

Australia's Coal and Iron ore exports 2001 to 2011

This article is an update of the DFAT article "Australia's Coal and Iron ore exports 1999 to 2009" published in March 2010.

Coal and Iron ore have been important exports for Australia for decades. Over the past 10 years they have grown in importance, increasing six-fold from \$17.7 billion in 2001 to \$110.9 billion in 2011. With strong world economic growth over most of the period resulting in higher commodity prices, Coal and Iron ore have dominated the growth in nominal exports over the period. These two commodities have grown at an average annual rate of 23.2 per cent per annum over this period, compared to just 4.8 per cent per annum for all other exports. Their share in total goods and services exports has risen from 11.2 per cent in 2001 to 35.4 per cent in 2011.

Coal and Iron ore have been the driving force in the significant increase in Resources exports and thus to the growth in Australia's terms of trade.

North Asia is Australia's primary market for Coal and Iron ore. These commodities dominate trade with this region.

Overall trends in Coal exports

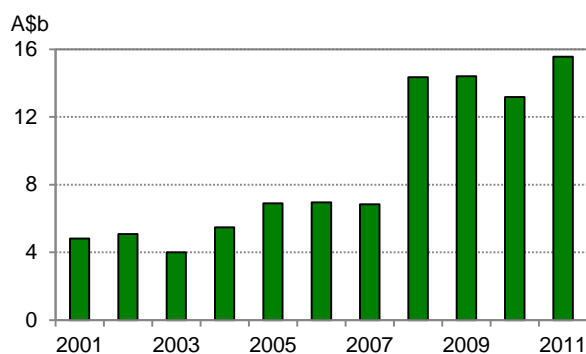
Australia's *Coal* exports largely comprise two forms of bituminous coal of coal – thermal and metallurgical. Thermal coal (the softer form of bituminous coal) is used mainly for electricity generation, whilst metallurgical coal (the harder form of bituminous coal) is used in the manufacture of steel. Metallurgical coal exports are almost twice as large as thermal coal exports.

The value of Australia's *Coal* exports has risen significantly in recent years. Strong growth in electricity generation (India and China) and world steel production supported volume growth. This was supported by robust price rises through to the Global Financial Crisis.

Over the past 10 years (2001 to 2011), the value of coal exports rose from \$12.5 billion in 2001 to \$46.8 billion in 2011, a rise of almost 300 per cent.

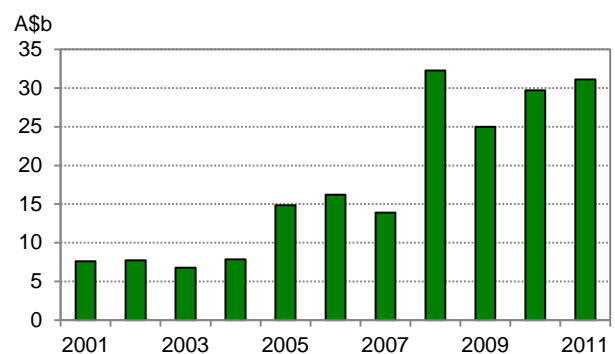
Within the overall *Coal* figures, both thermal and metallurgical coal exhibited very strong growth through to the GFC (see **Charts 1 and 2**). Following the crisis, the value of exports levelled off, with exports in 2011 virtually the same as exports in 2008. Thermal coal exports rose from \$4.8 billion to \$15.6 billion (up well over 200 per cent). Metallurgical coal exports rose from \$7.6 billion to \$31.1 billion (up just over 300 per cent), and just shy of the 2008 high of \$32.3 billion.

Chart 1: Exports of thermal coal



Based on ABS trade data on the DFAT STARS database.

Chart 2: Exports of metallurgical coal



Based on ABS trade data on the DFAT STARS database.

