

# Great East Japan Earthquake: economic and trade impact

## Introduction

In addition to causing tremendous human suffering, the Great East Japan Earthquake (GEJE) and tsunami of 11 March 2011, and the ensuing Fukushima nuclear incident, had a significant impact on the Japanese economy. The disaster disrupted supply chains and trade, with industrial production dropping sharply in the following months. Many of Japan's nuclear power reactors were shut down for safety checks following the nuclear emergency at the Fukushima Dai-ichi plant, causing electricity shortages in some areas of East Japan. Visitor arrivals into Japan also decreased after the disaster.

While Japan's economic growth is expected to fall marginally in 2011, recent data shows the economy is recovering. Japan's Gross Domestic Product (GDP) expanded in the third quarter of 2011 for the first time since 2010, and positive growth is expected in 2012 on the back of reconstruction work. Industrial production and trade statistics also show encouraging signs, despite weakening global economic conditions stemming from the European debt crisis.

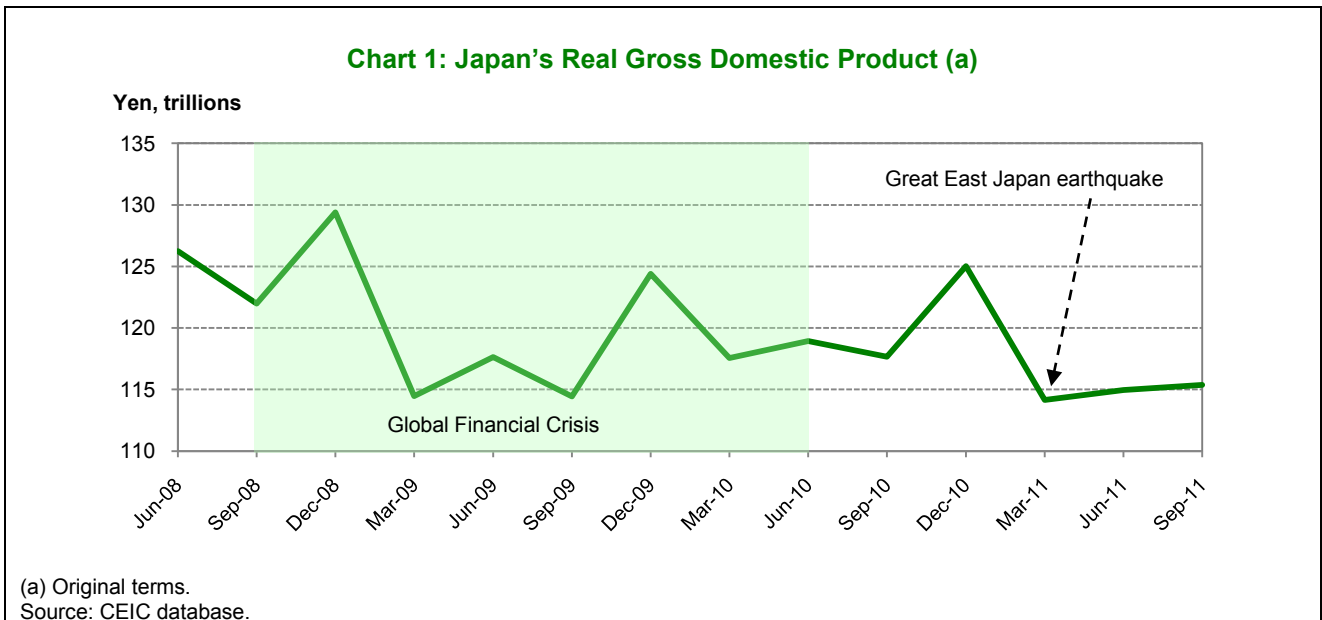
Australia is one of Japan's closest trading partners. This paper analyses the impact of the GEJE on Japan's economy, as well as Australia's trade relationship with Japan.

## Economic impact on Japan

### Gross Domestic Product

The Japanese economy is the third largest in the world, with GDP of US\$5.5 trillion in 2010<sup>1</sup>. Japan is only smaller than the United States (US) and China – economies with two and eleven times the population size respectively.

Japan's north east coast, known as the Tohoku region, suffered the greatest damage as a result of the GEJE. However, the Tohoku region produces only 2.5 per cent of the total Japanese economy<sup>2</sup>. The GEJE impact in terms of damaged capital stock was ¥16.9 trillion, or US\$204 billion<sup>2</sup>, equivalent to 4.0 per cent of Japan's total stock.



<sup>1</sup> International Monetary Fund, *World Economic Outlook* database, September 2011, available at <http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/index.aspx>.

