

Productivity scorecard



Reconstructing productivity Productivity in the Construction Industry

The construction industry makes a significant contribution annually to the Australian economy. In 2011-12, the industry's gross value add (GVA) was \$99.5 billion or 6.9 per cent of the Australian economy. In the same year, 1.043 million people were employed by the industry, accounting for nearly 10 per cent of all people employed in Australia.

However, the Australian construction industry is a serial productivity underperformer. Were it to be more productive, even by just 1 percentage point the national benefits would be \$1.252 billion across Australia.

Clearly, the scale and ubiquity of the industry means greater productivity is worth striving for but it will mean that industry and government will need to make better use of new technologies (which may require new skills), reduce 'red tape', and operate in a flexible industrial relations environment.

It also means a clearer construction sector narrative to replace the fractured one that exists as a result of the polarised positions of business and labour representatives that is stifling better productivity performance.

The first step to that clearer narrative will come from addressing a series of key questions:

- Why concern ourselves with productivity in the construction industry?
- What does productivity in the construction industry look like?
- Is the performance of the Australian industry adequate?
- What are possible steps for improving construction productivity?
- What would be the benefits of a more productive construction industry?

\$100 billion
in gross value add
generated

Why concern ourselves with productivity in the construction industry?

The need to be productive is fundamental to the nation's wealth:

*'Over long periods of time, small differences in rates of productivity growth compound, like interest in a bank account, and can make an enormous difference to a society's prosperity. Nothing contributes more to reduction of poverty, to increases in leisure, and to the country's ability to finance education, public health, environment and the arts.'*¹

The construction industry is a significant contributor to the Australian economy – it:

- generated \$99.5 billion of value add in 2011-12 (Figure 1), accounting for 6.9% of total Australian economic activity
- employed 1.043 million people in 2011-12 (Figure 2), accounting for 9.7% of total employment in the Australian economy.

Figure 1: Industry gross value added of Construction industry (\$m)

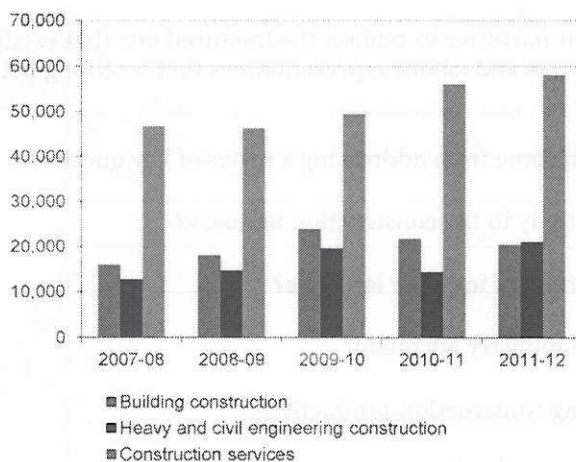
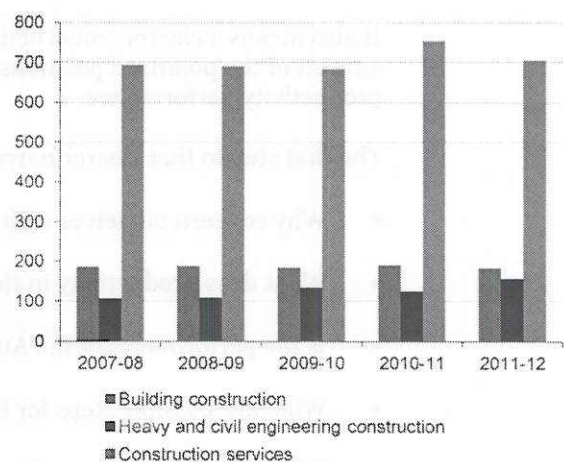


Figure 2: Employment in Construction industry ('000)



In addition to its scale, the ubiquity of the construction industry means that industry productivity is something we need to care about.

That is, higher construction industry productivity equals lower construction prices. This in turn delivers savings in production costs across the economy (consequently increasing Australia's gross domestic product (GDP)).

- Since private and government sectors are significant users of construction activity they will both benefit from these cost savings.
- Consumers gain benefits through increased real wages.

¹ Alan Blinder and William Baumol 1993, *Economics: Principles and Policy*, Harcourt Brace Jovanovich, San Diego, p. 778.

What does productivity in the construction industry look like?

The Australian Bureau of Statistics (ABS) provides three broad measures of productivity (labour productivity, capital productivity and multifactor productivity). These three measures tend to be compared to the 'market sector'.²

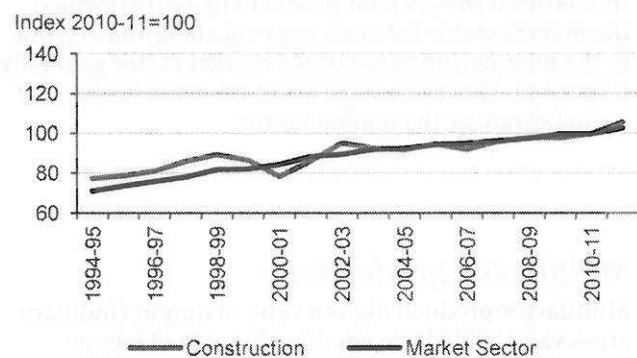
Labour productivity

Labour productivity is the ratio of volume of output produced to the volume of labour employed. It is measured as industry gross value added (or GVA) per hour worked.

Changes in labour productivity can be attributable to education levels, technology use and efficiency as well as economies of scale and varying degrees of capacity utilisation.

Growth in labour productivity in the construction industry has tracked closely with the market sector over the past fifteen years aside from a dip around the introduction of the GST, when housing construction was brought forward (Figure 3):

Figure 3: Construction industry labour productivity



The pre-GST housing boom in the lead up to 2000 contributed to the decline in productivity in construction..., as the industry mix transitioned to the relatively more labour intensive activity of housing construction. As more labour was utilised to increase the housing stock, the construction industry share also increased.³



² The 'market sector' includes all industries except those in which productivity growth is difficult to measure, such as public administration and safety, education and training, and health care and social assistance

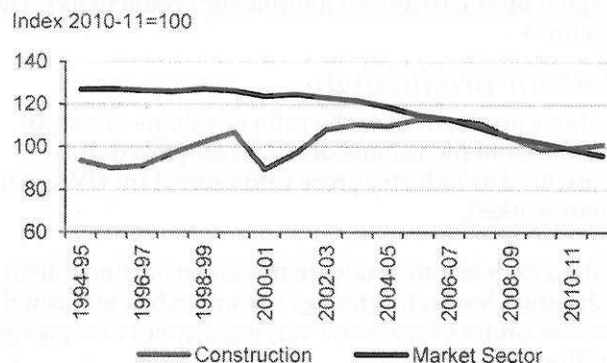
³ Commonwealth of Australia (2008) (Treasury), 'International comparison of industry productivity', *Economic Roundup Issue 3, 2008*, pp. 45

Capital productivity

Capital productivity is measured as output per unit of capital services. Capital productivity is a measure of how well physical capital is used in providing goods and services.

