Overseas Trade Indexes (Volumes): September 2012 quarter (provisional)

Embargoed until 10:45am – 03 December 2012

Key facts

All references are to seasonally adjusted series and are compared with the June 2012 quarter (unless otherwise stated).

- Merchandise export volumes rose 9.7 percent.
- Dairy products and meat were the largest contributors to the rise.
- Non-fuel crude materials volumes decreased.
- Merchandise import volumes rose 0.7 percent.
- Intermediate goods were the main contributor to the rise.
- Capital goods rose while consumption goods fell.

Merchandise export and import volume indexes

Seasonally adjusted(1)

Quarterly

1. Calculated from unadjusted series based at the June 2002 quarter (=1000).

Source: Statistics New Zealand

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Commentary

- Export volumes rise 9.7 percent
- Import volumes rise 0.7 percent

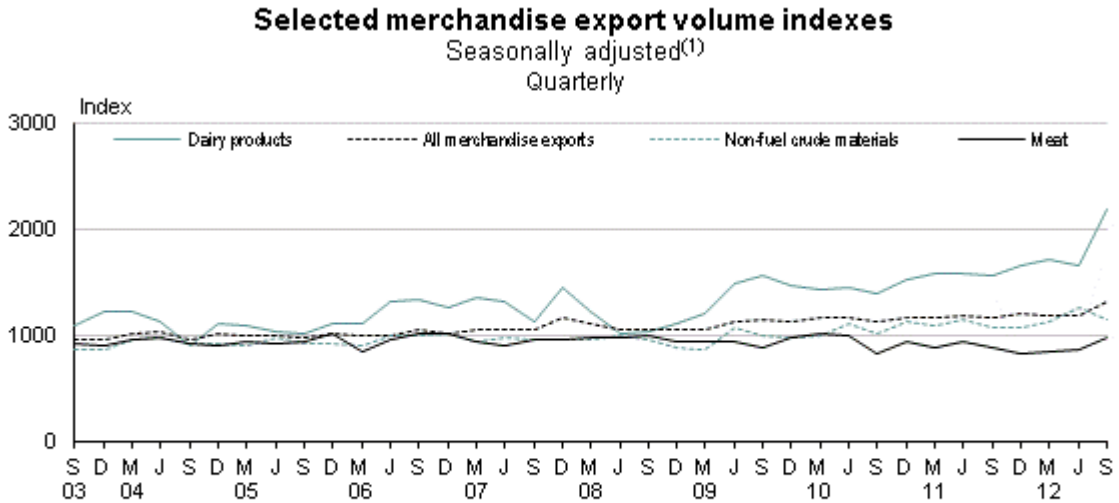
All comparisons are between the September 2012 quarter and the June 2012 quarter, and are seasonally adjusted, unless otherwise stated.

For the September 2012 quarter, seasonally adjusted export volumes rose 9.7 percent and seasonally adjusted import volumes rose 0.7 percent.

Export volumes rise 9.7 percent

Seasonally adjusted export volumes rose 9.7 percent in the September 2012 quarter. This rise follows little change between the March 2012 and June 2012 quarters. The trend for export volumes is at high levels.

Dairy products led the rise in export volumes, up 32 percent, followed by meat, up 15 percent. Partly offsetting these increases were falls in non-fuel crude materials (such as forestry products) and machinery and transport equipment.



1. Calculated from unadjusted series based at the June 2002 quarter (=1000).

Source: Statistics New Zealand

Dairy product volumes rise, trend reaches new high

Dairy product volumes rose 32 percent in the September 2012 quarter. Milk powder volumes led the increase, up 54 percent. Cheese, which is not seasonally adjusted, fell 8.3 percent.

The trend for dairy products reached a new high, 49 percent higher than the most recent low point in the June 2010 quarter. High volumes have caused the trend for dairy product values to remain at high levels, even though the price of dairy products has fallen for five consecutive quarters.

Other key changes in export volumes

In the September 2012 quarter, other changes included the following:

Meat volumes rose 15 percent, following a 2.1 percent rise in the June 2012 quarter. Lamb was the largest contributor, up 21 percent, following four consecutive falls. The trend for lamb volumes is 12 percent below the most recent high in the March 2010 quarter. Beef and veal rose 12 percent, the third consecutive rise.