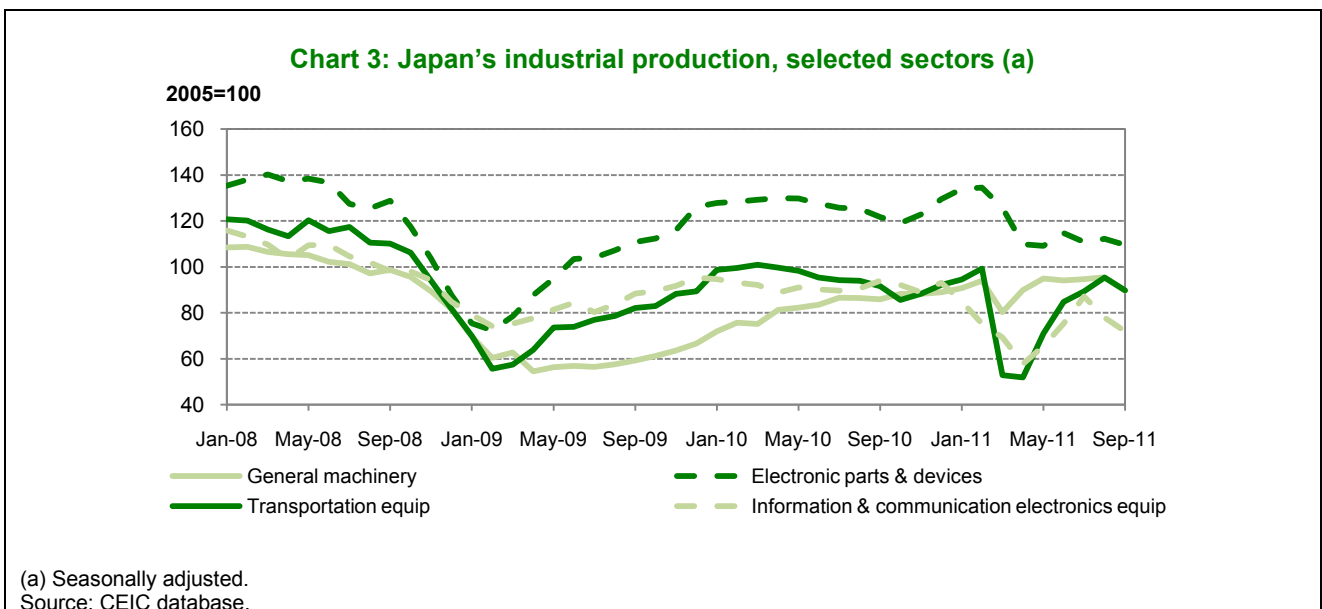
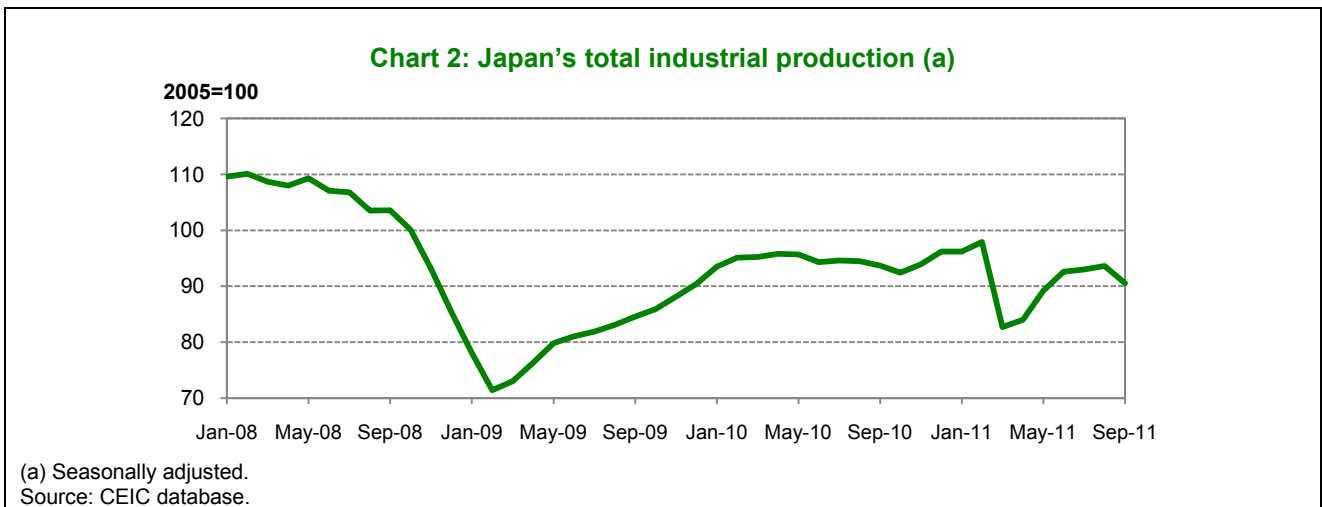
<sup>2</sup> Government of Japan (2011), *Japan's Challenges Towards Recovery October 2011*, available at <http://www.meti.go.jp/english/earthquake/nuclear/japan-challenges/index.html>.

The International Monetary Fund (IMF) forecasts Japan's real GDP will contract by 0.5 per cent in 2011, before growing by 2.3 per cent in 2012 on the back of reconstruction work<sup>3</sup>. While significant, this contraction is much less than that experienced after the collapse of Lehman Brothers in September 2008 (see **Chart 1**). The onset of the Global Financial Crisis (GFC) saw a 6.3 per cent contraction in Japan's GDP in 2009<sup>3</sup>.