In relative terms, capital productivity outperformed the market sector between 1994-95 and 2004-05, due to the poor performance of the market sector generally (Figure 4). However, since 2005-06 it has declined at a similar rate as the market sector.

Figure 4: Construction industry capital productivity

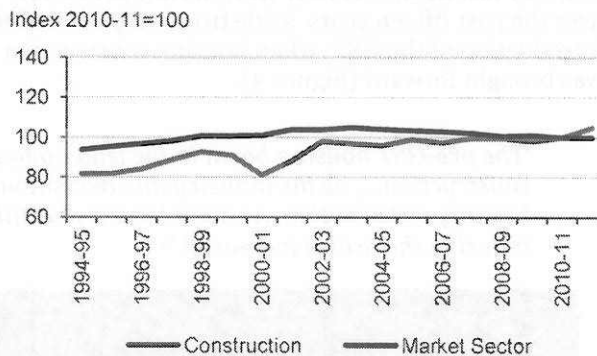


Multifactor productivity

Multifactor productivity is a ratio of output (industry gross value added), to combined inputs of labour and capital.

Multifactor productivity for the construction industry has tracked closely with the market sector since 2007-08 (Figure 5).

Figure 5: Construction industry multifactor productivity



Is the performance of the Australian industry adequate?

Based on the construction industry's performance, in the past five years, across the three measures it would be fair to say it has performed on par with the broader market sector.

This can be viewed in a couple of ways:

- Firstly, that productivity in the construction industry is adequate as it has been on trend with the rest of industry.
- Secondly, that the construction industry's poor performance is matched by equally poor performance in other industries.

The second interpretation is the one industry and government need to make.

It is not uncommon to justify the need to for action by comparing Australia's construction industry performance relative to overseas comparisons, but this is often problematic,⁴ and data can be interpreted differently.⁵

We believe no further justification is necessary; the Australian construction industry is a laggard saved from additional scrutiny only by the productivity malaise that has beset other Australian industries.

What needs to be done to improve productivity?

There are four often interrelated issues that need to be addressed to increase construction industry productivity:

- technology
- skills
- red tape
- industrial relations.

Technology

The development and adoption of new and improved technologies is vital for raising construction industry productivity.

Technology is integral to improvements in the cost and quality of build products, and can be considered in three categories:

- trade processes through the adoption of new machinery and equipment, new materials, or new methods
- greater use of pre-fabricated components so that total cost is reduced and/or performance of the constructed product is improved. While the benefits of prefabricated construction methods and materials in appropriate applications have been well established,⁶ the Australian residential industry sector has largely failed to embrace 'prefab' elements.
- the management (often through technology) and co-ordination of trade processes and new technologies such as pre-fabrication, to eliminate non-productive time and re-work.

New technologies, adopted appropriately, have significant scope to reduce costs directly because the materials are cheaper and indirectly for example avoiding weather delays.

⁴ For example, see the challenges in benchmarking across countries by comparing the analysis in: Business Council of Australia (2012) *Pipeline or Pipe Dream? Securing Australia's Investment Future*; and Best, R. (2012). 'International comparisons of cost and productivity in construction: A bad example' *Australasian Journal of Construction Economics and Building*, 12 (3), 82-88

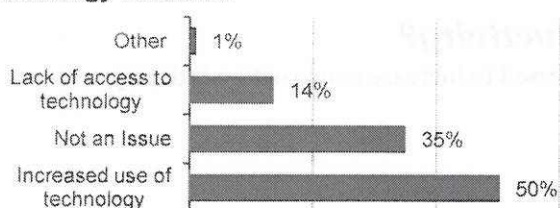
⁵ For example, analysis of comparative Construction industry productivity data from the EU KLEMS Growth and Productivity Accounts (<http://www.euklems.net>) has generated differing conclusions as to the relative performance of Australia's Construction industry.

⁶ For example, it is estimated that a modularised bathroom can be constructed in one-tenth the time required for a traditional construction: Deborah Singerman (2013), 'The prefabrication of modern bathrooms' *Architecture & Design*, 1 August, available at <http://www.architectureanddesign.com.au/comment/building-blocks-of-a-modern-bathroom>. Also see Xiaolin Zhai, Richard Reed and Tony Mills (2012), 'Does the future for residential property include prefabricated housing?' *Australian and New Zealand Property Journal*, June, pp. 410-420

The 2013 Construction & Property Services Industry Skills Council (CPSISC) stakeholder survey⁷ clearly demonstrated the concern around technology for industry participants (Figure 6)

Figure 6: The Construction & Property Services Industry Skills Council (CPSISC) stakeholder survey

Technology concerns



The technology challenges are many-fold and include the need for appropriate skills, the potential rationalisation of some parts of the industry as scale becomes more important in a modular world and the consequent need for capital to reach the requisite technological and scale intensity.

Skills

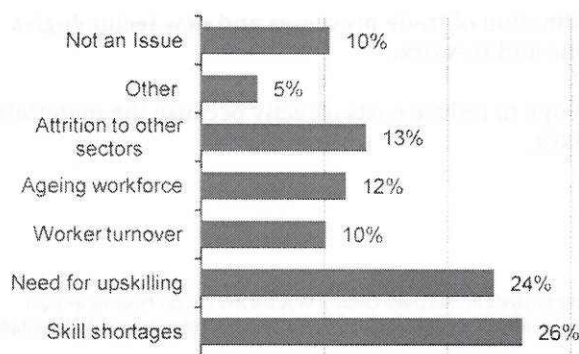
The construction industry faces two principal skills-related challenges:

- new technologies and processes may require new skills, which require retraining of existing staff⁸
- a proportion of the construction industry workforce has skills that can be relatively easily transferred to other industries such as mining and so skills shortages in construction may be driven by demand in other booming industries.

Both of these challenges are reflected in the results of the CPSISC stakeholder survey (Figure 7).

Figure 7: The Construction & Property Services Industry Skills Council (CPSISC) stakeholder survey

Skills concerns



⁷ In this survey industry stakeholders were given the ability to nominate a potential concern under a series of broad headings (i.e. regulation, skills, technology).