Non-fuel crude materials fell 9.7 percent, following a 13 percent rise in the June 2012 quarter. Forestry products fell 3.4 percent and crude animal and vegetable materials (such as animal guts and sausage casings) fell 15 percent.

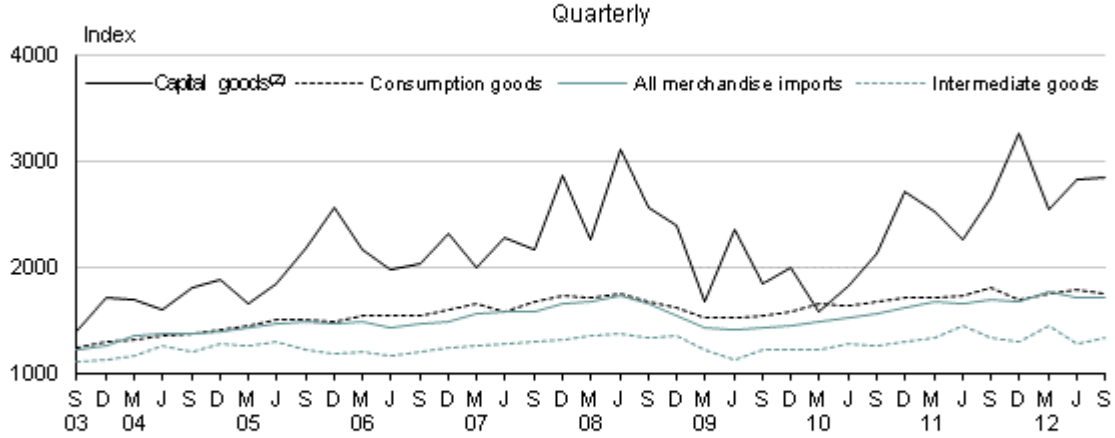
Machinery and transport equipment volumes fell 7.2 percent, after a 1.1 percent fall in the June 2012 quarter. A fall in pleasure boat export volumes led the fall.

Import volumes rise 0.7 percent

Seasonally adjusted import volumes rose 0.7 percent in the September 2012 quarter, following a 3.4 percent fall in the June 2012 quarter. The trend for import volumes has increased 22 percent from the most recent low in the June 2009 quarter, and is at near record levels. When fuel imports are excluded, seasonally adjusted import volumes fell 0.8 percent in the September 2012 quarter.

Of the three main broad economic categories, intermediate and capital goods rose while consumption goods fell.

Selected merchandise import volume indexes
Seasonally adjusted(1)
Quarterly



1. Calculated from unadjusted series based at the June 2002 quarter (=1000).
2. This series is not seasonally adjusted because it does not have stable seasonality.

Source: Statistics New Zealand

Intermediate goods contribute most to increase in import volumes

The volume of **intermediate goods** rose 4.1 percent in the September 2012 quarter, after a 12 percent fall in the June 2012 quarter.

Primary fuels and lubricants was the largest contributor to the latest rise, up 39 percent. There was a fall of 33 percent in the June 2012 quarter. Primary industrial supplies rose 63 percent, led by calcium phosphates. Offsetting the rises were processed fuels and lubricants, down 42 percent, led by diesel. These import commodities tend to be lumpy and do not have a seasonal pattern.

Other key changes in import volumes

In the September 2012 quarter, other changes included the following:

Capital goods rose 1.0 percent, after an 11 percent rise in the June 2012 quarter. Capital transport equipment rose 27 percent, led by helicopters. Capital machinery and plant (other than transport equipment) partly offset the rise, down 8.2 percent.

Consumption goods fell 1.3 percent, after two consecutive increases. Durable consumption goods, (such as cooking appliances) led the fall, down 7.0 percent. Processed food and beverages for households partly offset the fall, up 4.9 percent.

Motor spirit (petrol and aviation fuel) volumes, which are not seasonally adjusted, fell 36 percent, following a 48 percent rise in the June 2012 quarter. This decrease was led by premium petrol.

Passenger motor car volumes fell 6.5 percent, from a record high in the June 2012 quarter. Passenger motor cars are not seasonally adjusted. The latest decrease was led by new diesel cars with cylinder capacities between 1500cc and 2500cc.

For more detailed data see the Excel tables in the ‘Downloads’ box. For trend data series, use Infoshare.

Definitions

About the overseas trade indexes (volumes)

The overseas trade indexes (volumes) releases compare the levels of goods that are imported and exported in adjacent periods. This gives an indication of how New Zealand's economy is performing.