### Industrial production

Damage to Japan's industrial facilities caused a sharp drop in production following the GEJE (see **Chart 2**). However, swift reconstruction has minimised the long-term impact on production. Japan's Ministry of Economy, Trade and Industry (METI) reported that, as at August 2011, restoration works had been completed for 93 per cent of the 91 production bases directly affected<sup>4</sup>.

Japan's major manufacturing industries include machinery, automotives, and consumer electronics. **Chart 3** illustrates the decline in production reported for selected industries immediately after the GEJE. The automotive industry recorded the greatest fall in production, but recovered rapidly as facilities reopened and vital transport networks were repaired. Most affected industries have now reached – or exceeded – pre-disaster levels of production as efforts to reconcile order backlogs continue.



<sup>3</sup> International Monetary Fund, *World Economic Outlook* database, September 2011.

<sup>4</sup> Government of Japan (2011), *Economic Impact of the Great East Japan Earthquake and Current Status of Recovery August 2011*, available at <http://www.meti.go.jp/english/earthquake/recovery/>.

## Labour market

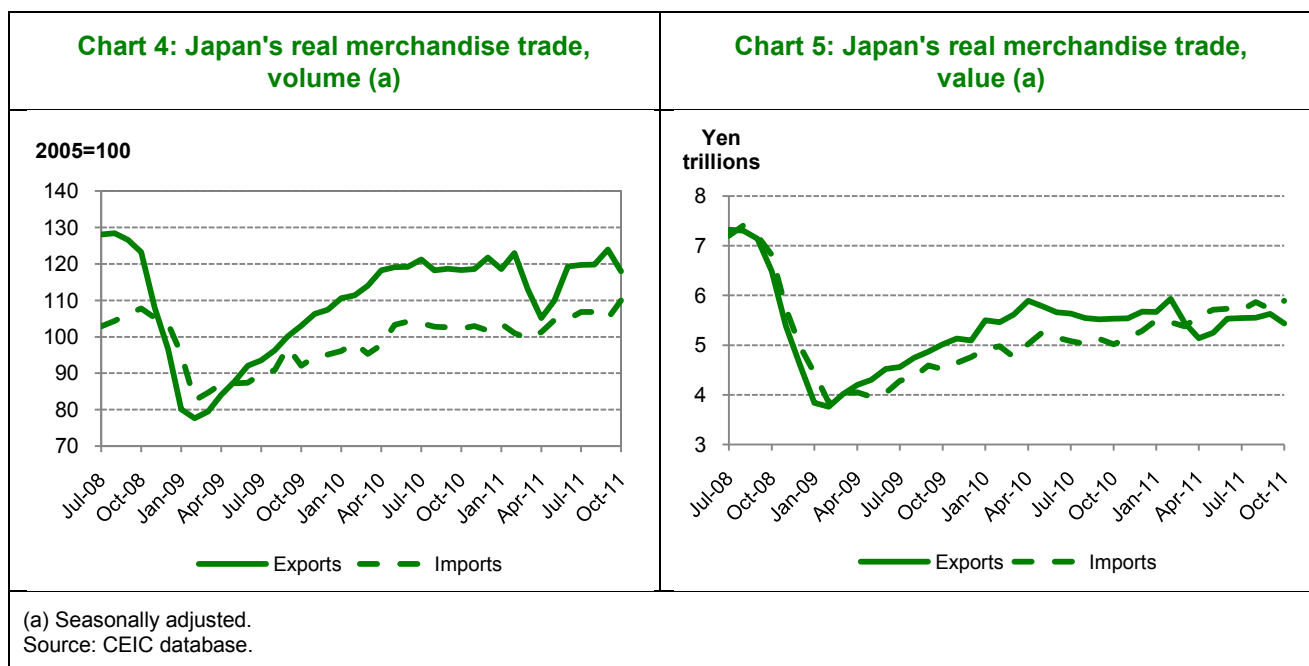
Japan's Ministry of Health, Labor and Welfare (MHLW) estimates 841,000 workers and 88,000 businesses were located in the region directly affected by the GEJE<sup>5</sup>, or 2.0 per cent of the total Japanese workforce. The IMF reported a significant rise in national bankruptcies and applications for the employment assistance subsidy in the months following the GEJE<sup>5</sup>.

Despite the disaster, Japan's national unemployment rate fell from 4.6 per cent in March 2011 to 4.1 per cent in September 2011<sup>6</sup>. The IMF projects that Japan's national unemployment rate will decrease slightly in annual terms, down from 4.9 per cent in 2011 to 4.8 per cent in 2012<sup>7</sup>. This may be partly driven by employment opportunities created as reconstruction work continues.

## Japan's international merchandise trade

Japan is an important trading partner for many countries, both as a source of imports and an export destination. China, the US, and the Republic of Korea are Japan's major merchandise export destinations, while China, the US, and Australia are its key sources of merchandise imports.