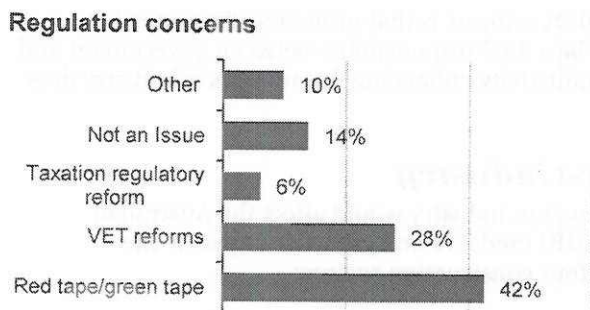
⁸ For example, in the context of prefabrication technologies mentioned earlier, see: Grant Daly (2009), *Prefabricated Housing in Australia. Skill Deficiencies and Workplace Practice*, International Specialised Skills Institute and Department of Education, Employment and Workplace Relations

Red tape

The costs of legal and administrative rules and processes remains a constant issue. The drop in labour productivity as a result of the GST is a prime example of how a significant government regulation can be in shaping productivity outcomes (Figure 3).

In a pre-election survey of AI Group Construction members, close to half (41.6 per cent) identified 'red tape' as the most significant policy issue facing The results showed red tape was almost twice the importance of the next most important priority area (Figure 8).⁹

Figure 8: The Construction & Property Services Industry Skills Council (CPSISC) stakeholder survey



A real challenge in the discussion of red tape costs associated with the construction industry is to find the appropriate balance between national and jurisdiction-specific regulatory schemes. The Queensland Office of Best Practice Regulation recently noted that:

*'Harmonisation of regulation across jurisdictions should not be an overarching objective. In some cases, harmonisation may increase the regulatory burden for certain jurisdictions and stakeholders without producing a net benefit.'*¹⁰

For example, while there may be benefits from a national approach to workplace health and safety (WHS), PwC previously found that moves to adopt a 'highest common denominator' in WHS would have led to an additional \$212 million in transition costs and an average of \$154 million in annual ongoing costs for the Victorian Construction industry.¹¹

Industrial relations

Industrial systems need to be sufficiently flexible to promote productivity.

The Grattan Institute notes that at the macro (i.e. economy-wide) level, 'there is no clear link between labour productivity growth and IR laws', and also 'at a firm level there is no obvious link between IR reform and productivity changes.'¹²

⁹ AI Group (2013), *AI Group Survey: Policy priorities for the next Australian Government. Industrial relations reform tops the list*, available at http://www.aigroup.com.au/portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/LIVE_CONTENT/Publications/Reports/2013/pre-election%2520survey%2520FINAL.pdf

¹⁰ Office of Best Practice Regulation (2013) *Measuring and Reducing the Burden of Regulation: Final Report*, Queensland Competition Authority, p.3

¹¹ PwC (2012), *Impact of the proposed national Model Work Health and Safety Laws in Victoria: Summary Report of Supplemental Impact Assessment*, April, p.9

¹² John Daley (2012), *Game-changers: Economic reform priorities for Australia – Supporting analysis*, Grattan Institute, June, p.13

Despite these observations, industrial relations (IR) is one of the key productivity battlegrounds in the construction industry.

Much of the focus in recent times has been on the potential reinstatement of the Australian Building and Construction Commission (ABCC).

There has been considerable debate about the degree to which the ABCC is a positive for productivity in the construction industry. A series of benchmarking studies commissioned by the ABCC and the Master Builders Association have sought to portray the ABCC as the driver of improved productivity in the construction industry.¹³ These studies have been critiqued and the analysis found wanting on a number of methodological grounds.¹⁴

The difficulty in drawing out specific benefits from individual IR reforms is that ultimately firms need to embrace them. IR demonstrates the need for productivity to be a dual responsibility between government and industry; it is not enough for governments to put in place productivity enhancing frameworks if industry does not embrace them.

Possible benefits from a more productive industry

To understand how productivity improvements in the construction industry would affect the Australian economy we used PwC's Computable General equilibrium (CGE) model to analyse what impact a one percentage point increase in productivity would have on the four construction sectors:

- residential dwellings
- non-residential buildings (commercial and industrial) such as offices, schools and hospitals
- heavy and civil engineering such as roads, bridges and tunnels
- construction services, which includes land development and site preparation, building installation services, building completion services and other construction services.

The impacts of a 1 per cent increase in labour productivity in the construction industry are shown in Figure 9 for these four sectors.

At the broadest level, a 1 per cent productivity improvement will reduce the need for labour and will consequently lower production costs and the overall cost of investment in buildings and structures.

The benefit of lower construction costs will flow through to the users of the construction industry:

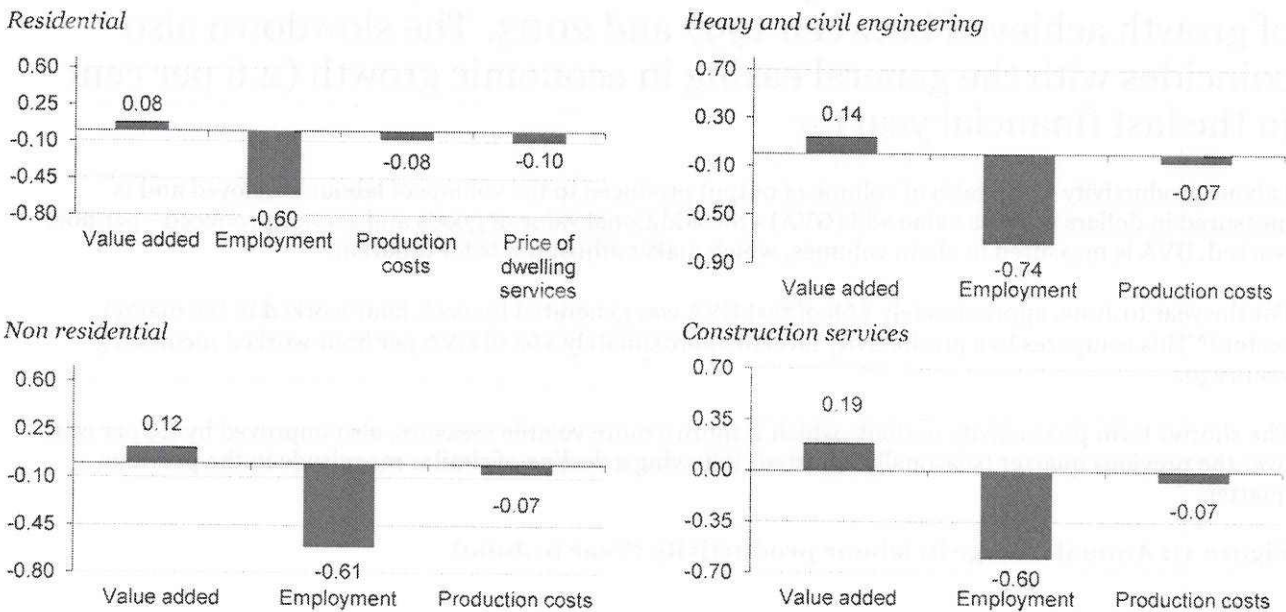
- New home owners will benefit from higher effective wages as construction costs will come down.
- This is particularly of benefit to the industries that are large users of buildings and structures.