The overseas trade indexes (volumes) release is published with the overseas trade indexes (prices) release.

More definitions

Broad economic categories (BEC): categories that, in general, align with the System of National Accounts' three basic classes – capital goods, intermediate goods, and consumption goods. Commodities in BEC are categorised by their main end use (eg all video recorders are treated as consumption goods even though some are used in business).

Capital goods: produced assets used repeatedly or continuously for longer than one year in industrial production processes (eg machinery, trucks, and aircraft).

Consumption goods: goods used (without further transformation in industrial production processes) by households, government, or non-profit institutions serving households. There are three types of consumption goods:

- durables have an expected usage of three years or more (eg appliances, furniture)
- semi-durables have an expected usage of one or two years (eg footwear, clothing, games, toys)
- non-durables have an expected usage of less than a year (eg medicines, cosmetics, yarns, books).

cif: cost of goods, including insurance and freight to New Zealand.

fob: free on board (the value of goods at New Zealand ports before export).

Intermediate goods: goods used up or transformed in industrial production processes.

Merchandise trade: exports or imports of goods that increase or decrease the stock of material resources in New Zealand. Includes goods leased for a year or more.

Re-exports: exported goods that were earlier imported into New Zealand and that include less than 50 percent New Zealand content by value.

vfd: value for duty (the value of imports before insurance and freight costs are added).

Related links

Upcoming releases

The *Overseas Trade Indexes (Prices): December 2012 quarter (provisional)* and *Overseas Trade Indexes (Volumes): December 2012 quarter (provisional)* will both be released on 1 March 2013.

Subscribe to information releases, including this one, by completing the online subscription form.

The release calendar lists all our upcoming information releases by date of release.

Past releases

See Overseas Trade Indexes – information releases for links to past releases.

Related information

Overseas Trade Indexes (Prices) measures changes in the prices of imports and exports of goods and services. These indexes are published quarterly on the same day as Overseas Trade Indexes (Volumes) releases.

Overseas Merchandise Trade – information releases provide statistical information on the importing and exporting of merchandise goods between New Zealand and other countries. These statistics are published monthly.

Balance of Payments and International Investment Position – information releases measure the value of New Zealand's transactions with the rest of the world, and provide a snapshot of our country's international financial assets and liabilities. These statistics are published quarterly and annually.

National Accounts – information releases measure the values of economic aggregates such as gross domestic product, capital formation, and government and private consumption. These statistics are published annually.

Economic Survey of Manufacturing – information releases provide an economic indicator of how our manufacturing sector is performing. These statistics are published quarterly.

New Zealand Customs Service is the government agency that ensures the security of our borders.

Ministry of Foreign Affairs and Trade is the government’s principal adviser and negotiator on foreign and trade policy issues.

Data quality

Period-specific information
This section contains data information that has changed since the last release.

- Time of recording
- Imputation for the September 2012 quarter

General information
This section contains information that does not change between releases.

- What the volume indexes measure
- Source of information – merchandise trade data
- Basis of valuation
- Index type and calculation
- Expression base
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- Imputation
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- Trend estimates – merchandise trade
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- Release of latest results
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Period-specific information

Time of recording

The import and export merchandise series in this release are calculated from the same data as used in the Overseas Merchandise Trade: October 2012 monthly release, published on 27 November 2012. Updates published after this date will be included in subsequent overseas trade index (volumes) releases.

Overseas merchandise trade statistics are provisional for the three most recent months, which means the statistics may be amended in the three months after initial publication.

Imputation for the September 2012 quarter

For the September 2012 quarter, the base annual imputation rates were 20.0 percent for exports and 37.3 percent for imports.

See imputation for further information.

General information

What the volume indexes measure

The volume indexes are numerical series that indicate how a set of volumes has changed between time periods. Each index measures changes in the level of volumes rather than the actual quantities. It is the change between two index numbers that is important. An individual index number has no meaning.

The overseas merchandise trade volume indexes measure changes in the levels of volumes of exports and imports of merchandise trade to and from New Zealand, on both a quarterly and an annual basis.

Price and volume measurement relates to decomposing transaction values (in current prices) into their price and volume components. In principle, the price components should include changes arising solely from price changes, while all other changes (relating to quantity, quality, and compositional changes) should be included in the volume components. The aim is to analyse which changes in aggregates are due to price movements, and which to volume changes. This is also referred to as 'constant price' measurement, implying the analysis of economic transactions valued at certain fixed prices.

