Australia's exports to China 2001 to 2011

China is Australia's largest export market and accounted for one quarter of Australia's total exports to the world in 2011. Exports to China have grown from $8.8 billion in 2001 to $77.1 billion in 2011, representing average annual growth of 25.6 per cent. This was well above Australia's average export growth rate of 8.4 per cent per annum to the world. In volume terms, Australia's exports to China rose by an average annual growth of 17.3 per cent compared to Australia's export volume growth rate of just 2.7 per cent to the world. Resource and energy commodity exports dominated exports, accounting for 80.9 per cent of Australia's total exports to China in 2011, up from 44.5 per cent in 2001.

Introduction

This article draws on new statistical analysis undertaken by the Trade Advocacy and Statistics Section (TSS) of the Department of Foreign Affairs and Trade (DFAT). The new analysis fills in a number of gaps in the current range of Australian trade statistics.

First, the analysis estimates confidential commodity exports to China that are not published in Australian Bureau of Statistics (ABS) merchandise trade statistics. The ABS has a legal obligation to confidentialise merchandise trade data from an individual or organisation that is identifiable if that individual or organisation has requested that the data be suppressed. These confidentiality restrictions impact on the level of detailed merchandise trade data that is potentially available for release. Thus, in 2011, Australia exported $26.9 billion of goods for which "no country details" were provided by the ABS.

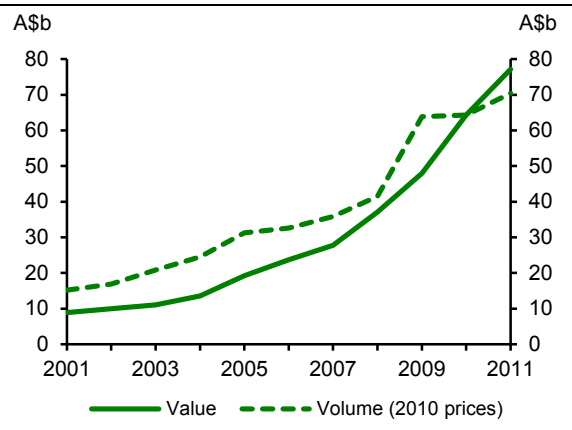
These restrictions can lead to a significant distortion in the analysis of selected merchandise products, especially at the country level. In the case of China, $3.1 billion of exports was classified as confidential in 2011, including commodities such as *Alumina, Nickel alloys (unworked), Nickel mattes, Mineral sands, Natural gas*, and *Uranium ores*.

Second, DFAT has used this new dataset as an input for estimating Australia's exports to China on a volume basis. At present the ABS produces estimates of Australia's exports on a volume basis for Australia's total exports to the world, but they do not break down these estimates by volume to the partner country level.

This new analysis produces a more complete picture of Australia's export performance with China for the analysis is this article.

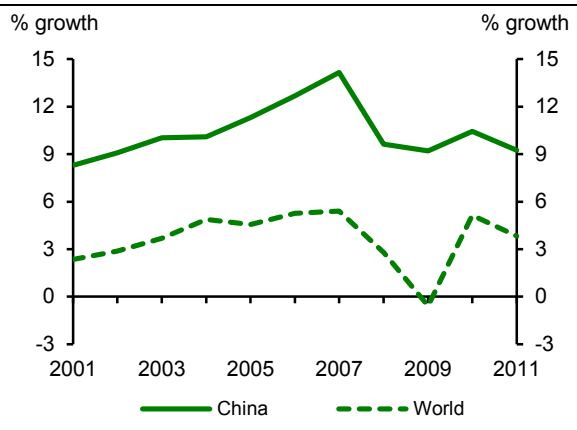
The methodology for producing these estimates is set out in **Appendix 1 – *Methodology to estimate confidential China export items*** and **Appendix 2 – *Methodology for constant price estimates of exports of goods and services to China***. These methodologies are still experimental and DFAT would welcome any feedback, which can be emailed to statssection@dfat.gov.au.

Chart 1: Australia's exports to China



DFAT estimate based on ABS trade data, ABS catalogues 5368.55.004 and 5302.0 and China import data on the Global Trade Atlas.

Chart 2: Real GDP growth China and the World



Source: IMF World Economic Outlook database, October 2012.

Overall trends in Australia's exports to China

Australia's exports of goods and services to China in value terms, have grown from $8.8 billion in 2001 to $77.1 billion in 2011, representing average annual growth of 25.6 per cent (***Chart 1***). This was well above Australia's average export growth rate of 8.4 per cent per annum to the world. As a result, China has risen from being Australia's 6th largest export market in 2001 to become our largest export market since 2009. It is now significantly ahead of Australia's second largest export market, Japan (exports valued at $52.4 billion in 2011).

In volume terms (constant prices), Australia's exports to China have increased 17.3 per cent on average from 2001 to 2011, much faster than the prices received for these exports, which rose by an average 7.1 per cent per annum over the same period. Over the past five years, export volumes have grown by an average annual rate of 18.8 per cent, while prices received have grown by 7.8 per cent per annum[1].

Even when world commodity prices fell sharply during the Global Financial Crisis (GFC), continued strong growth in export volumes over the period ensured that exports to China did not fall below the longer term average growth rate. In particular, the strong volume growth in exports of *Iron ore* and *Coal* (with volumes peaking in 2009) to China during the GFC can be attributed to both the build-up of stocks by Chinese steel mills (taking advantage of lower world prices) as well as the increased domestic demand for steel (on the back of the Chinese government's infrastructure investment), which more than offset weaker demand for steel intensive exports.

Volume growth in Australian exports to China has slowed in recent years (2009 to 2011), to average just 5 per cent per annum, mainly due to a decrease in export volumes of *Fuels* (from their 2009 peak) and *Manufactures*.

The strong growth in Australian exports to China over the period 2001 to 2011 was due to the rapid urbanisation and industrialisation in China, with their Real Gross Domestic Product (GDP) growing at an average of 10.4 per cent per annum over this period [2]. This growth was significantly above the world average growth for the same period of 3.7 per cent (***Chart 2***). China has gone from accounting for 7.5 per cent of the world economy in 2001 (in GDP Purchasing Power Parity terms) to 14.3 per cent in 2011 and is now the world's second largest economy. This strong growth resulted in increased demand for raw materials from the world (including Australia). The long time-horizons of capital-intensive investment in the mining sector meant supply could not expand quickly enough to meet this unexpected rapid growth in demand, which resulted in a sharp rise in commodity prices in the last half of the decade.[3]

In response to this demand, Australia's resource and energy commodity exports[4] rose from $3.9 billion in 2001 (44.5 per cent of total exports to China) to $62.4 billion in 2011 (80.9 per cent of total exports to China). Strong growth was recorded in both export prices and volumes over this period.

Table A: Australia's top 10 exports of goods and services to China 2001 vs 2011 (a) (b)

		2001				2011	
		$m	% share			$m	% share
	Total exports	**8,848**			**Total exports**	**77,105**	
1	Iron ore & concentrates	1,369	*15.5*	1	Iron ore & concentrates	43,960	*57.0*
2	Wool	1,280	*14.5*	2	Coal	4,543	*5.9*
3	Aluminium ores (incl alumina)	891	*10.1*	3	Education-related travel services	4,091	*5.3*
4	Education-related travel services	597	*6.7*	4	Crude petroleum	2,902	*3.8*
5	Barley	370	*4.2*	5	Wool	2,022	*2.6*
6	Copper ores & concentrates	306	*3.5*	6	Copper ores & concentrates	1,500	*1.9*
7	Crude petroleum	300	*3.4*	7	Cotton	1,470	*1.9*
8	Personal travel (excl education)	244	*2.8*	8	Gold	1,284	*1.7*
9	Hides & skins	180	*2.0*	9	Copper	1,211	*1.6*
10	Aluminium	171	*1.9*	10	Nickel ores & concentrates	1,094	*1.4*

(a) Goods data based on SITCr3 for 2001 and SITCr4 for 2011. (b) Goods on a recorded trade basis, services on a balance of payments basis.

DFAT estimate based on ABS trade data, ABS catalogue 5368.55.004 and China import data on Global Trade Atlas.

[1] Refer to ***Appendix 3 – Table 1: Australia's exports to China by broad sector in current price and constant prices terms with associated implicit price deflators***.

[2] International Monetary Fund (IMF) World Economic Outlook database, October 2012.

[3] Jarkko Jaaskela and Penelope Smith, RBA Research Discussion Paper, Terms of trade shocks: What are they and what do they do? (December 2011), p. 4.

