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A Rebalancing Chinese Economy: Drivers and Challenges

Guonan Ma, About Capital Management
Ivan Roberts, Reserve Bank of Australia
Gerard Kelly, Reserve Bank of Australia

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A Rebalancing Chinese Economy: Drivers and Challenges

Guonan Ma*, Ivan Roberts** and Gerard Kelly**

This paper presents macroeconomic evidence that a rebalancing from a lop-sided investment- and export-driven pattern of growth towards more consumption-driven growth is already occurring in China, supported by a declining return to capital and a now-rising labour share of income. We argue that the extraordinary strength of Chinese household consumption in recent years casts doubt on hypotheses that Chinese consumption has been repressed through factor price distortions. Based on evidence from China's flow-of-funds accounts, we also contend that conventional analysis has understated the role of investment by households in supporting growth of gross fixed capital formation in recent years. While recent discussions stress the need to reform financial markets to foster rebalancing, we argue that rebalancing will probably happen anyway as a natural outcome of dwindling income windfalls from worsening demographics, fading positive productivity shocks and maturing housing markets, all of which helped drive the imbalances in the first place. An analysis of historical 'rebalancing' episodes in other economies further suggests that the bulk of adjustment in coming years is likely to occur through slowing investment rather than an increase in the growth rate of consumption.

JEL Classification Numbers: E21, E22, O11, O53

Keywords: internal rebalancing, external rebalancing, China

1. Introduction

China's unbalanced growth pattern, which features a high investment-to-GDP / low consumption-to-GDP ratio and a sustained current account surplus, has been a focus of international policy discussions since the mid-2000s. Between 2000 and 2007, China's current account surplus surged from less than 2 per cent of GDP to 10 per cent. The rise in the current account surplus coincided with a sharp increase in the household saving rate and in the investment share of GDP. In the aftermath of China's policy response to the global financial crisis, the investment share of GDP rose even further, reaching 44 per cent in 2014, although the current account surplus has receded to around 2 per cent.

Numerous explanations have been offered to explain China's twin imbalances. Some analysts attribute the imbalances to China's managed exchange rate regime (Lardy and Goldstein 2008), 'financial repression' (Lardy 2008) and broader factor cost distortions (Huang and Tao 2011). Other focus on rapid wealth accumulation (Ma, et al 2013), demographic transition (Cai 2011) and even population control policies that have contributed to unbalanced gender ratios (Wei and Zhang 2011). The imbalances have in turn been held responsible for the 'global savings glut', excessively low global interest rates in the 2000s (Bernanke 2007) and the global financial crisis (Obstfeld and Rogoff 2009). The rise in debt that has accompanied the domestic investment imbalance has also raised concerns that a sudden deleveraging could trigger a financial crisis within China itself (Ma and Laureceson, 2016). Perceived negative implications of these imbalances have led to repeated calls for China to rebalance both its domestic demand structure and its pattern of trade (see, for example, IMF 2010, 2015).

* The majority of this collaboration was completed while Guonan Ma, a non-resident scholar of Bruegel, was visiting the Reserve Bank of Australia in 2015.

** Economic Group, Reserve Bank of Australia.

In particular, Ma *et al* (2013) argue that China's twin imbalances can be understood as the product of large income windfalls that were saved, giving rise to large external surpluses. An advantage of this explanation is that it reconciles rapid growth in both investment and consumption with the rise of the external surplus over the 2000s. Ma *et al* predict that as these windfalls fade, and the real effective exchange rate appreciates alongside rising unit labour costs, saving will fall. In contrast, Huang and Wang (2011) and Pettis (2013) suggest that both internal and external imbalances in China have had a different root cause: labour and capital market distortions that have artificially lowered the cost of labour and capital, repressed consumption and suppressed the value of the renminbi. They argue that both imbalances may be tackled simultaneously by reducing these distortions.

To clarify the reasons and prospects for rebalancing, we first review the literature and empirical evidence regarding the main factors behind the domestic and external imbalances, highlighting the central role of a high, rising and now peaking Chinese saving rate. China's gross national saving has been evolving in response to large shocks from structural forces, institutional transformation and government policy. These shocks, together with new ones, are likely to condition rebalancing in the decade ahead.

Second, we highlight the extraordinary strength of Chinese household consumption in recent years, by the standards of Chinese history and in comparison to other countries. Even if consumption has been 'repressed' by factor price distortions, as argued by many commentators, such comparisons cast doubt on the likelihood that an acceleration of consumption will be the primary driver of further domestic rebalancing. Any meaningful rebalancing will most likely flow from a sharp deceleration of investment, further weighing on an economy that is already experiencing slower growth in potential output. In particular, we follow the insights of Fukumoto and Muto (2013), arguing that both a higher share of household income in the economy and a narrowing gap between the return to capital and corporate funding costs could be instrumental in China's ongoing rebalancing process.

Third, using an approach similar to Bai, Hsieh and Qian (2006), we provide evidence that the return to capital in China has fallen noticeably in recent years. This has been driven by a steep rise in the capital-output ratio, amid signs that the sustained downward pressure on the labour share of income may now be easing or even reversing. The decline in the return to capital has occurred alongside an upward shift in the cost of debt funding, with the result that the gap between the two has narrowed sharply and the incentives to invest have fallen. A continuation of this trend points to a further decline in the growth of investment in coming years. We conclude that the bulk of adjustment in coming years is likely to occur through slowing investment rather than an acceleration of consumption.

The paper proceeds as follows. The next section discusses stylised facts about China's domestic and external imbalances, and reviews the evidence on factors underpinning the high saving and investment rates that have occurred historically. Section 3 considers China's imbalances from an international perspective, while Section 4 reviews a range of explanations for the imbalances. Section 5 explores how any prospective rebalancing may play out, while Section 6 discusses mechanisms that are likely to be important in facilitating continued rebalancing. Section 7 offers concluding remarks.

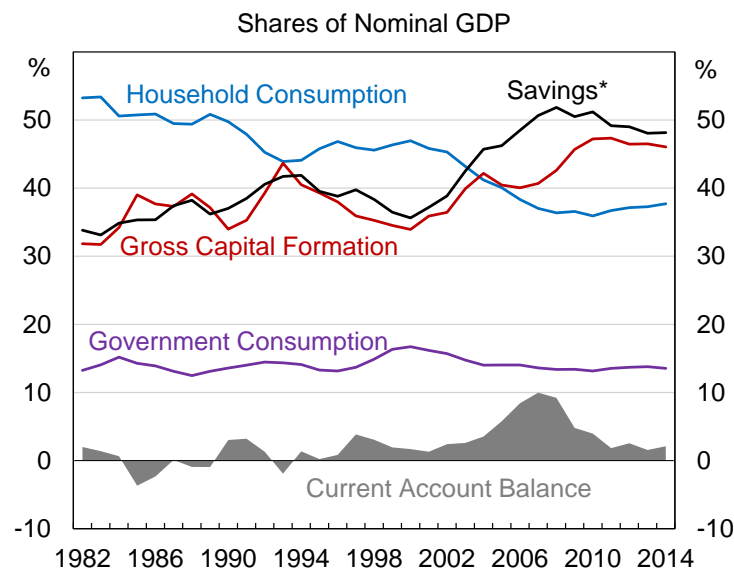
2. Understanding China's Imbalances

This section highlights some stylised facts about China's aggregate demand, raises a number of issues central to its imbalances and explores their implications for rebalancing. First, based on an analysis of flow-of-funds data, we argue that conventional analysis understates the role of the household sector in contributing to the high investment share.

In the space of three decades, China's aggregate demand composition has experienced a sea change. From the 1980s to the end of the 2000s, household consumption as a share of GDP fell from more than one-half to a little over one-third, while gross capital formation jumped from one-third to just below one-half (**Graph 1**). China's saving rate rose even faster than its investment rate, accompanying a large current account surplus peaking at

10 per cent of GDP in 2007. In short, China experienced both greater domestic and external imbalances during this period.

Graph 1: China – Aggregate Demand and the Current Account



* Gross Capital Formation plus Current Account Balance
Source: CEIC Data; authors' calculations

In just a few short years following 2007, the Chinese current account surplus shrank to below 3 per cent of GDP. This rapid external rebalancing was facilitated both by an appreciation in the renminbi and a step rise in the investment rate that coincided with a peaking national saving rate (Ma *et al* 2013). In other words, China's domestic imbalance increased while its external imbalance eased. This was precisely the opposite of Japan's experience of domestic rebalancing coinciding with a wider external surplus in the 1980s (Fukumoto and Muto 2013).

