INFOCUS

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2017

# AUSTRALIAN MADE

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'Australian made' has for decades been a domestic rallying cry for the support of Australian industries. In that time, it has helped to instil trust and pride in the products we produce and today, 'Australian made' carries international relevance.

Australian manufacturing's reputation and the country's proximity to Asia means the nation holds an enviable position to satisfy the growing demand from Asia's emerging middle class for higher quality goods. And, despite much of the rhetoric around the sector, it has a strong future, provided it can build efficiency through technology and scale, integrate itself in Asia's supply chain and use Australia's intellectual property as a competitive advantage.

In this report we consider Australian manufacturing's, past, present and future, and bring focus to its role as a nation builder in a modern Australian economy. Australia's manufacturing sector is evolving, rebalancing to consumables, such as food, and products with higher skill and R&D intensities. Asia, particularly China, continues to underpin demand for Australian manufactured goods with exports to China increasing from $1.4 billion in 2000 to more than $8 billion in 2015 – a jump of more than 470 per cent.

If we look towards 2030, this trend is set to continue with a forecasted $1.7 billion increase in processed primary goods, a $2.6 billion increase in simply transformed goods, and a $1 billion increase in elaborately transformed goods making their way to China alone.

Looking beyond our borders, the world's shifting political landscape and its influence on global integration and trade, will also play a role in shaping the outlook of many of Australia's traditional export industries. Changes to global commodity markets, foreign exchange rates and supply and demand from our critical trading partners may also impact our export industries which together were worth nearly $670 billion in 2015-16 – contributing heavily to Australia's ongoing economic prosperity.

Australia's manufacturing industry must also pay close attention to the transformation of international integration. As the United States focuses inward and retreats from the Trans-Pacific Partnership (TPP), China's leaders are increasing their globalisation efforts. Despite the debates surrounding trade liberalisation, it continues to create opportunities for many sectors which have typically been focused on Australia's domestic market.

The changes afoot, while very different from Australian manufacturing's beginnings, present opportunity to an industry that has shown resilience and an ability to evolve during the last century. The examples in this report demonstrate that as well as understanding offshore demand, the next stage in the industry's evolution will require continued innovation, further R&D and ongoing relationship building with our nearest neighbours.

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# THE FUTURE FOR AUSTRALIAN MANUFACTURING

By 2030, manufactured exports to China across the full range of manufacturers has the potential to increase by $75 billion.

## KEY POINTS

- The decline of the Australian manufacturing sector has been overstated;
- Manufacturing remains an important part of the economy and is Australia's fifth largest sector contributing 6.1 per cent of gross domestic product;
- The Manufacturing sector is diverse and contains a number of sub-sectors which are performing strongly, for example food and beverage manufacturing;
- Manufacturing is adjusting to Australia's open and trade exposed economy – those sectors that have increased output are those that are experiencing strong growth in exports;
  - For example, the share of Australian manufactures exports going to China has increased significantly in the past few years, particularly for Simply Transformed Manufactures (STMs);
- The increase in manufactured exports to China and the structural shift underway in the Chinese economy from the manufacturing sector to the services sector presents the Australian manufacturing sector with a $75 billion opportunity up to 2030;
- The 'tyranny of distance' is a significant trade barrier for all exporters, however Australia's proximity to Asia also gives us a relative advantage, compared to other exporters, to take advantage of future growth in demand in Asia;
- By 2030, manufactured exports to China across the full range of manufactures has the potential to increase by:
  - $1.7 billion (an increase of 55 per cent) in processed primary goods;
  - $2.6 billion (an increase of 88 per cent) in STMs (including clay bricks, paper, pig, iron and plaster); and
  - $1 billion (an increase of 53 per cent) in demand for Australian exports of elaborately transformed goods (for example clothing, machinery, paint);
- Notwithstanding the opportunity, the sector is responding to a range of challenges including global competitiveness, labour costs and skills shortages, a range of high input costs (including energy), overall productivity challenges and coming up with ways to stimulate further investment in research and development;
- The resurgence of manufacturing in the United States and other developed economies, particularly in niche and advanced manufactures, demonstrates the sector is not in permanent decline, and that it has continued to adapt to many of the challenges facing Australian manufacturers.

# AUSTRALIAN AND GLOBAL MANUFACTURING SECTOR

The Australian manufacturing sector has for many years been at the centre of a number of well publicised challenges.

This started with the decline of the textile sector in the early 2000s and culminating in the announced closure of parts of the automotive sector, including Ford, Toyota and Holden plants in 2013 and 2014.

Within this context, the manufacturing sector continues to face questions, including:

- whether its decline will be persistent or whether it is readjusting towards the production of more export-oriented goods;
- where Australia's natural advantages in manufacturing lie; and
- whether growing demand for a range of manufactured goods in China will have a positive impact on the sector (or parts of the sector) and the Australian economy more broadly.

The manufacturing sector has played an important role in the Australian economy, beginning in the early 1900s with the opening of the Newcastle Steelworks in 1915. However, since the sector's peak in contribution to the Australian economy in the 1960s (at around 25 per cent of Australian GDP), its overall share of GDP has declined to around 6.1 per cent of GDP. This fall was initially due to slow or stagnant productivity growth, but more recently has been due to the lowering of global trade barriers, impacts of the Global Financial Crisis in 2007/08 and increasing competition from predominantly low cost Asian manufacturers.

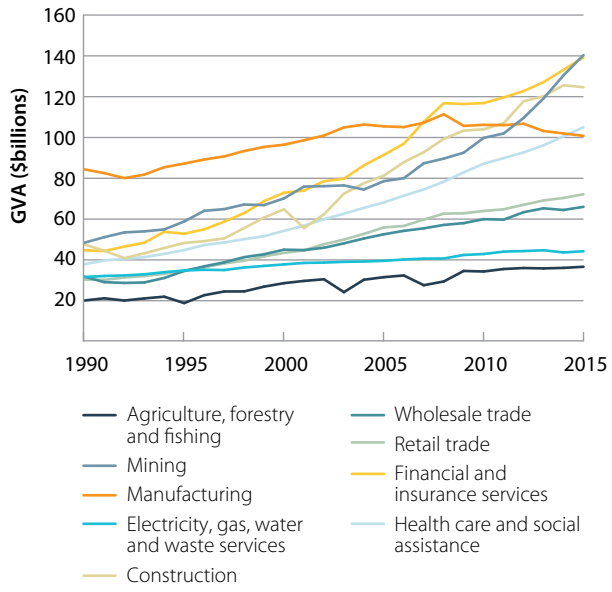
Today, manufacturing is the fifth largest sector in Australia with just under $102 billion in gross value added (GVA) and 900,000 people in employment.