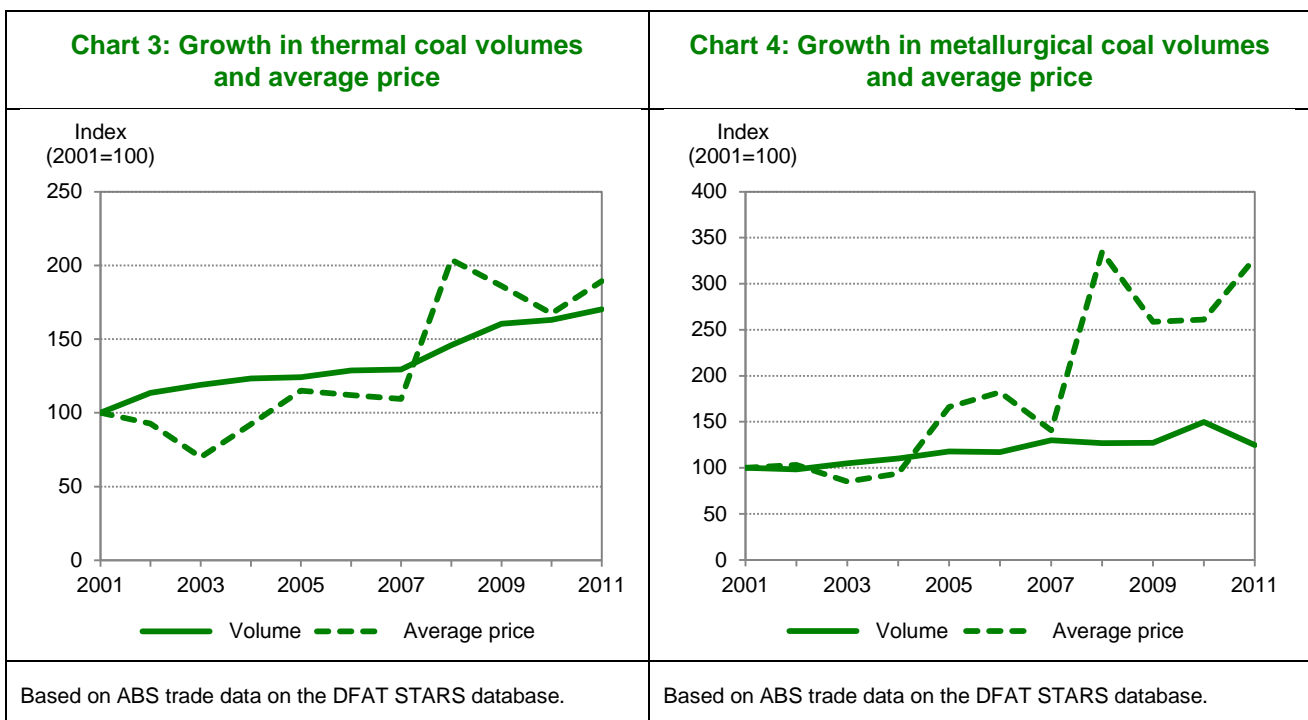
Charts 3 and 4 show a disaggregation of the values of *Coal* exports into their price and volume components and display an index of change over the period 2001 to 2011.

Thermal coal

- Thermal coal volumes have displayed steady growth over the period, up 70.0 per cent. And while on balance the price of the commodity ended the analysis period with a stronger overall rise than volumes, it observed considerably more volatility throughout the period.
- By the end of the analysis period the price of thermal coal finished up nearly 90 per cent higher relative to the start. The large increases in value shown in **Chart 1** are leveraged more to price than to volume.

Metallurgical coal

- The price effect on metallurgical coal exports over the period 2001 to 2011 was more pronounced than for thermal coal. It started tracking higher than volumes from 2004, then fell back before surging in 2008.
- The price for metallurgical coal finished at a point nearly 230 per cent higher than when the series started.
- The volume of metallurgical coal exports was 25.0 per cent higher in 2011 relative to 2001.



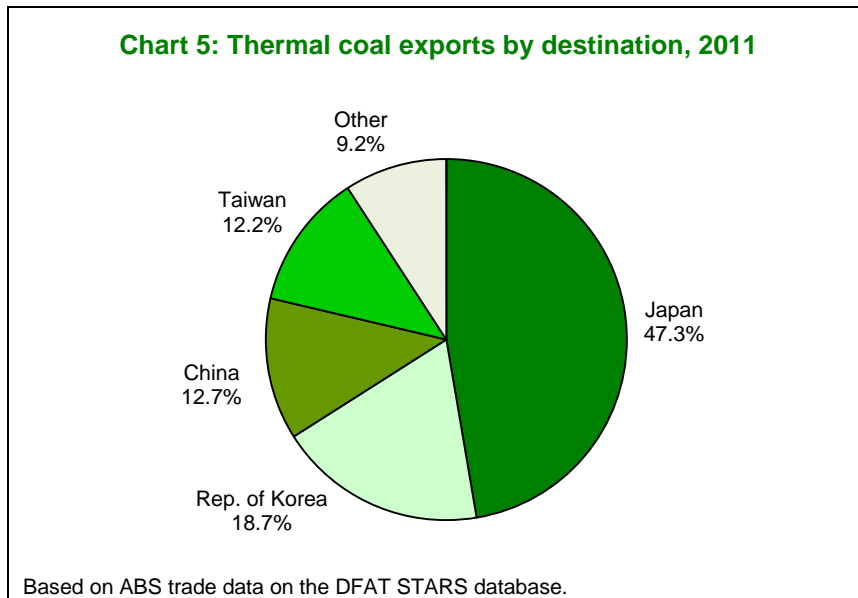
Major markets for Coal exports

Thermal coal

In 2011, the volume of world trade in thermal coal was estimated at 837.0 million tonnes¹. Australia ranked as the world's second largest exporter, accounting for 16.8 per cent of that trade. Indonesia was first with 36.1 per cent and the Russian Federation was third, with 11.6 per cent.