[4] Resource & energy commodity sector as defined by Bureau of Resource and Energy Economics (BREE) including minerals, fuels and metal manufactures (including gold).

Australia's top exports to China

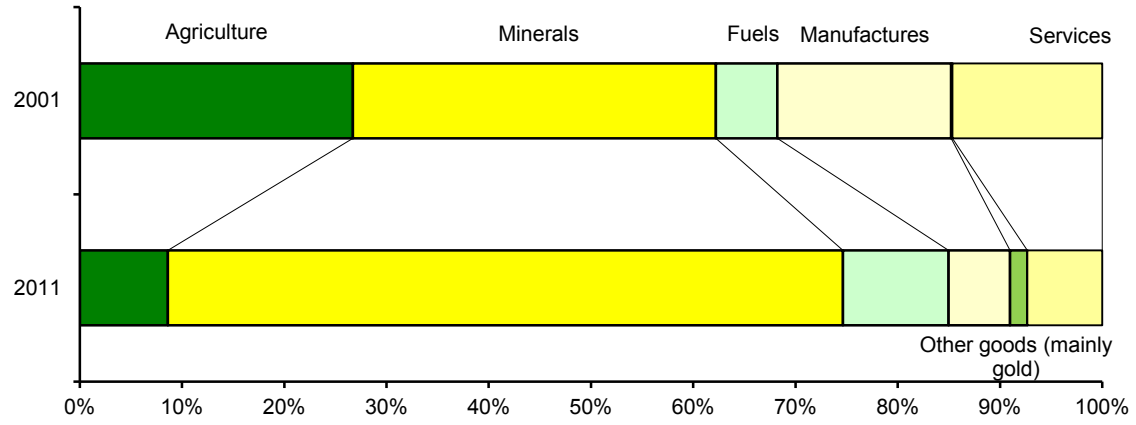
Australia's top 10 exports to China comprised 64.5 per cent of total exports to China in 2001 (***Table A***). In 2011, 83.1 per cent of Australia's total exports were concentrated in the top 10 exports to China, with *Iron ore* exports alone comprising 57.0 per cent.

A ranking of Australia's top 30 exports of goods and services to China in 2011 is shown in ***Appendix 3 – Table 2***.

Between 2001 and 2011, *Coal*, *Cotton*, *Gold*, *Copper* and *Nickel ores* entered the top 10 exports to China while *Aluminium ores (including alumina)* (now ranked 12th), *Hides & skins* (15th), *Personal travel services (excluding education)* (16th), *Barley* (21st), and *Aluminium* (30th) dropped out of the top ten exports.

Australia's exports to China by sector and level of processing

Chart 3: Australia's exports to China by broad sector



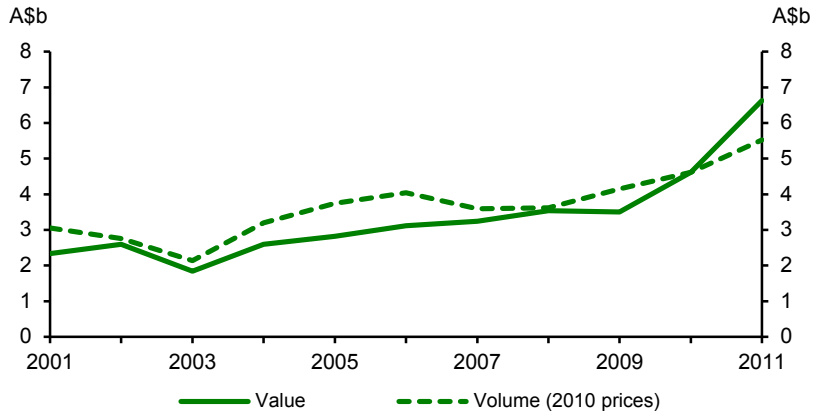
DFAT estimate based on ABS trade data, ABS catalogues 5368.55.004 and 5302.0 and China import data on Global Trade Atlas.

Agriculture

Australia's agriculture exports to China have grown from $2.3 billion in 2001 to $6.6 billion in 2011 (***Table B***), representing average annual growth of 9.7 per cent. As a result, China overtook Japan in 2011 to become our largest agriculture market. However, agriculture exports as a share of total exports to China have fallen from 26.4 per cent in 2001 to just 8.6 per cent in 2011. In volume terms, agriculture exports have grown by an average growth rate of 6.8 per cent over the same period, while prices received have grown by an average of 2.7 per cent (***Chart 4***).

Agriculture exports to China in 2011 were comprised of *Food* exports valued at $2.0 billion and *Other agriculture* exports comprised $4.7 billion (***Table C***).

Chart 4: Australia agriculture exports to China



DFAT estimate based on ABS trade data and China import data on Global Trade Atlas.

Food exports have grown by an average 6.9 per cent since 2001. *Unprocessed food* exports were worth $975 million in 2011 and *Processed food* exports $985 million[5]. The largest *Food* exports to China in 2011 were *Barley* ($367 million), *Wheat* ($215 million), *Animal oils & fats* ($197 million), *Alcoholic beverages* ($197 million) and *Meat (excluding beef)* ($166 million). In 2001 the major *Food* exports were *Barley*, *Animal oils & fats, Sugars, molasses & honey*, *Milk & cream* and *Crustaceans*.

Other agriculture exports have grown by an average 10.9 per cent per year from $1.4 billion in 2001 to $4.7 billion in 2011. The major exports in this category in 2011 were *Wool* (which grew from $1.3 billion to $2.0 billion in 2011), *Cotton* (which grew from $33 million $1.5 billion) and *Hides & skins* (which grew from $180 million to $649 million).

Table B: Australia's exports to China by broad sector

Based on SITC (a)	2001 $m	2006 $m	2011 $m	Average growth 5 years %	Average growth 10 years %
Agriculture	2,333	3,118	6,629	*14.8*	*9.7*
Minerals	3,018	12,920	50,873	*33.2*	*36.8*
Fuels	520	1,104	7,951	*60.1*	*31.9*
Manufactures	1,265	3,154	4,579	*7.4*	*13.6*
Other goods	446	79	1,419	*54.4*	*-6.0*
Services	1,266	3,351	5,654	*11.8*	*17.0*
Total exports	**8,848**	**23,726**	**77,105**	***28.1***	***25.6***
Per cent share of total exports					
	2001	**2006**	**2011**		
Agriculture	*26.4*	*13.1*	*8.6*		
Minerals	*34.1*	*54.5*	*66.0*		
Fuels	*5.9*	*4.7*	*10.3*		
Manufactures	*14.3*	*13.3*	*5.9*		
Other goods	*5.0*	*0.3*	*1.8*		
Services	*14.3*	*14.1*	*7.3*		
Total exports	***100.0***	***100.0***	***100.0***		

(a) Based on the UN Standard International Trade Classification (SITC). There are slight differences in the definitions of the broad sectors as defined in this table and Table C. As a result the data will not exactly match that in Table C.

DFAT estimate based on ABS trade data, ABS catalogue 5368.55.004 and China import data on Global Trade Atlas.

Minerals

Australia's exports of *Minerals* to China increased by an average 36.8 per cent per annum over the last 10 years from $3.1 billion to 50.9 billion. *Minerals* as a share of total exports to China has risen from 34.1 per cent in 2001 to 66.0 per cent in 2011 . *Minerals* was the fastest growing export sector to China over this time period.

In volume terms, exports of *Minerals* to China have increased by just over 500 per cent between 2001 and 2011, representing average annual growth of 21.4 per cent. Even with the strong price rises bought on by the commodity boom in the last half of the period, prices received for exports of *Minerals* to China grew at a slower rate than volumes, rising by a still strong rate of 179.9 per cent over the same period, representing average annual growth of 12.6 per cent (***Chart 5***).

Minerals exports are dominated by *Iron ore* exports which grew from $1.4 billion in 2001 to $44.0 billion in 2011 (accounting for 57.0 per cent of Australia's total exports to China). China was Australia's largest market for *Iron ore* exports from 2004 onwards. However, other mineral exports are also important, with China in 2011 being Australia's largest market for *Copper ores* (exports of $1.5 billion), *Nickel ores* ($1.1 billion), *Aluminium ores* ($854 million), *Manganese ores* ($837 million), *Mineral sands*[6] ($719 million) and *Non-ferrous waste & scrap* and *Ferrous waste & scrap* ($398 million and $249 million respectively). *Uranium or thorium ores* exports though small (around $60 million in 2011) are a new export to China over this period with the first shipments starting in 2008.

[5] Refer to ***Appendix 3 – Table 3: Australia's merchandise exports to China by detailed level of processing***.

[6] Mainly Titanium and Zirconium ores & concentrates.

