11. China's economic rebalancing: Drivers, outlook and the role of reform

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Reforms to transform China's centrally planned economy into a market-oriented one presented enormous challenges for macroeconomic management. In the first 15 years of reform, the main challenge appeared to be difficulties in maintaining short-term expenditure within the productive capacity of the economy, to avoid a pronounced tendency towards periodic bursts of excess demand, deficits in external current payments and inflation (Garnaut and Ma 1993; Raby 2001). Reforms in the financial and monetary systems, and the learning-by-doing of the People's Bank of China (PBC), led to relatively smooth management of the external balance problem from the mid-1990s, although there was a brief upsurge in the current account deficit at the height of the East Asian Financial Crisis in 1998 (Song 1998).

After the crisis, observers tended to view the macroeconomic problem as one of excessive savings (a tendency for incomes to exceed consumption by a large margin) and external payments surpluses (a tendency for domestic productive capacity to exceed domestic expenditure by a sizeable amount). At the same time, the composition of domestic expenditure exhibited a marked shift away from consumption spending towards domestic gross capital formation. Thus, in the second half of the first 40 years of reform, these expenditure imbalances—and the question of how they might be resolved—increasingly became a focus of concern for policymakers and academics alike.

This chapter examines the build-up and subsequent unwinding of China's expenditure imbalances in the past two decades of reform. It presents macroeconomic evidence that rebalancing from a lopsided investment and export-driven pattern of growth towards more consumption-driven growth is already occurring in China. It examines the reasons for the emergence of the expenditure imbalances—in particular, China's high national saving rate, positive impulses to growth arising from economic reforms and a prolonged boom in housing. It then considers the prospects for their resolution, focusing on the role of structural change, the resilience of household demand and a decline in the return to capital since 2011. In this context, it also discusses the role the government's current reform plans and macroeconomic policies can play in the rebalancing process.

1 The views expressed in this chapter are those of the authors and should not be attributed to the Reserve Bank of Australia. The authors appreciate the comments and suggestions provided by the book's editors, but are solely responsible for any errors.

China's unbalanced growth pattern, which features a high investment–GDP/low consumption–GDP ratio and a sustained current account surplus, has been a focus of international policy discussions since the mid-2000s (Bernanke 2007; Obstfeld and Rogoff 2009). Rebalancing the pattern of expenditure has also become a priority for the Chinese Government. Premier Li Keqiang recently reiterated this aspiration, observing that ‘consumption is crucial for China's economy to grow and remain stable, and is the main engine for optimizing economic structure’ (State Council 2017).

Several authors contend that China's imbalances are rooted in labour and capital market distortions that artificially lowered the cost of labour and capital, repressed consumption and suppressed the value of the renminbi (Lardy 2008; Huang and Tao 2011; Pettis 2013). They argue that the imbalances may be tackled by reducing these distortions. In contrast, Ma et al. (2013) argue that China's twin imbalances—domestic expenditure falling noticeably short of income and, within domestic expenditure, a rise in the investment share at the expense of the consumption share—can be understood as the products of large income windfalls spurred by reforms and other structural changes that were saved, giving rise to large external surpluses. An advantage of this explanation is that it reconciles strong consumption growth, even faster growth in investment and a modest consumption share with the rise of the external surplus during the early 2000s. Ma et al. (2013) predict that, as these windfalls fade, saving will fall and the imbalances will be reduced.

To clarify the reasons and prospects for rebalancing, we first review the literature and empirical evidence regarding the main factors behind the expenditure imbalances, emphasising the central role of a high and rising Chinese saving rate. Second, we highlight the extraordinary strength of Chinese household consumption growth in comparison with other economies. Even if consumption has been ‘repressed’ by factor price distortions, as argued by some analysts, such comparisons cast doubt on the likelihood that an acceleration of consumption will be the primary driver of further rebalancing of domestic expenditure. Any meaningful rebalancing is most likely to flow from a deceleration of investment.

Third, we present evidence from China's flow-of-funds accounts showing that conventional analysis understates the role of investment by households in supporting capital accumulation in recent years. While recent discussions stress the need to reform financial markets to foster rebalancing, we argue that, in the long run, rebalancing will probably happen anyway as a natural outcome of dwindling income windfalls arising from worsening demographics, fading positive productivity shocks and maturing housing markets—all of which helped drive the imbalances in the first place.

Fourth, using an approach similar to Bai et al. (2006), we show that returns to capital in China declined after 2011, driven by a rise in the capital–output ratio and a rise in the labour share of income. The fall in returns to capital occurred alongside an upward shift in the cost of debt funding, which reduced incentives for the corporate sector to invest. A continuation of this trend in the longer term would be expected to place further downward pressure on the growth of investment.