Accounting for nearly half the value of Australia's thermal coal exports in 2011, Japan was the stand-out buyer (47.3 per cent), followed by the Republic of Korea (18.7 per cent) and China (12.7 per cent) (see **Chart 5**). Over the entire 2001 to 2011 period, Japan was the largest buyer of Australia's thermal coal. At its peak during the period (2007), Japan accounted for 60.2 per cent of the value of Australia's thermal coal exports. China was the big mover over the period, particularly over the last four years, rising from 1.5 per cent of thermal coal exports in 2007 to 12.7 per cent in 2011.

¹ Source: Bureau of Resource Energy Economics (BREE) Resources and Energy Quarterly – June qtr 2012.

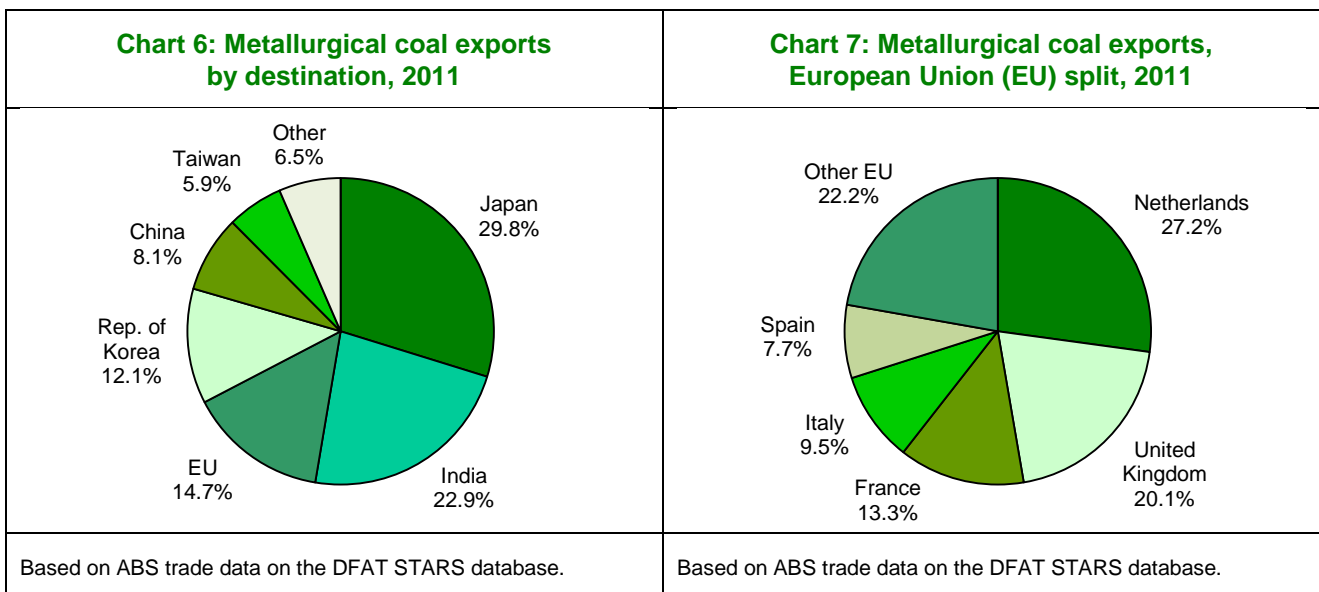


Metallurgical coal

World trade in metallurgical coal in 2011 was estimated at 270 million tonnes² and Australia continued its rank as the number one exporter of this commodity, accounting for about half (49.3 per cent) of the total. The United States was next with 20.4 per cent.

Japan was Australia's largest export market for metallurgical coal in 2011, accounting for just under 30 per cent (29.8 per cent) of the total value. India was the second largest (22.9 per cent), followed by the European Union (EU at 14.7 per cent) (see **Chart 6**). Japan's share of Australia's metallurgical coal exports remained fairly constant over the period, ranging from 27.2 per cent in 2010 to a peak of 36.9 per cent in 2008. China had stood out as the growth market, surging from 0.9 per cent of the value of exports in 2008 to 17.6 per cent in 2009, however it fell back in 2011 to 8.1 per cent.