Fuels

Australia's exports of *Fuels* to China increased by an average 31.9 per cent per annum over the last 10 years from a small base of $520 million to $8.0 billion in 2011. *Fuels* as a share of total exports to China has risen from 5.9 per cent in 2001 to 10.3 per cent in 2011 .

Chart 5: Australia's mineral exports to China

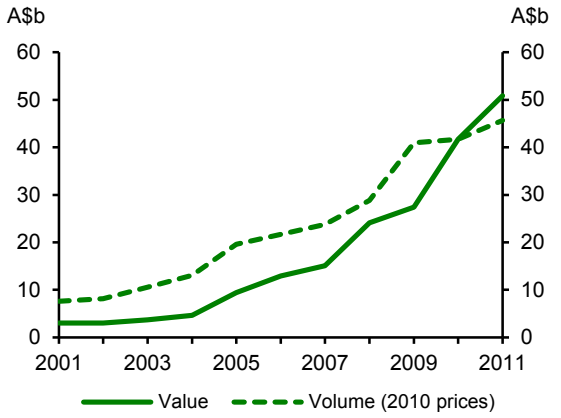
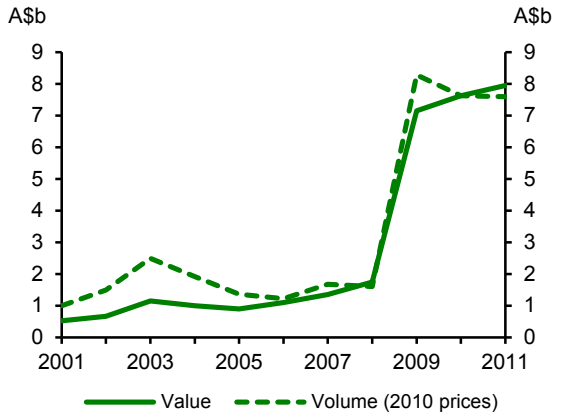


Chart 6: Australia's fuel exports to China



DFAT estimate based on ABS trade data and China import data on Global Trade Atlas.

In volume terms, exports of *Fuels* to China have increased by almost 660 per cent between 2001 and 2011 representing average annual growth of 20.0 per cent. Most of the volume growth has been in the last five years with average annual growth in volume terms of 54.9 per cent. Prices received for these exports grew at a slower rate than volumes, up by an annual average of 9.8 per cent since 2001 (***Chart 6***).

Table C: Australia's exports to China by level of processing

Based on TRIEC (a)	2001 $m	2006 $m	2011 $m	Average growth 5 years %	Average growth 10 years %
Primary products	**5,890**	**17,252**	**65,532**	***32.9***	***29.7***
Unprocessed food	520	493	975	*23.7*	*2.7*
Processed food	360	446	985	*16.9*	*11.2*
Minerals	3,064	12,921	50,934	*33.2*	*36.4*
Fuels	520	1,105	7,953	*60.1*	*31.9*
Other primary	1,426	2,287	4,685	*12.5*	*10.9*
Manufactures	**1,466**	**3,222**	**4,639**	***7.2***	***12.0***
Simply transformed	625	1,463	2,453	*11.5*	*15.0*
Elaborately transformed	841	1,759	2,186	*3.0*	*9.2*
Other goods	**10**	**10**	**1,307**	***143.5***	***37.1***
Gold	*0*	*0*	*1,284*	*456.9*	*..*
Services	**1,266**	**3,351**	**5,654**	***11.8***	***17.0***
Statistical error & residual confidential trade	*215*	*-109*	*-27*	*..*	*..*
Total exports	**8,848**	**23,726**	**77,105**	***28.1***	***25.6***
Resources & energy commodities (a)	***3,933***	***15,245***	***62,376***	***35.0***	***34.8***

(a) Based on the DFAT's Trade Import Export Classification (TRIEC). There are slight differences in the definitions of the broad sectors as defined in this table and Table B. As a result the data will not exactly match that in Table B. (b) Resource & energy commodity sector as defined by Bureau of Resource and Energy Economics (BREE) including minerals, fuels and metal manufactures (including gold).

DFAT estimate based on ABS trade data, ABS catalogue 5368.55.004 and China import data on Global Trade Atlas.

The main *Fuel* exports to China in 2001 were *Crude petroleum* ($300 million) and *Liquefied propane & butane* ($123 million). The composition of Australia's *Fuel* exports to China has changed considerably over the period to 2011. *Coal* exports have boomed over the past five years (with average annual growth of 78.9 per cent) to become Australia's largest *Fuel* export to China in 2011 valued at $4.5 billion. *Crude petroleum* has remained a key export now ranked second, valued at $2.9 billion in 2011. *Natural gas* exports, though still small compared to *Coal* and *Crude petroleum*, have become Australia's third largest *Fuel* export to China over this period with the first shipments starting in 2006. *Natural gas* exports to China were worth around $500 million in 2011.

Manufactures

Australian manufactured exports to China have grown from $1.3 billion in 2001 to $4.6 billion in 2011, representing average annual growth of 13.6 per cent (***Table B***). However, manufactured exports as a share of total exports to China have fallen from 14.3 per cent in 2001 to just 5.9 per cent in 2011. This fall in share is due to the stronger growth in Australia's resources exports to China on the back of the commodity boom.

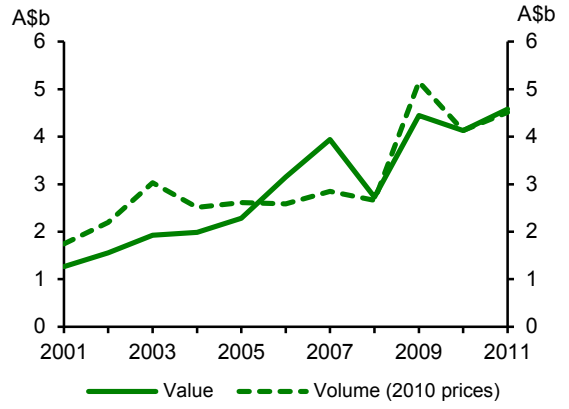
In volume terms, manufactured exports to China have grown by an average rate of 8.6 per cent between 2001 and 2011, while prices received for these exports grew on average by 4.6 per cent annually (***Chart 7***).

Australia's *Simply transformed manufactures* (STM) exports to China have grown by an average 15.0 per cent per annum to $2.5 billion in 2011 (***Table C***). *STM* exports to China are dominated by *Mineral manufactures & metals*, valued at $2.2 billion and accounted for 89.9 per cent of *STM* exports in 2011. These exports have grown by an average growth rate of 20.0 per cent per annum since 2001 and, as with *Minerals* and *Fuels* exports to China, have benefited from the high prices during the commodity boom. The largest exports in this category were *Copper alloys unworked* and *Nickel alloys unworked*.

The other major component of STM exports was *Chemicals & other semi-manufactures*, valued at $247 million in 2011 having grown by an average annual growth rate of 4.2 per cent since 2011.

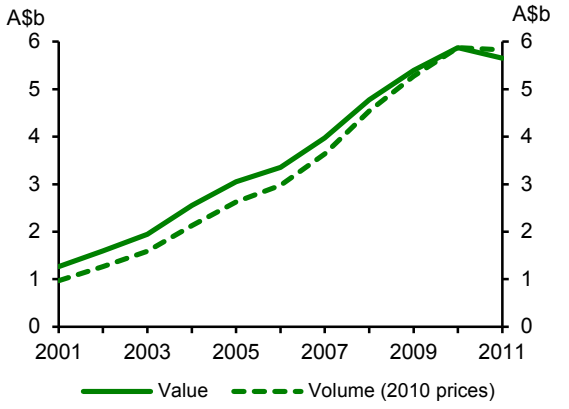
Australia's exports of *Elaborately transformed manufactures* (ETM) to China have grown by an average 9.2 per cent per annum to $2.2 billion since 2011. *ETM* as a share of total exports to China has fallen from 9.5 per cent to just 2.8 per cent in 2011. The major exports within *ETM* exports in Australia's merchandise exports to China were *Pharmaceutical products* – mainly medicaments – (valued at $460 million) which have grown at an average rate of 37.8 per cent per annum since 2001, *Non-ferrous metals elaborately transformed* – mainly nickel bars, rods, profiles and wire – (valued at $332 million) and *Machinery for specialised industries* (valued at $317 million) such as civil engineering equipment and parts valued at $105 million.

Chart 7: Australia's manufactures exports to China



DFAT estimate based on ABS trade data and China import data on Global Trade Atlas.

