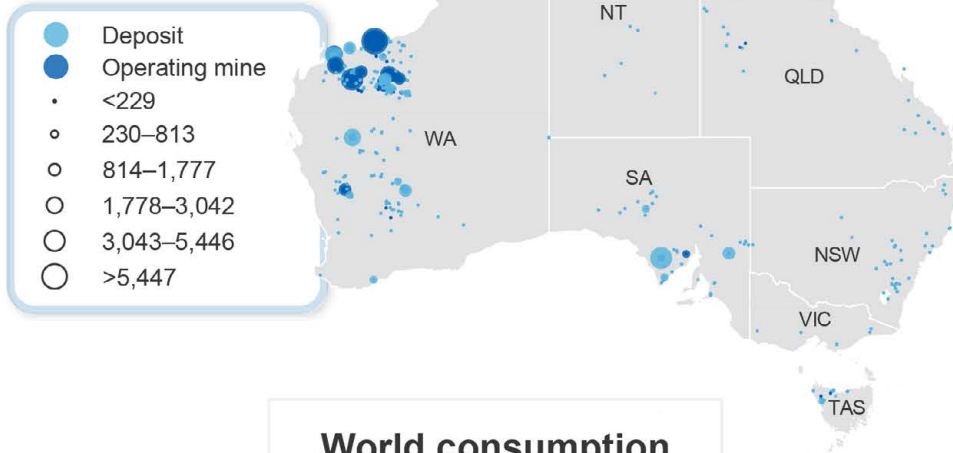




Iron Ore

Major Australian iron ore deposits (Mt)