With \$4.6 billion worth of metallurgical coal exports in 2011, as a single market the EU was Australia's third largest export market by value. Within the EU the top three destinations for Australian metallurgical coal were the Netherlands (27.2 per cent), the United Kingdom (20.1 per cent) and France (13.3 per cent) (see **Chart 7**).



² Source: BREE Resources and Energy Quarterly – June qtr 2012.

Impact of the Global Financial Crisis on Australia's coal exports

During the GFC, the value of coal exports eased, from \$46.6 billion in 2008 to \$39.4 billion in 2009. This was mainly price driven, as volumes were at least able to hold up in the case of metallurgical coal, or continue growing in the case of thermal coal. This was despite the fact that volumes early in the year were affected by severe weather events in Queensland.

Since then the value of thermal coal exports has managed to grow to a new record while the value of metallurgical coal exports has nearly returned to its pre-GFC peak.

Thermal coal prices have recovered to levels that are close to pre-GFC highs, while volumes have kept on growing to reach nearly 148 million tonnes in 2011. The volume of thermal coal exports grew in every year of the analysis period. In 2001 Australia exported around 87 million tonnes meaning that exports have grown by an average of approximately 5.7 million tonnes each year since 2001.

Prices for metallurgical coal have also recovered to near pre-GFC highs, surging by over 25 per cent between 2010 and 2011. Volumes in 2011 were also consistent with pre-GFC, however they did fall back from their 2010 peak (down nearly 17 per cent from 159 million tonnes to 132 million tonnes).

Future outlook

The outlook for exports of both thermal and metallurgical coal is strong volume growth combined with easing prices, based on research released by the Bureau of Resource Energy Economics (BREE)³ for the coming five years.

Thermal coal prices are expected to ease in real terms in the period out to 2016-17, although prices will remain relatively high in a historical sense. However, increases in the volume of thermal coal imports, driven predominantly by countries in Asia, such as China and India, will promote higher earnings for Australian thermal coal exporters. In 2011-12 BREE expects the volume of Australia's coal exports to increase by 13 per cent. Looking forward, BREE expects the volume of exports to continue rising at an average annual rate of 11 per cent out to 2016-17.

If this projected growth eventuates, Australia will export 268 million tonnes of thermal coal by 2016-17, accounting for about a quarter of world import requirements of more than a billion tonnes.

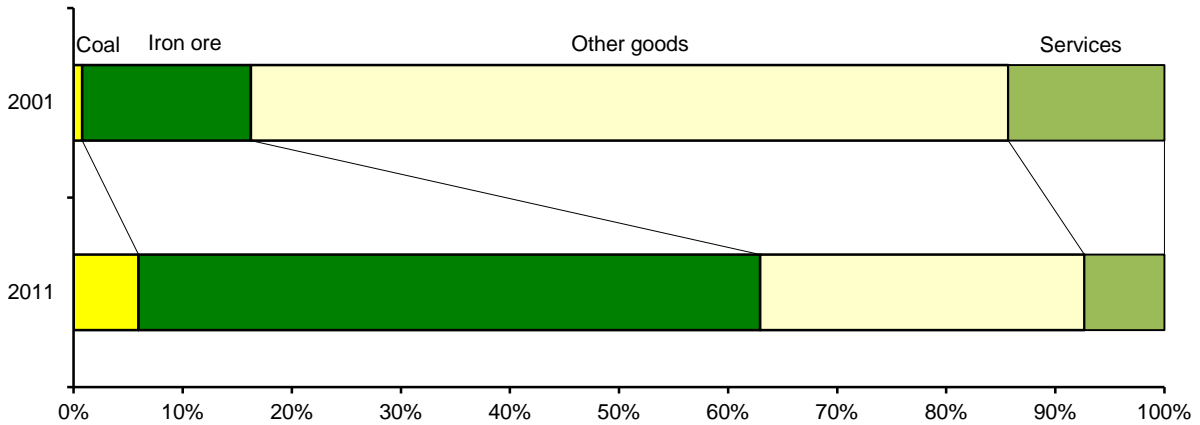
Export volumes of metallurgical coal are forecast to increase by an average 8 per cent per annum out to 2016-17 after a rise of 6 per cent in 2011-12. Increased steel production in India, China and Brazil is expected to underpin growth in demand. Growth in Australia's exports will be supported by start-ups of new projects and expansion of current ones, as well as increased infrastructure capacity in Queensland. However with softer prices, in real terms BREE expect the value of Australia's metallurgical coal exports in 2016-17 to be about the same as in 2010-11.