2.1 Who saves and invests in China?

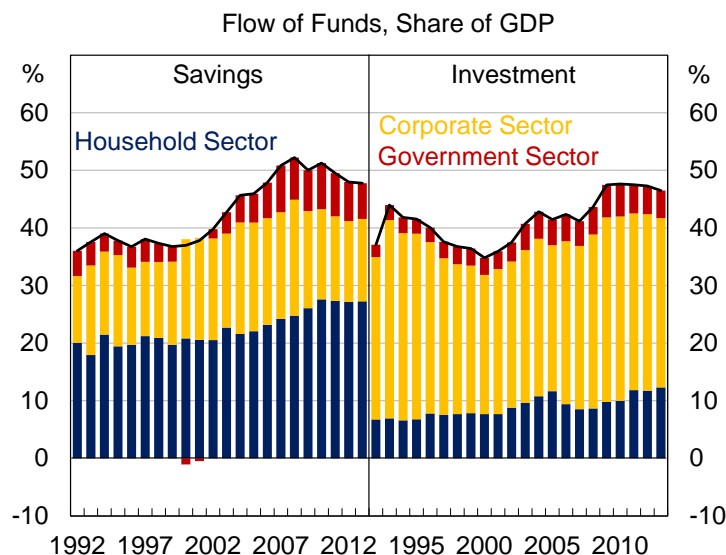
At a more disaggregated level, an analysis of the Chinese flow-of-fund accounts data, which cover the period from 1992 to 2013, sheds some light on the main sources of the rising saving and investment rates. The flow-of-funds data are conceptually consistent with the national accounts on both an expenditure and an income basis while revealing the sectoral breakdowns of these expenditure and income flows by household, corporate and government. The data help answer the question of who consumes, saves and invests, a core issue in any discussion of rebalancing.¹

During these two decades, China's gross capital formation as a share of GDP rose by 10 percentage points, yet the national saving rate climbed even more — by 12 percentage points (**Graph 2**). The saving rate peaked at 52 per

1 After 2009, the flow-of-fund accounts data started capturing net transactions of land use rights and intellectual copyright across the household, corporate and government sectors, under "Acquisition Less Disposal of Other Non-Financial Assets". Since proceeds from land sales and purchases are not counted as gross capital formation, they do not contribute to value-added. Thus, these transactions sum to zero but do alter the income and saving flows among the three sectors. We adjust for such transactions in this paper. In addition, the current flow-of-fund data have not yet been updated to match the 2015 revision of the expenditure-based GDP data, so minor discrepancies exist between the two sets of data. The release of 2013 flow-of-funds data included revisions to the previous years' data for household and government sector income (based on the third national economic census), but as revisions to all other flow-of-funds series are not expected to become publically available until late 2016, we continue to use the pre-revised household and government income data for 1992-2012 to maintain consistency.

cent of GDP in 2008, declining thereafter. By contrast, the investment rate plateaued around 47 per cent in the early years of the current decade, in part owing to the large-scale government stimulus programme in the wake of the global financial crisis. The three sectors — household, corporate and government — all contributed positively to China's high and rising investment and saving rates during 1992-2013, albeit to varying degrees.

Graph 2: Saving and Investment by Sector*



*Adjusted for 'Acquisition Less Disposal of Other Financial Assets'
Sources: CEIC Data; authors' calculations

Saving

The household sector has been the largest driver of China's gross domestic saving, accounting for around half in 2013 and generating nearly two-thirds of the rise in the national saving rate during the two decades for which we have flow-of-funds data. The corporate and government sectors each contributed roughly one-fifth of the increased saving. As a share of GDP, household saving displayed a steady and relentless climb starting in the early 2000s. After a brief period of dissaving in 2000-01, government saving also increased strongly, while corporate saving peaked in 2008 and has fallen since then. Reported lower corporate earnings are consistent with our estimates of the declining return to capital (see Section 3).

Investment

In contrast, the dominant source of investment has been the corporate sector. In 2013, the corporate, household and government sectors represented 63 per cent, 26 per cent and 10 per cent, respectively, of the nation's gross capital formation, which are comparable to the averages of their OECD counterparts. Unsurprisingly, corporate investment has been most volatile, swinging between a quarter and one-third of GDP and apparently peaking in 2010. By comparison, gross capital formation by the government sector has risen steadily over time, particularly since the early 2000s when government saving also began to increase, before easing off in 2011-2013.

A little-noticed fact, however, is that within the space of a couple of decades, gross capital formation undertaken by Chinese *households* almost doubled, single-handedly accounting for well over half of the 9½ percentage point increase in China's investment rate during this period.² If the rise in the investment share during the two decades is viewed as evidence of 'overinvestment', the Chinese flow-of-funds data suggest that the household sector could be one principal culprit.

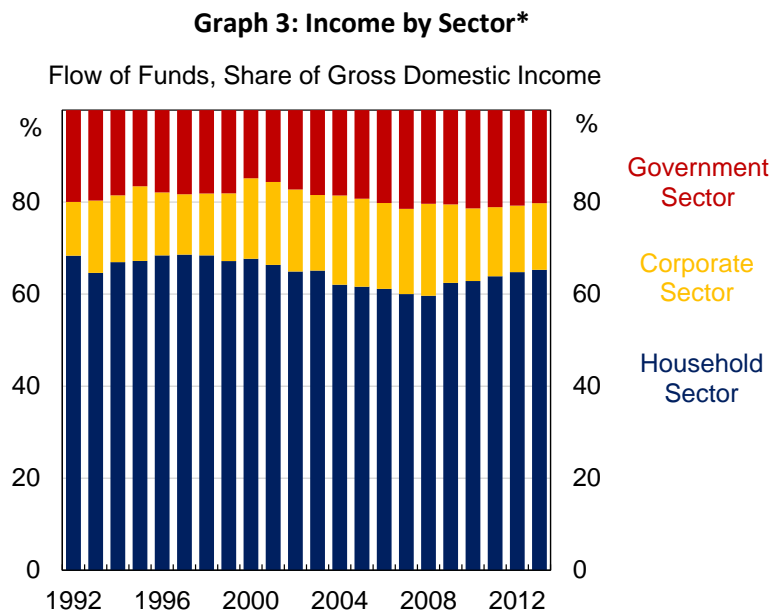
² This represents the continuation (and acceleration) of a trend first noticed by Kuijs (2005).

There are a couple of reasons why we might observe a rising share of investment by households. The first is capital accumulation associated with self-employment. Between 1992 and 2013, rural and urban self-employment tripled as a share of the nation’s total employment, rising to more than 13 per cent. Capital accumulation by households is likely to have accelerated accordingly. Rising self-employment has been an important by-product of China’s growing private sector (Lardy 2014).

A second explanation for rising household capital formation is that housing-related investment by individuals has increased substantially since the early 1980s. Following the introduction of the household responsibility system to the rural areas in the 1980s, there was a burst of housing construction activities by farmers. In 1990s, the government initiated a wave of de facto state housing privatisation in urban areas, which led to substantial renovation, upgrading and extension of old state housing units that had been of poor condition and low quality. The 2000s witnessed a big leap in the floor space of residential housing built by developers, but much newly completed urban housing in China is in rough ‘shell’ form and thus often requires major fitting outlays managed by new home buyers. These three waves of private housing construction and upgrading activity are likely to have contributed to growth in measured investment by the household sector.

Roles of income and saving rate in household consumption

In contrast to its prominent role in driving both of China’s rising aggregate saving and investment rates, the household sector’s share of gross national disposable income fell noticeably through the 2000s, with the corporate and government sectors splitting the implied gain in the remainder (Graph 3). Since 2008, the household income share has started to rise, at the expense, in particular, of the corporate income share, but in net terms the household income ratio has remained below its level in the 1990s. As a share of GDP, the decline in household income and a rise in household saving together imply a steep rise in the average propensity to save out of household disposable income.



*Adjusted for "Acquisition Less Disposal of Other Financial Assets"
Sources: CEIC Data; authors' calculations

While the literature has emphasised the declining household share of income as the main factor weighing down the household consumption share of GDP (Aziz and Cui 2007; Ma and Wang 2010; Perkins 2015), the Chinese flow-of-funds data suggest that the rise in the average propensity of households to save has been more important in explaining the declining share of household consumption in the Chinese economy. Flow-of-funds data indicate that the decline in the household income share of GDP and increase in the average propensity to save contributed

20 per cent and 80 per cent, respectively, of the observed decline in the household consumption share in GDP during the 1992–2013 period.³ We now turn to each of these factors in turn.

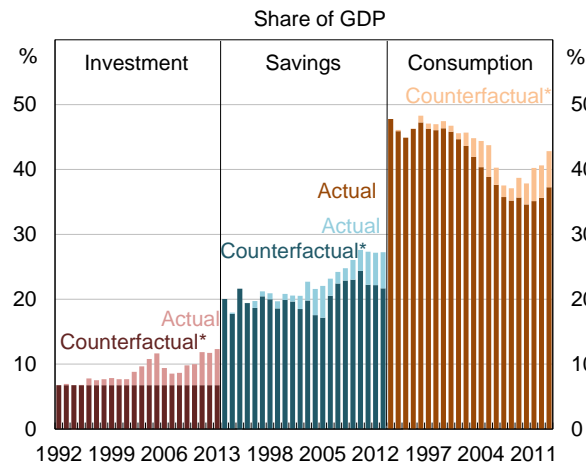
There is no shortage of potential explanations for a high and rising **average propensity to save** by Chinese households. Modigliani and Cao (2004) argue that the observed household saving rate can be explained by a life-cycle model featuring dissaving in early life, positive saving in working years and dissaving in retirement, together with China's rising working-age population in recent decades. Blanchard and Giavazzi (2006) and Chamon and Prasad (2010) argue that a rising burden of private health and education expenses in a climate of underdeveloped financial markets has increased self-insurance/precautionary saving motives. Wei and Zhang (2011) attribute increased saving to efforts by young men to purchase housing and signal prosperity in a marriage market characterised by a high male-female gender ratio.

To these we can add a complementary and more straightforward explanation. Specifically, as a share of GDP, the increase we observe in household capital formation can itself account for more than three quarters of the rise in household saving and thus could explain more than half of the reported fall in the household consumption during the 1992-2013 period. Put differently, if we capped gross capital formation undertaken by the household sector at the 1992 level of 6.8 per cent of GDP for all subsequent years and allocated the remaining investment to consumption, household consumption would decline from 48 per cent of GDP to only 43 instead of the recorded 37 per cent in 2013. Similarly, household saving would only rise from 20 per cent of GDP to 22 per cent instead of the observed 27 per cent (**Graph 4**).

