Box A

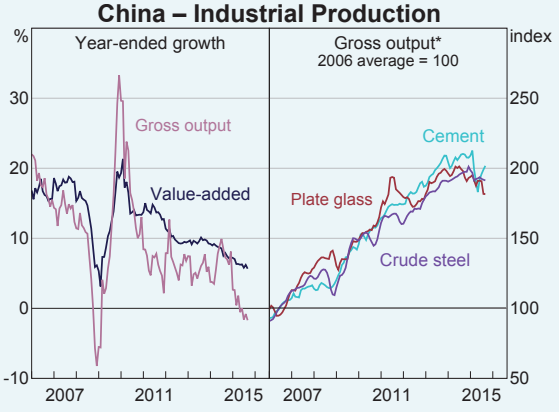
China's Industrial Sector

In China, the industrial sector accounts for around 40 per cent of GDP, and represents a key source of demand for Australian resource commodities. A range of indicators suggest that growth in Chinese industrial activity has weakened noticeably since late 2014, although it remains above the lows observed during the global financial crisis. This box examines these indicators to gain a better understanding of developments in this sector and thus the outlook for both the Chinese and Australian economies.

Data published by China's National Bureau of Statistics (NBS) indicate that year-ended growth in the value-added measure of industrial production declined from around 7¼ per cent in December 2014 to around 5¾ per cent in September 2015 (Graph A1). The measurement of value-added industrial production is conceptually appealing as it aims to remove the problem of 'double counting' that can occur when simply adding up gross outputs of the various industrial products. This is because the value-added measure subtracts the value of intermediate inputs from the value of total output of the industrial sector. However, the value added of the industrial sector can be difficult to measure with precision at a monthly frequency, especially for a rapidly growing emerging economy like China. So it is also useful to examine other indicators of activity in the industrial sector.[1]

The NBS also publishes disaggregated data on the gross output of specific industries measured in physical units, such as the tonnes of crude steel, the number of automobiles, and so on. The information from these more granular data can be combined to calculate growth in the gross output of industrial products, as shown on the left panel of Graph A1.[2] Similar to the value-added measure, the gross output index of industrial production points to a sharp fall in growth and subsequent rebound during the period of the global financial crisis and China's subsequent macroeconomic stimulus, and lower rates of growth since 2010. However, the series vary from each other, which is to be expected given the conceptual differences underpinning their construction. Since 2011, growth in gross output has been lower on average and more variable than growth in industrial value added. This has become particularly pronounced since late 2014. A part of this difference can be explained by the fact that a gross output measure may accentuate the effects of

Graph A1
China – Industrial Production



* Three-month moving average
Sources: CEIC Data; RBA

1 It can be difficult to measure value-added industrial production because detailed information on the value and prices of inputs and outputs for individual industries is often not available on a monthly basis.

2 The gross output index presented here is a geometric weighted average of changes in gross output of around 160 industrial products, measured in their original units. The index uses weights based on available industrial revenue data; unweighted geometric averages are used at lower levels of aggregation for which revenue data are not available. The results are relatively robust to the selection of products included and to the use of weights based on the value of gross output.

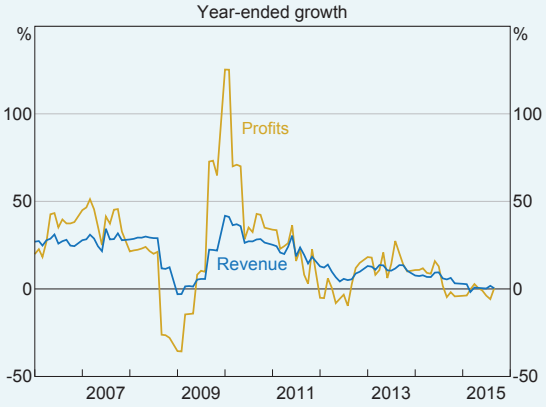
a business cycle because it double counts changes in intermediate goods. For example, a decline in iron ore production is also likely to be reflected in declining steel output.

Nevertheless, the disaggregated nature of the gross output data provides insights into the drivers of weakness in the industrial sector. The data suggest that falls in the output of machinery, equipment and some construction-related products, including crude steel, cement and plate glass, have been particularly pronounced (Graph A1). These trends are consistent with the recent weakness in investment in Chinese real estate and manufacturing. Output of coal and iron ore mines has also been relatively subdued. In contrast, the production of oil, chemicals and non-ferrous metals, such as copper and aluminium, have made significant positive contributions to the growth of industrial output in 2015.