The impact of the Global Financial Crisis resulted in a decline in manufacturing production from which the sector has not recovered. Leading up to 2007/08 the manufacturing sector had experienced strong growth compared to most other sectors, other than mining and construction. While the impact of the GFC on Australian manufacturing was not as severe as initially feared, it did result in an accelerated decline in overall activity, due to the prolonged strength of the Australian dollar and a fall in demand in export markets for Australian vehicles. Since 2015, manufacturing activity has been supported by a lower Australian dollar, however a decline in mining activity and a fall in demand for locally produced vehicles has tempered any relative improvement in global competitiveness.

Despite a reduction in the sector's contribution to the Australian economy, the commonly held view that manufacturing is in decline, possibly terminal decline, does not reflect the full story and doesn't take into account the broader trends in both the Australian and global economies. The sector's decline as a percentage contribution to the Australian economy has been relative to the significant impact that the mining and construction sectors have had post the early 2000s which has boosted overall GDP growth during this period.

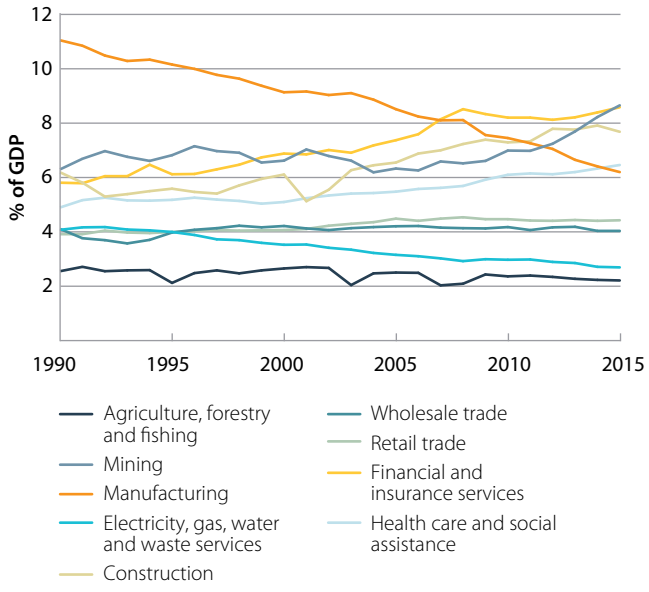
The headline decline of manufacturing also doesn't present the whole story, with some sub-sectors performing far better than others. The food, beverage and tobacco products sub-sector has continued to grow and is now the largest sub-sector, reaching $A25 billion in value in 2016, while the machinery and equipment, metal products and petroleum sub-sectors have all grown strongly relative to other manufacturing sub-sectors over the past 30 years, despite falls in production in recent years.

## GVA BY SECTOR



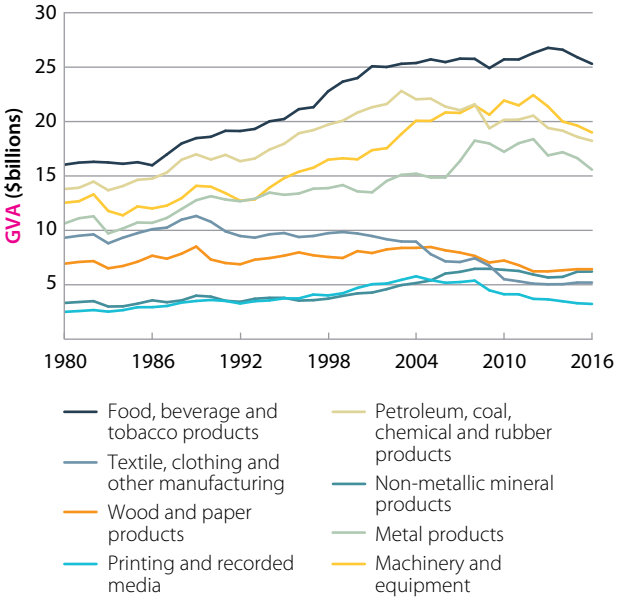

Source: ABS

## GVA BY SECTOR AS % OF GDP



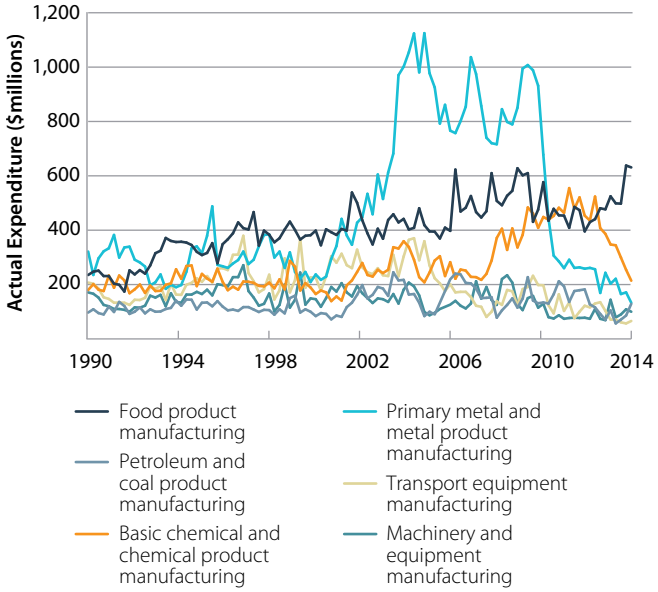

Source: ABS

## MANUFACTURING GVA BY SUB-SECTOR




Source: ABS

## NEW CAPITAL EXPENDITURE BY SECTOR




Source: ABS

Investment and new capital expenditure in manufacturing has also remained strong across a range of sub-sectors and states.

For example, capital investment in food and beverage manufacturing has increased strongly over many years and has remained steady in most sub-sectors with the exception of metal manufacturing and mining sub-sectors which have been impacted by a fall in global commodity prices.