³ Source: BREE Resource and Energy Quarterly – June qtr 2012.

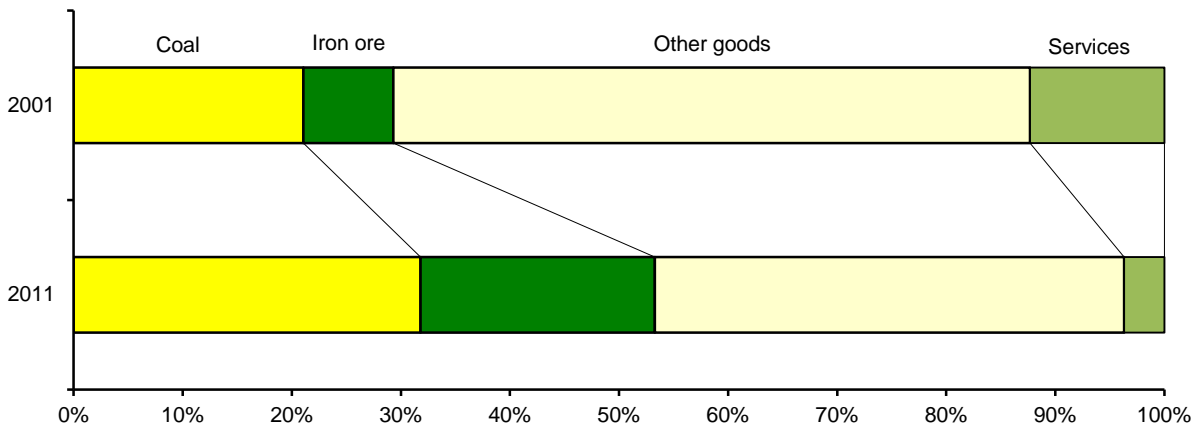
Change in composition of Australia's exports to its primary markets for Coal and Iron ore 2001 to 2011

The primary markets for Australia's exports of *Coal* and *Iron ore* were China, Japan and the Republic of Korea in 2011. Over the period 2001 to 2011, a significant shift in the composition of Australia's exports towards these products can be observed for these markets. In 2011, *Coal* exports were our largest exports to Japan (*Coal* was our second largest export to China and the Republic of Korea) while *Iron ore* exports were our largest export to China and the Republic of Korea (*Iron ore* was our second largest export to Japan).

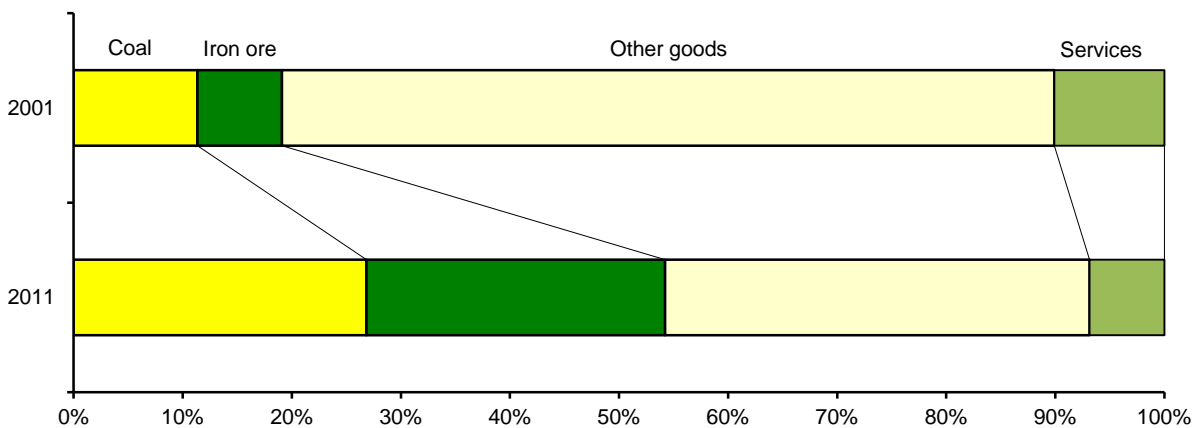
Composition of Australia's exports to China



Composition of Australia's exports to Japan



Composition of Australia's exports to the Republic of Korea



Based on ABS trade data on the DFAT STARS database and ABS catalogue 5368.0 (March 2012).