The weakness observed in industrial output is also evident in a range of other data, including financial measures such as industrial revenue and profits (Graph A2). Although they are generally more volatile, financial indicators have historically followed similar patterns to measures of industrial sector activity and have weakened noticeably over the past year.[3] It is worth noting that both revenue and profits were growing strongly prior to the downturn that coincided with the global financial crisis. In contrast, the recent slowdown in the industrial sector has followed a number of years of declining growth in revenue and profits. This may have consequences for the ability of firms to continue operations and service debt if the weakness persists. In the first half of 2015, there was a sharp increase in the ratio of non-performing loans (NPL) to total loans for the manufacturing and wholesale and retail trade sectors

3 The higher volatility observed in the growth of the financial measures partly reflects the fact that these are nominal indicators, while value-added industrial production and the gross output index are measured in real terms. In addition, the profits series includes a range of income sources other than sales (such as subsidies and investment earnings), and costs other than the value of inputs (such as merger and acquisition activity).

Graph A2
China – Financial Indicators of Industrial Firms*



* December observations removed
Sources: CEIC Data; RBA

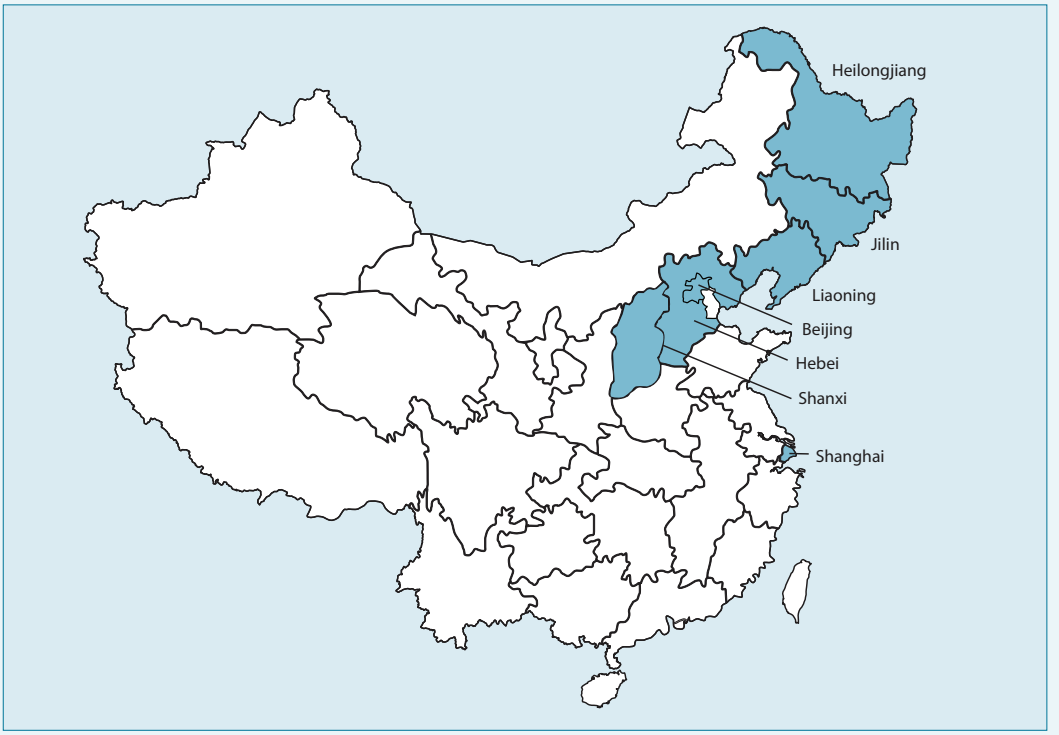
at the four largest Chinese state-owned commercial banks. The reported overall NPL ratio for Chinese banks also increased moderately but remained low.

Regional variation in industrial sector conditions could also have implications for Chinese financial stability and government policy. While the large Chinese banks operate nationwide, regional exposures can be significant for individual institutions and some smaller financial institutions are likely to have more geographically concentrated exposures. If conditions in one part of the country were to deteriorate significantly, financial institutions with sizeable on- and off-balance sheet exposures to that region may come under pressure, potentially requiring policy responses to mitigate the spread of risks to the broader financial system.

Since 2014, growth of value-added industrial production has slowed but remains relatively high in Guangdong, Jiangsu and Shandong. These three provinces accounted for almost 30 per cent of total industrial GDP in 2014, and produce a diverse range of items, including a number that have made positive contributions to growth in industrial output in 2015 to date. In contrast, growth in industrial activity has been especially weak in the north-east, where there is significant production of motor vehicles, machinery

and equipment (Figure A1). Growth is also weak in the resource-intensive provinces of Shanxi (which produces around a quarter of Chinese coal) and Hebei (which produces more than a third of China's iron ore and around a quarter of domestic crude steel).[4] Together with Liaoning, Jilin and Heilongjiang, these provinces account for roughly 15 per cent of GDP. If the industrial downturn in the north-east persists, it is expected to weigh on the growth of aggregate economic activity in coming quarters.

Figure A1: Chinese Provinces with Weak Growth of Industrial Production



4 Value-added industrial production has contracted in the major cities of Beijing and Shanghai, but these provinces account for a modest (and declining) share of industrial sector GDP.