Flow-of-funds data indicate that, for most of the period since 1992, the **household income share** was primarily weighed down by the falling share of labour compensation, although falls in the shares of net current transfers (consistent with declining social welfare programs) and net property income in the early 2000s also contributed (**Graph 5**). The falling labour share is attributed by some to the relaxation of controls on internal migration under the *hukou* (household registration) system from the 1980s, which permitted a larger pool of incoming surplus rural labour, and allowed urban enterprises to restrain wage growth despite a relaxation of wage controls (Perkins 2015). The less restrictive *hukou* system over the years thus helped enhance allocative efficiency and economic growth but also added to the 'imbalance' of a high investment rate and low consumption rate.

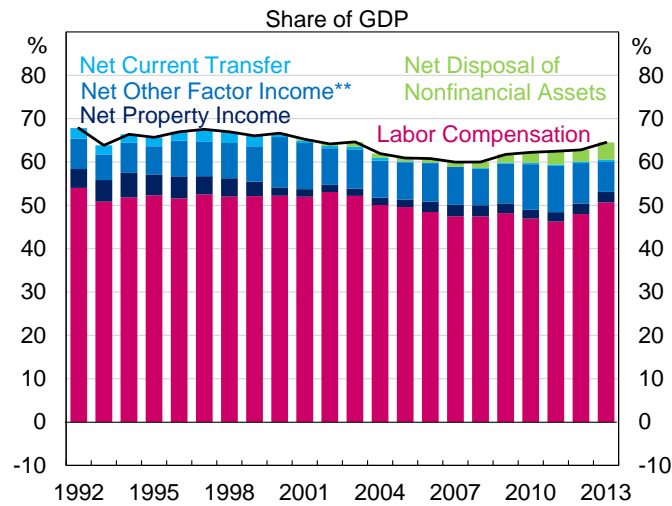
³ Household consumption as a share of GDP can be decomposed as: $C^H/Y = (1 - S^H/Y^H) \cdot Y^H/Y$, where C^H , S^H and Y^H refer to household consumption, saving and disposable income. Using this equation, we can estimate the contributions of household disposable income and the average propensity to save S^H/Y^H to the observed household consumption share of GDP. If we consider the 2000-2013 period, the contributions are 24 per cent and 76 per cent.

Graph 4: Household Sector – Actual and Counterfactual



*Investment capped at 1992 level, remainder allocated to consumption
Sources: CEIC Data; authors' calculations

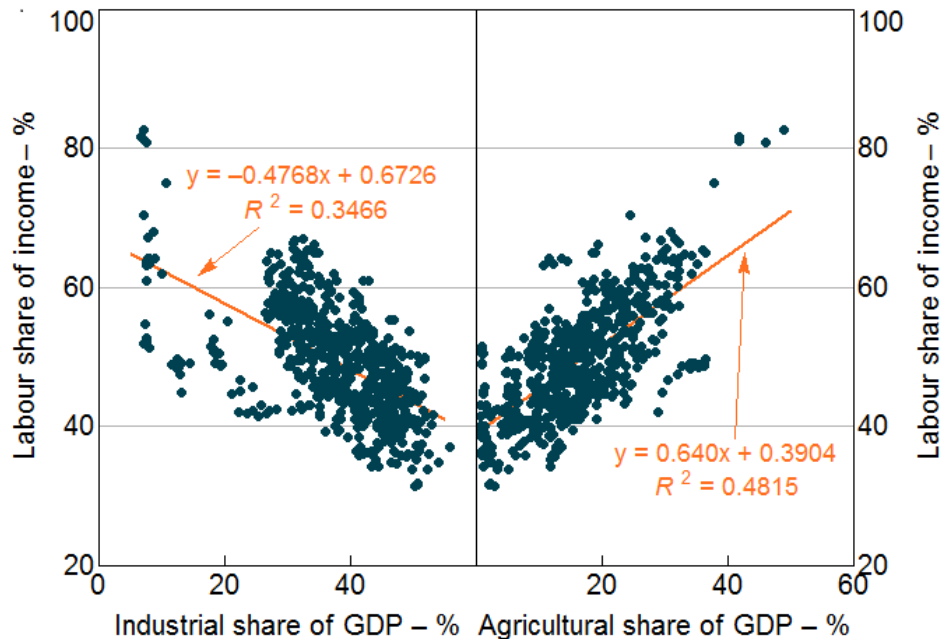
Graph 5: China – Household Disposable Income*



*Adjusted for 'Acquisition Less Disposal of Other Financial Assets'
** Household sector value-added income less payments for labor compensation and production tax
Source: CEIC Data; authors' calculations

As barriers to internal migration were eased, labour also became more mobile across industries and regions. Using econometric methods, Bai and Qian (2010) argue that around one-third of the decline in the labour share in the early 2000s can be explained by a changing labour share within industries, which they attribute to reforms that restructured state-owned enterprise and expanded monopoly power in the industrial sector. But they find that two-thirds of the decline reflected the structural transition from agriculture (where the labour share is very high) to services (which displays a much lower average labour share). This explanation is supported by the negative correlation between the labour share and the share of more capital-intensive industry at the provincial level (Ma and Yi 2010). Indeed, this relationship has been robust through time, and the reverse correlation can also be observed for agriculture (Graph 6).

Graph 6: Labour Share of Income – Industry and Agriculture
1993 to 2013



While the labour compensation share of GDP declined during the 1990s and 2000s, the negative effect on the household income share was partly offset by rising net income from sales of land use rights (reflected in 'net acquisition of non-financial assets') and net 'other factor income' associated with the rise in the ranks of self-employed, noted above. Interestingly, net income from property has roughly halved since the early 1990s, largely reflecting a drop in net interest income. According to flow-of-funds data, around 80 per cent of the fall in net interest income is attributable to the rise in household interest payments, suggesting that a sizeable part of the decline in the household income share has actually been related to inclusive financial liberalisation rather than 'financial repression'.⁴

3. How Unusual is China's Pattern of Investment and Consumption?

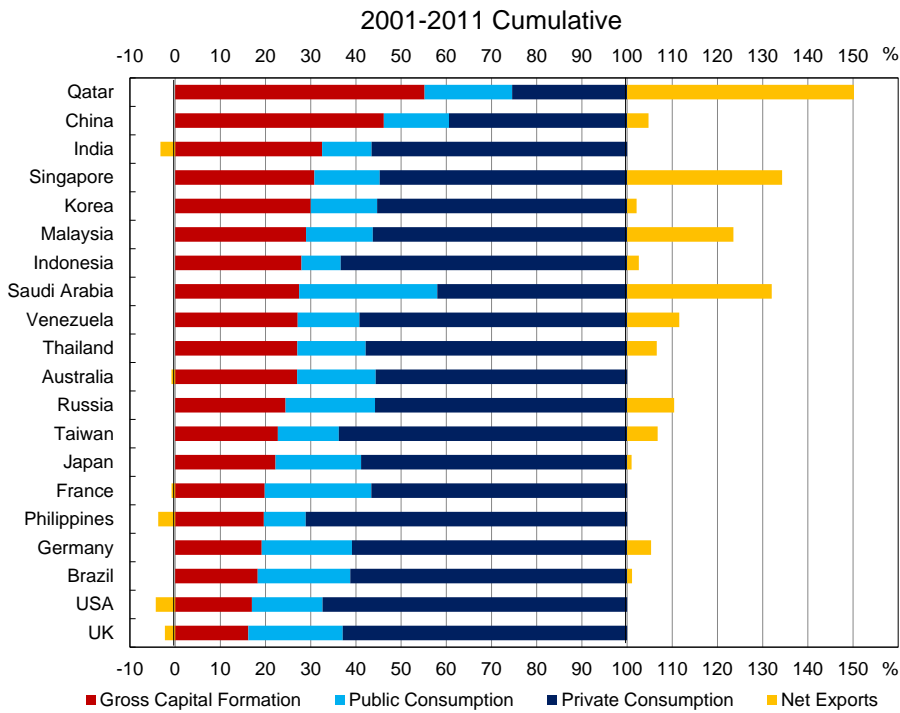
In this section, we stress that consumption growth has been far from anaemic over the past three decades and by international standards, suggesting that looking forward the burden of rebalancing will mostly be assumed by investment.

China's investment has typically been deemed too high and too low at the same time: too high relative to consumption in the context of domestic final expenditure (the domestic imbalance) but too low relative to domestic saving from the perspective of the current account (the external imbalance). Descriptions of China's consumption, investment and saving patterns as 'unbalanced' are usually made with reference to cross-country and historical comparisons. Indeed, China has one of the most unusual domestic expenditure compositions globally, printing one of the highest investment rates and lowest household consumption rates among major advanced and emerging market economies (**Graph 7**).⁵ The sustained gap between investment and consumption rates is exceptionally large and has few parallels outside major oil-exporting countries. Nevertheless, China's external balance seems quite moderate when compared to many of its international peers, at least when averaged over a run of ten years or so.

4 The decline in net interest income from 4.4 per cent of GDP in 1992 to 1.8 per cent in 2013 is a combined outcome of a decline of gross interest income of 4.4 per cent to 3.1 per cent and a rise of gross interest payment from zero to 1.2 per cent. The increased gross interest payment mostly relates to expanding mortgage loans, credit card use and personal loans and possibly business-related borrowing for self-employment.