Iron ore



Iron is earth's most common element, forming much of the **planet's core**



Iron ore deposits were originally **formed by algae**

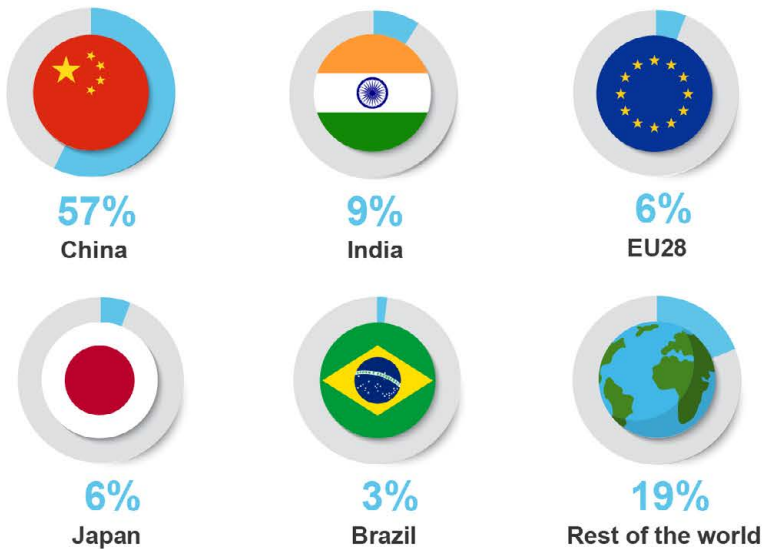


Humans have been working with iron for at least **5,000 years**

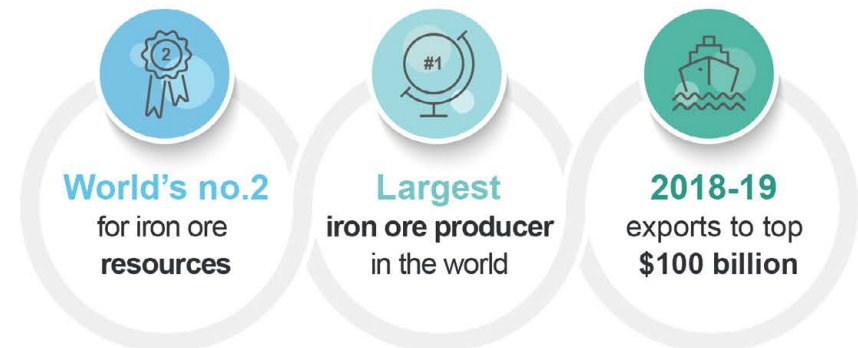


Iron was central to the **industrial revolution**

World consumption



Australia's iron ore



4.1 Summary

- Iron ore prices remain at unusually high levels as a result of persistent supply disruptions in mid-to-late 2019. In 2020, the iron ore price is forecast to average about US\$78 a tonne free on board (FOB) Australia.
- The real iron ore price is forecast to decline to average US\$70 a tonne (FOB Australia) in 2021, and US\$61 a tonne by 2025. Supply disruptions are expected to be resolved over the next 12 months, with the seaborne market returning closer to balance.
- Export volumes are expected to grow from 874 million tonnes in 2019–20 to 898 million tonnes by 2020–21, and to 996 million tonnes by 2024–25. The growth is largely a result of production commencing at several large new mines in Western Australia.
- Australia's iron ore export values are set to rise from \$79 billion in 2018–19 to \$101 billion in 2019–20 (in real terms), as volumes and prices grow. Over the rest of the outlook period, as prices ease, exports are forecast to fall to \$84 billion in 2020–21, and \$72 billion by 2024-25.

4.2 Prices

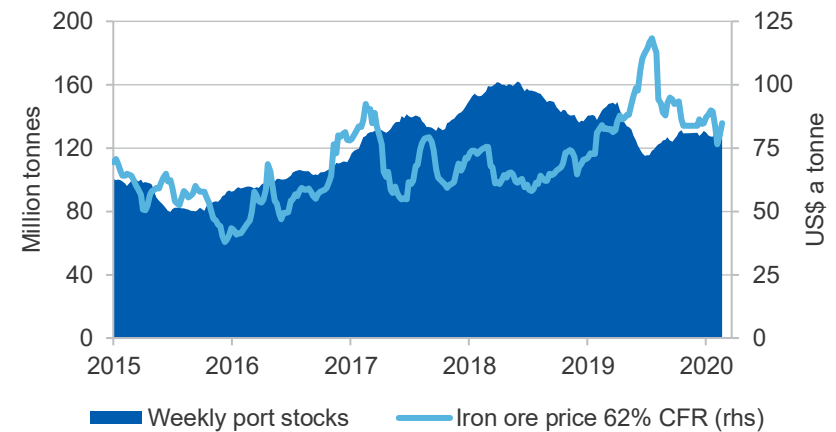
Iron ore prices have reversed some of their early 2019 surge

Iron ore prices have continued on a volatile trajectory in recent months (Figure 4.1). After a large surge in 2019 following the Brumadinho tailings dam collapse in Brazil, prices appeared to be on a path back to normal as production gradually recovered.

However, subsequent supply disruptions saw prices spiking again in late 2019 and early 2020. These included cyclones in the Pilbara region of Western Australia, and flooding in the south and east of Brazil. Iron ore markets remain tight — iron ore inventories remain near five-year lows — and this has increased the responsiveness of prices even to small shifts in production.

