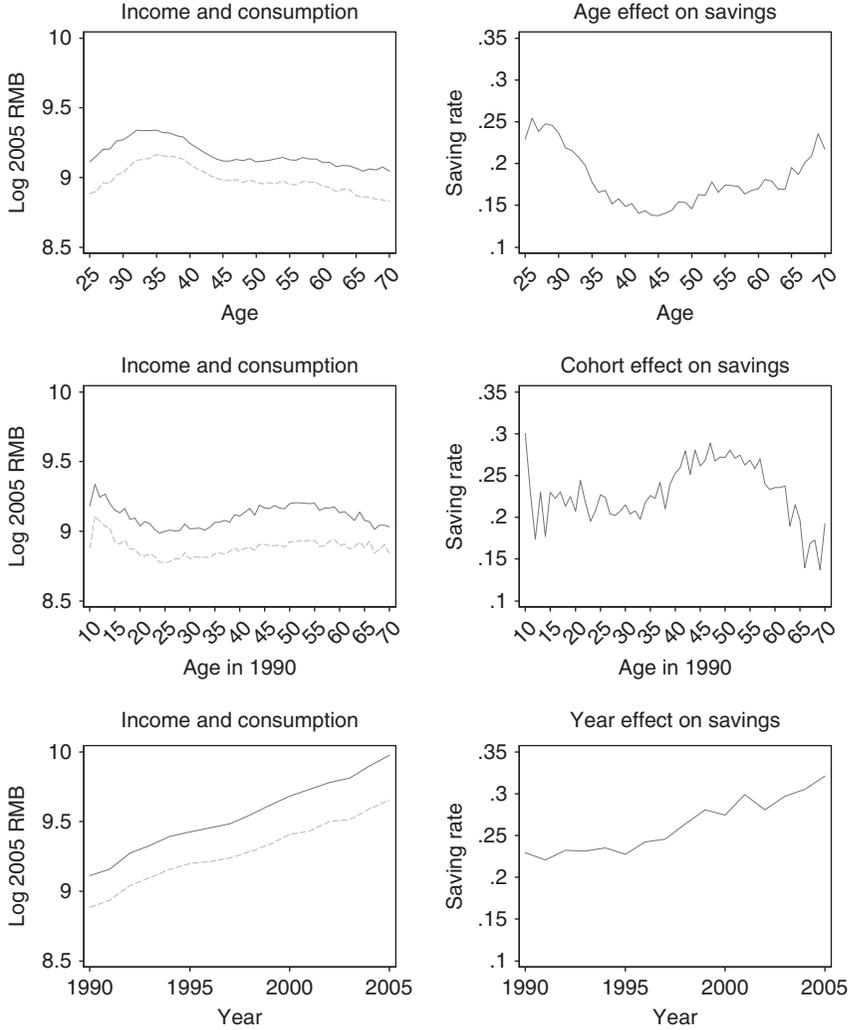
Figure 7: China: Age, cohort and year effects on income, consumption and saving rates

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.

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 8)? 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 the average saving rates over this period. This suggests a limited role for demographic changes in explaining the increase in Chinese household savings over the last decade and a half.

Chamon and Prasad (2010) conclude that habit formation, demographics and the life-cycle hypothesis cannot explain the increasing 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 drastic 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% of income (through a catastrophic insurance scheme) would have lowered the median saving rate in 2005 by 3.5 percentage points, assuming no behavioural responses to such a scheme. Differences in saving behaviour 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 posttransition 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 (see Chamon et al. 2010). 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.
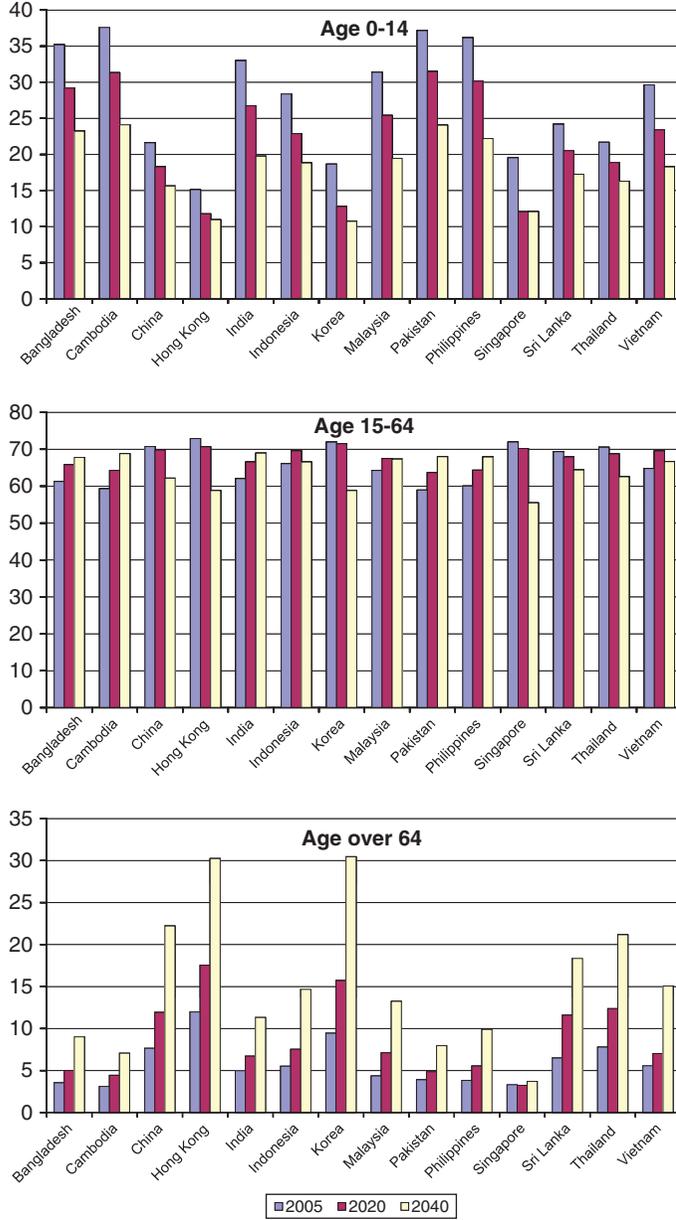
Figure 8: Demographic projections (shares of dependent and working-age populations in the total population, in %)