Chart 8: Australia's services exports to China



DFAT estimate based on ABS catalogues 5368.55.004 & 5302.0.

Other goods

Australia's exports of *Other goods* to China are dominated by *Gold* exports[7]. China is an emerging market for Australia's *Gold* exports. The first major export of *Gold* to China was in 2005, valued at $99 million. The next

[7] The other major category under *Other goods* in ABS trade statistics is confidential items of trade. These export items have been allocated to their correct export sector using the new methodology as set out in ***Appendix 1***.

major export was in 2010, valued at $220 million increasing to $1.3 billion in 2011[8]. China was Australia's 4th largest export market for *Gold* exports in 2011. India, the United Kingdom and Thailand were the top three export destinations for Australian *Gold* exports in 2011.

Services

China was Australia's largest services export market in 2011. Australia's *Services* exports to China have grown from $1.3 billion in 2001 to $5.7 billion in 2011. This represented annual average growth of 17.0 per cent over this period, the fastest growing export sector after *Minerals* and *Fuels*. Exports of *Services* as a share of total exports to China have fallen from 14.3 per cent in 2001 to 7.3 per cent in 2011. In volume terms, *Services* exports have risen an average by 20.5 per cent per annum over the same period, while prices received for these exports fell by 2.9 per cent on average per year (***Chart 8***).

Australia's exports of *Services* to China are dominated by *Education-related travel services*. These exports grew from $597 million in 2001 to a peak of $4.3 billion in 2010, before falling back slightly to $4.1 billion in 2011. China is Australia's largest market for education services exports. The number of Chinese international student enrolments has risen from 26,844 in 2001 to 159,646 in 2011[9]. The majority of Chinese enrolments in 2011 were in the *Higher education sector* (61.0 per cent).

Other major services exports to China included *Personal travel services (excluding education)* up from $244 million in 2001 to $647 million in 2011 (with the number of Chinese short-term visitors rising from 158,000 in 2001 to 542,000 in 2011[10]), *Transport services* (up from $148 million to $240 million over the same period) and *Business services* (up from $98 million to $282 million)[11].

Australia's services delivered through commercial presence in China

Most Australian services delivered abroad are not classified as exports. Unlike goods exports, it is often necessary for the Australian service provider to establish a presence in the host economy to deliver the service (i.e. foreign affiliates trade). A one-off study of Australia's outward foreign affiliates trade conducted by the ABS estimated that in 2002-03, 64.6 per cent of Australia's services provided abroad were delivered by commercial presence.[12]

The study found that Australia's proportion of services provided by its affiliates in China was valued at $1.5 billion and accounted for 59.8 per cent of all Australian services provided to China in 2002-03. At this period commercial presence was the dominant means of supply for the sale of Australian services to China.

Though the ABS has not updated their 2002-03 study on Australia's outward foreign affiliates trade, the latest ABS data on Australian investment in China shows that this activity is still significant, with the stock of Australian direct investment in China valued at $6.4 billion at the end of December 2011 (up from just $492 million at the end of 2003)[13].

Two more recent studies on the level of Australian foreign affiliate activity with China for *Legal services* and *Finance & insurance services* found that commercial presence was still critical in the provision of Australian business services to China.

Legal services

The latest study on Australian legal services markets conducted by the International Legal Services Advisory Council (ILSAC) for 2008-09[14] found that Australia's provision of *Legal services* to China (including Hong Kong[15]) was valued at $97.1 million in 2008-09. Services exported from Australia accounted for 43.6 per cent ($42.3 million)[16] of the total provisions of *Legal services* to China while 56.4 per cent ($54.0 million) were provided

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[8] For more information on Australia's gold exports refer to the DFAT article *Australia's gold industry: trade, production and outlook* at (http://www.dfat.gov.au/publications/stats-pubs/trade_statistical_articles.html).

[9] Australian Education International (AEI) – International student enrolment data.

[10] ABS catalogue 3401.0, *Overseas arrivals and departures, August 2012*.

[11] *Business services* includes: *Construction*; *Insurance*; *Financial; Intellectual property*; *Telecommunication, communication & information*; and *Other business services*.

[12] ABS catalogue 5495.0, *Australia's Outwards Foreign Affiliates Trade, 2002-03* and DFAT's *Trade in Services, Australia, 2003-04* – feature article *Australia's Outwards Foreign Affiliates Trade, 2002-03*.

[13] ABS catalogue 5352.0, *International Investment Position, Australia: Supplementary Statistics, 2011*.

[14] ILSAC - *Survey of Australian Export Market for Legal Services, 2008-09*. For more information on the ILSAC survey please refer to their website at (http://www.ilsac.gov.au/thirdsurvey).

[15] Special Administrative Region (SAR) of China.

[16] Income from resident legal practise to an Australian company (with work originating from an overseas project) has not been included as it is not an export in ABS Balance of Payment statistics. In the ILSAC survey results this activity was included.

via a foreign affiliate located in China. This is in contrast to Australia's North America and European markets for legal services, were almost no services were delivered via a foreign affiliate.

Financial and insurance services

This survey conducted by the ABS in 2009-10 covered the finance and insurance sector only, a sector identified in the previous ABS survey as being one of the key sectors for Australia's outwards foreign affiliates trade in services.

The survey found that Australia had 14 finance and insurance affiliates located in China in 2009-10. *Financial and insurance services* provided by these affiliates in China were valued at $88 million[17], compared with direct exports from Australian of just $14 million. The ratio of around 90 per cent of these services provided by a foreign affiliate was similar to our markets in North America, New Zealand and European. China is an emerging market for Australian finance and insurance affiliates trade though it is still well behind Australia's major markets in the United States, Europe and New Zealand.

The survey found that Hong Kong (SAR of China) was still the main financial centre for Australian finance and insurance affiliates activity in this region with 45 finance and insurance affiliates located in Hong Kong in 2009-10. These affiliates provided sales of *Financial and insurance services* valued at $2.4 billion in Hong Kong and $216 million to non-residents outside Hong Kong.[18]

Conclusion

China is Australia's most important trading partner. The strong growth in Australia's exports to China over the period 2001 to 2011 has been driven by strong growth in export volumes to China, growing at a much faster rate than prices (17.3 per cent per annum on average over the period compared to 7.1 per cent respectively). China's demand for Australian raw materials, especially *Minerals and fuels* has been the major driver of this growth, especially exports of *Iron ore* and in recent years *Coal*.

However, the other export sectors (*Agriculture*, *Manufactures, Other goods* and *Services)* to China, although over shadowed by *Minerals* and *Fuels*, have all grown over the period. Australia has a number of key non-*Mineral* and *Fuels* exports to China, including *Education services*, *Wool*, *Cotton* and *Pharmaceutical products*. There are also a number of emerging exports such as *Alcoholic beverages (*mainly wine) and *Gold* which have performed well in recent years.

Additional resources

In conjunction with this article DFAT's TSS section has released two MS Excel spreadsheets containing the export data based on the methodology outline in ***Appendix 1 – Methodology to estimate confidential China export items*.**

- Australian merchandise exports to China, based on the United Nations ***S**tandard **I**nternational **T**rade **C**lassification* (SITC) at the 3-digit level for the years 2001 to 2011. Data is on a SITC revision 4 basis from 2006 to 2011 and a SITC revision 3 basis from 2001 to 2005. SITC code 287 *Other ores and concentrates* is also broken down to its SITC 4-digit level.
- Australian merchandise exports by level of processing to China, based on the DFAT's ***Tr**ade **I**mport **E**xport **C**lassification* (TRIEC) at the 1, 2, 3 and 4-digit levels for the years 2001 to 2011.

These speadsheets should be a valuable statistical source on Australia's merchandise exports to China. The spreadsheets can be found on the DFAT website at http://www.dfat.gov.au/trade/trade-and-economic-statistics.html.

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[17] Includes explicit financial fees only. The ABS did not calculate a regional split of implicit financial services.

[18] For more information on this survey refer to the DFAT article *Australia's outward finance and insurance foreign affiliates trade in services, 2009-10* at (http://www.dfat.gov.au/publications/stats-pubs/trade_statistical_articles.html).