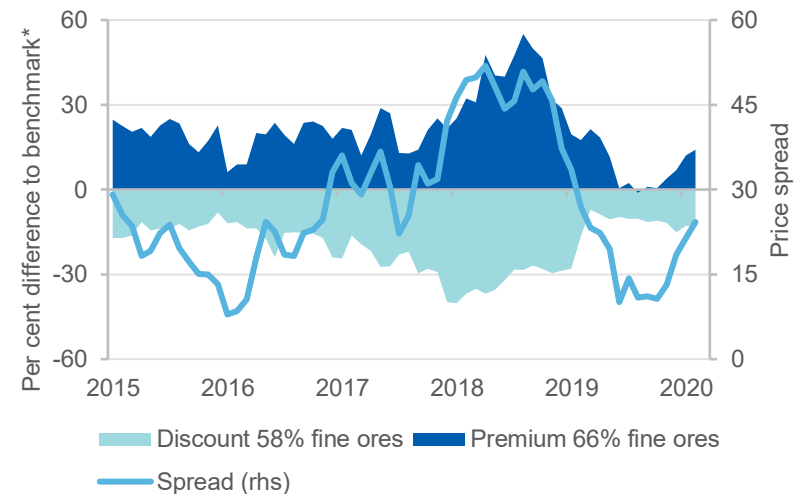
The FOB Australia iron ore price (62% iron content) — at which most Australian iron ore is sold — peaked above \$110 a tonne in July 2019, but subsequently eased to around \$75 a tonne by November. Prices rose back above US\$85 a tonne over most of January and February 2020,

Figure 4.1: China's iron ore port stocks and spot price



Notes: China import Iron ore fines 62% Fe spot (CFR Tianjin port)
Source: Bloomberg (2019) Antaika iron ore port stocks and Metal Bulletin

Figure 4.2: Iron ore price spread between grades



Notes: *Benchmark used is 62 per cent iron fines CFR
Source: Bloomberg (2019) China import prices

and show few signs of losing ground in the short-term. The price premium for high quality iron ore rose sharply in late-2018 (see Figures 4.2 and 4.3), as Chinese demand increased and high-quality ore supply from Brazil tightened. Subsequently, markets have adjusted to use greater quantities of lower grade ore, with the price premium between grades easing recently.

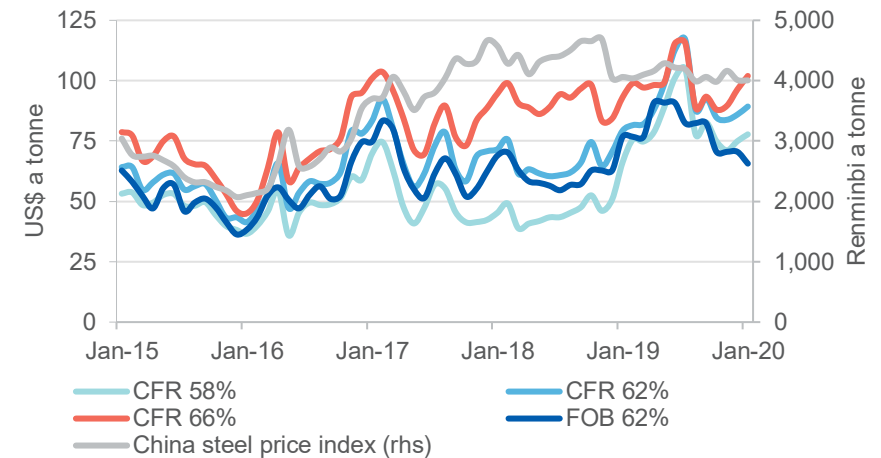
Iron ore prices remain subject to supply disruptions and events in China

China currently imports more than two-thirds of global seaborne iron ore, and in declines in its steel production in late 2019 (see Figure 4.4) have significant implications for iron ore markets. The COVID-19 outbreak currently represents a significant risk to iron ore prices, port access, and trade. Other influences include the progress of trade negotiations between the US and China (see the *Macroeconomic Outlook* chapter), the pace of global urbanisation, and the scale of transformation among key economies such as India. Construction will affect iron ore demand, as will changes in automotive builds away from steel and towards lighter aluminium.

Prices face downward pressure in the near term, due to the impact of the COVID-19 outbreak and flat global steel demand. Uncertainty created by COVID-19 is assumed to recede in the second half of 2020, and short term weather disruptions in Australia and Brazil are expected to pass by the end of March. Rising supply in Brazil will likely put considerable downward pressure on prices over coming quarters. However, further disruptions among major producers, unexpected delays in restoring production, or additional Chinese stimulus measures could each put countervailing upward pressure on prices over the next year.