Japan's merchandise exports to the world fell by 14.5 per cent in volume terms and 13.3 per cent in value terms in the two months following the March 2011 disaster (see **Charts 4 and 5**). Trade recovered to pre-disaster levels quickly, with US\$71.8 billion worth of goods exported in June 2011 – an increase of 6.1 per cent on February 2011. However, the recovery of Japan's export sector has been undermined by a historically strong yen and weak economic conditions in Europe and the US.



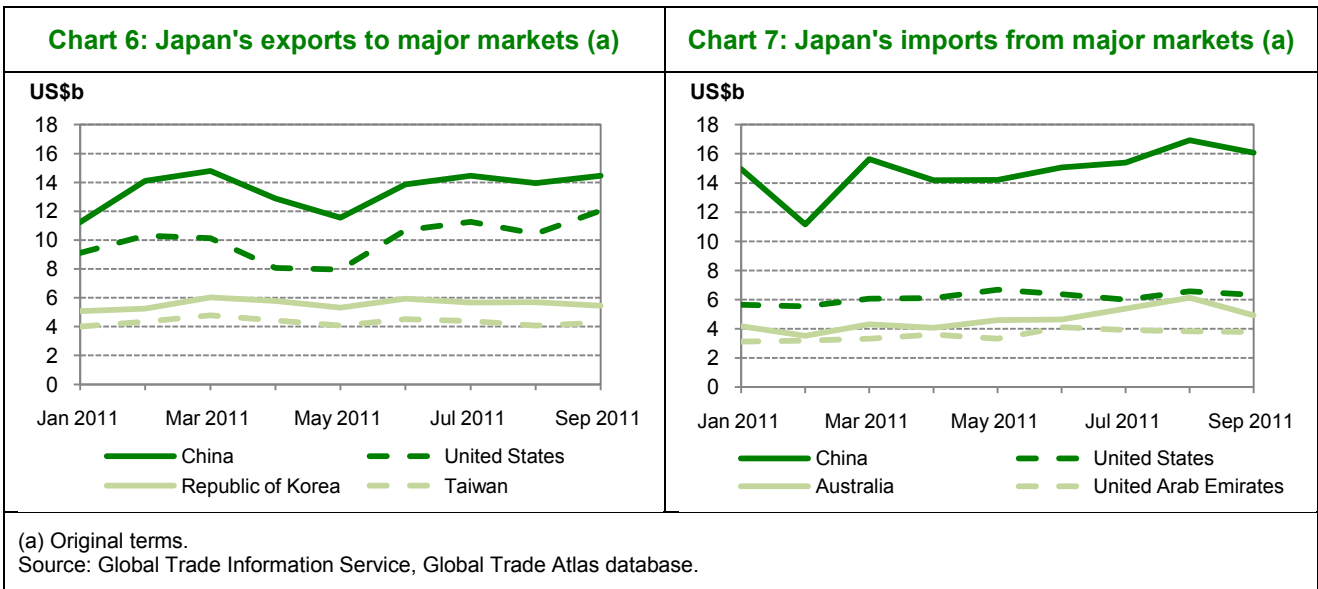
**Charts 6 and 7** illustrate the impact of the GEJE on Japan's merchandise trade with its top four partners. Exports to China and the US clearly declined between March and May 2011, driven by lower automobile and machinery exports. Export levels held relatively steady for the Republic of Korea and Taiwan.

Japan's merchandise imports increased by a monthly average of 2.2 per cent in the 9 months to September 2011, driven by increased imports of crude petroleum, thermal coal and liquefied natural gas (LNG). Of Japan's top four import sources, imports from Australia had the largest growth in percentage terms since the GEJE, growing by an average of 6.1 per cent per month.

<sup>5</sup> International Monetary Fund (2011), [Japan – 2011 Selected Issues](#).

<sup>6</sup> CEIC database.

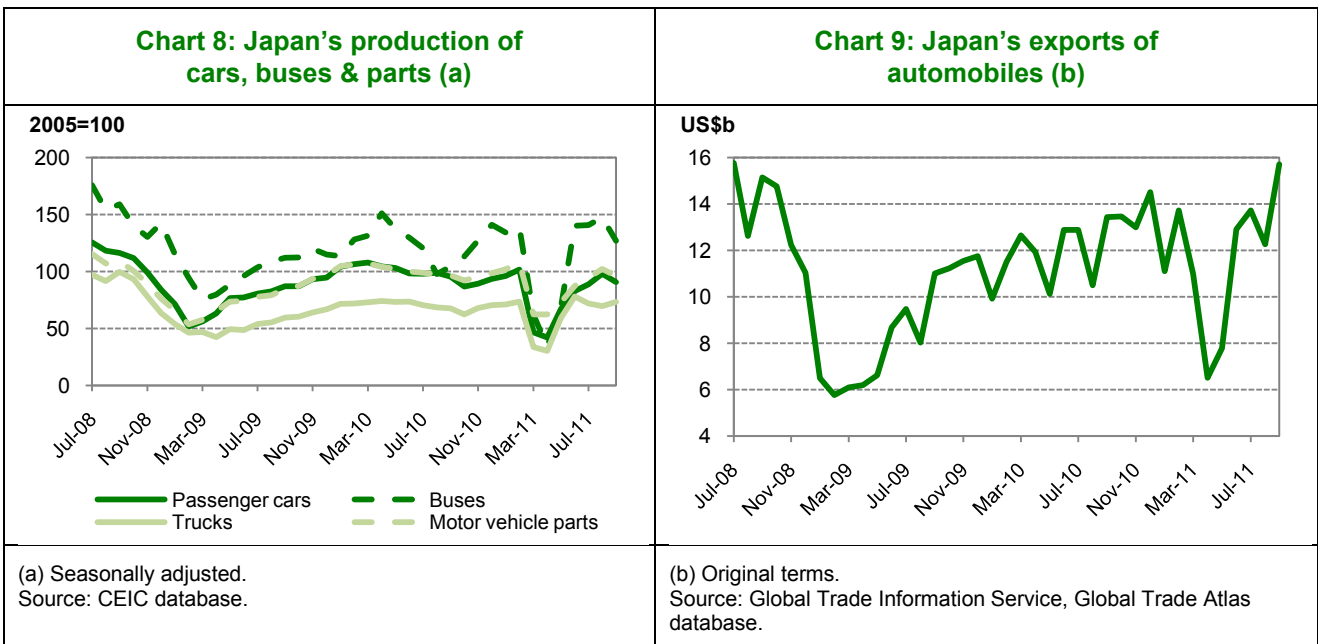
<sup>7</sup> International Monetary Fund, *World Economic Outlook* database, September 2011.