## A DIFFERENT STORY ACROSS EACH STATE

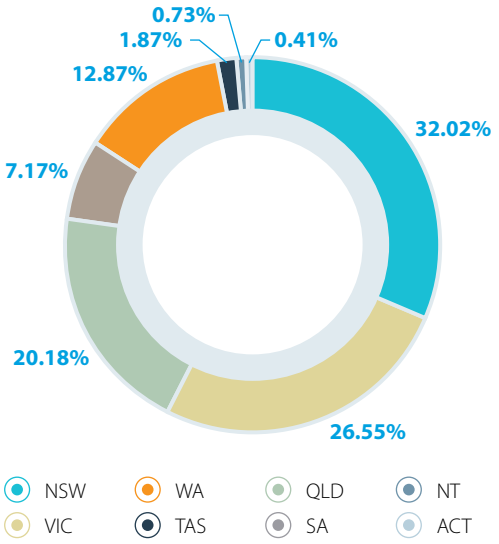
Approximately eight per cent of South Australia's Gross State Product (GSP) relies on the manufacturing sector. While for New South Wales, Victoria and Tasmania manufacturing contributes to seven per cent of GSP, the sector accounts for five per cent and six per cent of Western Australian and Queensland GSP respectively. All states, except the mining States of Western Australia and Queensland (largely as a result of mining related manufacturing), have experienced a decline or stagnation in manufacturing GVA as a percentage of GSP since 1990.

In terms of overall concentration, manufacturing activity is most prevalent in the large economies of New South Wales and Victoria, but it is fair to say that there is manufacturing differentiation across different sub-sectors across the states, primarily based around their natural advantages, such as Western Australia which is heavily involved in primary metal manufacturing while Tasmania and Victoria have a larger food manufacturing sector.

The number of people employed in the larger manufacturing states of New South Wales and Victoria has been steadily falling since the early 1990s; and has dropped more recently in South Australia and Tasmania; but has remained fairly constant until 2015 in the mining states of Queensland and Western Australia. While employment levels in all states have fallen, it's worth noting that during the corresponding period increasing automation has maintained output levels.

While particular attention has been paid to job losses suffered in regional areas, particularly following recent car manufacturing job losses in Geelong, Victoria,in reality, job losses have been felt in equal measure in metropolitan areas. For all states except New South Wales and Western Australia, the percentage of manufacturing jobs which are in regional areas has remained either the same or is higher than in 1991, meaning that even though there has been a decrease in the total number of people employed in manufacturing, those reductions have been felt equally across regional and metropolitan areas. What is becoming clear, however is that regional (and metropolitan) economies are becoming less reliant on the manufacturing sector as a source of employment, with drops in the number of people employed in the manufacturing sector in every state except Queensland.

## MANUFACTURING PRODUCTION BY STATE




Source: ABS State Accounts

## GLOBAL CONTEXT

Talk of a decline in manufacturing should be considered in the context of trends in many other developed economies and economies which are increasingly underpinned by services. In fact since 1990, the Australian manufacturing sector has increased total value added output by more than any of the G7 nations except Canada and the United States. When compared to other developed nations, the decline in the number of people directly employed in manufacturing is closely comparable to that experienced in Canada and Norway – countries which are also highly endowed with natural resources. Australia also has a lower percentage of imported content for its exports of manufactured goods than almost all countries except Brazil and Russia, and the imported content that is present is almost all sourced from East and Southeast Asia, implying that Australia is almost entirely reliant on its own resources base for primary products for manufacture.

The ongoing process of 'de-industrialisation' in developed nations does not mean that the manufacturing sector is in decline. While the services sector is the largest contributor to economic activity in Australia, the manufacturing sector continues to grow, albeit at a slower rate than other sectors of the economy. It is also overly simplistic to conclude that the services sector is replacing the manufacturing sector as a source of growth, as the two industries are becoming increasingly intertwined. The OECD for example estimates that approximately 25 per cent of manufacturing sector value added was attributable to services sector roles in the manufacturing sector.

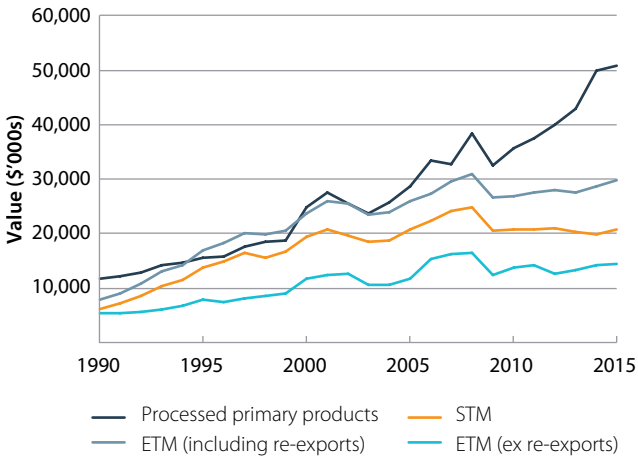
## MANUFACTURING EXPORTS: REORIENTING THE SECTOR

Australia's involvement in a range of bilateral and regional Free Trade Agreements and the lowering of tariffs and quotas protecting Australian produced manufactures has been at the centre of much debate, with arguments that the lowering of trade barriers has resulted in the decline of certain sub-sectors. While exposing the manufacturing sector to global competition has resulted in some negative impacts, particularly in motor vehicle manufacturing and textiles, it has also benefited a number of sub-sectors which have grown substantially through growing exports.

A widely held narrative characterises the Australian manufacturing as being in a state of transition, reorienting away from manufacturing of goods in which Australia is less competitive towards higher technology, and higher value add products. Growth industries since 2005-06 demonstrate a consistent focus on exports such as food manufacturing, fabricated metal manufacturing, chemical manufacturing and machinery and equipment manufacturing. The clear message is that growth in the manufacturing sector in the future will be more strongly tied to demand from offshore markets – exports will be key to the sector's overall success.

Australia's manufacturing sector is rebalancing towards consumables with links to Australia's natural endowments such as food, forests and minerals. The sector is also transitioning towards the manufacture of more differentiated products with higher skill and R&D intensities such as medical, pharmaceuticals, photographic, scientific and medical equipment. At the same time, less complex products, which are often labour-intensive, that are produced by industries that face a high level of import competition continue to come under pressure.