Appendix 1 – Methodology to estimate confidential China export items

Background

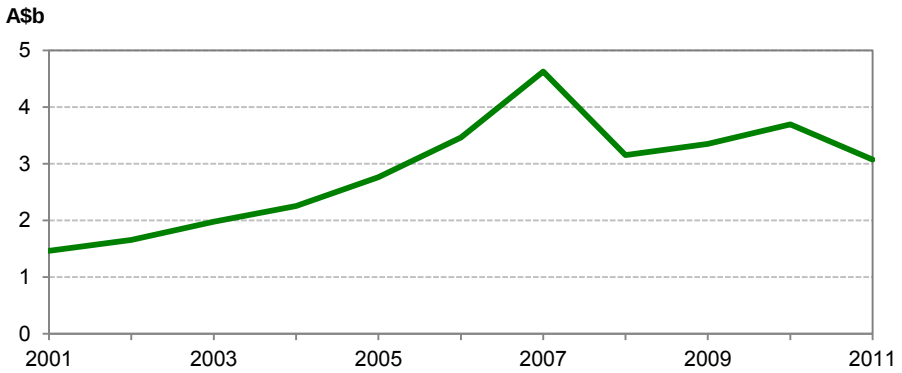
Why does the Australian Bureau of Statistics (ABS) confidentialise statistics? The Census and Statistics Act 1905 provides the authority for the ABS to collect statistical information and requires that statistical output shall not be published or disseminated in a manner that is likely to enable the identification of a particular person or organisation. The Act provides strong protection for the confidentiality of information supplied to the ABS.

In relation to international merchandise trade statistics, the ABS has a legal obligation to confidentialise data from an individual or organisation that is identifiable if that individual or organisation has requested that the data be suppressed. These confidentiality restrictions impact on the level of detailed merchandise trade data that is potentially available for release.

A variety of restrictions or embargoes are available to protect the confidentiality of an individual's or organisation's data. Each type of restriction is designed to protect a particular aspect of the data and, at the same time, allow the ABS to release the maximum amount of detailed trade statistics. The restrictions are applied at the Australian Harmonised Export Commodity classification (AHECC) 8-digit level[19].

In 2011, Australia exported $26.9 billion of goods for which 'no country details' were provided by the ABS. These restrictions can lead to significant distortion in the analysis of selected merchandise products, especially at the country level and can make it difficult to analyse the actual trends in particular export products and export markets.

Chart A: Total Confidential exports to China as published by the ABS



Based on ABS trade data on DFAT STARS database.

Methodology for estimating confidential items of trade

In the case of China, $3.1 billion of exports was classified as confidential in 2011 (refer to ***Chart A***). The major confidential export items to China in 2011 included: *Alumina*, *Nickel alloys (unworked)*, *Nickel mattes*, *Mineral sands*[20], *Natural gas*, *Uranium ores* and *Salt.*

Over a number of years DFAT has developed a methodology for estimating confidential exports in Australia's merchandise statistics. The DFAT methodology for producing these estimates was published (in May 2009) in the article *Confidentiality in Australian merchandise export statistics* which is available at the DFAT (www.dfat.gov.au).

In producing estimates for the China dataset used in this article, this methodology was used as a starting point. Australian confidential export data was analysed at the AHECC 8-digit level and combined with China partner

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[19] More detail on how the ABS applies confidentiality in merchandise trade statistics is available in the ABS information *paper International Trade – Request to Confidentialise data* (ABS catalogue 5497.0.55.001). This product is available on the ABS website at www.abs.gov.au.
To assist users of trade data, the ABS publishes monthly, a list of all AHECC commodities with confidential restrictions in place in the publication *International Merchandise Trade: Confidential Commodities List* (ABS catalogue 5372.0.55.0.01) available at the ABS website. This publication is **an essential reference guide** for users of ABS merchandise export statistics to ensure they are interpreting the trade statistics correctly.

[20] Mainly *Titanium* and *Zirconium ores & concentrates*.

country import data at the Harmonized System trade classification at the 6-digit sub-heading level[21] (and in some cases the lower tariff level data) to best match those commodities that were confidential in ABS statistics.

Other alternative data sources were substituted for the China partner country import data where appropriate. These included ABS barley and cane sugar data which is released after a six-month time lag as well as estimating confidential wheat exports values (for the period January 2001 to March 2009) by using ABS published wheat quantity data.

The China partner country import data was adjusted from a cost insurance and freight basis (c.i.f.) to a proxy free on board basis (f.o.b.) to make it consistent with ABS export data (which is on an f.o.b. basis)[22]. The data was then aggregated back to the DFAT's Trade Import Export Classification (TRIEC) and the United Nations Standard International Trade Classification (SITC) and combined with non-confidential ABS trade data.

Improvements to the methodology

DFAT implemented a number of improvements to this methodology to better address the quality issues with combining ABS export data with China partner country import data, specifically addressing the issues of converting c.i.f. data to an f.o.b. basis and timing issues[23].

Conversion of China c.i.f. import data to an f.o.b. basis

Under the previous methodology, DFAT calculated a proxy f.o.b. value for commodities reported on a c.i.f. basis by deflating the value by 5 per cent. DFAT had based this rate on the average difference between total imports reported on a c.i.f. basis and an f.o.b. basis for those countries which report import data on both bases.

Further analysis on the differences between c.i.f. value and an f.o.b. value found that the average level of 5 per cent can vary considerably between different products and markets. For low value item such as salt, a good proportion of the cost in exporting the commodity is the shipping cost and a 40 to 50 per cent deflator level would be needed to convert the c.i.f. value to an f.o.b. value. However, high value non-bulk goods could have a c.i.f. to f.o.b. deflator rate as low as 1 per cent. The distance between Australia and the export market would also influence the freight costs. The rates could also vary over time depending on changes in the prices charged for freight and insurance.

Therefore to apply a general deflator rate of 5 per cent to a specific product could result in a distortion of the proxy f.o.b. value.

For this article, the major confidential items to China were analysed separately to come up with specific deflator rates over time. The deflator rates were calculated by comparing ABS average price exported from Australia (on an f.o.b. basis) versus the average price in China import data (on a c.i.f. basis). Where ABS f.o.b. data for a specific confidential product was not available, a number of other sources were used. These included export price data from Bureau of Resource Energy Economic (BREE), or analysing ABS f.o.b. data for a similar (but not confidential) product – for example looking at the c.i.f. versus f.o.b. values for copper ores as proxy for nickel ores.

This methodology provided a set of different deflator rates for the major confidential export commodities. For bulk goods (excluding salt), deflators ranged between 5 to 20 per cent, and for non-bulk products a rate of between 1 to 5 per cent. The deflator rate for the significant confidential commodities was also adjusted each year to take account of changes in the freight and insurance charges over this period.

Timing adjustment

Under the previous methodology, DFAT compared partner country and ABS trade data based on the same time period (calendar year). However, this doesn't take into account the period it takes to ship the good from Australia to China. These timing differences will impact on the quality of the estimates when combining partner country and ABS trade data.

Investigations found that shipping times from Australia to China could range between 1 to 3 weeks depending on whether the shipment was direct (or via a third country such as Singapore or Hong Kong) and whether it was from a northern Australian port or from a southern port.

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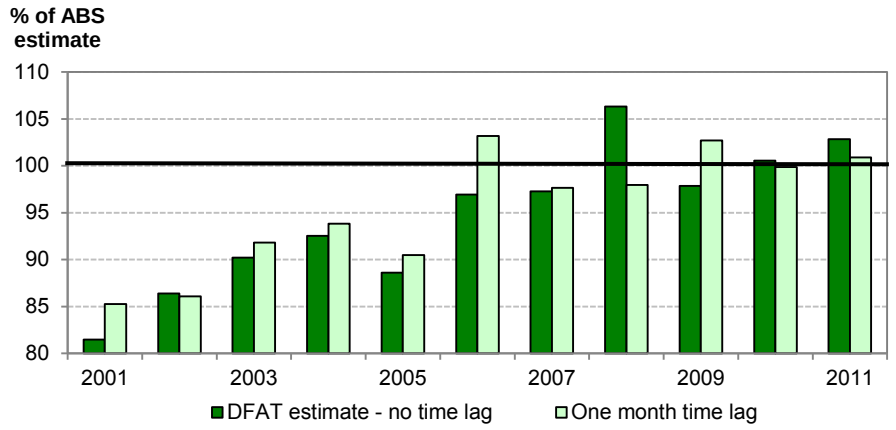
21 The Australian AHECC classification is fully compatible with the Harmonized System at the 6-digit level.

22 Most partner country import data as published by our major trading partners are on a c.i.f. basis, whereas the ABS export data are published on an f.o.b. basis. As a result a valuation on a c.i.f. basis will be higher than a valuation on an f.o.b. basis as it includes **the additional cost of insurance and freight**.

23 For more information refer to the article *Confidentiality in Australian merchandise export statistics* (page 6) for a full discussion of the quality issues with using partner country data.