5 The data come from the Penn World Table version 8.1, which gives 'real' expenditure component shares of GDP after adjustments using separate Purchasing Power Parity factors for each component (based at 2005 US GDP). We reverse these adjustments so that the shares are in nominal terms.

Graph 7: China’s Expenditure Composition in International Perspective



The relatively low consumption share of GDP and its fall over the past few decades raise the question of whether Chinese consumption has been ‘weak’ by international standards or the standards of China’s own history. On average, household consumption growth was the lowest among all the major domestic expenditure components during 1978-2014 (Table 1). But growth has nonetheless averaged 9 per cent for more than three decades, a rapid pace by international standards. The lopsided nature of China’s growth pattern principally reflects the fact that investment had been expanding at an even faster, double-digit, pace until 2010.

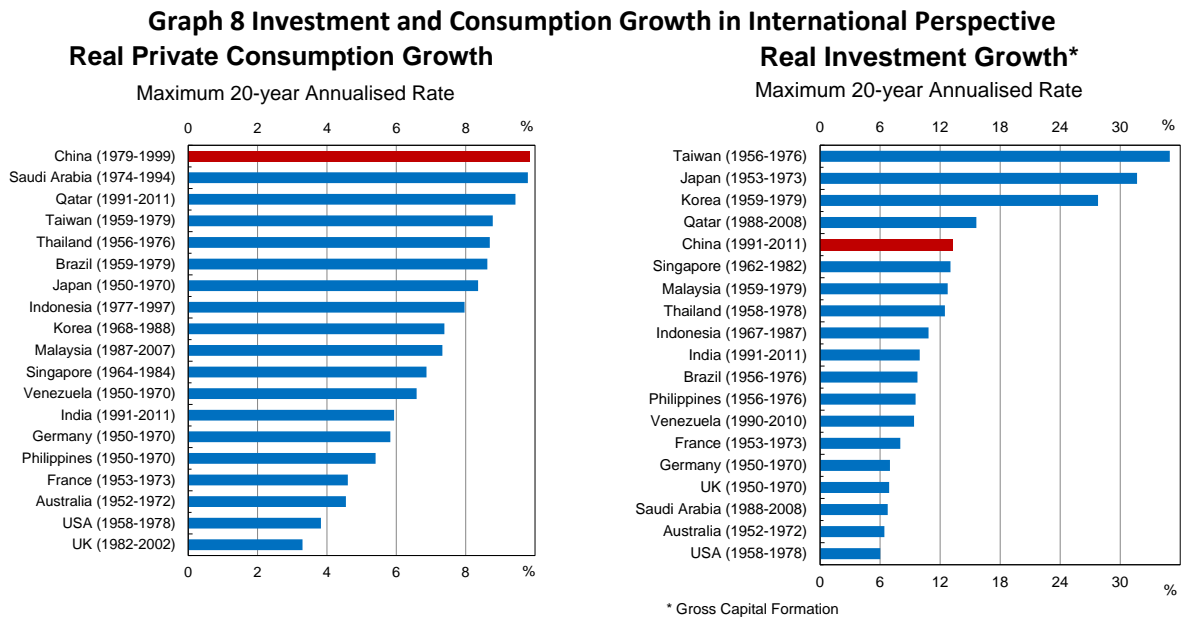
Table 1: China – Growth of GDP Expenditure Components
1978 constant prices, compound annual growth rate (per cent)

| | GDP | Consumption | | | Gross Capital Formation | |
|-----------|------|-------------|---------|------------|-------------------------|-------|
| | | Total | Private | Government | Total | Fixed |
| 1978-2014 | 9.7 | 9.2 | 9.0 | 10.0 | 10.4 | 11.1 |
| 1978-2007 | 9.9 | 9.4 | 8.9 | 10.8 | 10.2 | 11.1 |
| 2000-2007 | 10.8 | 8.8 | 9.0 | 8.4 | 14.0 | 14.4 |
| 2007-2014 | 8.8 | 8.7 | 9.5 | 6.7 | 11.2 | 11.3 |
| 2007-2010 | 9.8 | 9.1 | 9.8 | 7.7 | 15.6 | 15.7 |
| 2010-2014 | 8.1 | 8.3 | 9.3 | 5.9 | 8.1 | 8.1 |

Sources: Authors’ calculations; CEIC Data; NBS (2015)

A simple international comparison also helps place China’s so-called ‘investment-led’ and ‘consumption-repressed’ growth pattern in some perspective. Graph 8 displays 20-year windows for the maximum annualised growth rates for investment and private consumption for selected economies in the post-war era. While high relative to most

economies, China’s speed of capital accumulation is outstripped by Taiwan, Japan and Korea’s development experiences. In contrast, Chinese private consumption growth has exceeded that of most major advanced and emerging market economies in the period since World War II.



In sum, China’s pattern of domestic demand has been quite unusual and lopsided, but it is hard to attribute the big rise in China’s saving and investment rates to ‘anaemic’ private consumption. As we discuss below, we place a greater weight on an alternative interpretation that attributes the imbalances to structural drivers of high saving and rapid investment growth.

4. Explaining the Imbalances

Two competing but also potentially complementary hypotheses have been put forward to explain the puzzle of China’s sustained surplus saving and unusually unbalanced pattern of domestic demand. One view argues that policy distortions are the principal reason (Huang and Tao, 2011; Singh *et al*, 2013). An alternative view assigns a greater role to structural changes and natural economic forces (Ma *et al*, 2013). These views have different implications for the ongoing and prospective domestic rebalancing.

The first view argues that policy distortions, mostly in the form of subsidies to depress factor costs, have been the primary driver behind the rising external and domestic imbalances. These distortions include currency undervaluation, repressed interest rates ‘subsidising’ corporate investment or the banking system, subsidised costs for land, energy and the environment, and ‘artificially’ low labour compensation under the weight of the household registration (or *hukou*) system, which restricts the social security entitlements of migrant workers. Collectively, these distortions are viewed as depressing household consumption, stimulating investment and boosting exports relative to an assumed counterfactual, giving rise to the twin imbalances and ‘artificially’ high growth.

Nevertheless, the effects of these distortions are often more ambiguous than they appear at first glance. For instance, while subsidised energy costs may support a higher rate of investment and production than would be possible at market prices, they may also help explain China’s rise as a big net energy importer, which, other things equal, tends to reduce its current account surplus. Similarly, while the *hukou* system impedes rural-urban labour mobility, the effect on aggregate household income growth is ambiguous *ex ante*. Although greater portability of

welfare benefits should buoy household incomes and the lower household saving rate, the net effect of *hukou* reform on total income will depend on mobility between industries and different sectoral elasticities of substitution between labour and capital. The relaxation of *hukou* policies may indeed be partly responsible for driving the labour income share *lower* in the 2000s.

Similarly, low regulated benchmark deposit rates are sometimes thought to suppress household consumption in China (see Pettis 2013; Lardy 2008). Nabar (2011) uses provincial panel data from 2006-09 to argue for a dominance of income over substitution effects due to target saving behaviour by households. Berkelmans *et al* (2016) present time series evidence that deposit demand does not respond positively to increases in deposit rates. However, the available empirical evidence relies heavily on the relationship between saving or deposits and inflation-adjusted regulated deposit rates. To some extent, *de facto* interest rate deregulation since the late 2000s via rapid issuance of wealth management products with market-based interest rates may have offset the effect of regulated interest rates in suppressing consumption growth.

In view of the difficulty of identifying the net effect of factor price distortions on imbalances, Ma *et al* (2013) instead emphasise the central role of China's high saving rate in understanding its twin imbalances. They conjecture that multiple favourable demand and productivity shocks in the 1980s, 1990s and 2000s lifted potential growth of the Chinese economy; in an environment of incomplete financial markets and underdeveloped welfare safety nets, these shocks gave rise to large income windfalls that were mostly saved while boosting both consumption and investment spending.

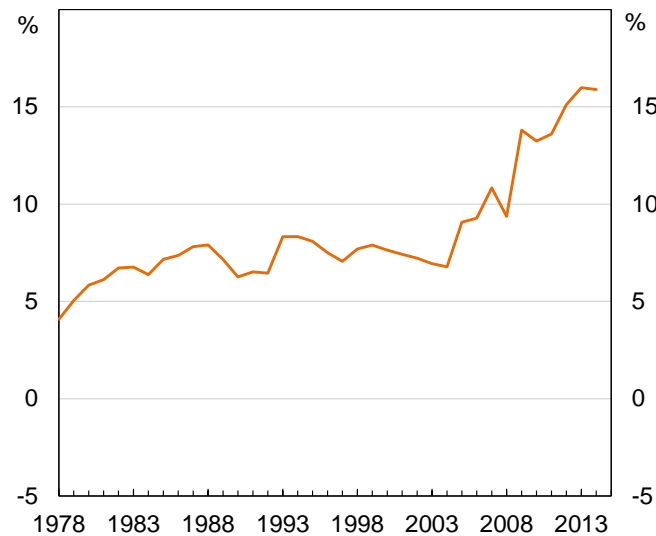
The first two decades of the reform era witnessed at least two significant positive shocks to income growth: the successful rural household responsibility system in the 1980s, and the large wave of employees leaving their state employers to create their own private businesses in the wake of Deng Xiaoping's Southern China Tour in the early 1990s. Moreover, the interactions between a falling dependency ratio and massive rural-urban labour migration kept non-farm wages lower than otherwise, lifting corporate earnings and returns to capital. Wrenching restructuring of state firms reduced job security, improved efficiency, cleared room for expansion of private firms and lifted corporate earnings, all boosting private saving. The institutional changes in the pension system, private home ownership and introduction of mortgages also strengthened incentives to save and fuelled a property investment boom. Finally, China's WTO accession in 2001 prompted a wide-ranging market opening, attracted more foreign transfers of technology and secured access to a booming foreign market, all of which support corporate cash-flows.