## AUSTRALIAN MANUFACTURING EXPORTS




Source: Based on the DFAT publication 'Composition of Trade Australia 2015'

| Growth: 2005-06 to 2015-16 | Industry Value Added | Exports (FOB Value) | Imports (Customs Value) |
|---|---|---|---|
| Food product manufacturing | 32.08% | 66.85% | 116.02% |
| Beverage and tobacco product manufacturing | 24.61% | -9.94% | 148.15% |
| Textile, leather, clothing and footwear manufacturing | -5.23% | -4.99% | 84.53% |
| Wood product manufacturing | -3.83% | 9.00% | 70.94% |
| Pulp, paper and converted paper product manufacturing | -0.41% | 39.41% | 8.35% |
| Printing (including the reproduction of recorded media) | 6.36% | -73.24% | -24.96% |
| Petroleum and coal product manufacturing | -48.24% | -31.65% | 68.54% |
| Basic chemical and chemical product manufacturing | 33.89% | 14.47% | 41.69% |
| Polymer product and rubber product manufacturing | -12.42% | 17.06% | 66.75% |
| Non-metallic mineral product manufacturing | 20.68% | -33.00% | 84.96% |
| Primary metal and metal product manufacturing | -58.78% | 16.78% | 19.53% |
| Fabricated metal product manufacturing | 15.14% | 33.24% | 82.45% |
| Transport equipment manufacturing | -15.64% | 1.06% | 48.36% |
| Machinery and equipment manufacturing | 3.26% | 37.62% | 37.36% |
| **Total manufacturing** | **-0.95%** | **12.82%** | **61.80%** |

Source: ABS (International Trade in Goods and Services); ABS (Australian Industry); ANZ

The Australian Department of Foreign Affairs and Trade classifies Australia's exports in three broad categories of manufactured goods:

- **Processed primary products** represent a higher stage of processing. Examples are chilled or frozen meat and seafood, butter, cheese, flour, canned fruit and vegetables and wine.
- **Simply Transformed Manufactures** (STM) consist mainly of basic metal manufactures, chemicals and other intermediate manufactured goods which will be used as inputs into other goods. Examples include flat-rolled steel products, chemicals, leather and cotton yarn.
- **Elaborately Transformed Manufactures** (ETM) are generally what would be termed 'finished goods'. ETM covers a vast range of goods, including machinery, whitegoods and other household wares, motor vehicles, clothing and footwear.

Australia's exports of all three categories have grown steadily since the early 1990s (other than a dip in exports caused by the early 2000 drought which reduced food and primary product exports) and the impact of the Global Financial Crisis in 2007/08. The most marked increase in exports has been in processed primary goods, including transformed foods, minerals and fuels. However, exports in ETMs and STMs have also increased steadily during the same period.

The proportion of ETM exports, which are constituted by re-exports (imports to Australia which are included as part of a later stage export,) has increased as trade barriers have been lowered and Australia becomes more integrated with global supply chains.

The composition of export destinations by region for manufactured goods has only changed slightly since 1990 – the share of exports going to Europe has dropped slightly, and the share to America (North and South) has increased slightly. The largest share of exports (45 per cent) continues to be the Asian market – indicating that the 'tyranny of distance' and freight costs remain a significant trade barrier for manufactured goods, putting Australia in a position to take advantage of future growth in demand from Asia.

However underlying this steady increase in manufactured exports, Australian exports remain highly sensitive to changes in the exchange rate, with the RBA finding that 'manufactured and service exports show a larger response than total exports to a change in the exchange rate. In contrast, resource exports appear less sensitive, while the response of rural exports is not statistically significant'. The slow-down in the Australian mining boom and global economic uncertainty and political instability is likely to support a lower Australian dollar and potentially, demand for Australian manufacturing.

# AUSTRALIAN MADE

## 2015

| GLOBAL MANUFACTURING VALUE ADDED ($US) | GLOBAL GDP | HIGH INCOME COUNTRIES VALUE ADDED | AUSTRALIAN MANUFACTURING VALUE ADDED ($US) |
|---|---|---|---|
| $11T | 27.7% | $6.5T | $86.6B |

| | AUSTRALIAN MANUFACTURING GDP ($) | AUSTRALIAN MANUFACTURING GDP (%) | AUSTRALIAN EXPORTS OF MANUFACTURED GOODS[1] ($) | % AUSTRALIAN MANUFACTURED EXPORTS (TOTAL) | MANUFACTURED EXPORTS TO CHINA ($) | CHINESE ECONOMY — % GDP INDUSTRY |
|---|---|---|---|---|---|---|
| 2000 | $96.3B | 9.1% | $5.4B | 2% | PROCESSED PRIMARY $370.6M<br>STMS $386.6M<br>ETMS $642.9M | 45.5% |
| 2015 | $100.6B | 6.3% | $9.9B | 9% | PROCESSED PRIMARY $3.11B<br>STMS $2.98B<br>ETMS $1.99B | 40.9% |
| 2030 | $75B CUMULATIVE OPPORTUNITY TO 2030 (above 2015 export level) | | $19B SIZE OF MANUFACTURED EXPORTS TO CHINA 2030 (including Australian share of reduction in Chinese manufacturing) | | PROCESSED PRIMARY $4.816B<br>STMS $5.621B<br>ETMS $3.043B | 30.8% |

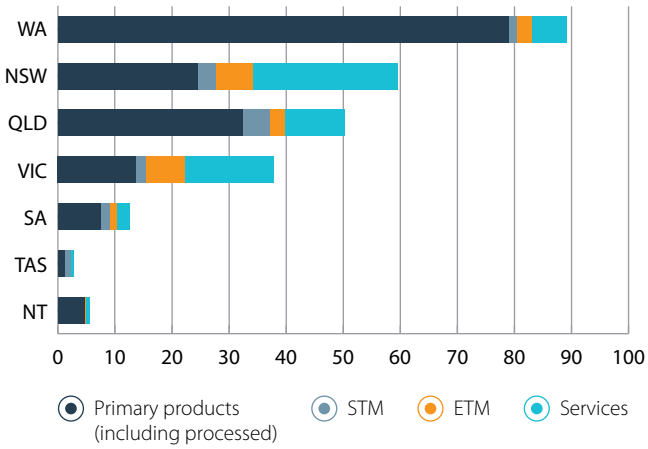
1. Includes processed primary, STMs and ETMs

## MANUFACTURING EXPORTS VS TRADE-WEIGHTED INDEX


Source: Based on the DFAT publication 'Composition of Trade Australia 2015', ANZ

However, general market consensus has the Australian dollar maintaining a higher level in 2017 than previously forecast, meaning that the short-term outlook may be stronger for highly transformed or niche products than for high volume manufactures.

## EXPORTS BY CATEGORY BY STATE




Source: DFAT 'Composition of Trade Australia 2015'

By state, Victoria exports the highest percentage of ETMs at 17.6 per cent of total exports (by value), while Tasmania (35.6 per cent) and South Australia (12.6 per cent) export a higher percentage of STMs than any other state.

