

## Box B

# Industry Insights into Productivity Growth

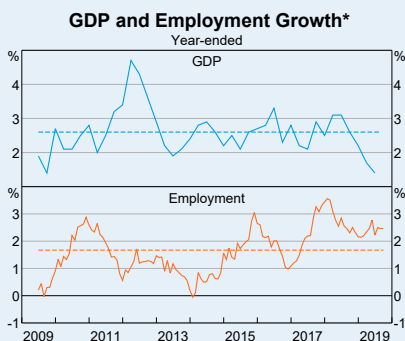
Over recent times, employment growth has been stronger than the Bank expected. At the same time, GDP growth has been weaker than expected and below estimates of potential growth (Graph B.1). This is an unusual combination of outcomes; typically, GDP growth exceeds employment growth but the reverse has been true lately. Labour productivity growth – defined as growth in output per worker or per hour worked – has therefore been negative (Graph B.2).

Conceptually, labour productivity captures the efficiency with which an industry employs labour to produce economic output. When interpreting changes in labour productivity growth, there are a couple of measurement challenges that can cause productivity growth to deviate from its conceptual definition. First, the output in non-market industries – such as health care & social assistance and education & training – is difficult to measure, especially over short periods of time. This is because services in

health and education are often provided for free or at subsidised prices and so there are not many market transactions.<sup>[1]</sup> Second, cyclical factors may cause short-term changes in labour productivity to deviate from the underlying rate of productivity growth. For example, labour market conditions tend to lag the cycle in economic activity. This means that productivity tends to decline when demand is weaker than expected because growth in output declines by more than growth in inputs.

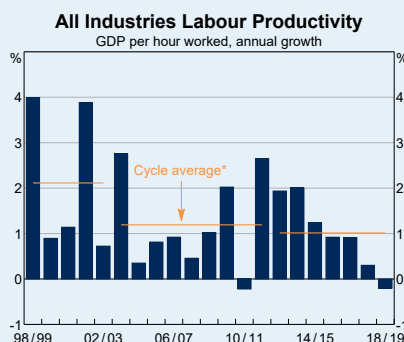
Because of this, productivity is often analysed over longer periods of time. Doing so removes most short-term cyclical effects and some of the measurement error associated with estimating output for some industries. Indeed, since the end of 2010, labour productivity growth has been broadly unchanged relative to the previous economic cycle, averaging around 1 per cent per year. In both these cycles, these outcomes were mostly driven by strong

### Graph B.1



\* Dashed line is the decade average  
Sources: ABS, RBA

### Graph B.2



\* Cycles are defined by the ABS as the average between productivity growth cycle peaks; last cycle remains incomplete  
Sources: ABS, RBA

labour productivity in the mining sector as new production came online after the investment boom. This notwithstanding, the more recent decline in productivity growth is notable and warrants closer examination.

To do this, it is useful to examine productivity growth at the industry level.<sup>[2]</sup> Labour productivity growth can be decomposed into changes resulting from labour reallocation *between* industries and those resulting from changes in productivity *within* individual industries. In particular, labour productivity growth – measured as output per hour – can be decomposed into the sum of the following two effects:

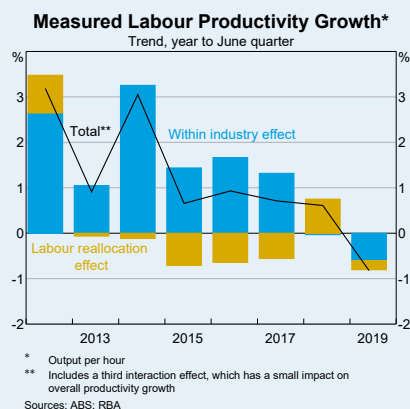
1. The *within-industry productivity growth effect* – equal to the sum of productivity growth in individual industries, weighted by each industry's share of total output in the previous period. The within-industry effect isolates the impact of productivity growth within each industry on total economy productivity growth. If one industry had strong productivity growth, this would increase the within-industry effect, especially if the industry was large.
2. The *labour reallocation effect* – equal to the change in each industry's share of total hours worked weighted by its relative level of productivity in the previous period. The labour reallocation effect isolates the impact on productivity growth of a shift in labour resources between industries. For example, if activity shifted towards an industry with relatively high productivity (such as mining), labour reallocation would add to overall productivity growth.

The results from this decomposition imply that the labour reallocation effect has not contributed much to the recent decline in productivity growth (Graph B.3). In Australia,

the movement of workers into and out of the mining industry has tended to drive labour reallocation effects over the past decade; even though the mining sector accounts for only a small share of the workforce it has a much higher level of productivity than other parts of the economy. For example, the reallocation of workers away from the mining industry as the production phase of the mining boom got underway over 2013–17 subtracted from productivity growth.

The small labour reallocation drag may seem surprising given the observed strength of employment growth in the health care and education industries, where measured productivity is below the economy-wide average. However, labour reallocation effects depend on where labour has reallocated from. In the past, workers in the health care and education industries have tended to come from industries with an even lower level of measured productivity, such as retail or accommodation & food services. Such transitions would tend to support overall productivity growth in the economy. On the other hand, workers transitioning from outside the labour force to the health care

**Graph B.3**

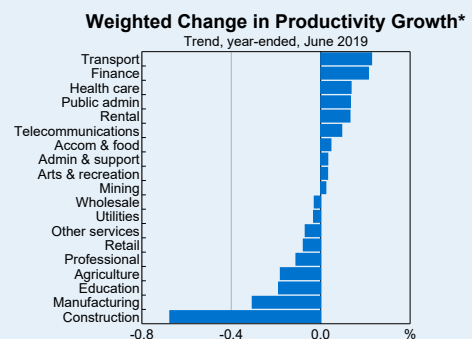


and education industries would tend to weigh on overall labour productivity growth, because the share of the labour force employed in industries with higher measured productivity declines.

Instead, it has been within-industry productivity growth effects that have driven the recent decline in productivity growth, in particular the decline in productivity growth in the construction industry (Graph B.4). The fall in productivity growth in the construction industry reflects larger-than-expected declines in dwelling investment at the same time as hours worked in the industry have increased, though at a slowing pace. Since its peak in the September quarter of 2018, residential building investment has fallen by almost 10 per cent. A possible explanation here is that there has been more than the usual degree of labour hoarding in the construction industry. For example, in the most recent cycle, larger construction firms may have decided to hold onto employees in the expectation that residential construction

activity will pick up again in the near future as underlying demand outstrips new home building. At the same time, small businesses (0–20 employees) in the construction sector – which comprise 70 per cent of the industry’s total employment – may have opted to focus on other aspects of the business in response to the cyclical downturn in residential construction rather than exiting the industry altogether. ✎

**Graph B.4**



\* Weighted by each industry’s share of total output in June 2018; bars sum to the within-industry productivity growth effect; productivity is measured as output per hour  
Sources: ABS; RBA

## Endnotes

[1] The Australian Bureau of Statistics has recently undertaken a project on developing enhanced output measures for some household services (see Annabel J (2019), ‘Enhancing Measures of Non-market Output in Economic Statistics: A Roadmap’, *Australian Bureau of Statistics*).

[2] This analysis uses the Australian Bureau of Statistics’ ‘experimental’ *Labour Account* data because it uses industry classifications that align closely with the measurement of value-added by industry in the national accounts.