While structural forces are likely to continue to drive the rebalancing process that started early in the current decade, new reforms and government policies will affect how that process unfolds. We argue that success in meeting environmental and financial reform objectives may itself be endogenous to an ongoing shift to a less investment-intensive growth pattern. We also argue that some government policies adopted since 2015 could help lift corporate profitability and thus actually stimulate investment; nonetheless, if implemented effectively, they could also enhance investment efficiency and soften the impact of slower overall investment growth on national income and consumption. Reforms that improve social security and reduce households' incentives to save could support consumption in a period of slowing investment growth. Indeed, the national accounts identity implies that for rebalancing away from investment to occur without a rise in the external imbalance, the national saving rate must fall.² State-owned enterprise (SOE) reform—if it leads to a leaner and more efficient state-owned sector—could reduce wasteful investment and thereby facilitate rebalancing. In contrast, a cultivation of large 'national champion' SOEs could lead to a focus on size rather than efficiency, deterring competition from the private sector and slowing the rebalancing process.

Understanding China's expenditure imbalances

In the space of three decades, China's aggregate demand composition was transformed. From the 1980s to the end of the first decade of the 2000s, household consumption as a share of gross domestic product (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 (Figure 11.1). China's saving rate rose even faster than its investment rate, from 35 per cent of GDP in the early 1990s to above 50 per cent by 2007, widening the current account surplus from less than 2 per cent to 10 per cent of GDP in 2007. In short, China experienced a greater domestic expenditure imbalance *and* external imbalance during this period. It is worth noting that, by 'domestic expenditure imbalance', we are referring simply to high-investment/low-

2 The identity can be expressed as $S/Y - I/Y = (X - M)/Y$, where S , I , Y , X and M refer to saving, investment, GDP, exports and imports, respectively. China's trade balance has closely approximated the current account balance as a share of GDP in recent decades.

consumption shares of expenditure. This differs from the traditional concept of ‘internal imbalance’ seen in the international trade literature, which is a tendency towards unemployment or inflation (Meade 1951; Swan 1963; Corden 1960).

Figure 11.1 Aggregate demand and the current account: Share of nominal GDP

* Gross capital formation plus current account balance.

Sources: Authors' calculations; CEIC Data; NBS (2015).

In just a few years after 2007, the current account surplus shrank to below 3 per cent of GDP. This rapid external rebalancing was facilitated by both a currency appreciation and, initially, a sharp rise in the investment rate, which coincided with a peaking but still stubbornly high national saving rate (Ma et al. 2013). Put differently, China's domestic expenditure imbalance increased while its external imbalance eased. Since 2011, however, the expenditure imbalance has started to resolve, with a rising consumption share and a falling investment rate balancing each other to maintain a relatively low and stable current account balance that fell below 2 per cent of GDP in 2016. The trend decline in the national saving rate during the 2010s has been key to the process of rebalancing by supporting robust consumption growth in the face of slower investment growth while shrinking the external surplus.

Who saves and who invests in China?

At a more disaggregated level, an analysis of the Chinese flow-of-funds data available for 1992–2015 helps answer the question of who consumes, who saves and who invests—a core issue in any discussion of expenditure rebalancing. The flow-of-funds

data are conceptually consistent with the national accounts on both an expenditure and an income basis, but they also reveal the breakdowns of these expenditure and income flows by household, corporate and government sectors.³

During these two decades, 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 (Figure 11.2). The saving rate peaked at 52 per cent of GDP in 2008, declining thereafter. By contrast, the investment rate plateaued at 47 per cent in the early years of the current decade, partly owing to the large-scale government stimulus program in the wake of the Global Financial Crisis (GFC). The three sectors—household, corporate and government—all supported China's high and rising investment and saving rates during the period 1992–2015.

Figure 11.2 Saving and investment by sector: Flow of funds, share of GDP

Note: Adjusted for 'acquisition less disposal of other nonfinancial assets'.

Sources: Authors' calculations; CEIC Data.

The household sector has been the largest driver of gross domestic *saving*, accounting for around half in 2015 and generating 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 one-fifth of the increased saving. As a share of GDP, household saving increased steadily, starting in the early 2000s. After a brief period of dissaving in 2000–01, government saving surged, while corporate saving peaked in 2008 and has since fallen.

3 See Ma et al. (2016) for a more detailed discussion.

In contrast, the dominant—albeit most volatile—source of *investment* has been the corporate sector. In 2015, the corporate, household and government sectors represented 64 per cent, 24 per cent and 12 per cent, respectively, of investment. By comparison, government investment has risen steadily over time, particularly since the early 2000s, when government saving also began to increase, before easing off in 2011–15.