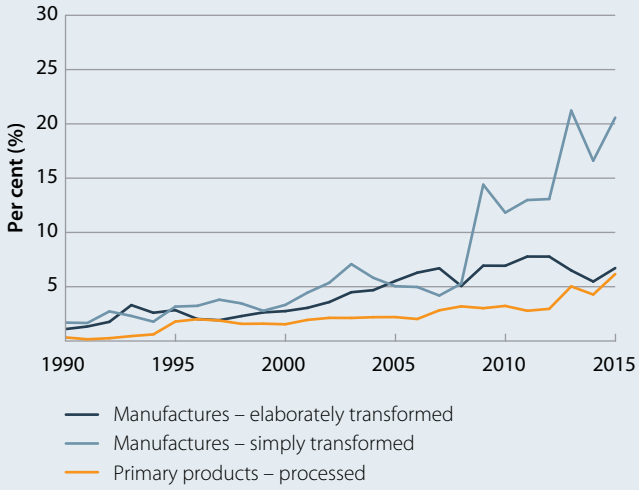
It is unsurprising that the mining states of Western Australia and Queensland are highly reliant on the export of primary products.

# THE RISE OF MANUFACTURING EXPORTS TO CHINA

China's economic rise and the increase in demand stemming from its growing middle class is well understood in mining and agricultural circles. An equally compelling - but less understood story is that Australia's manufactured exports to China have been increasing strongly since early 2000.

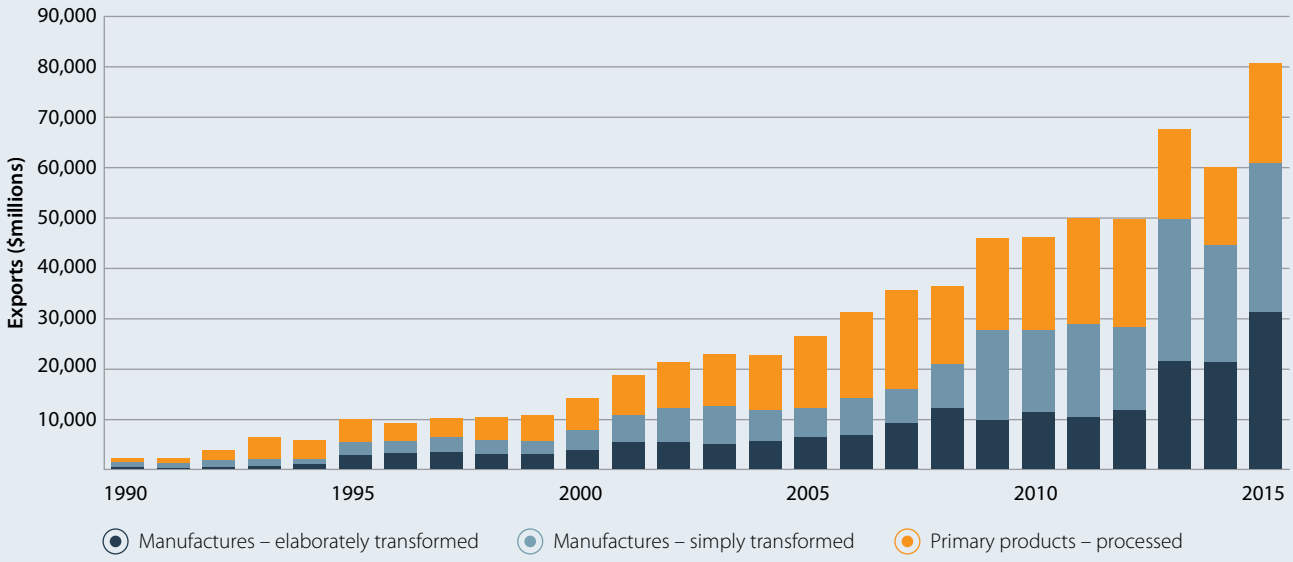
Unprocessed primary goods exports are Australia's largest export category to China at around 88 per cent of total goods imports to China. Australia's manufactured exports to China are becoming an increasingly important part of Australia's total exports with exports of STMs to China now accounting for 20 per cent of Australia's global STM exports and 6 per cent of each of Australia's processed primary goods and ETM exports respectively.

## EXPORTS TO CHINA AS A PERCENTAGE OF TOTAL AUSTRALIAN EXPORTS BY CATEGORY




Source: Based on the DFAT publication 'Composition of Trade Australia 2015'

## MANUFACTURING EXPORTS TO CHINA




Source: Based on the DFAT publication 'Composition of Trade Australia 2015'

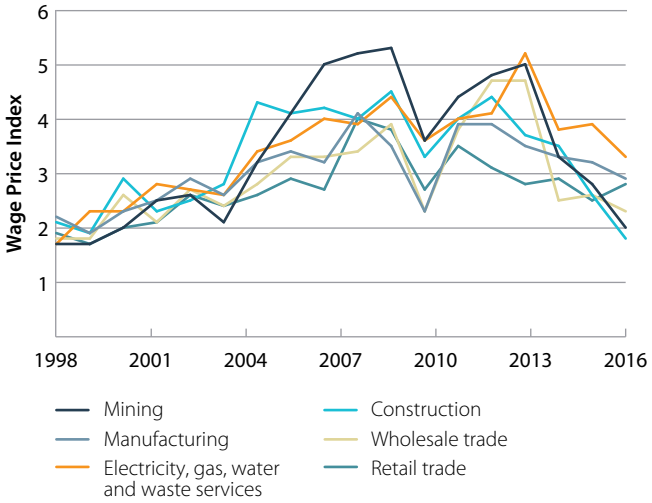
## THE CHALLENGES FOR THE FUTURE OF THE AUSTRALIAN MANUFACTURING SECTOR

**Labour costs**

While Australia has the opportunity for growth in manufactured goods exports to China and other countries in Asia, the question is – how do we take advantage of that opportunity? What challenges does the domestic sector face in meeting Asia's demand, and what role can or should government play to boost the sector?

The relative decline of the manufacturing sector since the 1960s has commonly been put down to the increase in wages in Australia relative to other domestic industries and Australia's trading partners. However the Wage Price Index for the manufacturing sector has remained relatively low compared to other domestic industries since the early 2000s. While Australia's average wage remained the 6th highest in the OECD in 2015, wage growth in Australia has slowed significantly in recent years, following the slowdown in the mining sector.