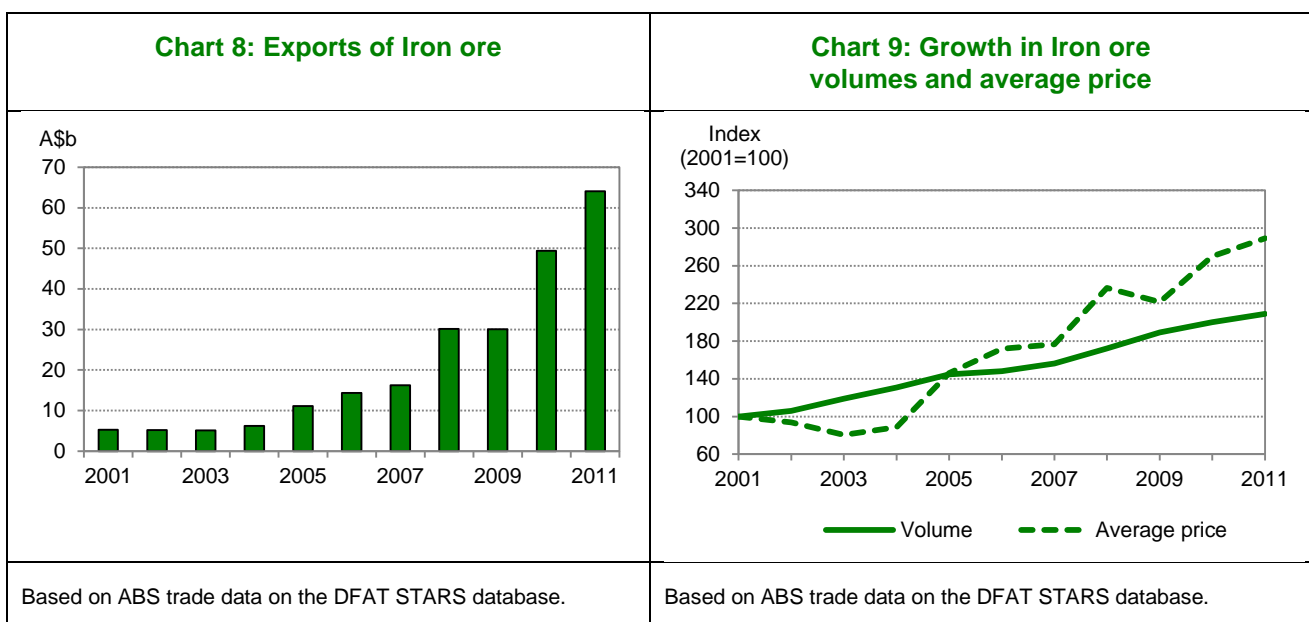
Overall trends in Iron ore exports

The value of Australia's exports of *Iron ore* have increased from \$5.2 billion in 2001 to \$64.1 billion in 2011 (see **Chart 8**). This represents average growth of 31.9 per cent per annum, compared with total Australian exports that grew by just 8.4 per cent on average per annum. As a result, the share of Australian exports accounted for by *Iron ore* rose from 3.3 per cent in 2001 to 20.5 per cent in 2011. *Iron ore* was ranked Australia's largest export in 2011.

Australia is the world's largest exporter of *Iron ore* and accounted for around 40 per cent of world exports in 2011⁴. The majority of Australian *Iron ore* exports are from Western Australia (97.0 per cent).

In volume terms, exports of *Iron ore* have increased from 157 million tonnes (Mt) in 2001 to 438 Mt, representing average annual growth of 11.1 per cent per annum, while average prices received for a tonne of *Iron ore* have risen from an average of \$33 per tonne in 2001 to \$146 in 2011.

The significant growth in *Iron ore* exports over the past seven years was mainly due to increases in export prices from 2004 to 2011 (see **Chart 9**). The average price received for *Iron ore* grew 23.4 per cent on average per annum over the past seven years on the back of the commodity boom compared with prices falling 5.1 per cent in the first three years (2001-2004).