¹³ Most recently, see Independent Economics (2012), *Economic Analysis of Building and Construction Industry Productivity: 2012 Report*, Master Builders Australia

¹⁴ For example, see Cameron Allan, Andrew Dungan and David Peetz (2010), 'Anomalies', damned 'anomalies' and statistics: construction industry productivity in Australia, *Journal of Industrial Relations*, Volume: 52 Issue: 1 pp.61-79

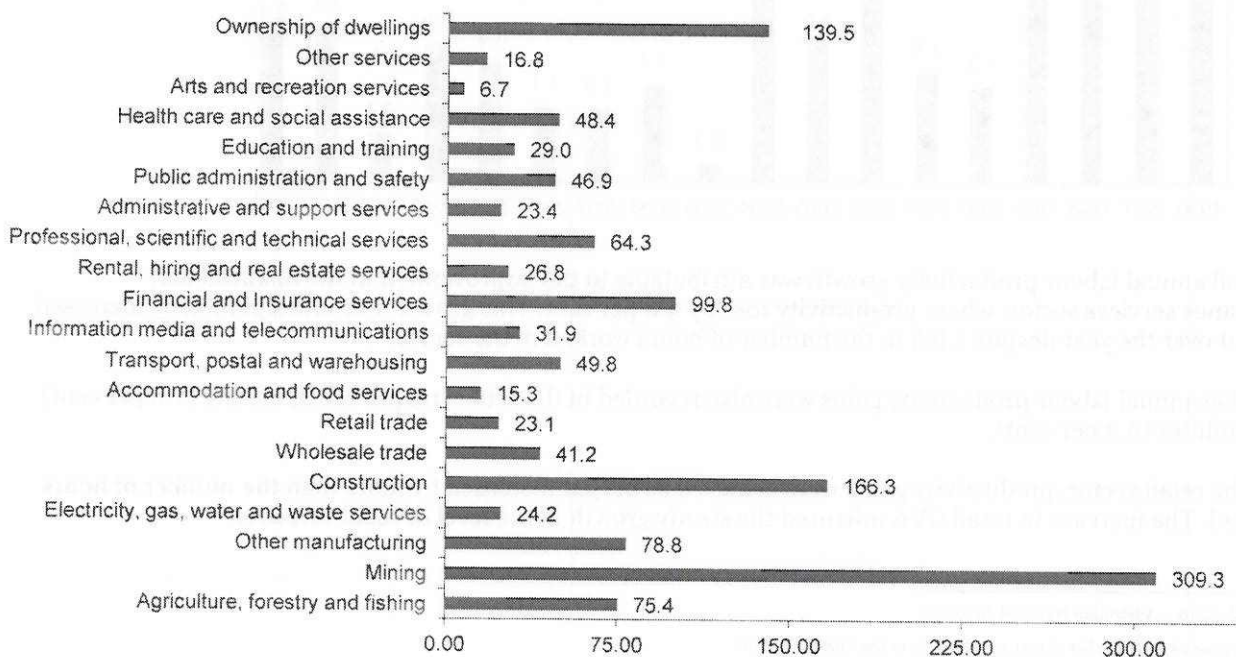
A one per cent increase in construction labour productivity will increase real GDP by **\$1.25bn**

Figure 9: Impact of a 1% increase in labour productivity on Construction industry sectors



As a result, a one percentage point higher labour productivity growth in the construction industry will increase real GDP by \$1.252 billion. While the construction industry will itself be a beneficiary of the improved productivity (Figure 10), the benefits will be shared across the economy.

Figure 10: Impact of 1 percentage point increase in Construction industry productivity on industry output and employment (\$ million)



Market sector productivity

Labour productivity for the year to June 2013 rose by 2.1 per cent following a rebound in the productivity in the financial and insurance services sector productivity.

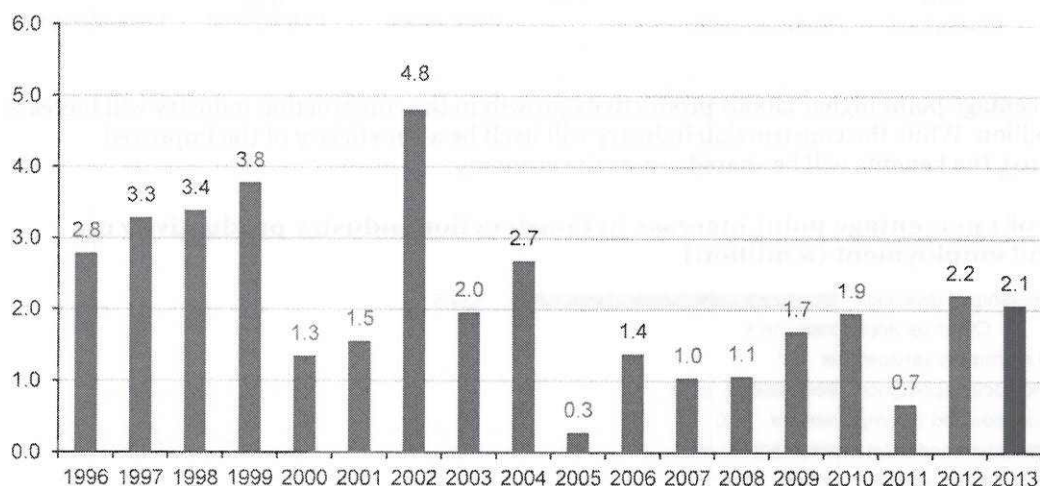
The overall result is an improvement on recent years but falls short of growth achieved between 1997 and 2003. The slowdown also coincides with the general easing in economic growth (2.6 per cent in the last financial year).¹⁵

Labour productivity is the ratio of volume of output produced to the volume of labour employed and is measured in dollars of gross value add (GVA) - the additional value of goods and service produced - per hour worked. GVA is measured in chain volumes, which makes adjustments for inflation.

For the year to June, approximately \$68 of real GVA was generated for each hour worked in the market sector.¹⁶ This compares to a productivity level of approximately \$62 of GVA per hour worked recorded 5 years ago.

The shorter term productivity outlook, which is more a more volatile measure, also improved by 1.9 per cent over the previous quarter (seasonally adjusted) following a decline of similar magnitude in the previous quarter.

Figure 11: Annual change in labour productivity (Year to June)



Overall annual labour productivity growth was attributable to the improvement in the financial and insurance services sector, where productivity rose by 9.8 per cent. This growth was underpinned by increased output over the year despite a fall in the number of hours worked in the sector.

Notable annual labour productivity gains were also recorded in the retail (1.9 per cent), mining (2.6 per cent) and utilities (6.3 per cent).

For the retail sector, productivity gains were achieved as output increased by more than the number of hours worked. The increase in retail GVA mirrored the steady growth in the level of retail turnover.