### PER CENT CHANGE IN WAGES BY SECTOR




Source: ABS, Wage Price Index

CASE STUDY

**Costs of business — China v Australia**

*A manufacturer of electronic controls for the appliance and industrial sector is currently operating two manufacturing centres – one in Australia and one in China. The Australian centre manufactures at low volume, while the China centre is a high volume centre. The company makes use of a high level of automation in both countries.*

*Labour costs are higher in Australia – at $21 per hour compared with $14 per hour in China. On costs for labour are similar in both countries at about 22 per cent of labour costs. Government charges in Australia are significantly higher although government charges are increasing steadily in China. However the manufacturer is not heavily reliant on labour for production, and advisors consider that no more than 9 per cent of the cost of manufacture should relate to labour costs. Capital equipment is also rapidly decreasing in cost in both jurisdictions, having declined around 50 per cent in cost from 4 years ago.*

*As a result, cost of labour is the primary consideration for the company in deciding where to manufacture. A range of hidden costs and limitations of manufacturing in China have meant that the company exporting to the US, Europe and the UK is not cost-effective from China, but remains cost effective out of Australia. Hidden costs of business in China include:*

- *Quality control: Companies operating in joint-venture structure with Chinese manufactures can find it difficult to ensure quality as the Chinese partner will often seek to boost profits by compromising on quality controls;*
- *Supply chain management: Maintaining ongoing relationships with components suppliers and customers in China can often involve out of pocket expenses and payments on behalf of the manufacturer;*
- *Labour force: China's labour force base is not currently geared for producing highly sophisticated products at a competitive price.*

*As a result of these hidden costs, a number of large US manufacturers have down-sized their China-based operations so that they export components from China to either Vietnam or the US, rather than maintain their factories in China.*

*While the impost of hidden costs in China has restricted the type of manufacturing undertaken off-shore, the company is still facing a number of barriers to expanding their production in Australia, including:*

- *Lack of support and distribution channels for exporters;*
- *Burden of compliance with Australian government rules and regulations;*
- *High freight costs;*
- *Sourcing domestic labour; and*
- *Payroll tax limiting expansion past a certain threshold of wages.*

## THE CHINA OPPORTUNITY

The changing nature of the Chinese economy and a recent increase in demand for Australian manufactured exports presents an opportunity for further growth for Australian manufactured products.

China has been a manufacturing powerhouse for decades, however the Chinese government has set out policies intended to direct the Chinese economy towards becoming a more services sector-based economy. China's 12th and 13th five year plans have encouraged the growth of the service sector with the aim of it becoming the main contributor to the country's GDP. Long-term trends indicate that, by 2030 the services sector is envisaged to contribute 62 per cent of the Chinese economy, agriculture will maintain a 7 per cent share and manufacturing will have a 31 per cent share. This trend would align with China's rapid economic development and the current make up of GDP in high-income countries, comprising of agriculture (1.5 per cent), industry (24.7 per cent) and services (73.8 per cent).

As a result of this shift, Chinese manufacturing activity will not keep up with economic growth and domestic and export market demand – resulting in either unfilled demand in China or displaced export demand.

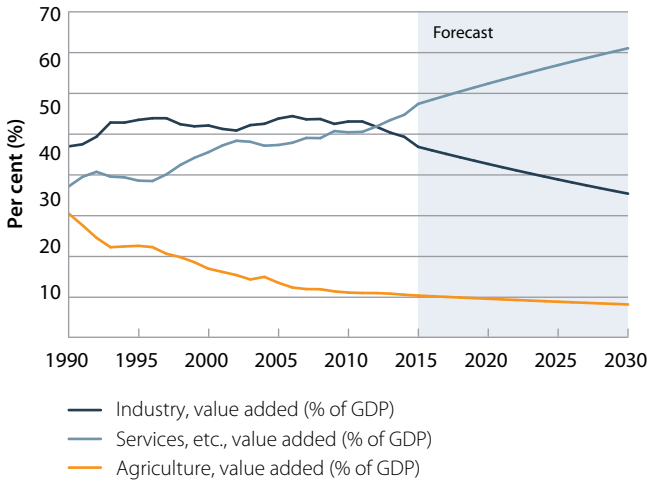
In addition to this displaced production, the long-term growth in Australian exports to China is expected to increase in line with increasing Chinese demand for certain Australian goods.

ANZ analysis shows that long-term trend growth in Australian export of manufactured goods could be driven by an increase in Chinese demand between 2015 and 2030 of $1.7 billion (an increase of 55 per cent) per year in processed primary goods, $2.6 billion (an increase of 88 per cent) in simply transformed manufactures (including clay bricks, paper, pig iron, plaster), and a $1 billion (an increase of 53 per cent) increase in demand for Australian exports of elaborately transformed goods (for example clothing, machinery, paint).

In addition, China's reduction in manufacturing as a proportion of GDP will also generate export growth opportunities for Australia. Analysis shows that the lower growth in China's manufacturing sector could, based on Australia's current and forecast export growth, result in $5.6 billion each year in additional exports. It must be noted that much of this reduction in Chinese manufacturing growth is likely to be in lower value categories which would offset production in emerging economies in the ASEAN region. It is also likely to displace more highly-transformed goods manufacture which Australian producers can take advantage of. Asia's rising middle class population and increasing demand for higher quality goods are also reinforcing this trend.

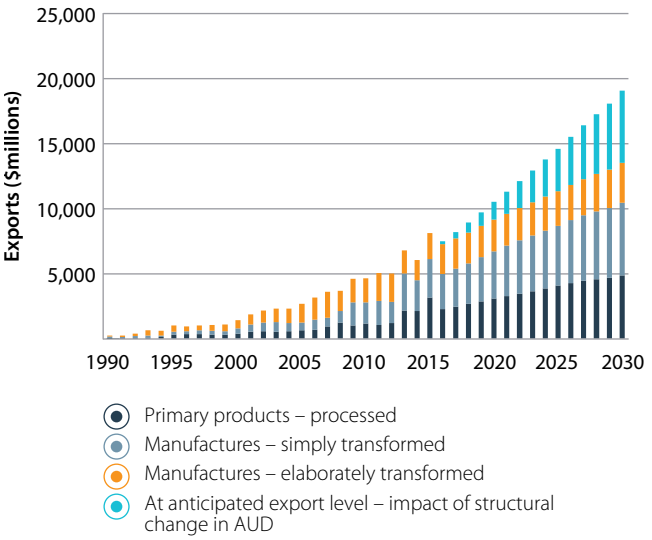
**Over 15 years to 2030, the opportunity available in growth in demand and transitioning of the Chinese economy is just under $75 billion above current levels of export of manufactured goods.**