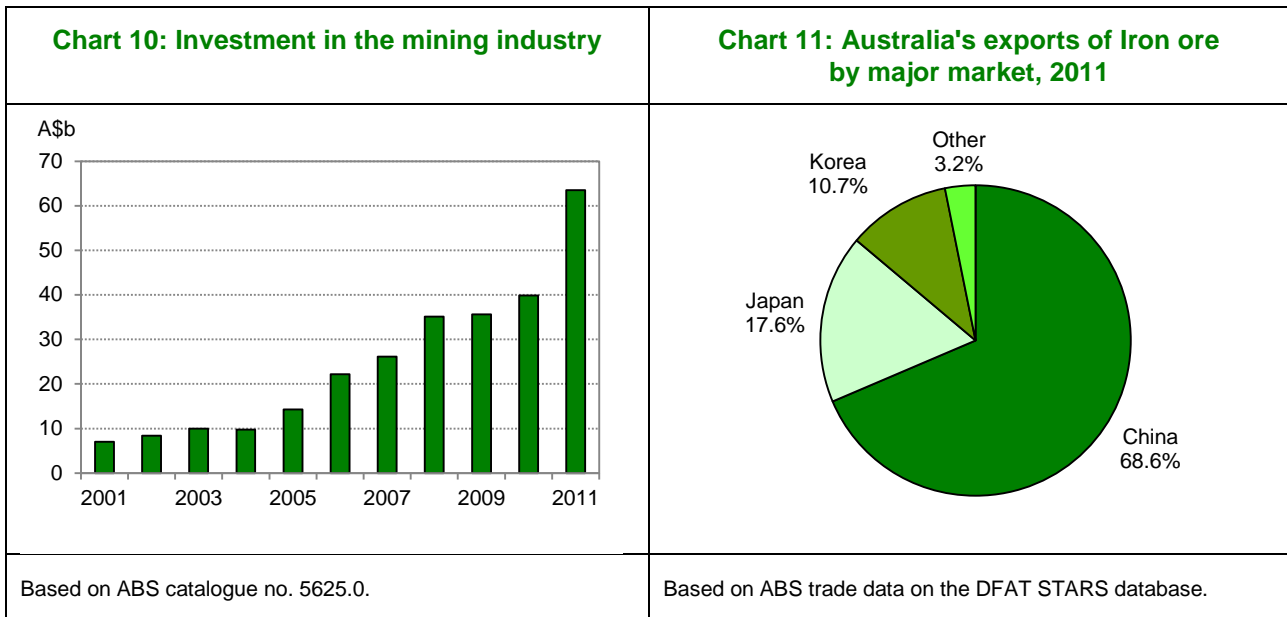


Growth in export volumes has been more steady over the 10 year period, growing by 10.5 per cent on average per annum between 2001 and 2006 and then accelerating to 12.9 per cent in the past five years. The acceleration in export volumes in the past five years was due to Australian companies increasing output from existing iron ore mines (on the back of significantly increased world demand) in conjunction with increased investment in the mining industry which grew significantly, from \$22.2 billion in 2006 to \$63.5 billion in 2011 (see **Chart 10**).

Major markets for Australia's iron ore

Australia's major exports markets for *Iron ore* were China, Japan and the Republic of Korea. In total they accounted for 96.8 per cent of Australia's *Iron ore* exports in 2011 (see **Chart 11**). The only other significant market for *Iron ore* exports in 2011 was Taiwan, valued at \$1.9 billion and accounting for 3.0 per cent of total *Iron ore* exports.

⁴ Source: BREE Resources and Energy quarterly – June qtr 2012.