The role played by the deregulation of housing markets in China deserves special emphasis. In 1988, the Chinese constitution was amended to legalise the transactions of land use rights, laying the foundation for private home ownership (Fang *et al* 2015). Throughout the 1980s and 1990s, most of the housing provided by SOEs to their employees was privatised at a discount to the replacement cost. Mortgages were introduced in 1997, and official mortgage rates were cut five times during 1998-2002 to counter the negative consequences of the Asian Financial Crisis.

The deregulation of housing markets saw residential investment rise sharply starting in the early 2000s to almost 16 per cent of GDP currently (**Graph 9**).⁶ This housing boom stimulated huge capacity-building in many related upstream and downstream industries, including steel, cement, glass, household appliances and financial services. Using data from the 2010 input-output tables and more up-to-date data on value-added, Xu *et al* (2015) estimate that, directly and indirectly, residential housing accounted for 29.4 per cent of GDP growth in 2013.

6 We use the estimates of nominal residential gross fixed capital formation due to Koen *et al* (2015), projected forward using data on real estate fixed asset investment.

Graph 9: China – Residential investment
Share of nominal GDP



Sources: CEIC; authors' calculations

It is likely that the housing boom simultaneously boosted growth, investment and saving in China while subtracting from net household income (through higher mortgage payments). The rise of private home ownership in the late 1990s boosted incentives to save by households strongly motivated to upgrade their housing and to build up private assets, while generating higher investment. As discussed, the rise in household investment mostly reflected individual investment in residential construction. The property investment booms in the 2000s further boosted land sales proceeds accruing to local Chinese governments, helping to fund investment in infrastructure. At the same time, the steady rise of mortgage loans as a share of total credit (reaching 12 per cent in 2014) implied larger interest payments by home-buyers to financial institutions and a corresponding fall in households' net property income. In turn, this contributed to the decline in the household share of income in the 1990s and 2000s.

The housing boom increased both sales volumes and prices, lifting corporate earnings and the return to capital across many related industries and helping to underpin strong corporate saving and investment until the late 2000s. In sum, the opening of the housing market can be viewed as a prolonged positive demand shock to the Chinese economy, sustaining returns to capital, boosting investment and lifting both private and public saving at the same time (Ma et al, 2013; Xu et al, 2015).

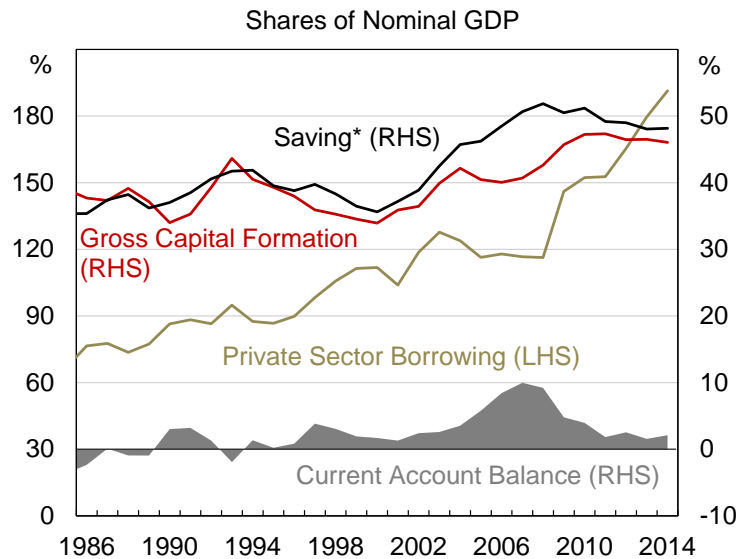
5. Prospects for domestic rebalancing

Several reasons have been offered in favour of the view that a more balanced pattern of growth in China would have local and global benefits. Obstfeld and Rogoff (2009) argue that China's current account surplus underpinned global imbalances which contributed to the global financial crisis in 2008-09. Yu (2007) contends that China has misallocated resources by running large current account surpluses. On this view, by running a large capital account surplus and current account surplus simultaneously (accommodated by the accumulation of sizeable foreign exchange reserves), China 'parks' its excess savings abroad in the form of US Treasuries rather than undertaking more profitable and socially beneficial domestic investment, which is already high. A higher consumption share could also be directly welfare-enhancing if it is facilitated by reforms and policies that improve the income distribution and develop the social safety net (Cai and Roberts 2015).

An additional argument in favour of rebalancing is that the high investment share in recent years has been sustained by sharply rising leverage. Rebalancing will therefore help address associated financial risks and reduce the likelihood of a financial crisis occurring (Pettis 2013). Indeed, leverage has had an important role to play in China's unbalanced growth pattern, particularly since 2008. Prior to this, the foreign sector appeared to have

accommodated China's big capacity build-up without much leverage, as the current account surplus surged (**Graph 10**). Despite the 1998-2008 investment boom, the nation's total credit to the non-financial private sector as a share of GDP rose modestly from 106 per cent to 116 per cent. One possibility is that the rising Chinese investment was mostly 'funded' by retained earnings from both a booming export market following China's WTO accession and the booming housing sector.

Graph 10: China – Savings, Investment and Leverage



* Gross Capital Formation plus Current Account Balance
Sources: CEIC Data; BIS; authors' calculations

In contrast, the shrinking of China's current account surplus from 10 per cent of GDP in 2007 to 2 per cent in 2014 coincided with a rapid leveraging-up. This surplus saving was mostly reduced by a step rise in the investment rate, as Chinese policymakers hastened to boost growth via a massive credit stimulus. Total credit to the non-financial private sector jumped from 116 per cent in 2008 to 193 per cent in 2014. Moreover, the post-crisis boom in the credit-intensive property investment also triggered a compositional upward shift in the indebtedness of the corporate sector (Zhang et al 2015; Chivakul et al 2015; Roberts and Zurawski, forthcoming). Finally, externally oriented firms with weaker cashflows due to dwindling overseas sales may have resorted under pressure to higher leverage to fund replacement investment. Thus, the rapid compression of China's external surplus, while reducing global imbalances, probably came at the price of a steep rise in leverage.

Rebalancing may help reduce the risk of disruptive financial dislocations in the future. But more prosaically, it could simply mitigate poor returns to inefficient investment in industries and regions facing conditions of oversupply. The perception by China's Government that the existing growth pattern had become 'unstable, unbalanced, uncoordinated and unsustainable' led to an official commitment in the Twelfth Five-Year Plan (2011-2015) to seek a more balanced pattern of domestic demand.⁷ This is again reflected in the newly draft Thirteen Five-Year Plan of 2016-2020.

How might rebalancing play out in practice? The very high rate of consumption growth in recent years suggests that, realistically, any rebalancing to a higher consumption share is more likely to involve a deceleration of investment than an acceleration of consumption. There is historical support for such a conjecture. For this purpose, define 'rebalancing' as a shift from a very 'unbalanced' situation in which the investment share of GDP has on average exceeded the household consumption share of GDP for at least five years, to a situation in which the reverse prevails for a subsequent five years. There are relatively few historical examples of such a rebalancing,

⁷ This comment was made at a press conference by former Premier Wen Jiabao in 2007 (Xinhua News Agency 2007).

and it is rarer still for them to be accompanied by an increase in consumption growth from previous rates. In a sample of 167 economies between 1950 and 2011, there are 10 cases of rebalancing on this definition. In almost all cases, household consumption growth in the five years after such a ‘rebalancing’ was lower than in the five years before (Table 2).⁸

Table 2: Rebalancing – Selected Historical Episodes

Per cent

| | Gross Capital Formation | | | | Household Consumption | | | |
|--|-------------------------|--------------|---------------|--------------|-----------------------|--------------|---------------|--------------|
| | Share of GDP* | | Growth** | | Share of GDP* | | Growth** | |
| | <i>Before</i> | <i>After</i> | <i>Before</i> | <i>After</i> | <i>Before</i> | <i>After</i> | <i>Before</i> | <i>After</i> |
| Angola (1995-2004) ^(a) | 33.2 | 12.2 | 10.9 | -14.5 | 31.5 | 42.4 | 5.1 | 19.5 |
| Brunei (1979-88) ^(a) | 7.0 | 11.7 | 16.7 | -0.5 | 6.3 | 20.6 | 16.2 | 11.7 |
| Congo (1981-90) ^(a) | 40.6 | 19.8 | 8.5 | -16.1 | 40.2 | 56.3 | 12.7 | -2.3 |
| Gabon (1984-93) ^(a) | 35.4 | 21.2 | -3.6 | -7.8 | 33.2 | 38.3 | -2.4 | 3.1 |
| Japan (1970-79) ^(b) | 37.0 | 31.6 | 6.9 | 2.7 | 49.8 | 53.7 | 4.9 | 5.0 |
| Philippines (1979-87) ^(b) | 33.8 | 19.9 | 5.4 | -10.4 | 62.1 | 69.4 | 3.5 | 2.3 |
| Qatar (1979-88) ^(a) | 20.6 | 16.7 | -7.6 | -2.4 | 19.6 | 28.0 | -5.8 | -1.5 |
| Saudi Arabia (1976-85) ^(a) | 29.1 | 26.9 | 12.8 | -2.4 | 26.4 | 40.9 | 16.1 | 10.9 |
| South Korea (1993-2002) ^(b) | 36.6 | 28.7 | 6.8 | 1.7 | 52.6 | 54.3 | 7.2 | 3.9 |
| Thailand (1993-2002) ^(b) | 40.1 | 21.8 | 2.2 | -9.1 | 51.9 | 54.1 | 5.5 | 2.4 |
| Uruguay (1966-75) ^(a) | 48.6 | 19.7 | 19.0 | 2.2 | 46.4 | 71.5 | 3.6 | 1.3 |
| Venezuela (1978-86) ^(a) | 46.1 | 25.3 | -9.1 | -4.9 | 40.1 | 46.6 | 4.3 | 2.6 |