### Japan's automotive industry

Japan is currently the second largest global exporter of automobiles after Germany, with exports of US\$54.8 billion in 2010. Auto production fell sharply in the second quarter of 2011 following the GEJE (see **Chart 8**), but recovered quickly. **Chart 9** illustrates the recovery of Japan's automobile exports after the GEJE, compared to after the GFC.

Widespread flooding in Thailand has offset the recent growth in Japan's production, particularly impacting Japanese automotive manufacturers for whom Thailand is an important manufacturing hub. Japan's third-largest automotive manufacturer, Honda, incurred the greatest hit to production, with 35 of its Thai suppliers flooded in September and October 2011<sup>8</sup>.

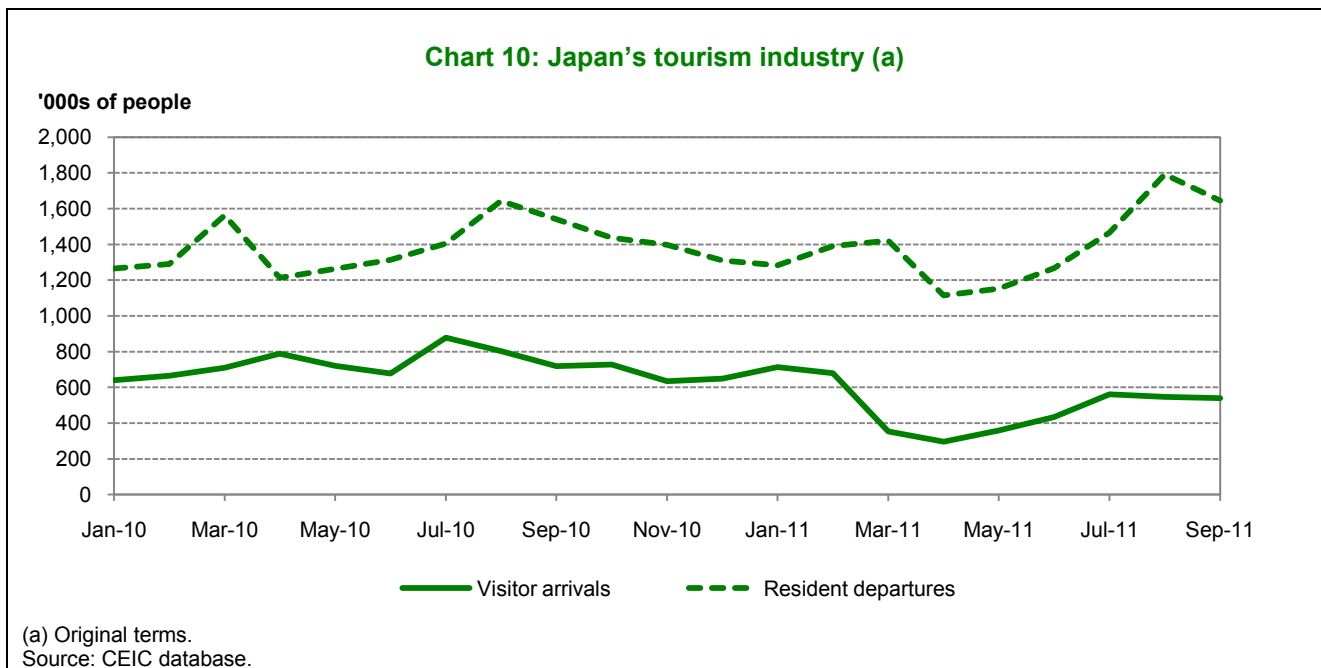


<sup>8</sup> Thomson Reuters (2011).