## STRUCTURE OF THE CHINESE ECONOMY



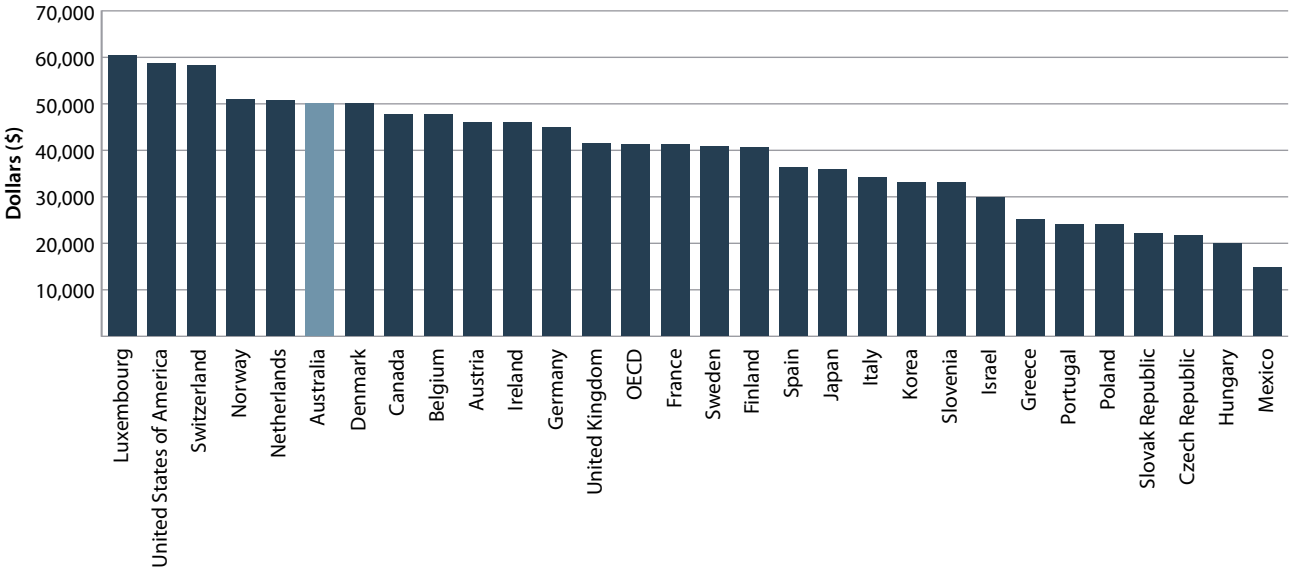

Source: OECD, ANZ

## CHINESE EXPORT OPPORTUNITY TO 2030




Source: DFAT, ANZ

## AVERAGE ANNUAL WAGES (2015)




Source: ABS, Estimates of Industry Multifactor Productivity, 2015–16

The Reserve Bank of Australia (RBA) has noted that Australia's average wage growth has declined to a slower rate than Australia's major trading partners which has led to an improvement in global competitiveness. That trend has continued since 2012 and the excess capacity in Australia's labour market indicates that it will continue in the foreseeable future.

Australia's relatively high wages also indicate that the country is unlikely to specialise in homogeneous or labour-intensive goods, however it may retain an advantage in capital-intensive and value-add to primary products produced domestically.

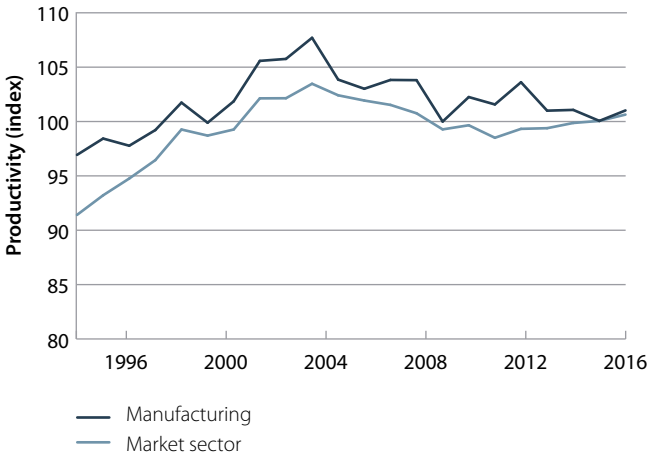
**Productivity**

Manufacturing is no different to Australia's other trade exposed industries in facing a productivity challenge. Unlike most other sectors of Australia's economy, the manufacturing sector did not benefit from productivity growth in the 1990s. Instead, productivity growth has been relatively flat for several decades, and even suffered declines between 2003-04 and 2008-09. In 2015-16, the manufacturing sector actually increased its multi-factor (labour and capital) productivity – however this increase was only achieved at the expense of a reduction in labour and capital input which was greater than the reduction in output.

The manufacturing sector has undergone a significant reduction in labour input and employment as part of its contraction compared to other industries. This is reflected in the relatively strong labour productivity compared to the Australian market sector (16 major sectors).

Declining productivity is not a new problem or one isolated to the manufacturing sector. Since the early 2000s, productivity in Australia has declined and stayed flat since then.

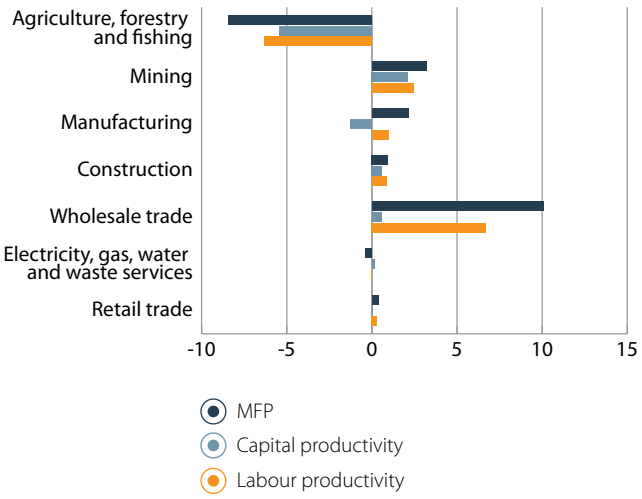
## MULTIFACTOR PRODUCTIVITY (GVA BASIS): INDEX