Notes * Five-year cumulative share

** Five-year real annualised average

(a) Period refers to five years on either side of a year ('before' and 'after') in which the five-year cumulative investment share of GDP fell below the five-year cumulative consumption share

(b) Period refers to five years on either side of a year ('before' and 'after') that saw a substantial reduction in the investment share

Sources: Authors' calculations; Penn World Table Version 8.1

It might be argued that defining rebalancing as a change in the sign of the gap between private consumption and investment shares is too restrictive. After all, the historical rebalancing experiences of Japan and South Korea are excluded on this formulation.⁹ But even if we use an alternative criterion (such as an increase in the difference between the household consumption and investment shares of 20 percentage points), the results are similar.¹⁰ It should be noted that the reasons behind different rebalancing experiences are diverse. In some cases (such as that of Angola), the timing corresponds to periods of political conflict and famine. For a number of Middle Eastern nations (including Saudi Arabia) the timing may reflect income shocks due to rapid changes in oil prices, or war (as in the case of Iraq in 2003 and subsequent years). Several Asian economies, including Thailand, South Korea and Indonesia, experienced a degree of rebalancing following the Asian Financial Crisis. Similarly, the timing of

8 The 10 economies experiencing rebalancing episodes according to this criterion are Angola, Brunei Darussalam, Congo, Gabon, Iraq (which experienced two episodes), Oman, Qatar, Saudi Arabia, Uruguay and Venezuela. We exclude microstates (for example, Saint Kitts and Nevis).

9 Japan and Korea are characterised by a gradual rebalancing of investment and household consumption shares. Moreover, in both cases the initial magnitude of the domestic imbalance (measured by the difference between investment and household consumption shares of GDP) did not approach those observed currently in China.

10 On this criterion, about 30 economies qualify as having rebalanced over the sample period, but of these only about half experienced any increase in household consumption growth at all during the rebalancing process, and only one had an initial high five-year annualised average growth rate exceeding 5 per cent per annum (Botswana).

rebalancing for the Philippines and some Latin American economies coincides with periods of external debt crisis.¹¹

Indeed, the question of how rebalancing might play out depends on the reasons for the imbalances. In practice, it is likely that a combination of both policy distortions and saved windfalls from positive shocks has contributed to China's imbalances. But the implications of the two hypotheses are different for prospective rebalancing. Factor price distortions that arise as a result of public policy can in general only be removed by policy reversals. Logically, for instance, interest rates need to be raised to stimulate household consumption, according to the target saving argument (Nabar 2011). In contrast, vanishing income windfalls, or the negative consequences of slower reallocation of labour, an ageing population, less low-hanging fruit from market liberalisation and diminishing pull effects from a more balanced housing market, may occur naturally and in tandem with slower potential growth, irrespective of the stance of policy.

In Section 3, we consider how some of the earlier tailwinds to the Chinese economy may now have reversed into headwinds, weighing on potential growth, lowering returns to capital and thereby forcing a prospective domestic rebalancing through slower capital formation. But a fall in investment growth may weaken growth of private consumption too, due to slower job creation and falling wage growth. A benign form of rebalancing would involve household consumption spending slowing but still growing at a faster pace than gross capital formation. A degree of resilience in consumption matters crucially for an orderly domestic rebalancing, as we illustrate in Section 4.

The role of maturing housing markets may prove to be especially important in triggering internal rebalancing. The housing market has evolved from an initial big mismatch of undersupply twenty years ago to a now normalising and more balanced sector in terms of demand and supply, even with some pockets of oversupply (Chivakul *et al*, 2015). The outlooks for urbanisation, demographics and income growth all suggest that in trend terms Chinese residential construction may already have peaked (Berkelmans and Wang 2012; Perkins 2015). Deng *et al* (2015) estimate that during the boom decade of 2001-2010, housing demand exceeded supply by 14 per cent in aggregate but fell short of it by 10 per cent during 2011-2012. Their estimate of the nationwide vacancy rate also doubled between 2002 and 2013. Higher inventories and slower sales should lower returns to capital and investment in real estate and related sectors. Weaker corporate earnings, slower land sales proceeds and slower job creation could in turn combine to trim China's aggregate saving rate as well.

As a correction in the growth of investment, rather than consumption growth, is the main channel through which internal rebalancing seems likely to occur, we now consider a key mechanism – namely the decline in the return to capital relative to the cost of funding new corporate investment in China.

6. Mechanisms for Internal Rebalancing

In this section, we argue that while policy changes designed to remove factor price distortions may facilitate rebalancing, it will probably happen as a natural outcome of dwindling income windfalls from worsening demographics and earlier productivity shocks, which helped drive the imbalances in the first place. We will revisit and update the estimates constructed by Bai *et al* (2006) of the return to capital in China, using a slightly modified approach. We then compare our estimates to a proposed measure of average real funding cost facing the Chinese corporate sector.

Bai *et al* (2006) use a methodology derived from Jorgenson's (1967) neoclassical theory of investment. Their basic equation to obtain a real net rate of return for owners of capital is as follows:

$$R_t = i_t - \dot{P}_t^Y = \frac{\alpha_t (P_t^Y Y_t)}{P_t^K K_t} + \left[\dot{P}_t^K - \dot{P}_t^Y \right] - \delta_t,$$

11 Not all such crises resulted in rebalancing under our definition. For example, the Chilean debt crisis (1982) resulted in a very moderate rebalancing from investment towards private consumption, while Brazil, Mexico and Argentina (also early 1980s) experienced fairly modest changes in the already relatively high consumption shares of GDP.

where i_t measures the nominal return to capital, P_t^Y is the GDP deflator, P_t^K is the price of capital, α_t is the capital share of income, Y_t is total income, K_t is the capital stock and δ_t is the depreciation rate. In this formulation, the return to capital is composed of three parts: an estimate of the marginal revenue product of capital, a real ‘capital gain’ term (the change in the price of capital in terms of consumables) and a depreciation rate. When the prices of capital and output are the same, the return to capital is equal to the marginal physical product of capital ($\alpha_t Y_t / K_t$) – that is, the product of the capital share of income and the inverse capital-to-output ratio – net of depreciation.¹²

6.1 Components of the return to capital

To estimate R_t , we construct a dataset of its constituents. Chinese data requirements are challenging and evident (Brandt and Rawski, 2008). For GDP, we use official data from the national accounts. To ensure internal consistency between our estimates of the return to capital and the expenditure-side scenarios we present later (see Section 4), we use the National Bureau of Statistics’ (NBS) expenditure-side estimate of GDP in constant 1978 prices and a corresponding deflator. We derive estimates of real gross capital formation (GCF) and the investment deflator using data on expenditure-side contributions published for the period from 1978 to 2014. These estimates are backcast using data from NBS (2006). Our data on gross fixed capital formation (GFCF; GCF net of inventories) is obtained using the same data sources and a number of assumptions.¹³

Data on the aggregate capital stock are required to estimate a capital-output ratio. In their original work, Bai *et al* (2006) estimate separate capital stocks and prices for structures and equipment investment using rescaled data on flows of fixed asset investment (FAI).¹⁴ In view of the limited available data on the components of gross (fixed) capital formation and bearing in mind the conceptual discrepancies with fixed asset investment data (see Holz 2006), we instead assume a single homogeneous type of capital. We construct a capital stock using the perpetual inventory method. The capital stock is initialised in 1978 using a method similar to that of Bai *et al* (2006) and de la Fuente and Domenech (2000).¹⁵ In the absence of reliable information about economy-wide depreciation rates, we use a constant rate of 7 per cent, although our results are robust to the range of depreciation rates used in the literature.¹⁶

Holz (2004) and Wu (2015) warn against the inclusion of residential housing in estimates of the capital stock on the grounds that it is a non-productive asset. The importance of housing as an engine of growth in China since the late 1990s, discussed in the previous section, raises doubts about the accuracy of to exclude it mechanically from estimates of capital accumulation or the return to capital. But it is still worth considering the robustness of our findings to alternative assumptions about the coverage of the capital stock and GDP. Accordingly, to abstract from

12 This formulation of the return to capital assumes perfect competition. As Bai *et al* (2006) observe, ignoring the presence of imperfect competition induces an upward bias to estimates of the marginal return to capital. As such, the absolute level of the estimated return to capital needs to be treated with caution. An adjustment could be made to account for this bias by assuming a mark-up over marginal cost. Our comparison of changes over time will still be informative providing that the bias due to imperfect competition has not changed substantially over time in China.