Source of information – merchandise trade data

Value and quantity data used for calculating the merchandise price and volume indexes are derived from Statistics New Zealand's overseas merchandise trade statistics, which are processed from export and import entry documents lodged with the New Zealand Customs Services (NZCS) by exporters, importers, and their agents.

Data is classified using the Harmonised System (HS) 2007 classification for processing the NZCS entries and publishing overseas trade statistics. There are over 18,600 10-digit items in the HS classification.

HS 10-digit item-by-country unit values are derived from Statistics NZ's overseas trade statistics. Quarterly item-by-country unit values are calculated by dividing the total value of an HS item exported or imported during the quarter by the total quantity of the item exported or imported during the quarter. These unit values are then extensively edited, with outliers removed before the values are used in trade index calculations.

For basic, homogeneous commodities not subject to ongoing quality change, unit values provide suitable indicators of price change. However, unit values do not provide good indicators of price change for heterogeneous goods such as elaborately transformed goods, technically complex goods, or goods subject to rapid quality change. Unit values are selectively supplemented with prices collected directly from importers and exporters, and by international price indexes.

Basis of valuation

The **merchandise export indexes** are calculated using New Zealand-dollar free on board (fob) values. Export fob values represent actual or estimated transaction prices of goods, including costs incurred in delivering goods on board ships and aircraft at New Zealand ports of export. Values given in foreign currencies are converted by Statistics NZ into New Zealand dollars using weekly exchange rates when the statistics are compiled. This means that any hedging will generally not be reflected in the merchandise import and export price indexes.

The **merchandise import indexes** use New Zealand-dollar value for duty (vfd) values. Before the September 2003 quarter, the merchandise import indexes used cost, insurance, and freight (cif) values, which represented the value of goods plus the insurance and freight costs associated with bringing the goods to New Zealand ports of entry. Import vfd values represent the value of goods excluding the cost of freight and insurance. The vfd valuation for imports is recommended in the System of National Accounts 1993 (SNA 93) and is used in New Zealand's national accounts.

Vfd values are converted from foreign currencies when import documents are processed by the NZCS. The NZCS rates of exchange are prepared 11 days before the effective date and are then applied for two weeks. Therefore, the exchange rate used in the import prices will be 11 to 25 days old when it is used in import documentation. This means that the NZCS exchange rate, and therefore the import prices, will be slower to show the impact of changes in the exchange rate than the Reserve Bank rates and the export prices.

Merchandise import price and volume indexes are not directly affected by changes in the rates of duty payable on imported goods, as cif values do not include duty. Therefore, the phased reduction in tariffs that has occurred in recent years has not had a direct downward influence on the import indexes.

Index type and calculation

The merchandise index series are of the chain-linked Fisher Ideal type.

The calculation of a Fisher Ideal index involves first calculating two indexes. One, the Laspeyres, is base-weighted and uses expenditures from an earlier period to weight price or volume movements. The other, the Paasche, is current-weighted and uses expenditures from a current period to weight price or volume movements. The Laspeyres and Paasche indexes are then averaged by calculating the geometric mean (ie the square root) of the two indexes to give the Fisher Ideal index.

In the majority of situations covered by index numbers, price and quantity changes are negatively correlated. In such cases, Laspeyres indexes tend systematically to record greater increases than Paasche indexes, with the gap between them tending to widen over time.

The merchandise index series have a June quarter price reference period, and are linked to the index for the June quarter of each year. There are annual expenditure weight reference periods for both the Laspeyres (previous June year) and Paasche (year to each quarter) components of the index.

The price index methodology involves:

1. calculating Laspeyres and Paasche price indexes for the current quarter on the previous June quarter
2. calculating Fisher Ideal price indexes for the current quarter on the previous June quarter (as the geometric mean, or square root, of the Laspeyres and Paasche price indexes calculated in step 1)
3. linking the Fisher Ideal price index for the current quarter (calculated in step 2) to the index for the previous June quarter, to provide a continuous quarterly time series.

The Laspeyres and Paasche volume indexes for the current quarter (based on the previous June quarter) are calculated by deflating the change in dollar value from the previous June quarter to

the current quarter by the Paasche and Laspeyres price indexes, respectively (calculated in step 1 above). Steps 2 and 3 are repeated as above, using volume (rather than price) indexes.