A gradual price decline is expected over the next few years. Real prices are expected to fall from about US\$86 a tonne in the March quarter 2020, to US\$78 a tonne in the June quarter 2020, and US\$71 a tonne by the March quarter 2021. The market balance is forecast to move from a 20 million tonne deficit in 2020 to a small surplus by 2022, as production returns to normal in Brazil and rises elsewhere. This shift is expected to result in further price falls in the latter half of the outlook period, with prices reaching US\$56 a tonne by 2025 in real terms.

Figure 4.3: Iron ore price by grade and China steel price index



Notes: The OCE forecasts the FOB (free on board) Australia iron ore price, not the benchmark CFR (cost and freight) North China iron ore price.

Source: Bloomberg (2019) Metal Bulletin; Department of Industry, Science, Energy and Resources (2020)

Figure 4.4: Iron ore price vs China steel production growth



Notes: China import Iron ore fines 62% Fe spot (CFR Tianjin port)

Source: Bloomberg (2019) China import prices; World Steel Association (2019)

4.3 World trade

Export growth is recovering despite some recent setbacks

Exports of iron ore are expected to grow only marginally in 2020 (see Figure 4.5). Large areas in the south and east of Brazil have faced heavy rainfall in early January 2020, leading to floods which have affected Brazilian production. Vale has announced scaled-down output for the first quarter of 2020 as a result of disruptions across several sites. However, the emergence of more information on the precise timing of repairs to facilities affected by the Brunhildo tailings dam collapse is expected to reduce some uncertainty in iron ore markets, potentially stabilising prices to a degree. Vale has announced an intention to meet its US\$436 million construction costs without requiring any outside equity. Outside of short-term recovery, little growth is expected in exports from Brazil.

In China, demand is likely to be constrained to some degree by increasing checks on air pollution. Iron ore cargoes are also being offloaded in China at a noticeably slower rate than was the case a year ago, with the COVID-19 outbreak being the most likely cause.

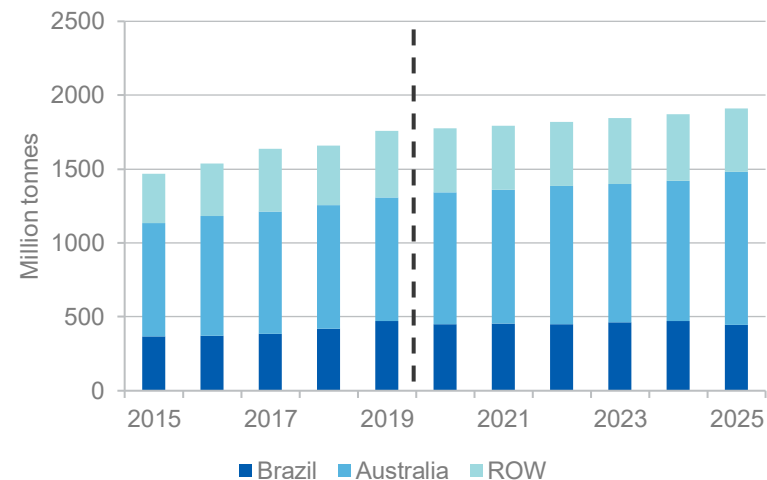
Increased supply elsewhere should gradually help ease the market deficit

Supply is rising from new sources, including a range of projects in Africa. These include the Glencore and Zanga joint venture in the Democratic Republic of Congo (DRC), which is expected to jointly supply 2 million tonnes of high grade iron ore over 2019 to 2020. The Sapro group also commenced a project in the DRC in mid-2019, and output is now ramping up, with the company projecting annual output of 12 million tonnes by 2022.

The Société Minière de Boké–Winning consortium — which includes Chinese, French, Singaporean and Guinean interests — has announced a large bid for the Simandou deposit in Guinea.