13 To allow alternative estimates of the components of the return to capital to be directly comparable, we use an estimate of GDP net of inventories as the aggregate national output measure when constructing estimates based on gross fixed capital formation, rather than gross capital formation, data.

14 FAI is a broader (and higher-frequency) measure of Chinese investment than the annual national accounts measure of gross (fixed) capital formation. FAI is defined as the value of fixed assets that are built or purchased, plus the related costs of installation and ownership transfer. The most significant difference is that FAI includes land purchases, existing buildings and structures and purchases of second hand equipment. Another distinction is that FAI only includes investments larger than CNY 5 million (prior to 2011 this lower bound was CNY 500,000).

15 Specifically, we assume that the initial capital stock is equal to the 1978 level of investment divided by the sum of the assumed steady-state growth rate of investment (which we take to be the 1978 – 1982 average growth rate) plus the depreciation rate. Our estimates are robust to initialising the capital stock at an earlier date, for example 1952.

16 In the original formulation of Bai *et al* (2006), constant depreciation rates of 8 per cent and 24 per cent are used for structures and equipment investment; the changing shares of the different types of investment give rise to a time-varying aggregate depreciation rate. Wu (2015) uses a depreciation rate of 6 per cent. Holz (2006) estimates economy-wide depreciation rates in the range of 3–6 per cent since 1978. Typical estimates used in the literature range from 5 per cent to 7 per cent (Holz 2006).

housing, we estimate the residential housing stock using an approach similar to that described in Koen *et al* (2013). We estimate GDP excluding expenditure on residential housing by using national accounts data on the consumption of residential housing services.

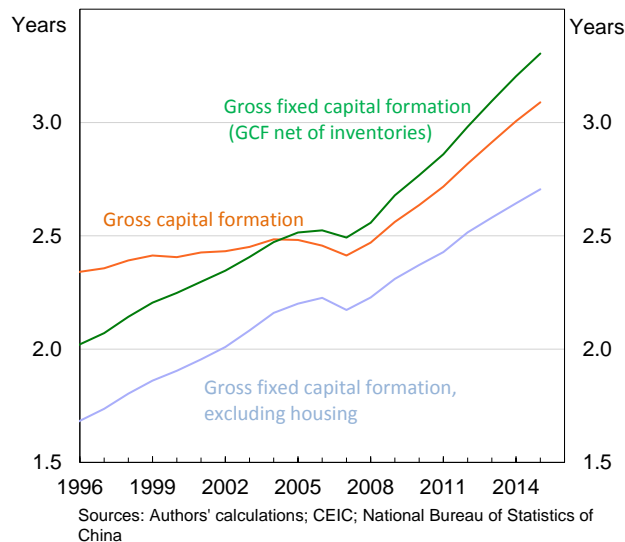
We estimate the share of payments to capital, α_t , by estimating the labour share of income, $1 - \alpha_t$. As the return to capital that is relevant for the corporate sector is net of taxes, in some variations we also exclude net taxes on production and income from the capital share. We rely on physical transactions data from the flow-of-funds accounts to estimate the labour share of income. A key advantage of these data is that, in theory, they are comprehensive (unlike data on the urban wage bill), and consistent with national accounts estimates of gross value-added (unlike provincial compensation of employees data). As the flow-of-funds data are only available from 1992 to 2013, we backcast the labour share for earlier years using aggregate compensation of employees from the gross provincial product data.¹⁷ We project the labour share to 2014 using an estimate of total labour compensation based on the urban and rural household survey income data. We scale this estimate up to the level of total compensation in the flow-of-funds accounts

We now examine the main constituents of our estimate of the return to capital in detail.

Capital-to-output ratio

The capital-to-output ratio has grown rapidly in recent years (**Graph 11**). The ratio increased at a slowing pace through the late 1990s and early 2000s, even declining in 2007. But coinciding with the government's macroeconomic stimulus in 2008-09, the capital-to-output ratio began to increase sharply and has maintained a steep upward trajectory since then. Excluding inventories from the investment measure used to calculate the capital stock tends to increase the level of the capital-to-output ratio and sharpen its upward trajectory, due to a declining contribution of inventories to growth in gross capital formation over much of the recent period. Excluding housing tends lower the capital-to-output ratio, consistent with large net additions to the stock of residential property over the past 16 years or so.

Graph 11: China – Capital-to-Output Ratio



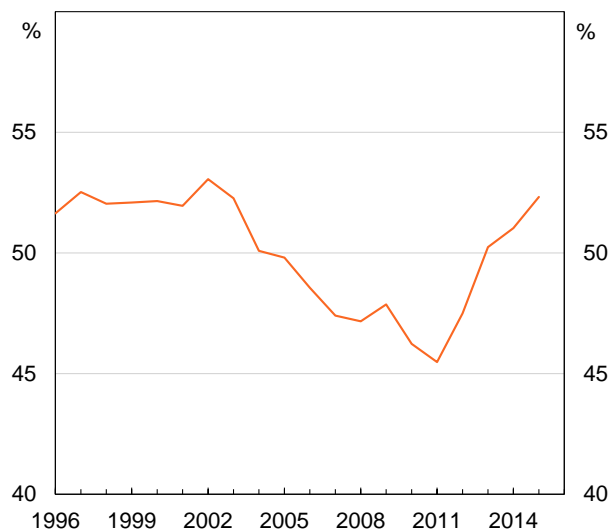
¹⁷ Others have used long-run consistent provincial income time series in preference to splicing with the flow-of-funds estimates (Bai *et al* 2006; Bai and Qian 2010). But Lü (2015) argues persuasively that, in view of the variable quality and inconsistent implementation of statistical standards in the provincial level income accounts, recent vintages of the flow-of-funds data are a preferable data source.

Labour share of income

The labour share of income in China has generally fallen since the mid 1990s, consistent with global trends and contributing to China's high return to capital until the early 2010s (**Graph 12**). China's labour share is low and around 52 per cent of GDP, compared to 75 per cent for the United States. In an international context, the long-term decline in the labour share of income is typically attributed to advances in information technology that have led firms to shift from labour-intensive production towards capital-intensive production (Karabarbounis and Neiman 2013). But as discussed in the previous section, in China's case explanations for the decline have instead focused on changing of patterns of labour migration across regions and sectors.

While the estimate for 2014 is a projection based on trends in urban wage data, and must therefore be treated with caution, it provides tentative evidence that since 2011 the downward trend has reversed. This development is potentially significant from the perspective of rebalancing. Fukumoto and Muto (2013) argue that a rising labour income share played a crucial role in the rise of Japan's consumption share in the 1970s.

Graph 12: China – Labour Share of Income



Sources: Authors' calculations; CEIC

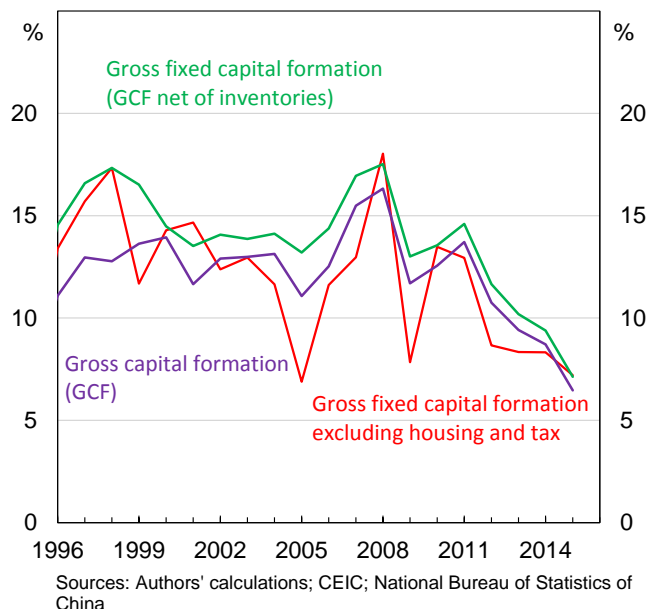
A number of possible reasons for the reversal can be conjectured. China's working-age population has started to decline, placing downward pressure on growth in the labour supply. At the same time, the large-scale migration from rural to urban areas that characterised much of the reform period and depressed urban wages has already slowed substantially, consistent with assessments that the quantity of 'surplus' labour in the countryside has fallen (Garnaut 2010; Cai 2011; and Ma *et al* 2013). Industrial structure has also changed noticeably since the early 2000s. While the size of the agricultural sector has continued to decline (which would tend to put *downward* pressure on the labour income share), the share of services industries, in terms of both output and employment, has been rising, largely at the expense of more capital-intensive heavy manufacturing output in total value-added and potentially adding to the labour income share.

6.2 Estimating the return to capital

Combining the above ingredients, we obtain benchmark estimates of the return to capital in China (**Graph 13**). A feature of the estimates is that the return to capital increased in the mid-2000s, but since 2008 has experienced an oscillating decline. This finding is consistent with the falling share of corporate income in GDP (**Graph 3**) and is robust to alternative measurements of the capital stock and labour share. If we consider the return to fixed investment (as opposed to investment including inventories), we obtain a higher return to capital. The wedge

between the two series has declined over time, reflecting a higher real capital-to-output ratio for fixed investment.¹⁸ Adjusting our calculations to exclude residential housing from gross fixed investment and calculating the capital share net of taxes on production and income, the dynamics are a little different, but a similar overall trend decline in the return to capital since 2008 can be observed.