A little-noticed fact, however, is that within the space of a couple of decades, investment undertaken by *households* almost doubled, singlehandedly accounting for well over half of the 8 percentage point increase in China's investment share of GDP during this period.⁴ In fact, if we plot total household and nonhousehold expenditure (that is, the sum of consumption *and* investment) as a share of GDP, we observe a compositional shift towards household expenditure starting as early as 2008, several years before the rebalancing towards consumption began (Figure 11.3). Indeed, if the rise in the investment share during the two decades is viewed as evidence of 'overinvestment', these data suggest that the household sector could be one principal culprit.

Figure 11.3 Household and nonhousehold expenditure: Flow of funds, share of GDP

Sources: Authors' calculations; CEIC Data.

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 2015, rural and urban self-employment more than tripled as

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

a share of total employment, rising to around 12 per cent. Investment by households is likely to have accelerated accordingly. Rising self-employment has been an important byproduct of China's growing private sector (Lardy 2014).

A second—probably more important—explanation is that housing-related investment by individuals has increased substantially since the early 1980s. Agricultural sector reforms in the 1980s prompted a burst of housing construction activity by farmers. Then, in the 1990s, the government initiated a wave of *de facto* state housing privatisation in urban areas that led to substantial renovation and upgrading of old state housing units. The 2000s witnessed a surge in the floor space of residential housing built by developers, but ultimately using funds supplied by the household sector, as well as considerable upgrading of apartments sold in rough 'shell' form by developers. These three waves of private housing construction and upgrading activity are likely to have contributed to growth in measured investment by the household sector.

The roles of income and the saving rate in household consumption

In contrast to its prominent role in driving the rising aggregate saving and investment rates, the household sector's share of gross national disposable income fell through the 2000s, while the shares of the corporate and government sectors saw corresponding increases (Figure 11.4). Since 2008, the household income share has started to recover—at the expense of the corporate income share—but, in net terms, the household income ratio has remained below the level of 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.

Although the literature emphasises the declining household share of income as the main factor weighing down the household consumption share of GDP (Ma and Wang 2010; Perkins 2015), the flow-of-funds data suggest that households' rising average propensity to save has been more important in explaining the declining share of household consumption. Household consumption as a share of GDP can be decomposed as Equation 11.1.

Figure 11.4 Income by sector: Flow of funds, share of gross domestic income

Note: Adjusted for 'acquisition less disposal of other nonfinancial assets'.

Sources: Authors' calculations; CEIC Data.

Equation 11.1

$$C^H/Y = (1 - S^H/Y^H) \cdot Y^H/Y$$

In Equation 11.1, C^H , S^H and Y^H refer to household consumption, saving and disposable income, respectively. Using this equation, we calculate that the decline in the household income share (Y^H/Y) and increase in the average propensity to save (S^H/Y^H) contributed one-third and two-thirds, respectively, of the fall in the household consumption share in GDP during the period 1992–2015.

Previous literature explains China's high and rising *average propensity to save* as arising from the increasing burden of private health and education expenses in a climate of underdeveloped financial markets, which increased self-insurance/precautionary saving motives (Blanchard and Giavazzi 2006; Chamon and Prasad 2010). Other explanations emphasise the interaction of a lifecycle of saving—dissaving in early life, positive saving in working years and dissaving in retirement—with China's rising working-age population (Modigliani and Cao 2004).

To these we can add a complementary (and simpler) explanation. Specifically, as a share of GDP, the increase in household investment 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 share during the period 1992–2015. Put differently, if we capped gross capital formation undertaken by the household sector at its 1992 level for all subsequent years and allocated the remaining

investment to consumption, household consumption would have declined from 48 per cent of GDP to only 42 per cent, instead of the recorded 38 per cent in 2015. Similarly, household saving would have risen from 20 per cent of GDP to 21 per cent, instead of the observed 25 per cent (Figure 11.5).

Figure 11.5 Household sector—actual and adjusted: Share of GDP

* Investment capped at 1992 level; remainder allocated to consumption.

Sources: Authors' calculations; CEIC Data.

The *household income share*, on the other hand, has primarily been weighed down by the falling share of labour compensation for most of this period. Falls in the shares of net current transfers, as social welfare programs have been withdrawn, and net property income (partly due to rising interest payments) also contributed to the fall in the early 2000s (Figure 11.6). The decline was partly offset by rising net income from sales of land use rights (reflected in 'net acquisition of nonfinancial assets') and net 'other factor income' associated with the rise in the ranks of the self-employed.

Some observers attribute the falling labour share to the relaxation of restrictions on internal migration under the *hukou* (household registration system) from the 1980s, which permitted a larger pool of incoming surplus rural labour and restrained urban wage growth despite a relaxation of wage controls (Perkins 2015). However, other researchers emphasise the effect of increased labour mobility across regions and industries, which led to a compositional shift from agriculture—where the labour share of income is very high—to industries where the labour share is lower (Bai and Qian 2010; Ma and Wang 2010).

Figure 11.6 Household disposable income: Share of GDP

* Household sector value-added income less payments for labour compensation and production tax.