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

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 2006). This would moderate household saving rates and help rebalance growth towards consumption.

B. Other Asian Economies

In this section, I discuss the work carried out by other authors on selected Asian economies, including some preliminary analysis performed by the ADB using household-level data from the Philippines. In India, the household saving rate has increased over the last decade (see e.g. Athukorala and Sen 2004). 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 remainder.[11] Mohan (2008) notes that gross financial savings of the household sector have increased in recent years but households' financial liabilities have also increased rapidly, albeit from a low base. Households' gross financial savings increased from 13.8% of GDP in 2004–05 to 18.3% in 2006–07, while their financial liabilities increased from 3.8% of GDP during 2004–05 to 6.8% 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 durable goods, 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) analyse data for Korea from the family income and expenditure surveys. They, too, find that once the household head's age crosses the mid-40s, there is a positive relationship between the age of the

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[11]See figure 7A in the NBER working paper version of this article. Moulick (2008) provides some qualitative evidence on how increased 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.

household head and the household saving rate. There is a decline in saving rates postretirement relative to the peak saving rates that are attained in the late-50s, but the average postretirement saving rate is still quite high. These authors also conclude that increases in housing prices and increases in downpayment requirements can explain the increase in saving rates among households with relatively young household heads, a result that echoes the one reported by Chamon and Prasad (2010) 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 3 (Terada-Hagiwara 2009). The age-saving profile shows an interesting pattern, with a nearly monotonic increase in saving rates relative to 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 as that 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 4 percentage point increase in the household saving rate (from 12% to 16%). Bersales and Mapa (2006) report similar results based on their analysis of the same data set.

Deaton and Paxson (2000) show that the age-saving profile has the traditional hump shape in Taiwan. Data from Taiwan also provide an elegant natural experiment to test the impact of the provision of comprehensive national health insurance on saving rates. Chou et al. (2003) find that the introduction of the national health insurance scheme in 1995 reduced household saving rates significantly (declines of 9–14% 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 et al. 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 emerge 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 increasing life expectancy rates and increasing health care costs. Besides, health care is a superior good and the demand for it is likely to increase as per capita income levels increase in the Asian region. Hence, the provision of comprehensive social

health care can play an important role in influencing household saving behaviour. 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 to borrow against future income to finance current purchases of durables, including houses – can reduce household saving and stimulate private consumption.

The effects of an increasing old-age dependency ratio on the average household savings are, however, not entirely obvious. Based on the traditional version of the LCPY hypothesis, one would expect older individuals and households with older heads to be drawing down on their savings to finance postretirement consumption. This would generate a negative relationship between the elderly dependency ratio and the 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 increasing 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.[12] 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 ageing of the population has complex effects on household savings.

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

I now expand the discussion based on the analysis in the previous two sections to a broader set of countries. Figure 8 shows the 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

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[12]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.

Korea. This could increase household saving rates in these countries in anticipation of increasing 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 behaviour, other things being equal.

The household-data-based analysis in the previous section suggests that financial underdevelopment can lead to an increasing saving rate in a fast-growing economy. It is difficult to obtain a comprehensive measure of financial market development; hence, I examined a rather crude measure – the sum of bank deposits, stock market capitalization and bond market capitalization, expressed as a ratio to GDP.[13] 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.

Financial market efficiency is also 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. As 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 labour income in national income, which has declined by almost 8 percentage points over the last decade, and also the low level of employment growth in China. Moreover, 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 creates a variety of imbalances that discourage consumption growth and limit employment growth.