## Japan's tourism industry

The Fukushima nuclear incident worsened the economic impact of the earthquake and tsunami. Japan's tourism market suffered considerably on concerns about elevated radiation levels.

**Chart 10** depicts the fall in foreign visitor arrivals to Japan and Japanese resident departures in the months following the disaster. After peaking in July 2010 at over 878,000 visitors, foreign visitor arrivals to Japan fell to around 296,000 in April 2011; the lowest level since May 2003. However, Japan's inbound tourism has since grown by a monthly average of 11.1 per cent in the six months following the disaster but are yet to reach pre-GEJE levels. Japan's resident departures also quickly reached—and exceeded—pre-GEJE levels after a brief fall.



## Japan's trade relationship with Australia

Japan and Australia have an extremely strong trade relationship. Japan is Australia's second-largest two-way goods and services trading partner after China, and Australia maintains a significant trade surplus with Japan (see **Chart 11**). Total goods and services trade with Japan was worth A\$67.7 billion in 2010-11, equivalent to 11.8 per cent of Australia's total trade.

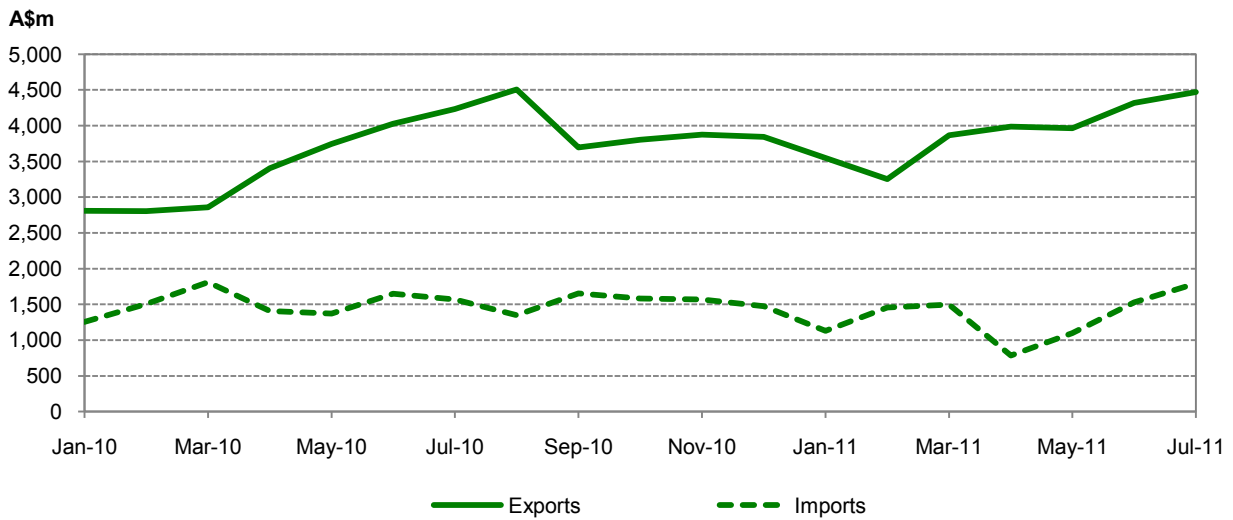
### Merchandise trade – exports

Merchandise exports to Japan comprised 19.0 per cent (or A\$47.0 billion) of Australia's total exports in 2010-11, and were dominated by energy and resources. Australia's top merchandise exports to Japan in 2010-11 included coal (32.9 per cent of total exports), iron ore (22.0 per cent), beef (3.6 per cent) and aluminium (3.0 per cent). LNG, which is confidential in the Australian Bureau of Statistics' (ABS) trade statistics, also comprises a large component of Australia's fuel exports to Japan. DFAT estimates Australia exported A\$8.2 billion worth of LNG to Japan in 2010-11 (around 17.4 per cent of total exports)<sup>9</sup>.

Despite initial concerns about the impact of the disasters in Japan on Australian exports, trade with Japan has remained strong. The temporary contraction of Australia's exports in January and February 2011 partly reflects the impact of the Queensland floods. As one of Australia's worst natural disasters, the floods significantly reduced mine production in the short term. Coal exports – of which Japan is Australia's largest consumer – took a particularly significant hit, falling by 31.6 per cent in the first two months of 2011.

<sup>9</sup> Based on Global Trade Atlas data, converted from cost insurance and freight (c.i.f.) basis to free on board (f.o.b.) basis.

**Chart 11: Australia's merchandise trade with Japan (a)**

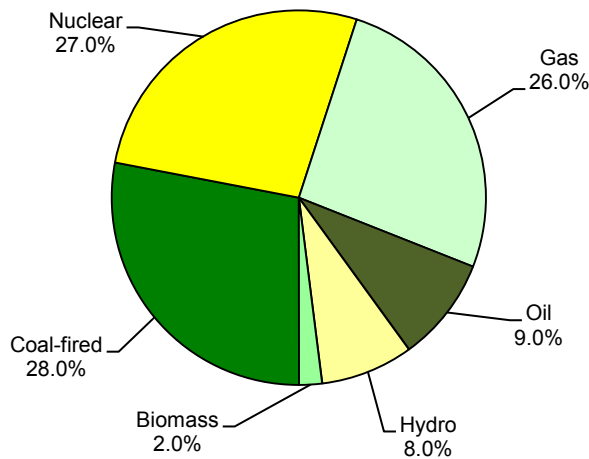


(a) Original terms.  
Based on ABS trade data on DFAT STARS database.