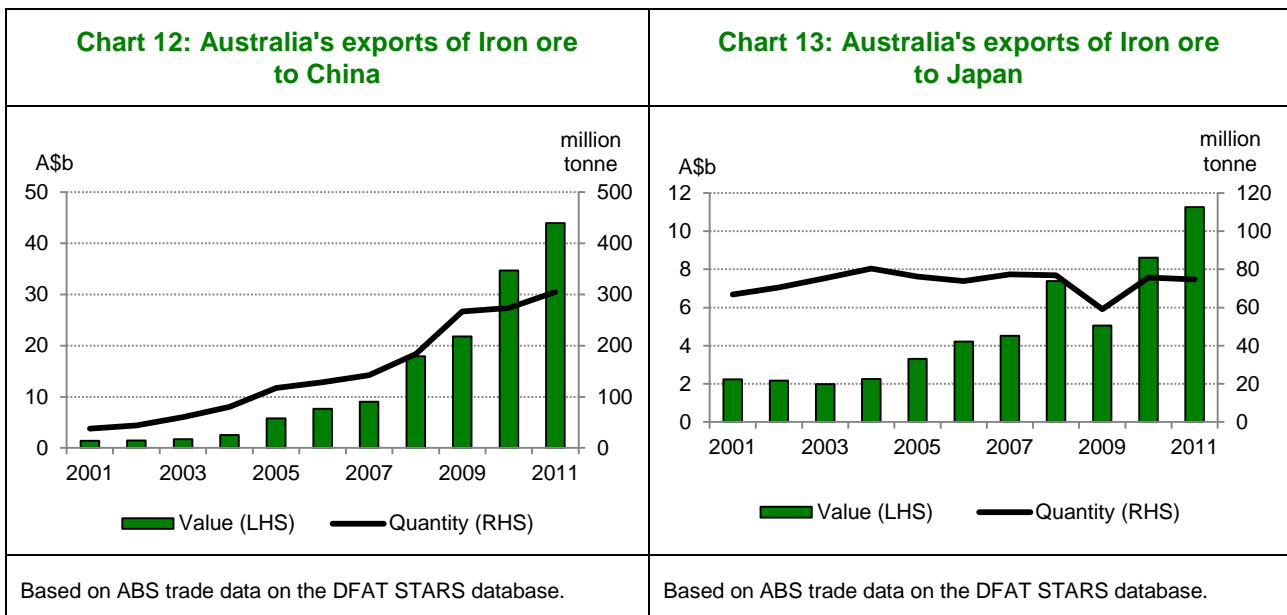


China was Australia's largest market for *Iron ore*, accounting for 68.7 per cent or \$44.3 billion in 2011 (and has been number one since 2004). Export values have increased by an average 46.4 per cent per annum since 2001, while export volumes have increased by 24.4 per cent on average (see **Chart 12**). The increase in demand for *Iron ore* by China is due to the large increase in Chinese steel production, which has risen from 152 Mt⁵ in 2001 to 683 Mt in 2011 and accounted for 45.2 per cent of world steel output⁶.

Over the past 10 years, Australia was the largest source of imports of *Iron ore* by China and accounted for 44.1 per cent of total China imports of *Iron ore* in 2011.

Japan was Australia's second largest market for Australian *Iron ore*, accounting for 17.5 per cent or \$11.3 billion in 2011. Export values have increased by an average 18.9 per cent per annum since 2001, while export volumes to Japan have increased by just 0.03 per cent on average (see **Chart 13**). Japan was Australia's largest market for *Iron ore* until 2003.

Over the past 10 years, Australia was the largest source of imports of *Iron ore* by Japan and accounted for 58.2 per cent of total Japanese imports of *Iron ore* in 2011.



⁵ World Steel Association – crude steel production data (www.worldsteel.org).

⁶ Source: BREE Resources and Energy quarterly – June qtr 2012.

The Republic of Korea was Australia's third largest market for *Iron ore*, accounting for 10.6 per cent or \$6.9 billion in 2011. Export values have increased on average by 24.7 per cent per annum, while export volumes rose 5.4 per cent on average. Over the past 10 years Australia was the largest source of *Iron ore* imports for Korea.

Impact of the Global Financial Crisis on Australia's exports of Iron ore

The impact of the Global Financial Crisis seems to have had little impact on the value of Australia's exports of *Iron ore* in 2009, which fell only 0.3 per cent in value terms.

The average price received for Australian *Iron ore* exports fell from its pre-GFC peak of \$138 per tonne in October 2008 to \$71 per tonne in December 2009. Even with this significant fall in prices in 2009, they were still well above longer term averages. Export volumes, on the other hand, rose a remarkable 17.3 per cent in 2009, offsetting most of the fall in price.

The impact of the GFC on the performance of Australia's leading *Iron ore* export markets was mixed. For Japan and the Republic of Korea, which both experienced recessions (particularly for Japan), Australian *Iron ore* export volumes plunged in 2009 as world demand for steel fell. Export volumes to Japan fell by 23.1 per cent to 59 Mt, their lowest levels since 1996. Export volumes to the Republic of Korea fell by 16.3 per cent to 28 Mt, their lowest level since 2006.

Australian exports of *Iron ore* to China however, rose strongly, up 45.5 per cent in volume terms, to 267 Mt in 2009. The strong volume growth in exports of *Iron ore* to China in 2009 can be attributed to both the build up of stocks by China 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.

Exports to Japan and the Republic of Korea recovered strongly in 2010, with export values up 70.3 per cent and 88.2 per cent respectively. Exports to China continued to grow in 2010, up 59.2 per cent. Export prices bounced back to an average of \$123 per tonne in 2010 (and were above pre-GFC levels by June 2010). Prices continued to rise to a record \$158 per tonne in September 2011.

Future outlook

According to BREE⁷, Australian *Iron ore* exports in the medium term are projected to rise, in real terms, by 4.1 per cent per year to reach \$76.8 billion (in 2011-12 dollars) in fiscal year 2016-17. This growth will mainly be driven by increased growth in export volumes, with quantities of *Iron ore* projected to increase from 407 Mt in fiscal year 2010-11 to 767 Mt in 2016-17. *Iron ore* prices are forecast to fall from an average price of \$148 per tonne in 2001-11 to \$100 per tonne in 2016-17.

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⁷ Source: BREE Resource and Energy quarterly – June qtr 2012.