Source: ABS, Estimates of Industry Multifactor Productivity, 2015-16

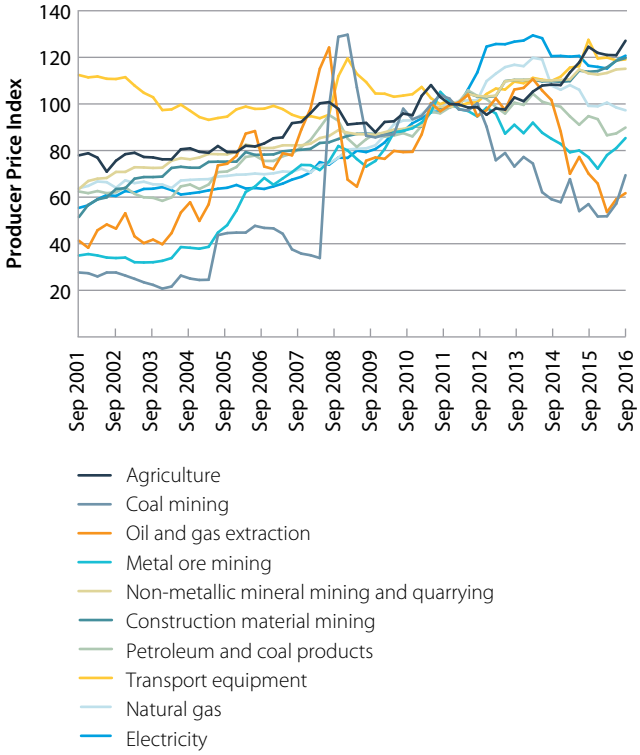
Between 2010 and 2015 the ratio of capital services per hour worked in Australia (capital deepening) has increased by more than any other OECD countries in both ICT and non-ICT related capital. However Australia's capital productivity has declined in this time meaning capital investment has not necessarily resulted in improved productivity. While the Australia-wide figures are largely pulled down by the mining sector which experienced high mineral prices despite declining productivity, the manufacturing sector has also suffered from a greater than average decline in capital productivity. Perhaps exacerbating this, the shift by the sector from labour towards capital-intensive production requires skilled labour available to build, operate and maintain new equipment.

## EXPORTS BY CATEGORY BY STATE




Source: ABS, Estimates of Industry Multifactor Productivity, 2015-16

## INPUT TO THE MANUFACTURING INDUSTRIES




Source: ABS, Producer Price Index

This suggests, in part, that additional research and development and innovation in the development and deployment of capital may play a central role in increasing profitability.

*Other cost pressures* have impacted the competitiveness of different manufacturing sub-sectors to varying extents. The Australian Industry Group claims that one of the primary cost imposts faced by manufacturing is increasing electricity costs. ABS figures show that electricity costs as an input to the manufacturing sector jumped 45 per cent between 2010 and 2014, but have moderated slightly recently.

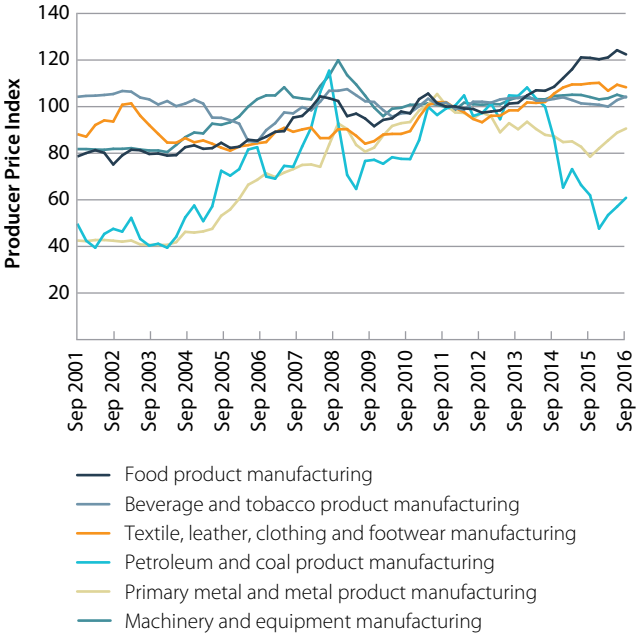
The underlying cost basis for different manufacturing sub-sectors has increased at a different speed, with sub-sectors such as food product manufacturing coming under significant cost pressures recently as the price of meat and livestock has increased while costs in transport equipment and textile manufacturing are increasing steadily.

In contrast, the cost of metal ores, petroleum and inputs to oil and gas extraction have all fallen since 2011.

The 2016 Global Manufacturing Competitiveness Index by Deloitte International, which provides an annual ranking of the international competitiveness of nations' manufacturing sectors, found that Australia is the 21st most competitive sector, and forecast that our position will deteriorate slightly relative to other countries by 2020.

Interestingly the report finds that the United States remains the 2nd most competitive behind China and is expected to surpass China by 2020, primarily based on its investments in talent and technology and number one ranking as an advanced manufacturing economy.

## COST OF INPUTS TO THE MANUFACTURING INDUSTRIES BY SUB-SECTOR




Source: ABS, Producer Price Index

The report, which surveyed manufacturers' executives in participating countries, also found that the key drivers of competitiveness were:

- Talent;
- Cost competitiveness;
- Workforce productivity; and
- Supplier network.

The resurgence of former manufacturing powerhouses of the United States, Japan and the United Kingdom was found to be driven by an ongoing investment in high-tech manufacturing research and development in coordination between academia, the public sector and private companies. If Australia is to join this global trend, a significant investment will need to be made in both workforce and research and development.

Similarly, the World Economic Forum's 2016-17 Global Competitiveness Report, which looks at economy-wide competitiveness, ranked Australia in 22nd place. It found that the key barriers to doing business in Australia were:

- Restrictive labour regulations;
- Inefficient government bureaucracy;
- High tax rates;
- Complexity of tax regulations; and
- Insufficient capacity to innovate.

However Australia retained an advantage in higher education and training, financial services sector development and health and primary education.

Perhaps the key opportunity and challenge for the Australian manufacturing sector still lies in our proximity to Asia and the opportunity to integrate into their regional supply chains. More than ever, product value and supply chains involve a significant number of cross border transfers before reaching the consumer. Currently, Australia's integration in the regional Asia supply chain is low, with Australian companies preferring to out-source to domestic operations in Asian jurisdictions. However, our relative proximity to the Asian manufacturing hub suggests there is further scope to onshore some parts of certain supply chains.

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