Japan is a key market for Australian fuel exports, which grew in value terms by 19.3 per cent to A\$26.5 billion in 2010-11. Fuel exports held relatively steady in volume terms, indicating that the growth was driven largely by price movements in coal and LNG.

Following the Fukushima nuclear incident, the Japanese government announced it would review Japan's long-term energy needs with a view to gradually reducing Japan's dependence on nuclear energy. Nuclear energy currently accounts for 27.0 per cent of total electricity generation capacity in Japan<sup>10</sup> (see **Chart 12**). Around 9.7 gigawatts, or 20.2 per cent, of Japan's total nuclear capacity was shut down in the wake of the GEJE<sup>10</sup>.

**Chart 12: Japan's energy generation sources 2009**



Source: The Hon Martin Ferguson MP (2011), speech to Institute of Energy Economics Japan.

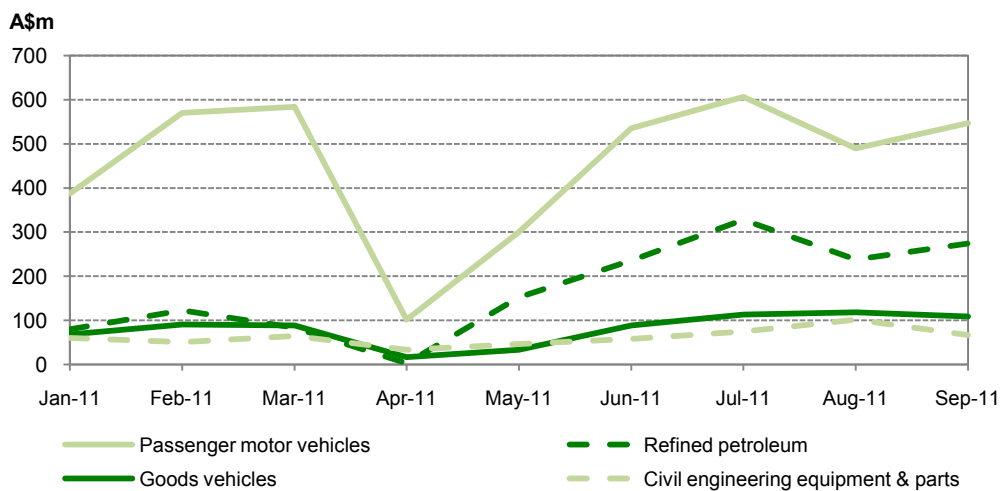
<sup>10</sup> World Nuclear Association (2011) *Nuclear Power in Japan*, available at < <http://www.world-nuclear.org/info/inf79.html>>.

The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) expects that moves in Japan to reduce nuclear energy use are likely to lead to higher utilisation of coal and gas-fired power stations<sup>11</sup>. Japan is heavily reliant on foreign energy imports due to its low level of naturally-endowed resources. Consequently, Japan is likely to increase its LNG and thermal coal imports significantly over the coming years. Resources Minister, the Hon Martin Ferguson MP, expects Australia's annual LNG exports to Japan will reach over 30 million tonnes within the next five years, compared to the 13 million tonnes exported last year<sup>12</sup>.

### Merchandise trade – imports

Japan was Australia's third largest import source in 2010-11, accounting for 7.6 per cent (or A\$16.7 billion) of its merchandise imports. Passenger motor vehicles (35.4 per cent), refined petroleum (7.7 per cent), and goods vehicles (6.0 per cent) comprised the majority of imports.

**Chart 13: Australia's top four merchandise imports from Japan (a)**



(a) Original terms.

Based on ABS trade data on DFAT STARS database.

In April 2011, Australia's merchandise imports from Japan fell by 47.5 per cent from the previous month to the lowest level since January 1997. Passenger motor vehicles recorded the largest contraction (see **Chart 13**). Merchandise imports from Japan have since recovered to pre-disaster levels.