Graph 13: China – Return to Capital



Mechanically, the decline the return to capital since the late 2000s can largely be accounted for by a resumption of the upward trend in the capital-to-output ratio combined with a jump in the price of investment goods that explains the sharp increase in 2008.¹⁹ Up until 2011, the falling labour share of income offset the deteriorating marginal product of capital, but the reversing labour share tends to reinforce it in the last few years of our sample.²⁰

6.3 Corporate funding costs

Business investment hinges on the gap between the prevailing corporate funding cost and the expected earnings from new projects, both on a risk-adjusted basis. Thus, it is plausible that the decline of the return to capital since 2008 has affected the incentives of the corporate sector to undertake new investment (Fukumoto and Muto, 2013). To consider this issue, we treat our estimate of the real return to capital as a proxy for expected corporate earnings and compare it to an estimate of inflation-adjusted corporate borrowing costs.

To avoid taking a strong view about which interest rates and inflation rates are most relevant for the Chinese corporate sector, we average a range of nominal interest rates and inflation rates to derive a proxy for the real corporate cost of borrowing. We proxy the nominal corporate borrowing cost with a weighted average of three interest rates: the weighted average rate on general loans published by the People's Bank of China (PBC), the average collective trust product advertised yield (as reported by Wind Information), and the 5-year AA corporate note yield to maturity (sourced from Bloomberg). We choose these interest rates, as they are reasonably

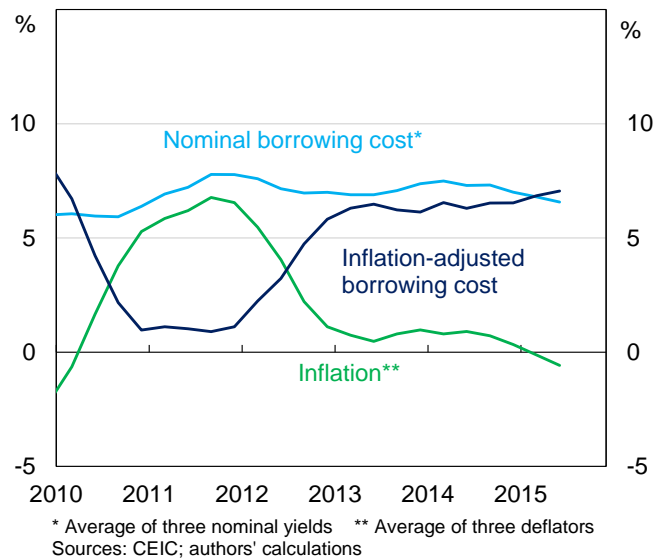
¹⁸ The wedge has remained positive: the reason for this is that the nominal capital-to-output ratio has actually been *lower* for GFCF than for GCF, due to faster growth in the GCF deflator.

¹⁹ Even if we assume that prices of investment goods and aggregate output were the same over this period, a similar downward trend in the return to capital after 2008 is apparent.

²⁰ Trends in the labour share should be placed in some perspective. Assuming a constant labour share (for example, the average over the period since 1978) suggests a more moderate pace of decline in the return to capital in recent years, but the broad picture is similar.

representative of the medium-term corporate financing cost in a financial system in which banks have a dominant position but the importance of ‘shadow banking’ and corporate debt securities has grown. The interest rates are weighted together using break-adjusted stocks of credit, trust financing and corporate bond financing from the Total Social Financing statistics published by the PBC.²¹

Graph 14: China – Average Corporate Borrowing Cost and Inflation



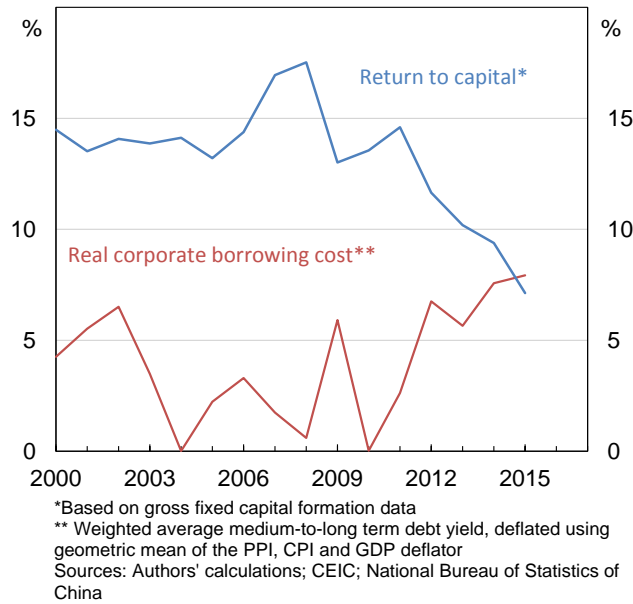
We then adjust the average nominal corporate borrowing cost for inflation using a geometric average of the following three price deflators: the consumer price index (CPI), the implicit GDP deflator and the producer price index (PPI). These inflation indicators are ex post, but the inclusion of an inflation expectations measures, such as the consensus CPI forecast, does not alter the picture substantially. The three inflation indicators have been quite volatile over time and can diverge considerably from each other from time to time. For instance, while both the CPI and GDP deflator grew by about 1 ½ per cent in 2014, the PPI was deflating over the same period. Nevertheless, all three price measures since 2011 have shared a distinctly disinflationary trend, which has contributed to an upswing in the real corporate financing cost (**Graph 14**).

6.4 Comparing corporate funding costs and the return to capital

As our estimates of both the return to capital and the real corporate borrowing cost are only rough, and measured with considerable margin for error, the absolute difference between the two series is not informative. But the broad trends in both series suggest that the gap might have narrowed considerably or even closed in recent years (**Graph 15**). In combination with the easing of macroeconomic stimulus after 2010 and efforts by authorities to keep broad credit growth in check, the narrowing gap may help account for a halving of the average pace of China’s gross capital formation from 15 per cent in the 2000s to 8 per cent in the 2010s (**Table 1**).

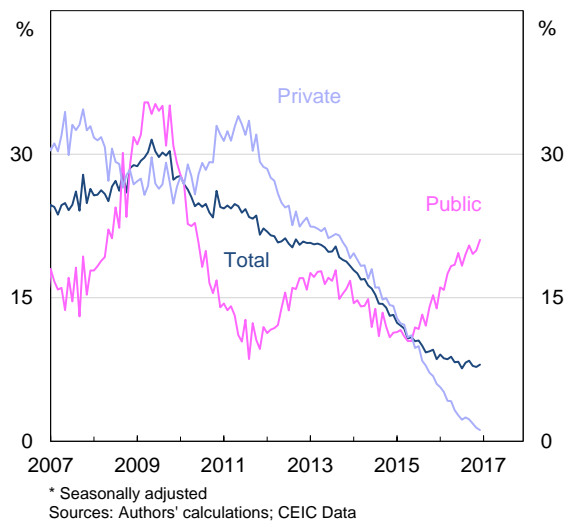
²¹ Due to data limitations that restrict the time series, prior to 2010 we splice this estimate with the regulated nominal benchmark lending rate for loans of 1–5 years’ duration. The choice of a regulated lending rate for earlier years may be justified on the grounds that the abolition of restrictions on lending rates was not achieved until 2012. Moreover, trust product and bond issuance accounted for an extremely small share of corporate finance prior to 2010.

Graph 16: China - Return to Capital and Corporate Financing Cost



The behaviour of the real interest rate is hard to predict, as it depends on the stance of monetary policy, the domestic saving-investment balance, the degree of capital account openness and global interest rates, among other factors. The pick-up in inflation more recently (particularly in 2016) is likely to have weighed on the real cost of funding, which may mitigate the effect of a declining return to capital on investment. Nonetheless, the shrinking gap between the cost of funding and returns to investment since 2011 is likely to have reduced incentives of firms to make additions to the capital stock. As we would expect private enterprises to be more sensitive to such incentives than state-owned or controlled firms, the sharp decline in the growth of private investment in recent years offers tentative support for this hypothesis (**Graph 17**).

Graph 17: China – Fixed Asset Investment
 Year-ended growth



7. Concluding Remarks

This paper examines the question of rebalancing in China – that is, a shift from a pattern of growth driven by investment to one driven by consumption. First, we offer a reappraisal of the causes of China’s unbalanced pattern

of growth in recent decades with reference to an updated analysis of the flow-of-funds accounts. We find that conventional analysis understates the role of the household sector in contributing to the high investment share of the economy. Our preferred explanation for the imbalances emphasises the role played by the opening up and deregulation of housing markets as one of multiple prolonged positive productivity and demand impulses to the Chinese economy that simultaneously sustained returns to capital, lifted investment and boosted both private and public saving. While recent discussions stress the need to reform financial markets to foster rebalancing, we argue that rebalancing will probably happen anyway as a natural outcome of dwindling income windfalls from worsening demographics, fading positive productivity shocks and maturing housing markets, all of which helped drive the imbalances in the first place.

Second, we present estimates suggesting that the return to capital in China has been falling while the domestic cost of funding has been rising. These trends suggest that China's pattern of rebalancing will most likely be one characterised by falling investment growth in the years ahead.

The third leg to the argument is that Chinese consumption growth in recent years has been extraordinary by the standards of Chinese history and in comparison to other countries. In support of this contention, we present historical and international comparisons, which suggest that it has been rare for economies experiencing rapid consumption growth prior to a rebalancing episode to sustain or to increase consumption growth in subsequent years. Such comparisons highlight the critical but uncertain role played by resilience of consumption expenditure in China's rebalancing process.

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