A comparison was made by shifting the Chinese import data (for confidential items) from a January to December calendar year to February to January (the following year) to see if it better matched the total value of ABS confidential exports. ***Chart B*** compares in percentage terms how close the total DFAT estimates of confidential items were to the ABS published total confidential exports for China. The chart shows that in most years the one-month time lag produced a closer estimate to ABS data.

Chart B: Comparison of published ABS confidential exports to China against the total of DFAT estimates of confidential exports to China



Based on ABS trade data on DFAT STARS database & DFAT estimates.

On balance, it was decided to apply a one-month time lag to China import data (with the exception of *Natural gas* imports which had a shipping time of around 7 days[24]).

As the shipping time to China is less than one month, it is not possible with monthly trade data to fully adjust for these timing differences between ABS and China trade data.

Quality of the estimates

The improved methodology used in this article did produce a closer match between ABS and China partner country data. For the period 2006 to 2011 the DFAT estimate of confidential export items was between 97 per cent and 103 per cent of the ABS published data (refer to ***Chart B*** using the one month time lag). The difference was larger in early years from 2001 to 2005 (up to 15 per cent) but this was due to the fact that not all confidential export items could be uniquely matched in China trade data over this period.

Other factors that would impact on the differences between ABS and China trade data that were not addressed by the methodology include:

Trade through third party countries

Trade through Hong Kong (SAR of China) could impact on the quality of the estimates. However, analysis of Hong Kong trade data found that Australian exports of confidential items to China shipped through Hong Kong were usually small. They ranged from around the $50 million mark between 2001 and 2006 and less than $5 million between 2007 and 2011. As these exports were not significant (in comparison to total confidential exports to China) no adjustment was made to DFAT estimates of confidential exports to China for trade through Hong Kong.

Exchange rate differences

The exchange rate between when the good was loaded in an Australian port (recorded in ABS statistics) and unloaded in a Chinese port (recorded in Chinese trade statistics) will be different due to the time it takes to ship the good from Australia to China. No adjustment was made when converting these back to a common currency other than using the monthly average exchange rate at the time of recording.

Misreporting in customs lodgements used to compile trade statistics

Any misreporting by exporters and importers in customs lodgement documents (either Australia or China) may result in a mismatch between ABS and Chinese trade statistics. As one side of the data was confidential (Australia) it was not possible to identity if any of these errors were present.

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24 Platts *Liquefied Natural Gas Assessments and Netbacks*, August 2012.

No methodology can be fully adjusted for the timing, coverage and valuation differences that will exist between ABS and China trade data. The residual differences should not detract from the analysis of Australia exports to China in this article. The differences that still exist have been included in the tables in this article under the *Statistical error & residual confidential trade* line to ensure the total exports with China still align with ABS published total exports. As the DFAT estimate of confidential exports was sometimes larger than the published ABS data this line may be a small negative for some years.

Appendix 2 – Methodology for constant price estimates of exports of goods and services to China

Introduction

Australia's exports to China, 2001 to 2011 includes constant price estimates of Australia's merchandise exports to China. These estimates, which were compiled within DFAT, are experimental and should not be regarded as official estimates. They have been produced using limited data sources and have been published in this article to provide a guide to the effects of price and volume movements on the value of Australia's exports to China over the past ten years. Users of these estimates should also read the section titled **Limitations of the constant price estimates** at the end of this Appendix.

What are constant price values?

The value of any set of goods or services is the product of the number of units produced and the price of a unit of each good or service. For example, the value of two identical cars is the value of one car multiplied by two. Similarly, the value of a service may be an hourly rate multiplied by the number of hours required to produce the service. The resulting value is known as the *current price value* of the good or service. In the case of exports of goods and services, the total value in any particular period is simply the sum of all of the individual values, and is referred to as the current price value of goods and services exports.

Many users of economic statistics have a need for measures of the growth in physical production underlying the current price values. Such measures are often referred to as measures of "real" growth, and are widely used in analysing elements of the Australian national accounts (including gross domestic product and its components).

As prices change from period to period, the current price values in each period reflect the influence of both the underlying quantities and the prices prevailing in each period. As a result, changes in current price values across time periods will not usually be an accurate measure of changes in volumes of exports. When looking at totals of (for example) exports, the value reflects the sum total of the influence of differing quantities and prices of all the individual items that make up the series.

Constant price values remove the effects of prices from the current price values, so that the resulting series represent movements in volumes only. A constant price value is an estimate of volume expressed in dollar terms.

Implicit price deflators

Implicit price deflators (IPDs) are a useful by-product of the constant price estimation process. Dividing a current price value by its corresponding constant price value produces an IPD. IPDs can be used as a guide to whether the movements in export values between years are due to movements solely in export volumes, movements solely in export prices, or a combination of both volume and price changes.

Methods of estimating constant price values

Quantity revaluation

- Constant price values are estimated by choosing the price per unit of volume of individual products in a particular period – referred to as the *base year* (e.g., the unit prices in 2010), and multiplying those prices by the estimated quantities (tonnes, litres etc) of the corresponding products in all other years in a time series. So, the 2010 price of each good or service is held constant, and the values in the other years in the series vary only as the volume of production varies. In order for quantity revaluation to produce constant price estimates of reasonable quality, the products involved must be narrowly defined and be homogeneous in nature. In practice, this means that quantity revaluation is normally restricted to less complex products, such as minerals and energy and agriculture commodities.

Price deflation

- Where quantity revaluation is not possible, *price deflation* is commonly used to obtain constant price values. Price deflation involves dividing the value of a good or service by an appropriate price index. Price indexes measure changing prices over time, and the result of dividing the value of a good or service by its price index effectively removes the price change component from the current price value. As is the case with quantity revaluation, the resulting series reflects only the changes in volume of production (or exports etc). When applying price deflation it is important that the price indexes used relate to the products being revalued.

DFAT methodology

The constant price estimates of Australia's exports to China contained in this article have been compiled using a combination of quantity revaluation and price deflation.

Quantity revalued component

- Non-confidential items

  By far the bulk of Australia's exports to China are commodities, comprising metal ores and minerals, mineral fuels and agricultural commodities. Both quantity and value data is available for a large proportion of these exports. Using ABS data for the period 2000 to 2011, unit prices were calculated for 15 non-confidential commodities exports.

- Confidential items

  A number of commodities with significant export values are classified as confidential in ABS statistics, with the result that export values and quantities are not available in the official Australian statistics. By reference to China's import statistics contained in the Global Trade Atlas (See Appendix 1), a measure of value and quantity, and therefore unit values, for these are available. DFAT has used this information to estimate constant price values for the affected commodities.

The quantity revalued component accounted for 93 per cent of the current price value of Australia's total merchandise exports to China in 2010, of which the non-confidential commodities covered 89 per cent and the remaining 4 per cent was accounted for by DFAT estimates of the value of confidential exports.

Price deflated component

As most of Australia's exports to China can be revalued to constant prices using quantity revaluation, price deflation was employed for only 7 per cent of total exports in the base year (2010). Price indexes from the ABS Export Price Index were used to revalue current price exports at the 2-digit level of the Standard International Trade Classification (SITC).[25]

Total exports at constant prices

The quantity revalued and price deflated components were summed to arrive at a total value of exports to China, at 2010 prices, for each of the years from 2000 to 2011.

Constant price exports by broad sector

Exports at current prices by broad sector, based on DFAT's **Tr**ade **I**mports and **E**xports **C**lassification (TRIEC), are presented in this article. Corresponding estimates at constant price values were obtained by aggregating the 2-digit SITC estimates to the TRIEC level, using a concordance between the two classifications.

Limitations of the constant price estimates

Quantity revalued estimates

The quality of quantity revalued estimates relies upon the accuracy of both the values and quantities in recorded trade statistics. In general, value data is more reliable than quantity data. The ABS subjects quantity data to rigorous evaluation before using it in their various published constant price series. It was not possible for DFAT to undertake this type of detailed analysis for the estimates in this article. Broad editing, limited to looking at general trends in the data, and where possible, comparison with known international prices, was used in deciding whether to use quantity revaluation. At the higher levels of aggregation we consider that the estimates are a reasonably accurate representation of movements in export quantities.

Price deflated estimates

Ideally, price indexes used to convert current price values to constant price values should be directly related to the series being converted. For example, Australian exports of organic chemicals to China should be converted to constant price values with a price index that reflects the prices received for these items by Australian exporters from importers in China. However, country specific price indexes such as that do not generally exist (which is one of the main reasons that official constant price estimates of trade with individual trading partners are not compiled in Australia).

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[25] As a result only the export trade data on a SITC basis in this article could be estimated on a constant price basis. The export data on a TRIEC basis is in current prices only.