### Services trade

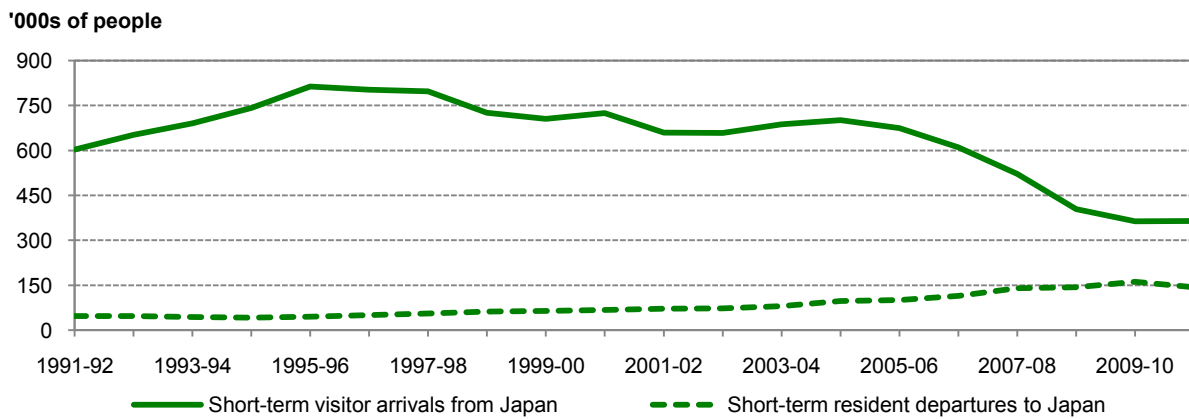
Personal travel comprises a large proportion of Australia's services trade with Japan. Australia's exports (Japanese visitors in Australia) were valued at A\$714.0 million in 2010-11, while imports (Australian residents visiting Japan) were valued at A\$375.0 million in 2010-11.

There were 364,200 short-term visitor arrivals from Japan in 2010-11, comprising 6.2 per cent of total arrivals to Australia. Japanese visitor numbers have declined by an average of 7.0 per cent per annum over the last ten years (see **Chart 14**). In contrast, the number of Australian residents visiting Japan has increased by an average of 9.8 per cent per annum over the last ten years. This reflects the emergence of cheaper airfares to the Asia region. However, after 15 years of positive growth, the number of Australians travelling to Japan fell by 10.9 per cent in 2010-11. **Chart 15** highlights the reduction in Australian resident departures over the two months following the GEJE – a 54.7 per cent fall on February 2011. While there has been a slight recovery in the number of Australians visiting Japan, travel to the region is still 39.9 per cent lower than before the GEJE.

<sup>11</sup> ABARES (2011) *Agricultural Commodities: September quarter 2011*.

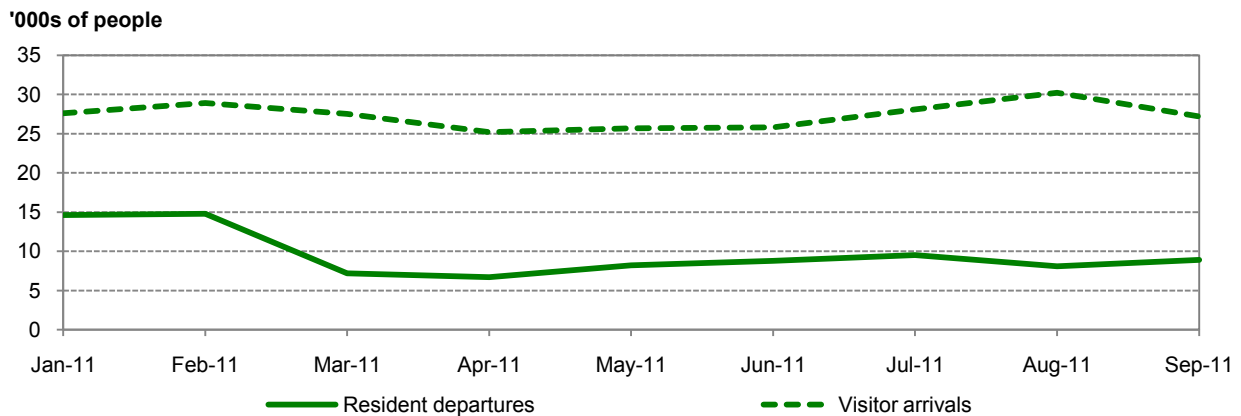
<sup>12</sup> Martin Ferguson (19 July 2011), speech to Institute of Energy Economics Japan, available at <http://minister.ret.gov.au/MediaCentre/Speeches/Pages/InstituteofEnergyEconomicsJapan.aspx>.

**Chart 14: Australia's tourism relationship with Japan (a)**  
**Long-term trends**



(a) Original terms.  
 Based on ABS catalogue 3401.0.

**Chart 15: Australia's tourism relationship with Japan, 2011 (a)**  
**Short-term trends**



(a) Seasonally adjusted.  
 Source: CEIC database.

## Outlook

While the immediate impact of the GEJE on Japan's economy was substantial, industrial production and trade are recovering relatively quickly. Positive growth in Japan's GDP is expected in 2012 as supply chains are restored and output increases. However, the historically strong yen and weak economic conditions in Europe and the US may undermine the strength of Japan's recovery.

Australia's merchandise trade with Japan is likely to continue to grow strongly in coming years. Exports to Japan have steadily increased in the months following the disaster, and disruptions to imports were relatively short-term. It is expected that Japan's increased demand for commodities (particularly minerals and fuels) on the back of reconstruction efforts will underpin growth in bilateral trade throughout 2012 and beyond. Recent trade data also indicates that Japan will maintain strong trading relationships with its other major partners.

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This article has benefited from comments made by Frank Bingham, Brent Perkins and Andrew Hodges in the Trade and Economic Policy Division, and Christopher Halford and Martin Walker in the North Asia Division.