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[13]See figure 15 in the NBER working paper version of this paper.

VII. Concluding Remarks

This paper has made a contribution to the discussion of rebalancing of global growth by investigating the sources and implications of current account balances among Asian economies. I analysed growth patterns, saving–investment balances and saving dynamics in a large group of Asian economies (excluding Japan). While a majority of Asian emerging markets now run current account surpluses, in terms of sheer magnitudes, the surge in the region's overall current account surplus is driven largely by China. Saving rates have increased across the board in the region, mainly as a result of increases in corporate savings. Indeed, I find that corporate savings have now become the main component of gross national savings in the Asian region. The evolution of household saving rates in the region is less uniform – they have increased in China and India but declined sharply in Korea. Contrary to the popular characterization of China as relying on export-led growth, I show that investment growth has dominated GDP growth in China. Net exports made a significant contribution to growth starting only in the mid-2000s. The comparative analysis in this paper shows that China's growth model has resulted in its having the lowest share of private consumption to GDP among major economies in and outside the region and the lowest rate of employment growth relative to GDP growth.

While the analysis in this paper has shed light on the sources of current account surpluses in the region, it has left open the question of how to determine the optimal balance of growth. The recent debate about global macroeconomic imbalances, which has focused on current account balances, has made it clear that we need better analytical anchors for the concept of domestic imbalances and their implications for current account balances. While it is difficult to pin down specific markers, theory does provide some useful guidance about how to assess the balance of growth (see Appendix A). In the case of China, for instance, a variety of indicators – the declining share of labour 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.

The analysis in this paper points to a few policy shifts that could help rebalance growth in Asia, especially China, by promoting private consumption growth, reducing the dependence on external demand and increasing employment growth. Financial market development that provides a larger set of instruments for saving and borrowing would allow for better risk-sharing and intertemporal smoothing of consumption. The lack of such instruments may be driving up the savings of young households in China

that was documented in the paper. Firms would also need to rely less on retained earnings for financing their investment if a broader set of financing opportunities were available, which would help reduce corporate saving (see Prasad 2007b; Yu 2007). An efficient financial system that channels funds into more productive uses and enables better risk-sharing would promote entrepreneurial activity and employment growth. In countries like China, which tightly manage their nominal exchange rate, more flexible currency regimes that allow the exchange rate to respond to productivity growth differentials relative to trading partner countries could generate positive wealth effects. This would encourage private consumption and reduce the reliance on foreign demand (see Lardy 2006; Prasad and Rajan 2006; Prasad 2007a).

Increasing spending on social safety nets and other government insurance mechanisms such as unemployment insurance could help reduce precautionary motives for saving. This would help boost private consumption, especially in countries that have relatively weak social safety nets 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, a phenomenon that has contributed to increasing household savings in China as noted in the paper. This will become increasingly relevant with lengthening life spans, the increasing cost of health care and increasing dependency ratios of older persons to the working-age population.

Eswar S. Prasad
Dyson School of Applied Economics and Management, Cornell University, Ithaca, NY 14853, USA
eswar.prasad@cornell.edu

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Appendix A: 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.

A.1. 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.[14] For a closed economy, the national saving rate is equal to the

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[14]For the purposes of this Appendix A, I do not take distributional considerations into account. The same average level of consumption could have very different implications for average welfare

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 labour 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.

A.2. *Implications for China*

A simple application of the golden rule would suggest that China's saving rate is not considerably 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%. 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 increased the capital share beyond efficient levels.

A further inkling of the inefficient level of saving and investment arises 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 increasing level of household savings on the basis of standard intertemporal models of consumption (see Chamon and Prasad 2010). Lardy

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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.

(2008) estimates that the real cost to households of this consequence of financial repression is nearly 4% 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 declining 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 8% per annum since the early 1990s, more than 2 percentage points below the average annual rate of GDP growth (see Aziz 2006). This is of course reflected in the nearly 7 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.

A.3. 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 labour 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 the 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 labour to capital ratio, should be importing rather than exporting capital. A current account surplus thus appears to be prima facie evidence of suboptimal saving and investment behaviour 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 et al. (2007) have documented that nonindustrial countries that have smaller current account deficits or even current account surpluses have, on average, registered higher growth rates than those nonindustrial countries that have run larger current account deficits. This is consistent with work by Aizenman et al. (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 that 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% of GDP. Since 2005, however, the current account surplus has surged, reaching 10.6% in 2007, largely the result of a trade surplus of about 9% 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 and financial development (see Chinn and Prasad 2003) – that could justify a current account surplus of this size. The current account surplus shrank to 6% in 2009 as China's credit-financed boom kept imports strong while exports took a hit. It is likely that the current account surplus will climb towards its earlier levels as China's investment boom cools off and industrial country demand for its exports picks up.

In summary, a variety of indicators – the declining share of labour 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.