Tacora’s Wabush high grade iron ore mine in Canada is on track to restart in June 2020, gradually ramping up to 6 million tonnes per annum. The mine previously closed in 2014, when iron prices fell to historical lows.

Figure 4.5: Outlook for global iron ore exports



Source: World Steel Association (2019); Department of Industry, Science, Energy and Resources (2020)

4.4 Australia

Australia’s export earnings are set to rise despite short-term setbacks

Australia’s iron ore export earnings are set to reach a new record in 2019–20, rising to \$101 billion amidst unexpectedly strong prices and significant growth in volumes. As prices return to more typical levels, export earnings are expected to ease back to reach \$72 billion by 2024–25 (in real terms). Growth in volumes after 2021 should act as a partial offset to declining prices.

The recent surge in export revenues comes despite weather disruptions, which continue to affect production and exports from Western Australia. Rio Tinto revised its 2020 guidance for iron ore production down in February (from 330-343 million tonnes to 324-333 million tonnes). The company has linked its lower production to Tropical Cyclone Damien, which disrupted operations across the Pilbara in early February.

The company notes that road access, communications, accommodation, and electrical infrastructure have all been affected by the recent weather. Mine sites across the region have been hit by more than 200mm of rainfall, leading to flooding of some mines, along with minor slippages in pit walls. Shipments from connected ports have also been delayed, with no ships leaving between the 7th and 10th of February. At this stage, it is not clear when full production will resume, though overall damage is currently less than that caused by Cyclone Veronica in 2019.

BHP production has edged back in recent quarters, and was towards the lower end of guidance at the end of 2019. Weather disturbances from the ongoing cyclone season threaten to push 2019–20 production below target. However, the company has invested significantly in its iron ore network in recent months, which should improve operational robustness and support a rebound in production over time.

Australia’s iron ore production is expected to grow by around 15 per cent in volume terms over the outlook period. This reflects new output from several significant projects in the Pilbara region of Western Australia, including BHP’s South Flank project (from 2021), Fortescue’s Eliwana project (from 2021), Brockman’s Maraillana mine (from 2021) and Australasian Resources’ Balmoral South project (from 2024).

Australia’s iron ore export volumes are forecast to grow

Export volumes are expected to follow the trajectory of production, increasing from an estimated 877 million tonnes in 2019–20 to almost one billion tonnes by 2024–25 (see Figure 4.6). This volume growth will help to offset falling prices, and could lead to new records for export earnings should prices lift again over the next few years.

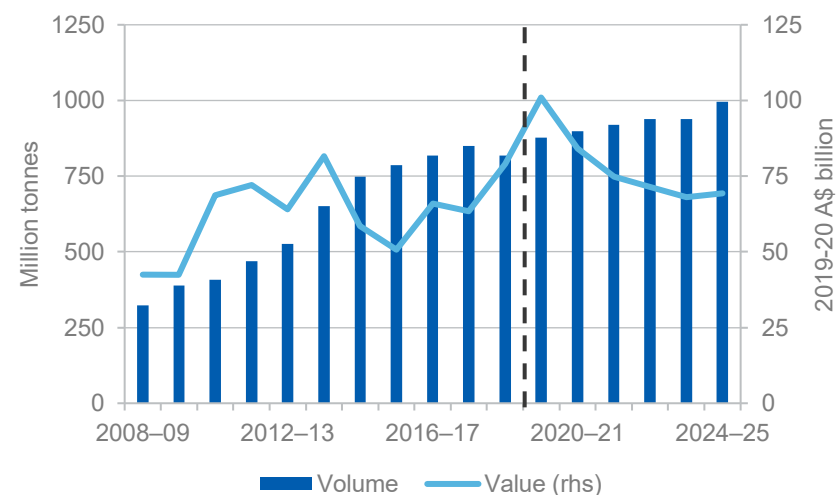
Iron ore exploration expenditure is solid, but has room to grow

Australia’s iron ore exploration expenditure increased by 12 per cent year-on-year to \$84.6 million in the December quarter 2019.