Note: Adjusted for 'acquisition less disposal of other nonfinancial assets'.

Sources: Authors' calculations; CEIC Data.

How unusual is China's pattern of investment and consumption?

Descriptions of China's consumption, investment and saving patterns as 'unbalanced' are usually made with reference to cross-country and historical comparisons. Indeed, until 2011, when the process of rebalancing began, China had domestic expenditure compositions that were unusual among major advanced and emerging market economies, featuring one of the highest investment rates and lowest household consumption rates (Figure 11.7). In contrast, China's external imbalance does not appear excessive when compared with a number of these other economies.

Figure 11.7 International comparison of expenditure composition:
Share of gross national expenditure, 2001–11, cumulative

Sources: Ma et al. (2016, 2017).

The modest consumption share of GDP and its fall over recent decades raise the question of whether Chinese consumption has been ‘weak’ by international standards. On average, household consumption growth was the lowest among all the major domestic expenditure components during the period 1978–2016 (Table 11.1). However, growth has still averaged 9 per cent for more than three decades. The lopsided nature of China’s growth pattern reflects the fact that investment had been expanding at an even faster, double-digit pace until 2010. Since 2011, rebalancing has clearly started: private consumption has grown faster than investment, while the current account surplus has eased.

Table 11.1 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
1978–2016	9.6	9.2	9.0	9.8	10.1	10.7
1978–2010	9.9	9.3	9.0	10.3	10.6	11.2
2011–16	7.3	7.7	8.4	6.1	7.0	7.7

Note: Private consumption data for 2014–16 are estimates.

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

A simple international comparison also puts China's so-called investment-led and consumption-repressed growth pattern in perspective. Figure 11.8 displays 20-year windows for the maximum annualised growth rates for investment and private consumption for selected economies in the postwar era. While high relative to most economies, China's maximum speed of capital accumulation during this period is outstripped by the experiences of Taiwan, Japan and Korea. In contrast, at its peak, Chinese private consumption growth exceeded that of most major economies. China's pattern of domestic demand has certainly been unusual, but, on this metric, Chinese household consumption has been anything but 'anaemic'.

Figure 11.8 International comparison of consumption and investment growth: Maximum 20-year annualised rate

Sources: Ma et al. (2016, 2017).

Explaining the imbalances

Two competing—but also potentially complementary—hypotheses have been offered to explain the 'puzzle' of China's sustained surplus saving and unbalanced pattern of domestic demand. These emphasise, respectively, the role of factor price distortions and the role of structural change. The first view argues that policy distortions such as regulated interest rates, subsidised resource prices, currency undervaluation and 'artificially' low labour compensation due to *hukou* policies have all depressed household consumption, stimulated investment and boosted exports relative to an assumed counterfactual (Huang and Tao 2011).

However, the implications of such distortions are often more ambiguous than they appear at first glance. For example, low regulated benchmark deposit rates are sometimes thought to suppress household consumption in China (Lardy 2008), but the empirical evidence is sparse. Nabar's (2011) provincial panel estimation for the period 2006–09 finds a dominance of income over substitution effects due to 'target saving' behaviour by households. Time-series analysis by Berkelmans et al. (2016) finds that deposit demand does not respond positively to increases in

deposit rates. Yet, the evidence relies heavily on the relationship between saving or deposits and inflation-adjusted regulated deposit rates. The de facto interest rate deregulation since the late 2000s via the issuance of wealth management products with market-based interest rates may have offset any effect of regulated interest rates in suppressing consumption.

Subsidised energy costs may support a higher rate of investment and production than would be possible at market prices, but they may also help explain China's rise as a big net energy importer, which, *ceteris paribus*, would tend to reduce the current account surplus. Similarly, while the *hukou* system impedes rural–urban migration, as discussed earlier, the relaxation of such policies may be partly responsible for driving the labour share of income *lower* in the 2000s.

The alternative view, of Ma et al. (2013), assigns a greater role to structural economic changes. Given the difficulty of identifying the net effect of factor price distortions on imbalances, this view emphasises the central role of China's high saving rate in understanding the twin imbalances. It holds that multiple large favourable demand and productivity shocks in the 1980s, 1990s and 2000s lifted potential growth, thereby giving rise to large income windfalls that were mostly saved while still 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 early 1990s. The forced restructuring of state firms reduced job security, improved efficiency, cleared room for expansion of private firms and lifted corporate earnings—all boosting private saving. Institutional changes in the pension system, private home ownership and the introduction of mortgages also strengthened incentives to save and fuelled a property investment boom. Finally, China's accession to the World Trade Organization (WTO) in 2001 prompted a wideranging market opening, facilitated technology transfers and secured access to a booming foreign market—all of which supported corporate cash flows.