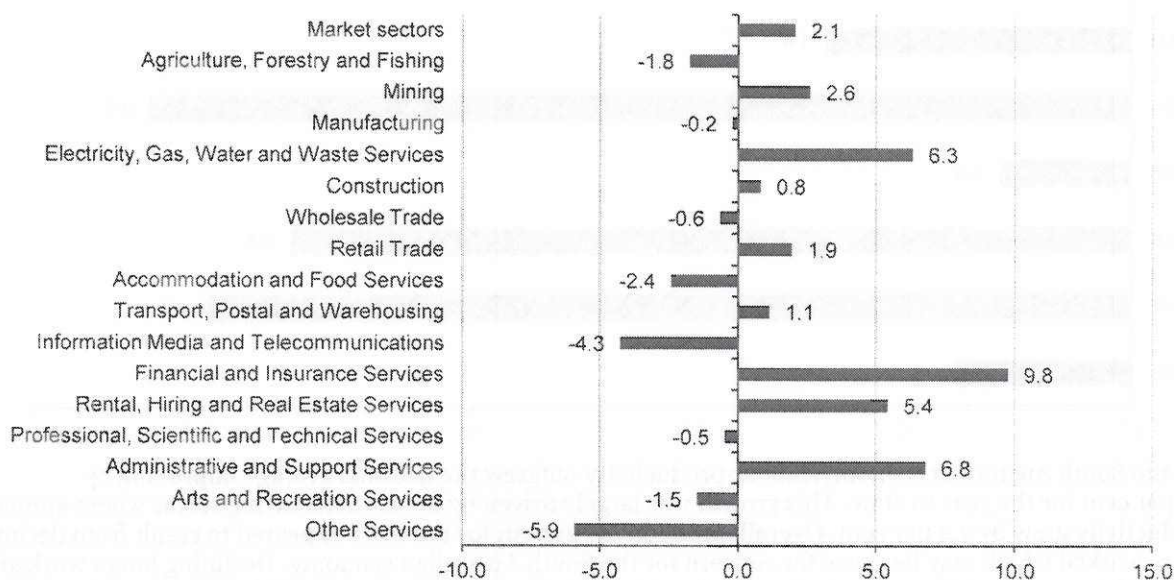
¹⁵ ABS, 5206 – Australian National Accounts

¹⁶ See page 18 for a list of sectors which form the 'market sector'

Productivity improvements in the mining sector resulted from a significant jump in output (9 per cent) while hours worked rose marginally. This suggests the mining sector may be moving towards a 'production phase' after a period where significant investments were made to improving production capacity.

The performance in Utilities, a 6.3 per cent improvement, was driven by a decline in hours worked (7 per cent).

Figure 12: Annual change in labour productivity (Year to June)



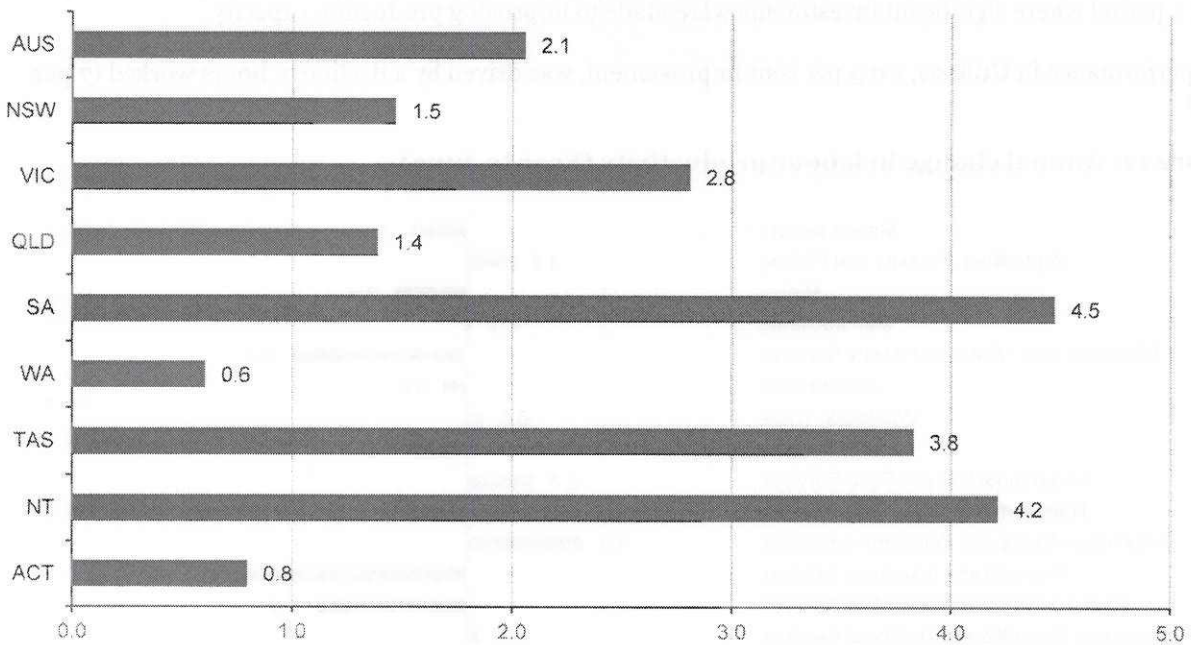
Annual labour productivity growth in the market sector was held back by declines in the agricultural, forestry and fishing (1.8 per cent), accommodation and food services (2.4 per cent) and the information, media and telecommunications sector (4.3 per cent).

The decline in labour productivity for the agricultural sector follows two years of substantial growth and is a result of a contraction in both output and hours worked over the year to June. This contrasts with the previous two years of productivity growth where increased output was achieved despite a fall in hours worked.

Labour productivity declines in the accommodation and food services and information, media and telecommunications sectors were driven by increases in the number of hours worked.

Following three years of modest labour productivity growth in the manufacturing sector, productivity declined by 0.2 per cent for the year to June 2013. While this decline is minor in comparison to other sectors, the size of the manufacturing sector means its productivity performance is important for the overall productivity of the market sector and therefore played a role in dampening overall productivity growth for the year.

Figure 13: Annual change in labour productivity in the market sector (Year to June)



For the South Australian economy, labour productivity outgrew the national average improving by 4.5 per cent for the year to June. This growth was largely driven by the manufacturing sector where annual productivity grew by 7.4 per cent. Overall, productivity growth for the State appeared to result from declining hours worked which may be cause for concern for the South Australian economy. Declining hours worked also explains much of the productivity growth achieved in Tasmania (3.8 per cent) in the year to June.

Annual productivity growth in Western Australia was largely attributable to improvements in the mining sector where productivity grew by 6.3 per cent, in the year to June, as a result of increased output.

Elsewhere, modest labour productivity growth was achieved in the year to June in Victoria (2.6 per cent) and New South Wales (1.4 per cent). Productivity growth in both cases was largely attributable to gains in the financial and insurance services sector, which is a significant sector for employment and economic activity in both states.