Iron ore exploration has benefited from the surge in prices early in 2019, and robust demand from key markets including China.

Iron ore exploration is overwhelmingly concentrated in Western Australia, where a range of deposits are being investigated.

Figure 4.6: Australia’s iron ore export volumes and values



Source: ABS (2020) International Trade, Australia, 5368.0; Department of Industry, Science, Energy and Resources (2020)

Table 4.1: World trade in iron ore

	Million tonnes							CAGR ^r
	2019	2020 ^s	2021 ^f	2022 ^z	2023 ^z	2024 ^z	2025 ^z	
Total world trade	1,760	1,775	1,795	1,817	1,843	1,872	1,908	1.4
Iron ore imports								
China	1,263	1,276	1,297	1,321	1,349	1,380	1,418	1.9
European Union 28	147	147	147	147	147	147	147	0.0
Japan	122	123	122	121	120	119	117	-0.7
South Korea	74	76	76	75	74	74	73	-0.3
India	5	5	5	5	5	5	5	0.0
Iron ore exports								
Australia	836	892	907	938	938	953	1,033	3.6
Brazil	473	451	453	449	462	470	447	-0.9
Ukraine	38	36	37	36	37	38	36	-0.9
India	35	33	33	33	34	34	33	-14.3

Notes: **f** forecast; **s** estimate; **z** projection; **r** Average annual growth between 2019 and 2025 or 2018–19 and 2024–25.

Source: World Steel Association (2020); International Trade Centre (2020); Department of Industry, Science, Energy and Resources (2020)

Table 4.2: Iron ore outlook

World	Unit	2019	2020 ^s	2021 ^f	2022 ^z	2023 ^z	2024 ^z	2025 ^z	CAGR ^r
Prices ^{bc}									
– nominal	US\$/t	80.1	62.3	60.5	56.2	57.7	59.0	59.8	-4.8
– real ^d	US\$/t	81.9	62.3	59.2	53.8	54.0	53.9	53.4	-6.9
Australia	Unit	2018–19	2019–20 ^s	2020–21 ^f	2021–22 ^z	2022–23 ^z	2023–24 ^z	2024–25 ^z	
Production									
– Steel ^{hs}	Mt	6.05	5.78	5.79	5.78	5.81	5.80	5.81	-0.7
– Iron ore	Mt	924.2	918.3	930.5	943.4	962.4	965.2	1 023.4	1.7
Exports									
Steel	Mt	1.21	0.89	1.00	0.99	1.00	1.00	1.00	-3.2
– nominal value	A\$m	1 287	838	752	751	753	753	754	-8.5
– real value ^{hi}	A\$m	1 312	838	738	721	706	689	673	-10.5
Iron ore	Mt	818.0	876.9	897.5	919.5	938.9	939.5	995.7	3.3
– nominal value	A\$m	77,553	100,980	85,755	77,897	76,262	74,526	77,691	0.0
– real value ⁱ	A\$m	79,010	100,980	84,094	74,780	71,494	68,158	69,291	-2.2

Notes: **b** fob Australian basis; **c** Spot price, 62 per cent iron content basis; **d** In 2020 US dollars; **s** estimate; **f** Forecast; **z** projection; **h** Crude steel equivalent; Crude steel is defined as the first solid state of production after melting. In ABS Australian Harmonized Export Commodity Classification, crude steel equivalent includes most items from 7206 to 7307, excluding ferrous waste and scrap and ferroalloys; **i** In 2019–20 Australian dollars; **s** estimate. **r** Average annual growth between 2019 and 2025 or 2018–19 and 2024–25.

Source: ABS (2020) International Trade in Goods and Services, Australia, 5368.0; Bloomberg (2019) Metal Bulletin; World Steel Association (2020); AME Group (2020); Company Reports; Department of Industry, Science, Energy and Resources (2020)