The deregulation of housing markets deserves special emphasis. In 1988, the Chinese Constitution was amended to legalise transactions in land use rights, laying the foundation for private home ownership (Fang et al. 2016). Housing provided by SOEs to their employees was successively privatised at a discount to the replacement cost and mortgages were introduced, leading to a sharp increase in residential investment (Figure 11.9).⁵ This housing boom stimulated capacity-building in both upstream and downstream industries, including steel, cement, glass, household

⁵ We use the estimates of nominal residential gross fixed capital formation from Koen et al. (2013), projected forward using data on real estate fixed-asset investment.

appliances and financial services. Using official data, Xu et al. (2015) estimate that, directly and indirectly, residential housing accounted for nearly one-third of GDP growth in 2013.

Figure 11.9 Residential investment: Share of nominal GDP

Sources: Authors' calculations; CEIC Data; Koen et al. (2013).

The rise of private home ownership in the late 1990s boosted incentives to save for households that were motivated to upgrade their housing and accumulate private assets, while generating higher investment. The property investment boom in the 2000s further boosted land sales proceeds accruing to local governments, helping to fund infrastructure investment. At the same time, increased mortgage borrowing drove larger gross interest payments and a corresponding fall in households' net property income, contributing to the decline in the household share of income in the 1990s and 2000s. In sum, the opening of the housing market can be viewed as a prolonged positive impulse to the economy, sustaining returns to capital, boosting investment and lifting both private and public savings (Ma et al. 2013; Xu et al. 2015).

Prospects for rebalancing domestic expenditure

It is commonly thought that a more balanced pattern of domestic demand in China would have local and global benefits. A higher consumption share could be directly welfare-enhancing if it is facilitated by reforms and policies that improve the income distribution and develop the social safety net. Some also argue that China's current account surplus underpinned global imbalances, which contributed to the GFC in 2008–09 (Obstfeld and Rogoff 2009). A further argument for rebalancing is that

the high investment share has been sustained by sharply rising leverage. Rebalancing can therefore help address associated financial risks and reduce the likelihood of a financial crisis occurring (Pettis 2013).

Indeed, leverage has played an important role 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 (Figure 11.10). Despite the 1998–2008 investment boom, the nation's total credit to the private nonfinancial sector as a share of GDP rose modestly, from 106 per cent to 116 per cent. In part, this reflected rapid price inflation in the 2000s, which helped deflate the debt principal. However, from another perspective, it is likely rising Chinese investment was mostly 'funded' by a surge in retained earnings arising from a booming export market after China's WTO accession (Ma and Laurenceson 2017).

Figure 11.10 Saving, investment and leverage: Share of nominal GDP

* Gross capital formation plus current account balance.

Sources: Authors' calculations; CEIC Data; NBS (2015).

In contrast, the shrinking of China's current account surplus—from 10 per cent of GDP in 2007 to 2 per cent by 2014—coincided with a rapid 'leveraging up'. The surplus saving was reduced by a sharp increase in investment growth, as Chinese policymakers responded aggressively to the negative external demand shock due to the GFC through a combination of monetary and fiscal stimulus. Total credit to the nonfinancial private sector jumped from 116 per cent of GDP in 2008 to 210 per cent in 2016. Finally, externally oriented firms—pressured by weaker cash flows due to dwindling overseas sales—may have resorted to higher leverage to fund

replacement investment. Thus, the rapid compression of China's external surplus, while reducing global imbalances, arguably came at the price of a steep rise in domestic leverage.

How might expenditure 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. The historical record supports this view. Ma et al. (2016, 2017) have shown that in a sample of 167 economies between 1950 and 2011, there are only 10 cases of expenditure rebalancing on this definition. In the majority of cases, household consumption growth in the period after such a 'rebalancing' was lower than in the previous period. The reasons behind historical rebalancing experiences are also diverse. In some cases (such as that of Angola in the 1990s and early 2000s), the timing corresponds to periods of political conflict and famine, while in others (such as Thailand and South Korea in the same period), a degree of rebalancing followed external crises.

Thus, the way in which rebalancing proceeds depends on the reasons for the imbalances. In China's case, it is likely that saved windfalls from positive shocks helped to drive the unbalanced expenditure pattern. The reversal of these shocks as the working-age population declines, the pace of urbanisation slows, the effects of earlier market-oriented reforms fade and housing markets mature is likely to foster rebalancing in the future.

The role of maturing housing markets may prove to be especially important. The housing sector has evolved from an initial undersupply 20 years ago to a more even supply–demand balance currently, even with some pockets of oversupply (Wu et al. 2015) where returns to new investment have fallen. The outlook for urbanisation and demographics suggests that in trend terms Chinese residential construction may already have peaked (Berkelmans and Wang 2012; Perkins 2015). The eventual withdrawal of this prolonged positive impulse to investment could be expected to propel the rebalancing process.