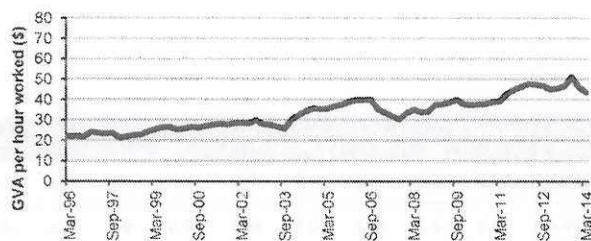
Productivity growth by jurisdiction and industry

The following tables provide estimates of changes in labour productivity for the Australian Bureau of Statistics' 'market sectors' by jurisdiction for the past quarter (June 2013), past year and past five years.

The charts show annual (inflation adjusted) labour productivity since 1996.

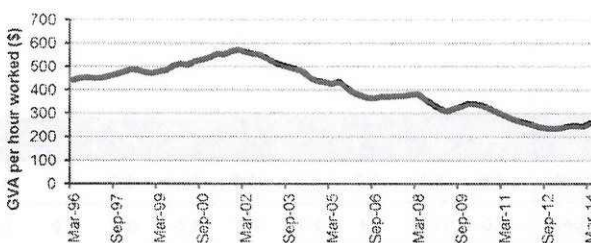
Care needs to be taken with interpreting changes in labour productivity in small sectors in small jurisdictions due to the volatility of the results (and in some cases we do not report these results).

Agriculture, forestry and fishing



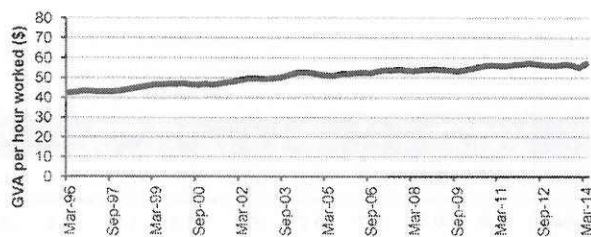
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	-1.7	1.2	4.0	-4.2	3.0	-19.8	n/a	n/a	0.6
1 year	-12.1	-4.5	9.6	24.6	-13.9	3.3	n/a	n/a	-1.8
5 year	18.7	27.4	61.9	79.6	16.3	88.7	n/a	n/a	37.8

Mining



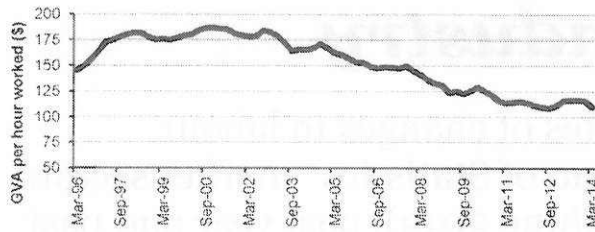
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	-14.9	-2.7	-3.7	6.1	8.7	n/a	-27.8	n/a	0.7
1 year	18.7	-16.2	-5.0	-6.7	6.3	n/a	-2.3	n/a	2.6
5 year	-25.7	-45.4	-43.6	-6.5	-27.9	n/a	-28.5	n/a	-31.4

Manufacturing



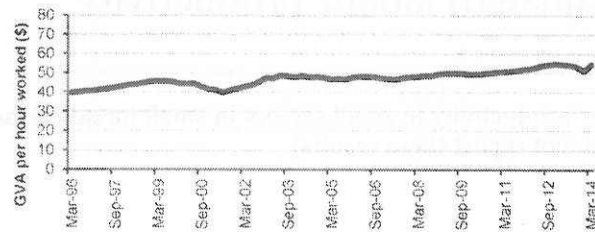
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	5.3	2.0	2.0	-6.1	5.6	2.4	n/a	n/a	2.7
1 year	-6.4	0.7	8.3	7.4	-1.5	-16.9	-10.9	-10.1	-0.2
5 year	5.9	2.9	-5.9	15.9	22.3	-2.6	118.6	-6.2	5.2

Electricity, gas, water and waste services



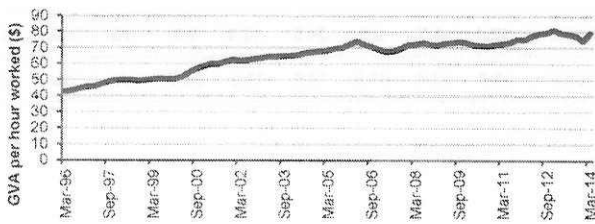
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	-9.6	-7.6	-23.8	6.8	6.9	n/a	n/a	n/a	-5.9
1 year	0.4	13.4	27.9	2.1	-20.1	-6.7	8.6	-11.2	6.3
5 year	-9.3	-10.3	-17.9	-12.4	-8.9	-37.5	-45.3	-38.3	-14.3

Construction



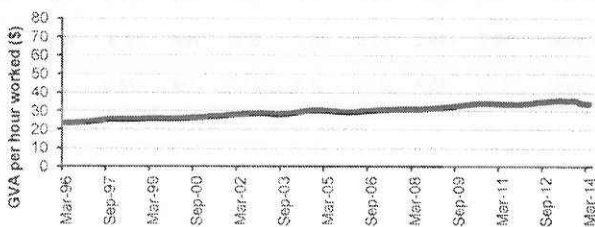
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	1.4	7.2	7.0	-3.8	2.6	4.4	23.7	0.8	4.9
1 year	3.9	3.0	-3.7	-11.8	-0.2	19.6	4.2	0.4	0.8
5 year	15.4	4.2	18.8	-7.2	8.1	9.0	-25.4	26.5	11.4

Wholesale trade



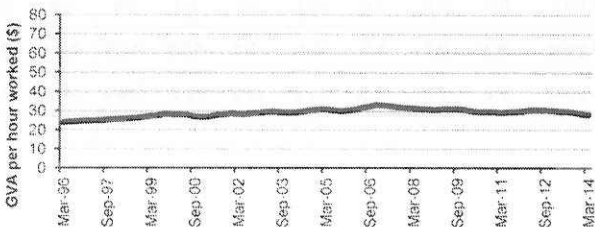
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	17.7	4.4	-3.6	7.3	-7.5	9.6	n/a	n/a	6.7
1 year	-2.2	-3.3	-2.2	-0.5	10.1	26.9	n/a	n/a	-0.6
5 year	15.3	6.2	-8.0	21.4	4.2	40.5	n/a	n/a	7.1