The annual price indexes are calculated as volume index-weighted averages of the four component quarter price indexes, and the annual volume indexes as the simple average of the four component quarterly volume indexes.

Expenditure weights are assigned at the HS 10-digit item-by-country level. Item and index weights are not fixed. They vary from quarter to quarter and from year to year as the relative values of the goods that New Zealand exports and imports change.

Expression base

The merchandise trade index series are expressed on base: quarter ended June 2002 (=1000).

Index coverage

The merchandise trade indexes include all commodities classified as merchandise trade, although the export indexes exclude re-exports, bunkering, ships' stores, and passengers' effects.

Imputation

Explicitly priced items are those displaying reliable unit-value behaviour, those for which prices are collected directly from importers or exporters, and those for which international price indexes are used as price indicators. Price movements of items that are more reliable indicators of similar type are imputed to the remaining items. As Fisher Ideal indexes are calculated at the country grouping level (for the European Union (EU) and the 'Rest of World' (ZZ)), and the HS 10-digit item level for all countries, imputation occurs at up to four levels, as shown in the following table.

Imputation procedures				
Type of index	**First level**	**Second level**	**Third level**	**Fourth level**
HS10 country grouping (EU, ZZ)	Remainder of index			
HS10 item	HS10 country grouping (EU, ZZ)	Remainder of index		
HS2 chapter	HS10 country grouping (EU, ZZ)	HS10 item	Remainder of index	
Standard or broad economic category (BEC) index	HS10 country grouping (EU, ZZ)	HS10 item	HS chapter or part chapter	Remainder of index

'Base annual imputation rates' represent the dollar value in the previous June year of the index's imputed items as a percentage of the index's total dollar value for the previous June year.

Directly surveyed prices

Prices are collected directly from importers and exporters for selected goods that are regularly imported or exported in the same form to the same or similar specification. These items may not have a specified unit of quantity or may fall under an HS code with a heterogeneous description.

Directly surveyed prices are collected from importers and exporters via the existing commodity price survey used for the producers price index.

Directly surveyed prices were first collected in the June 2002 quarter, so they contribute to movements for the September 2002 and subsequent quarters.

The process of adding to the pool of directly surveyed prices is ongoing and is part of the ongoing overseas merchandise trade index quality assurance programme.

International price indexes

International price indexes are used selectively as a proxy to measure price change faced by importers for goods that are irregularly imported (eg public transport equipment) or imported to one-off specifications (eg telephonic and telegraphic apparatus), and for technically complex goods subject to rapid quality change (eg computer equipment).

The following table lists the areas of the HS classification where international price indexes are used, and the type of index selected as a proxy for change in prices faced by New Zealand importers. Most use is made of the US producer price index (PPI), with some use of the US HS export price index (EPI). In both cases, monthly international price index numbers are converted to quarterly index numbers and then exchange-rate-adjusted using the NZCS rates of exchange.

The table lists the main goods for which international price indexes are currently used in the import indexes.

International price index		
HS chapter	**Goods**	**International price index**
84	Mechanical machinery	
	Printing machinery	US producer price index
	Computer equipment	US producer price index
	Computer and office equipment parts and accessories	US producer price index
85	Non-electrical machinery	
	Telephonic and telegraphic apparatus	US HS export price index
	Cellular phones	US producer price index
	Radio-telephonic parts	US HS export price index
86	Railway equipment	US producer price index
87	Vehicles other than railway equipment	Minor use of US HS export price index
88	Aircraft	US producer price index
89	Ships	US producer price index

The US PPI indexes used for computer equipment parts and accessories are compiled using hedonic quality adjustment techniques designed to remove the effect of quality improvements and to isolate pure price change. The US PPI indexes for computer equipment parts and accessories used in the imports price index are lagged one quarter, to reflect a potential delay from the time new technology is available domestically in the US to the time it is imported into New Zealand. The US index for computers is used in the merchandise imports price index and the one-quarter lag are both broadly in line with the approach that has been used for some time to calculate quarterly constant price imports in gross domestic product (GDP).

Adjustment to unit values for imported cars

The calculation of price movements for the main HS 10-digit item codes for cars differs from the unit-value calculation used for other items in the merchandise trade indexes. The used car codes have previous June quarter and current quarter unit values calculated for each year of manufacture and the new car codes have unit values calculated for each of the main makes of car recorded under the codes. Movements in these unit values are weighted by the value of cars imported for each year of manufacture and make of car, respectively, to give Paasche, Laspeyres, and Fisher indexes at the HS 10-digit item-by-country level.