For the purposes of this article, ABS Export Price Indexes (EPI) have been used to derive constant price estimates of exports to China for the proportion that has not been quantity revalued. The EPI indexes are weighted averages of export prices received across the world. As a result, the price deflated constant price estimates of exports to China are accurate only to the extent that prices received for exports of these goods to China are similar to the average of prices received for all exports of the goods in question. However, as the price deflated component represents only about 7 per cent of total exports in the base year, the effect of this problem is unlikely to cause undue distortion in the estimates of total exports at constant prices.

Services exports

Estimates of exports of services to China at constant prices have been included for completeness. As with the price deflated component, global indexes of services were used to obtain constant price values of services exports to China.

Constant price estimates versus chain volume estimates

Constant price estimates are defined in terms of prices in a base year. In effect, this means that the resulting constant price estimates for all years in the series reflect the relative prices between the goods and services that are current in the base year (in this case, in the year 2010). As relative prices between goods tend to change over time, the movements in constant price estimates across a time series will be different if different base years are used. To alleviate this problem the ABS, in its official estimates, compiles *chain volume estimates*, where the reference year is changed at regular intervals and the resulting estimates are linked together to form a chain that removes the effects of changing price relativities that occur across lengthy spans of years. Chain volume estimates have not been compiled by DFAT for this article.

Appendix 3

Table 1: Australia's exports to China by broad sector in current price and constant prices terms with associated implicit price deflators

SITC (a)	2001 A$m	2002 A$m	2003 A$m	2004 A$m	2005 A$m	2006 A$m	2007 A$m	2008 A$m	2009 A$m	2010 A$m	2011 A$m	Average annual growth 2001 to 2011 %	Average annual growth 2006 to 2011 %
Current price terms													
Agriculture	2,333	2,598	1,845	2,590	2,822	3,118	3,238	3,536	3,500	4,614	6,629	9.7	14.8
Minerals	3,018	2,995	3,676	4,637	9,424	12,920	15,072	24,121	27,382	41,665	50,873	36.8	33.2
Fuels	520	663	1,150	995	902	1,104	1,355	1,751	7,151	7,630	7,951	31.9	60.1
Manufactures	1,265	1,557	1,924	1,985	2,281	3,154	3,942	2,727	4,444	4,129	4,579	13.6	7.4
Other goods	446	559	493	805	698	79	185	201	48	382	1,419	-6.0	54.4
Services	1,266	1,594	1,943	2,550	3,053	3,351	3,975	4,775	5,396	5,873	5,654	17.0	11.8
Total exports	**8,848**	**9,967**	**11,032**	**13,562**	**19,180**	**23,726**	**27,767**	**37,112**	**47,922**	**64,295**	**77,105**	**25.6**	**28.1**
Constant price terms (2010 prices)													
Agriculture	3,053	2,753	2,134	3,201	3,746	4,042	3,589	3,615	4,146	4,614	5,520	6.8	7.2
Minerals	7,581	8,150	10,539	13,089	19,570	21,690	23,774	28,812	40,946	41,665	45,654	21.4	17.9
Fuels	1,001	1,495	2,498	1,914	1,367	1,221	1,678	1,603	8,285	7,630	7,598	20.0	54.9
Manufactures	1,743	2,194	3,028	2,510	2,613	2,584	2,847	2,658	5,156	4,129	4,515	8.6	13.9
Other goods	837	1,039	1,043	1,648	1,323	118	257	232	63	382	1,302	-13.4	40.5
Services	967	1,267	1,590	2,131	2,625	2,980	3,640	4,539	5,274	5,873	5,824	20.5	15.1
Total exports	**15,183**	**16,898**	**20,832**	**24,493**	**31,244**	**32,635**	**35,785**	**41,459**	**63,869**	**64,295**	**70,412**	**17.3**	**18.8**
Implicit Price Deflator (IPD) (Base year 2010 = 100)													
Agriculture	76.4	94.4	86.4	80.9	75.3	77.1	90.2	97.8	84.4	100.0	120.1	2.7	7.0
Minerals	39.8	36.8	34.9	35.4	48.2	59.6	63.4	83.7	66.9	100.0	111.4	12.6	13.0
Fuels	51.9	44.4	46.1	52.0	66.0	90.4	80.7	109.3	86.3	100.0	104.6	9.8	3.3
Manufactures	72.5	71.0	63.5	79.1	87.3	122.0	138.5	102.6	86.2	100.0	101.4	4.6	-5.8
Other goods	53.3	53.8	47.3	48.9	52.7	67.2	71.7	86.7	76.6	100.0	109.0	8.5	9.9
Services	130.9	125.9	122.2	119.7	116.3	112.5	109.2	105.2	102.3	100.0	97.1	-2.9	-2.9
Total exports	**58.3**	**59.0**	**53.0**	**55.4**	**61.4**	**72.7**	**77.6**	**89.5**	**75.0**	**100.0**	**109.5**	**7.1**	**7.8**

(a) Based on the UN Standard International Trade Classification (SITC). There are slight differences in the defintions of the broad sectors as defined in Appendix C (based on TRIEC).
DFAT estimate based on ABS trade data, ABS catalogues 5368.55.004 & 5302.0 and China import data on Global Trade Atlas.

Appendix 3

Table 2: Australia's top 30 goods & services exports to China
(A$ million) (a)

Rank	Commodity	Sector	2009	2010	2011	% growth 2010 to 2011	% growth 5 year trend growth
	Total (b)		**47,922**	**64,294**	**77,105**	*19.9*	*28.1*
1	Iron ore & concentrates	Minerals	21,790	34,685	43,960	*26.7*	*44.9*
2	Coal	Fuels	5,651	5,191	4,543	*-12.5*	*78.9*
3	Education-related travel services	Services	4,040	4,343	4,091	*-5.8*	*13.1*
4	Crude petroleum	Fuels	796	1,668	2,902	*74.0*	*64.5*
5	Wool & other animal hair (incl tops)	Agriculture	1,382	1,621	2,022	*24.7*	*4.9*
6	Copper ores & concentrates	Minerals	1,050	1,314	1,500	*14.2*	*7.0*
7	Cotton	Agriculture	180	426	1,470	*244.8*	*31.2*
8	Gold	Other goods	1	220	1,284	*484.2*	*449.6*
9	Copper	Manufactures (STM)	890	1,066	1,211	*13.6*	*46.6*
10	Nickel ores & concentrates	Minerals	610	1,121	1,094	*-2.3*	*-0.4*
11	Nickel	Manufactures (STM)	1,201	874	855	*-2.2*	*-5.5*
12	Aluminium ores & conc (incl alumina)	Minerals	1,477	1,387	854	*-38.4*	*-11.3*
13	Manganese ores & concentrates	Minerals	637	834	837	*0.4*	*20.8*
14	Mineral sands (c)	Minerals	290	359	719	*100.1*	*28.2*
15	Hides & skins, raw (excl furskins)	Agriculture	389	541	649	*20.0*	*13.8*
16	Personal travel (excl. education)	Services	603	691	646	*-6.5*	*11.8*
17	Zinc ores & concentrates	Minerals	505	615	600	*-2.4*	*15.8*
18	Natural gas	Fuels	538	603	497	*-17.6*	*26.9*
19	Medicaments (incl veterinary)	Manufactures (ETM)	216	322	432	*34.2*	*27.4*
20	Non-ferrous waste & scrap	Minerals	298	389	398	*2.1*	*2.3*
21	Barley	Agriculture	247	284	367	*29.2*	*6.7*
22	Business services (d)	Services	249	304	282	*-7.2*	*11.1*
23	Ferrous waste & scrap	Minerals	316	83	249	*200.8*	*22.2*
24	Zinc	Manufactures (STM)	282	208	243	*17.0*	*12.4*
25	Transport services	Services	215	230	240	*4.3*	*1.6*
26	Lead ores & concentrates	Minerals	149	516	223	*-56.8*	*7.1*
27	Wheat	Agriculture	96	181	215	*19.0*	*79.4*
28	Animal oils & fats	Agriculture	168	176	197	*12.2*	*8.0*
29	Alcoholic beverages	Agriculture	132	161	197	*22.0*	*40.6*
30	Aluminium	Manufactures (STM)	356	119	192	*61.4*	*-8.5*

(a) Goods trade are on a recorded trade basis, Services trade are on a balance of payments basis. (b) Balance of payments basis. (c) Mainly *Titanium* and *Zirconium ores & concentrates.* (d) *Business services* includes: *Construction; Insurance; Financial; Intellectual property; Telecommunication, communication & information* and *Other business services.* (e) *Transport services* includes: *Passenger, Freight; Other transport services* and *Postal & courier services.*

STM - Simply transformed manufactures

ETM - Elaborately transformed manufactures

DFAT estimate based on ABS trade data, ABS catalogue 5368.55.004 and China import data on Global Trade Atlas.