Retail trade



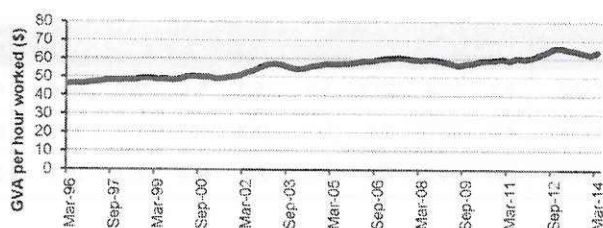
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	-8.6	4.6	-4.2	-6.5	-6.5	-15.1	-9.2	-5.3	-4.4
1 year	2.0	-1.0	1.4	2.1	7.2	6.5	0.9	9.9	1.9
5 year	17.2	3.2	21.6	11.7	14.8	16.1	4.2	17.2	14.0

Accommodation and food services



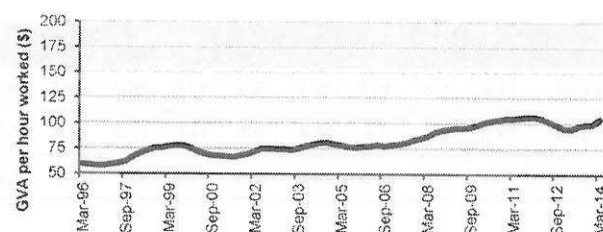
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	-0.7	-2.7	-1.7	7.7	-10.0	7.6	-13.1	-0.4	-1.7
1 year	-7.9	-0.1	-3.7	9.2	-0.3	21.5	1.3	18.0	-2.4
5 year	-6.4	-4.0	-10.3	-4.6	3.3	14.4	64.5	22.5	-4.3

Transport, postal and warehousing



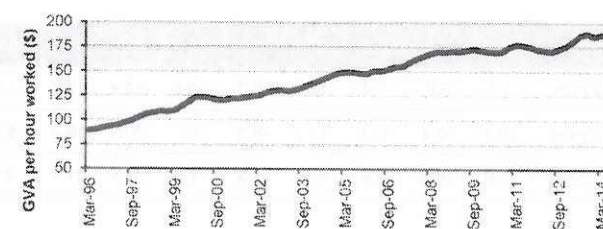
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	10.1	0.1	3.9	-6.4	0.7	11.4	n/a	n/a	4.1
1 year	2.7	5.4	-3.0	0.2	0.9	-6.6	-2.4	-10.5	1.1
5 year	20.5	-7.1	9.4	9.7	-0.4	7.1	9.5	49.9	8.0

Information media and telecommunications



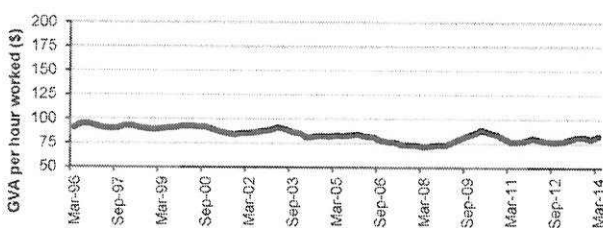
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	7.2	26.2	-30.2	14.0	34.3	n/a	n/a	n/a	8.7
1 year	-6.0	0.7	-1.8	-12.4	-21.7	11.2	-17.4	38.3	-4.3
5 year	-8.8	15.1	36.6	-11.0	12.7	18.2	35.2	65.5	7.0

Financial and insurance services



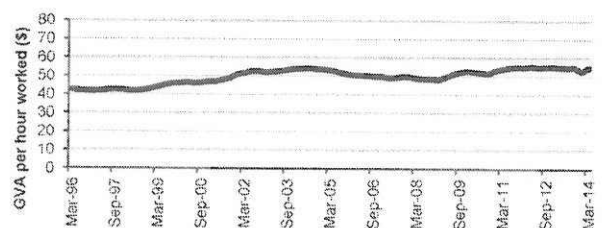
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	-6.7	3.5	11.7	-13.6	6.8	10.3	5.2	-14.0	-1.0
1 year	12.4	5.6	15.9	34.0	-16.9	8.3	28.8	-2.9	9.8
5 year	9.3	7.2	8.3	29.6	-0.3	44.5	82.4	69.5	9.8

Rental, hiring and real estate services



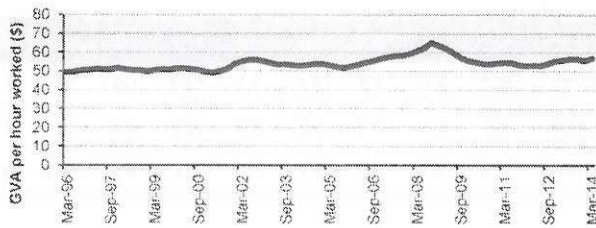
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	28.6	-0.5	-0.2	-5.7	3.3	-1.0	-10.7	10.4	7.3
1 year	1.4	5.1	7.1	-4.8	24.4	8.8	-3.8	-16.0	5.4
5 year	6.7	17.3	15.4	-17.2	42.1	47.1	-19.2	-20.2	12.7

Professional, scientific and technical services



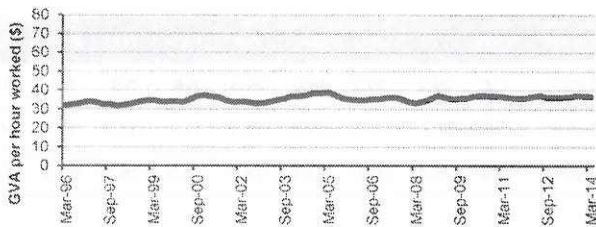
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	0.8	3.8	-15.2	15.7	15.4	n/a	n/a	n/a	1.0
1 year	6.5	0.2	-7.2	-0.1	-9.9	-8.7	14.5	-6.7	-0.5
5 year	12.3	16.2	-2.6	18.0	33.8	-6.6	-11.3	31.5	13.0

Administrative and Support Services



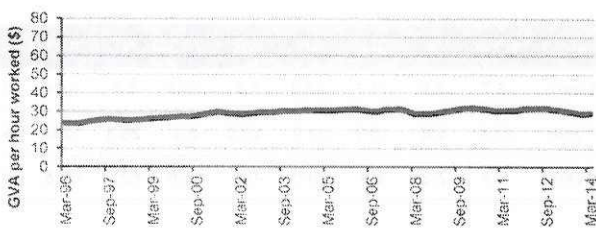
Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	9.8	-7.4	-23.8	5.2	15.0	6.4	35.0	-26.4	-2.4
1 year	4.4	23.0	7.6	13.3	-16.5	-10.7	1.2	3.0	6.8
5 year	-25.7	10.7	-3.9	-6.6	2.3	46.4	-27.6	-10.3	-9.3

Arts and Recreation Services



Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	11.5	-5.8	-10.8	-36.5	-5.9	-18.8	35.7	-22.5	-4.0
1 year	-14.0	-0.7	7.8	35.5	-9.7	13.6	12.2	-5.2	-1.5
5 year	-6.3	5.1	44.5	-16.0	30.4	-10.5	-8.7	-0.4	7.5

Other Services



Period	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
3 mth	1.1	2.8	-4.9	-12.5	-6.7	-26.6	-10.4	17.7	-1.9
1 year	-5.4	-0.9	-13.0	-11.1	-5.5	2.1	5.3	10.0	-5.9
5 year	-1.0	14.6	-0.8	8.7	-3.5	11.6	39.8	21.8	3.7

The Productivity Imperative

Background

The importance of productivity

'Productivity' is the amount of output per unit of input. The concept can be applied broadly, such that it 'is what a workplace, a business or government agency, an industry, a region or a nation 'gets' by way of goods and services for what it 'puts in', in terms of labour, capital and other factors of production'.¹⁷

The quest for improved productivity is not about making people work harder solely for the benefit of shareholders or government. Rather, productivity-induced efficiencies provide the potential for an industry to increase its contribution to the Australian economy by increasing profits of its shareholders and the wages of its workers, as well as to lower prices and result in the better provision of goods and services to consumers.