The return to capital: A mechanism for expenditure rebalancing

As slower investment growth—rather than even faster consumption growth—is the main channel through which expenditure rebalancing is likely to occur, we now consider a key mechanism: the decline in the return to capital relative to the cost

of funding new corporate investment in China. To do so, we estimate the return to capital using an approach similar to that of Bai et al. (2006), based on Jorgenson's (1967) neoclassical theory of investment.⁶

The basic equation to obtain a real net rate of return for owners of capital is Equation 11.2.

Equation 11.2

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

In Equation 11.2, i_t measures the nominal return to capital, P_t^Y is the GDP deflator, P_t^K is the price of capital (proxied by the investment deflator), 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 comprises three parts: an estimate of the marginal revenue product of capital, a '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 equals the marginal physical product of capital ($\alpha_t Y_t / K_t$)—the product of the capital share and the inverse capital–output ratio—net of depreciation.

Our calculation uses 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 1978–2016. We use these data to construct an aggregate capital stock using the perpetual inventory method (for details, see Ma et al. 2016). We calculate the capital share, α_t , by estimating the labour share, $1 - \alpha_t$, using flow-of-funds labour compensation data. To extend the sample, we back-cast the pre-1992 labour share using provincial compensation data and project it to 2016 using (rescaled) household income data from the NBS household survey, which tracks the flow-of-funds labour compensation data closely.

Figure 11.11 shows our estimates of the capital–output ratio and the labour share of income. The capital–output ratio has grown rapidly in recent years, although it increased at a slowing pace through the late 1990s and early 2000s, even declining in 2007. Yet, coinciding with the government's macroeconomic stimulus in 2008–09, it began to increase sharply and has since maintained its upward trajectory.

6 For a more detailed discussion of our approach, see Ma et al. (2016).

Figure 11.11 Components of the return to capital

Sources: Authors' calculations; CEIC Data; NBS.

The labour share of income fell from the mid-1990s onwards, contributing to China's high return to capital until the early 2010s; since 2011, however, the downward trend has reversed, weighing on the return to capital while supporting private consumption. This experience differs from that of many advanced economies that have seen the labour share of income continue a trend decline (Karabarbounis and Neiman 2014). One possible reason for the reversal is that China's working-age population has started to decline, weighing on growth in the labour supply. This may have been reinforced by slowing rural–urban migration, consistent with assessments that China has passed the 'Lewisian turning point' at which the quantity of 'surplus' labour in the countryside begins to decline, lifting unit labour costs (Garnaut and Song 2006; Cai 2011; Ma et al. 2013).⁷ Industrial structure has also changed noticeably since the early 2000s, characterised by a shift from agriculture and capital-intensive heavy manufacturing towards services, which probably increased the labour share. While changes in future circumstances (such as a tendency towards increased automation or a more general revival in incentives to invest that raise capital intensity) could alter this trend, if the labour share continues to rise, it is likely to support further expenditure rebalancing in coming years.

Combining the above ingredients, we obtain an estimate of the return to capital (Figure 11.12). Our estimate suggests that the return to capital increased in the mid-2000s, but, since 2008, has experienced an oscillating decline. Mechanically, the decline can be accounted for largely by a resumption of the upward trend in the

⁷ See also the special issue, 'Debating the Lewis Turning Point in China', of the *China Economic Journal* (Vol. 3, No. 2, 2010).

capital–output ratio. More intuitively, it reflects a fall in the ‘efficiency’ of investment (a declining marginal increment to GDP growth from each unit of investment), consistent with slowing productivity growth, as well as more moderate growth in aggregate demand after the peak period of stimulus in the late 2000s. Until 2011, the falling labour share of income offset the deteriorating marginal product of capital, but the rebound in the labour share has reinforced it more recently.

Figure 11.12 Return to capital and corporate borrowing cost

Sources: Authors' calculations; CEIC Data; NBS.

As business investment hinges on the gap between the prevailing corporate funding cost and the expected earnings from new projects, it is likely that the decline of the return to capital since 2008 has reduced incentives for new investment. To consider this trade-off, we compare the estimated return to capital with an estimate of inflation-adjusted corporate borrowing costs. We proxy the latter with a weighted average of selected bank, bond and ‘shadow banking’ interest rates, deflated using the implicit GDP deflator.⁸

The broad trends in our return to capital and financing cost indicators suggest that the gap has probably narrowed considerably in recent years. Combined with the easing of macroeconomic stimulus after 2010 and efforts by authorities to achieve a gradual slowing in broad credit growth, the narrowing gap may help account for the halving of the average pace of China's investment, from 15 per cent in the first decade of the 2000s to 7–8 per cent in the current decade.

⁸ See Ma et al. (2016) for a discussion of data sources and details of the calculations.