The method was introduced in the June 2002 quarter to reduce the effect of new frontal impact standards on the age distribution of used car imports, which reduced the number of pre-1996 used cars being imported.

The dollar value of the car items treated in this way accounted for 8.9 percent of the total dollar value of imports in the year to June 2003.

Trend estimates – merchandise trade

Time series can be split into trend, seasonal, and irregular components. Seasonal adjustment removes the seasonal component, while trend estimation removes the seasonal and irregular components. Trend estimates reveal the underlying direction of movement in a series and are used to identify turning points.

The merchandise terms of trade trend series is calculated using X-12-ARIMA, which adjusts for outlying values and uses a centred moving average. The length of the centred moving average is selected automatically and can be 9, 13, or 23 months, depending on the relative variability of the irregular component compared with the trend. A long moving average has the effect of smoothing the trend series but slowing the response to underlying changes in growth rates, while a short moving average produces a trend series that is less smooth but quicker to identify turning points.

Trend estimates are recalculated each quarter. The use of new quarterly data means that previously published trend estimates are revised. Revisions can be particularly large if an observation is treated as an outlier in one quarter but is found to be part of the underlying trend as further observations are added to the series. Typically, only the estimates for the most recent quarters are likely to be substantially revised.

Seasonally adjusted estimates – merchandise trade

The X-12-ARIMA package is used to produce the seasonally adjusted estimates referred to in the media release, key facts, commentary, and tables. Seasonal adjustment aims to eliminate the impact of regular seasonal events (such as lambing or harvesting) on time series. This makes the data for adjacent quarters more comparable.

The most recent seasonally adjusted figures are revised each quarter. This enables the seasonal component to be better estimated and removed from the series. The largest revisions occur in the quarter before the current quarter.

Consistency of broad economic categories with national accounts' classes

Broad economic categories (BECs) are arranged, as far as practicable, to align with the System of National Accounts' three basic classes: capital goods, intermediate goods, and consumption goods. Commodities in BECs are categorised by their main end use (eg all video recorders are treated as consumption goods even though some are used in business).

Release of latest results

Merchandise trade provisional indexes are available within nine weeks of the end of the reference period. Final indexes are released within 22 weeks of the end of the reference period.

More information

See also information about the Overseas Trade Indexes (Volumes).

Liability

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Revisions

The overseas trade indexes are provisional for one quarter to allow for receiving and editing late and amended trade documentation. The following table shows updates to unadjusted indexes and values.

June 2012 quarter overseas trade indexes (unadjusted)				
	Volumes		Values	
	Exports	Imports	Exports	Imports
Infoshare series	OTVQ.SEA2E91	QTVQ.SIA2I91	OTVQ.SEA3E91	OTVQ.SIA3I91
	Index number		$(million)	
Provisional Jun 2012 qtr Published 3 Sept 2012	1309	1646	11,917	11,029
Final June 2012 qtr Published 3 Dec 2012	1304	1648	11,919	11,026

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Tables

The following tables are available in Excel format from the ‘Downloads’ box. If you have problems viewing the files, see opening files and PDFs.

1.01 Overseas merchandise trade, seasonally adjusted volumes and values
1.02 Merchandise exports and imports, values, price indexes, and volume indexes
2.01 Merchandise export volume indexes and values
2.02 Seasonally adjusted merchandise export volume indexes
2.03 Seasonally adjusted merchandise export values
3.01 Merchandise import volume indexes and values
3.02 Seasonally adjusted merchandise import volume indexes
3.03 Seasonally adjusted merchandise import values
4.01 Merchandise imports by broad economic category, volume indexes
4.02 Seasonally adjusted merchandise imports by broad economic category, volume indexes
4.03 Seasonally adjusted merchandise imports by broad economic category, volume index percentage change from preceding period
5.01 Related series, quantities

Access more data on Infoshare

Use Infoshare to access time-series data specific to your needs. For this release, select the following categories from the Infoshare homepage:

Subject category: **Imports and exports**
Group: **Overseas Trade Indexes – Volumes and Values – OTV**

More detailed explanatory notes and a full list of available indexes and related dollar-value series are available on request.