Furthermore, 'high levels of productivity and/or high rates of rapid productivity growth are desirable because they enable societies to achieve not only higher material standards of living but also to make other (individual and collective) choices which enhance some of the non-material factors affecting the quality of people's lives'.¹⁸ For example, improved productivity may mean more efficient resource use, which may reduce pressures such as environmental degradation.

The centrality of productivity, in one of the more famous modern economics quotes, was reinforced in 1992 when Paul Krugman wrote that 'a country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker'.¹⁹ This sentiment has been echoed this year by Australia's most senior economic policy advisers:

- The Governor of the Reserve Bank of Australia, Glen Stevens, recently stressed that 'there is only one source of ongoing higher rates of growth of real per capita incomes, and that is higher rates of growth of productivity'.²⁰
- The Secretary of the Commonwealth Treasury, Martin Parkinson, observed that 'in the long

run, productivity growth – producing more from the same inputs – is the only sustainable way for future generations to enjoy higher living standards'.²¹

- The Chairman of the Productivity Commission, Gary Banks, noted that 'The imperative must be to drive productivity improvements and efficiency throughout the economy, through actions that can effectively foster competition, facilitate organisational flexibility and adaptability, and build capability. Whatever the economic question, 'productivity' is generally the answer'.²²

Measuring productivity

Labour productivity is the most commonly used productivity measure mainly because it is relatively easy to comprehend and to compute. For example, a rough estimate for an economy can be obtained by dividing GDP by official estimates of total hours worked.

The Australian Bureau of Statistics (ABS) publishes annual labour productivity measures (value added per hour worked) by jurisdiction and industry.

While labour productivity is an accessible and insightful performance measure, it is not a complete measure of productivity because it does not take account of:

- capital accumulation in increasing outputs, which is particularly important during a resources boom
- the proportion of the population actually employed productively

These limitations can be addressed through 'multifactor productivity' measures.

¹⁷ Saul Eslake and Marcus Walsh 2011, Australia's Productivity Challenge, Grattan Institute Report No. 2011-1, p.4

¹⁸ Ibid., p.5.

¹⁹ Paul Krugman 1992, The Age of Diminished Expectations: US Economic Policy in the 1980s, MIT Press, Cambridge, p.9.

²⁰ Glen Stevens 2011, 'The Cautious Consumer', address to the Anika Foundation, 26 July.

²¹ Martin Parkinson 2011, 'Sustaining Growth in Living Standards in the Asian Century', address to the Seventh Economic and Social Outlook Conference, Melbourne, 30 June, pp.11-12

²² Gary Banks 2011, 'Australia's Mining Boom: what's the problem?' address to the session 'Managing the Growth Shock' at the Economic and Social Outlook Conference, Melbourne, 30 June, p.10.

Multifactor productivity is a measure of the output obtained from a 'unit bundle' of both capital and labour – which entails complex techniques for measuring and aggregating capital services and then combining these with hours worked. The data needs for this technique are substantial and subject to significant estimation risk.

The estimates of labour productivity by industry and jurisdiction in PwC Productivity Scorecard should be seen as a complement to longer term multi-factor productivity analyses.

The productivity challenge

The evidence suggests that there are two productivity challenges.

The first challenge is that Australia's productivity performance, however measured, has deteriorated substantially since the late 1990s. In terms of simple decade-average comparisons, Saul Eslake reports that:²³

- Labour productivity
 - for the Australian economy as a whole grew at an average annual rate of 1.5 per cent over the ten years to 2009-10, compared with 2.1 per cent per annum over the ten years to 1999-2000, 1.4 per cent per annum over the ten years to 1989-90 and 2.8 per cent per annum over the ten years to 1979-80
 - for twelve of the industry components of the 'market sector' for which the Australian Bureau of Statistics has estimates going back before 1994-95 grew at an average annual rate of 1.9 per cent during the 2000s, compared with 2.6 per cent in the 1990s and 1.6 per cent in the 1980s
- Multi-factor productivity
 - for the Australian economy as a whole was unchanged over the course of the 2000s, compared with growth averaging 1.6 per cent per annum in the 1990s, 0.7 per cent per annum in the 1980s and 1.5 per cent per annum in the 1970s

- for the 'market sector'²⁴ grew at an average annual rate of 0.2 per cent in the 2000s, compared with 1.4 per cent in the 1990s

On its own, the decline in productivity performance is concerning.

The concern is magnified because our productivity performance is slipping behind that of our advanced competitors: 'Australia ranked 11th out of 25 OECD countries in descending order of labour productivity growth in the 1990s, and 17th out of 34 countries in the 2000s'.²⁵

The concern is further magnified because, when the resources boom eventually runs its course, if we have not seen sustained productivity growth in non-resource industries, then we will be relying on smaller and less productive industries to implausibly sustain our national standard of living.

The PwC Productivity Scorecard

The PwC Productivity Scorecard publishes PwC derived labour productivity measures (based on ABS data) on an annual and quarterly basis:

- for the market sector – this includes:
 - Agriculture, Forestry and Fishing
 - Mining
 - Manufacturing
 - Electricity, Gas, Water and Waste Services
 - Construction
 - Wholesale Trade
 - Retail Trade
 - Accommodation and Food Services
 - Transport, Postal and Warehousing
 - Information Media and Telecommunications
 - Financial and Insurance Services
 - Rental, Hiring and Real Estate Services
 - Professional, Scientific and Technical Services
 - Administrative and Support Services
 - Arts and Recreation Services
 - Other Services
- by state, territory and nationally

²³ Eslake 2011, 'Productivity' presented to the annual policy conference of the Reserve Bank of Australia, HC Coombs Conference Centre, Kirribilli, Sydney, 15-16 August, p.2

²⁴ The market sector excludes sectors in which productivity growth is difficult to measure, such as public administration and safety, education and training, and health care and social assistance

²⁵ Eslake 2011, 'Productivity' presented to the annual policy conference of the Reserve Bank of Australia, HC Coombs Conference Centre, Kirribilli, Sydney, 15-16 August, p.4

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