However, after several years of convergence, the return to capital and the corporate borrowing cost diverged modestly again in 2016.⁹ Our calculations align with the observed pick-up in producer price inflation and industrial profits in 2016, both of which can plausibly be considered outcomes of the ‘supply-side structural reform’ policies adopted by the Chinese Government in late 2015, as discussed in the next section. This raises the broader question of how the mix of policies and reforms being pursued by the Chinese Government affects the incentives for investment, and whether they are likely to foster rebalancing away from investment or impede it in the future.

Implications of reforms and macroeconomic policies for rebalancing

While the fading of favourable demand and productivity shocks and the rise in the capital–output ratio have been instrumental in expenditure rebalancing to date, looking ahead, macroeconomic policy, economic reforms and institutional factors will also play important roles in shaping this process. However, as the timing and speed of their evolution may not be coordinated, the net implications for expenditure rebalancing are not straightforward. Furthermore, the links between reform and rebalancing are not unidirectional. Reform never proceeds in a vacuum: it is undertaken in response to socioeconomic developments and pressures that on their own may already be leading to a more balanced growth pattern. These points can be illustrated with reference to the three overlapping streams of reform-related initiatives announced since the start of China’s current administration.

The first wave of reforms are those stemming from the third plenum of the eighteenth Central Committee of the Chinese Party (CCP) in 2013, at which the leadership pledged a ‘decisive role’ for the market in resource allocation. Subsequent initiatives included: a relaxation of the one-child policy; expanded funding for social security; value-added tax reform; efforts to support technological innovation; policies to strengthen the governance and efficiency of SOEs; and deregulation in parts of the financial sector (following efforts undertaken during previous administrations). A second wave of policies belong to the ‘supply-side structural reform’ (SSSR) package announced in 2015, which primarily sought to address rising leverage and excess capacity, and facilitate industrial upgrading. A third wave of announcements was made during and after the nineteenth national congress of the CCP in 2017, which, among other things, aim to control systemic financial risks and focus more on environmentally sustainable and higher ‘quality’ growth (potentially with less

9 Mechanically, the increase in the estimated return to capital (in both nominal and real terms) was due to a significant reversal of deflation in the price of capital (proxied by the investment deflator) in 2016. At the same time, a related pick-up in economy-wide inflation lowered the inflation-adjusted cost of borrowing.

emphasis on GDP growth targets). The multifaceted nature of these programs, the shifting emphasis placed on them by the government and the uncertainty surrounding their implementation undermine a simplistic equation of 'reform' with 'rebalancing'.

We can consider first the case of the SSSR policies, which seek to address a number of pressing economic challenges. The SSSR package comprises various interventions to reduce industrial excess capacity, evict unprofitable 'zombie enterprises', lower housing inventory, support technological innovation and slow the build-up of corporate leverage.¹⁰ Such policies could, if implemented effectively, also enhance the *efficiency* of investment and facilitate domestic expenditure rebalancing by reducing the impact on national income and consumption of a given slowing in investment growth. Administrative restrictions on new investment into 'overcapacity' sectors could also help further slow overall investment growth. However, other components could help sustain an unbalanced pattern of growth for longer. In particular, lowering financing costs for businesses and introducing capacity/supply restrictions that raise output prices could boost the return to capital (as suggested by our estimates for 2016) and encourage stronger investment than might otherwise occur. Nonetheless, by increasing corporate profits and nominal GDP growth, these policies could also lift the ratio of capital expenditure that is funded internally by firms and slow the accumulation of corporate debt (Ma and Laurenceson 2017).

The recent drive to control financial risks is also relevant for rebalancing. The gradual deregulation of the financial system over the past decade has contributed to financial deepening but also to an expansion of nonbank finance and 'shadow banking' funding channels. Moreover, the surge in credit demand from local governments during the 2008–09 stimulus encouraged a proliferation of local financing vehicles to circumvent regulations prohibiting local government bond issuance. Rapid financial innovation, combined with fragmented oversight, probably slowed the process of expenditure rebalancing. The recent shift in policy emphasis towards tougher and better coordinated regulation of shadow finance has scope to dampen inefficient investment activities. However, initiatives to support deleveraging in the corporate sector are more likely to succeed, in practice, if the general growth pattern shifts to one that is less focused on rapid debt-financed capital accumulation. In other words, rebalancing away from investment may be as much a precondition for deleveraging as it is a consequence.