Appendix 3

Table 3: Australia's exports to China by level of processing
(A$ million)

TRIEC (b)		2001	2006	2011	% growth 2010 to 2011	% growth 10 year trend
1	**Primary products**	**5,890**	**17,252**	**65,532**	***21.3***	***29.7***
11	**Unprocessed**	**4,476**	**14,073**	**62,849**	***24.8***	***32.9***
111	**Food & live animals**	**520**	**493**	**975**	***38.8***	***2.7***
1111	Live animals, chiefly for food	8	15	121	*3.8*	*14.6*
1112	Seafood, fresh, chilled, dried, smoked, salted	27	33	120	*96.5*	*10.0*
1113	Vegetables, fruit & nuts, fresh, chilled, or provisionally preserved	5	14	12	*-7.7*	*17.6*
1114	Cereal gains	385	428	598	*23.3*	*2.6*
1119	Unprocessed food nes	95	3	124	*363.8*	*-1.2*
112	**Minerals**	**2,172**	**10,505**	**49,770**	***25.0***	***41.7***
1121	Iron ore & concentrates	1,369	7,627	43,960	*26.7*	*46.4*
1122	Other metalliferous ores & concentrates	580	2,384	4,999	*10.7*	*30.1*
1129	Unprocessed minerals nes	223	494	810	*35.0*	*14.4*
113	**Fuels**	**369**	**822**	**7,445**	***8.5***	***32.5***
1131	Coal, anthracite & bituminous	69	599	4,543	*-12.5*	*47.9*
1132	Crude petroleum	300	223	2,902	*74.0*	*18.6*
1133	Petroleum gases & gaseous hydrocarbons nes, unprocessed	0	0	0	*..*	*..*
114	**Other primary products**	**1,415**	**2,253**	**4,659**	***56.0***	***10.8***
1141	Hides, skins & furskins, raw	180	319	649	*20.0*	*17.4*
1142	Cork & wood	12	140	463	*32.1*	*42.1*
1143	Textile fibres, unprocessed & waste	1,192	1,751	3,493	*70.5*	*8.3*
1149	Crude materials nes	31	44	54	*17.5*	*0.5*
12	**Processed**	**1,414**	**3,179**	**2,684**	***-27.1***	***10.2***
121	**Food**	**360**	**446**	**985**	***8.3***	*11.2*
1211	Meat & meat preparations	62	57	225	*40.5*	*12.7*
1212	Seafood, frozen or processed	37	43	12	*3.2*	*-16.6*
1213	Dairy products	64	65	129	*-5.9*	*8.2*
1214	Vegetables, fruit & nuts preparations	4	2	3	*8.2*	*-6.2*
1215	Cereal preparations	0	3	4	*87.3*	*19.3*
1216	Animal & vegetable oils, fats & waxes	85	114	212	*12.6*	*11.3*
1217	Sugars, honey, cocoa & confectionery	93	74	16	*-62.8*	*-18.2*
1219	Preparations of food, beverages & tobacco nes	15	88	384	*5.4*	*42.1*
122	**Minerals**	**892**	**2,415**	**1,164**	***-40.2***	***6.5***
1221	Non-metallic minerals, processed	0	0	0	*..*	*..*
1222	Metallic minerals, processed	892	2,415	1,164	*-40.2*	*6.5*
123	**Fuels**	**151**	**283**	**508**	***-34.6***	***25.4***
1231	Refined petroleum	25	13	9	*86.7*	*-4.1*
1232	Petroleum gases & other gaseous hydrocarbons, processed	123	268	497	*-35.1*	*27.8*
1239	Other processed fuels nes	3	2	3	*-57.0*	*13.2*
124	**Other primary products**	**11**	**34**	**26**	***-47.5***	***12.8***
1241	Rubber (natural, synthetic & reclaimed)	1	1	0	*-65.9*	*-15.2*
1242	Wood, simply worked & pulp	5	32	26	*-46.7*	*21.3*
1243	Textile fibres, processed	5	1	0	*-93.0*	*-30.7*

Table 3: Australia's exports to China by level of processing
(A$ million) (cont'd)

TRIEC (b)		2001	2006	2011	% growth 2010 to 2011	% growth 10 year trend
2	**Manufactured products**	**1,466**	**3,222**	**4,639**	***11.9***	***12.0***
23	**Simply transformed**	**625**	**1,463**	**2,453**	***7.4***	***15.0***
231	**Mineral manufactures & metals**	**349**	**1,219**	**2,205**	***9.4***	***20.0***
2311	Non-metallic mineral manufactures, simply transformed	4	5	5	*9.0*	*1.9*
2312	Iron & steel, simply transformed	154	20	21	*58.6*	*-26.0*
2313	Non-ferrous metals, simply transformed	190	1,194	2,179	*9.0*	*28.0*
232	**Chemicals & other semi-manufactures**	**157**	**239**	**247**	***-6.8***	***4.2***
2321	Organic chemicals	2	2	3	*51.6*	*1.0*
2322	Inorganic chemicals	20	32	64	*-21.5*	*14.5*
2323	Other chemical & chemical preparations, simply transformed	16	36	44	*-10.8*	*9.8*
2324	Other semi-manufactures, simply transformed	119	169	137	*2.9*	*0.3*
233	**Other manufactures**	**119**	**5**	**1**	***-61.6***	***-31.2***
2339	Other simply transformed manufactures nes	119	5	1	*-61.6*	*-31.2*
24	**Elaborately transformed**	**841**	**1,759**	**2,186**	***17.5***	***9.2***
241	**Mineral manufactures & metals**	**219**	**592**	**347**	***13.9***	***4.9***
2411	Non-metallic mineral manufactures, elaborately transformed	1	10	2	*7.1*	*8.5*
2412	Iron & steel, elaborately transformed	57	40	14	*36.0*	*-18.7*
2413	Non-ferrous metals, elaborately transformed	160	542	332	*13.2*	*8.8*
242	**Chemicals & other semi-manufactures**	**215**	**425**	**740**	***20.0***	***12.7***
2421	Pharmaceutical products	31	143	460	*34.0*	*37.8*
2422	Essential oils, perfume & cosmetic products	4	4	21	*57.0*	*22.1*
2423	Plastics & articles of plastic	47	102	89	*-10.1*	*6.2*
2424	Other chemical & chemical preparations, elaborately transformed	128	167	162	*5.0*	*1.9*
2425	Other semi-manufactures, elaborately transformed	4	9	8	*13.3*	*-3.4*
243	**Engineering products**	**307**	**622**	**960**	***17.1***	***10.8***
2431	Machinery for specialised industries	134	296	317	*-14.3*	*11.2*
2432	Office & telecommunication equipment & parts	57	51	96	*26.0*	*7.0*
2433	Road motor vehicles & parts	7	20	35	*-46.0*	*21.2*
2434	Other transport equipment & parts	7	16	100	*105.5*	*27.5*
2435	Professional, scientific & controlling instruments & apparatus	37	39	90	*2.9*	*10.1*
2439	Other engineering products nes	65	201	321	*86.4*	*9.1*
244	**Other manufactures**	**100**	**120**	**139**	***16.9***	***1.2***
2441	Household equipment	42	29	43	*14.3*	*-3.7*
2442	Textiles, clothing & footwear	36	35	12	*0.7*	*-9.0*
2449	Other miscellaneous manufactured articles nes	22	56	84	*21.0*	*13.7*
3	**Other goods**	**226**	**-99**	**1,280**	***422.1***	***..***
301	**Miscellaneous trade**	**10**	**10**	**23**	***12.5***	***5.2***
3011	Armoured fighting vehicles, arms of war etc & parts, nes	0	0	0	*..*	*..*
3012	Gold coins & other coins that are legal tender	0	1	10	*218.7*	*..*
3019	Miscellaneous merchandise trade nes	10	9	13	*-7.8*	*0.4*
302	**Gold**	**0**	**0**	**1,284**	***484.5***	***..***
303	**Unclassified trade & invalid items**	**0**	**0**	**0**	***..***	***..***
Statistical error		***215***	***-109***	***-27***	***..***	***..***
	Total merchandise exports	**7,582**	**20,375**	**71,451**	***22.3***	***26.8***

(a) Based on DFAT's Trade Import Export Classification (TRIEC).

There are slight differences in the defintions of the broad sectors as defined in ***Appendix A*** (based on SITC).

DFAT estimate based on ABS trade data and China import data on Global Trade Atlas.