Similarly, plans to foster a more environmentally sustainable pattern of growth, featuring reduced carbon dioxide emissions and lower reliance on fossil fuels, may only be possible if investment in construction, plants and equipment—all of which tend to be energy-intensive—can grow at a more moderate pace. Related policies

¹⁰ The official description of these policies embodies five aspects: deleveraging, destocking, reducing excess capacity, reducing costs and addressing 'weak links' in the economy (Xinhua News Agency 2016).

include production cuts in heavily polluting regions to meet air quality targets and plans to build a nationwide emissions trading scheme. Yet, in a development sense, the shift to a less carbon-intensive, less polluting pattern of growth may be more a *consequence* of an expanding middle class and higher living standards than it is a cause. The need for reform is endogenous to rising pressure on policymakers from more affluent Chinese citizens with higher expectations of a clean environment. Indeed, the higher incomes, changing consumption behaviour and greater lifestyle-related expectations of these citizens are already supporting expenditure rebalancing. It is also worth noting that efforts to improve environmental sustainability may support faster investment in green energy, hybrid vehicles and recycling capacity, partly offsetting any slowing in less sustainable forms of investment.

If successful, endeavours to strengthen social security—especially measures to resolve funding gaps and to allow portability of welfare benefits across jurisdictions that are otherwise restricted by *hukou* policies—could have a range of effects, including increased labour mobility, faster urbanisation and reduced motives for precautionary household saving. The announcement in 2017 of a new round of equity injections from SOEs to supplement the national and regional pension funds signals some momentum in this direction. Reforms that facilitate a fall in the national saving rate are, ultimately, essential for domestic expenditure rebalancing to occur without a material rise in the external imbalance. However, despite the fact that better-funded and more universal social welfare coverage could help reduce households' propensity to save, policies that facilitate urbanisation could boost the labour supply in urban areas, thus tempering growth in wages and consumption, and may fuel public demands for improved or expanded urban infrastructure.

Finally, it is worth emphasising that a reduction in investment growth, for whatever reason, may only result in a more balanced expenditure pattern if it is accompanied by an increase in the *efficiency* of investment. Using a simple framework, Ma et al. (2017) illustrate how, mechanically, for an unchanged efficiency of investment (proxied by the inverse of the incremental capital–output ratio), the benefits for consumption growth of a faster rebalancing away from investment are cancelled by the negative overall effects on growth. Therefore, reforms that lower costs for businesses, lower barriers to entry in markets and create a more level playing field between the private sector and SOEs could enhance the efficiency of new investment so that less investment is required to generate a given amount of income (and consumption) growth. Reforms that aim to improve the efficiency of SOEs may also facilitate rebalancing, but this possibility is counterbalanced by the risk that contemporaneous efforts to create stronger 'national champions' could unintentionally give priority to size rather than efficiency and reduce competition from the private sector.

While the net implications of the government's multifaceted agenda are uncertain, and reform is not entirely exogenous vis-à-vis rebalancing, the importance of government policy for the pattern of growth cannot be underestimated. The reduced emphasis on headline growth targets apparent at the nineteenth party congress could facilitate a slowdown in investment growth. Moreover, aspirations to enhance investment efficiency, improve the social safety net and lower precautionary saving by households collectively have the potential to lend support to the rebalancing process in the longer term.

Conclusion

This chapter has considered the prospects for continued expenditure rebalancing in China—that is, a shift from a pattern of growth driven by investment to one driven by consumption—and the interplay with the government's reform plans. Our preferred explanation for the expenditure imbalance 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 over 40 years of reform that simultaneously boosted private and public saving, sustained returns to capital and lifted investment.

An analysis of the flow-of-funds accounts reveals that conventional analysis understates the role of the household sector in contributing to the high investment share of the economy by neglecting the effect on investment of households' housing purchases. We argue that the rebalancing to date has occurred, at least in part, as an outcome of dwindling income windfalls from worsening demographics, fading positive productivity shocks and maturing housing markets—all of which helped to drive the imbalances in the first place.

We also present estimates suggesting that the return to capital has been trending lower while the domestic cost of funding has been rising. Although the rebound in industrial inflation and profitability in 2016 at least temporarily slowed these trends, if they resume in the medium term, they are likely to place additional downward pressure on investment growth. The extraordinary resilience of Chinese consumption in recent years suggests that any rebalancing is likely to be driven by weaker growth of investment rather than even stronger consumption growth.

Finally, we argue that the mix of policies and reform plans now being pursued by the government will condition the speed and extent of future rebalancing. In some cases, such as environmental policies and financial risk reduction, the achievement of reform objectives will itself be contingent on a less investment-intensive pattern of growth. In many cases, the effects of government policies on the consumption and investment shares of GDP are ambiguous *ex ante*. Certainly, endeavours to strengthen and broaden the social safety net have scope to reduce household

saving and support consumption growth. Likewise, policies that lift the efficiency of investment through deleveraging and greater market discipline could help ameliorate the negative effects of lower investment growth on household income and consumption. Yet the promise of these initiatives must be balanced against the possibility that other policies could help an unbalanced pattern of growth persist for longer, and the concern that cultivating bigger and stronger SOEs could inadvertently prioritise size over efficiency and reduce competition from the private sector.

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