

Embargoed until 10:45am – 10 September 2009

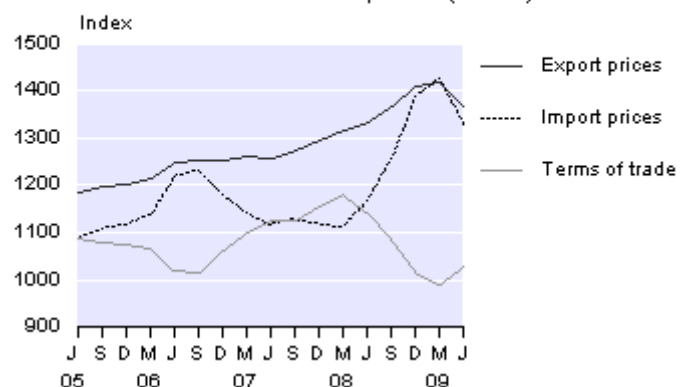
## Overseas Trade Indexes (Prices): June 2009 quarter (provisional)

### Highlights

- The merchandise terms of trade fell 9.0 percent.
- Merchandise export prices fell 11.6 percent and import prices fell 2.9 percent.
- The services terms of trade rose 3.8 percent.
- Services export prices fell 3.3 percent and import prices fell 6.9 percent.

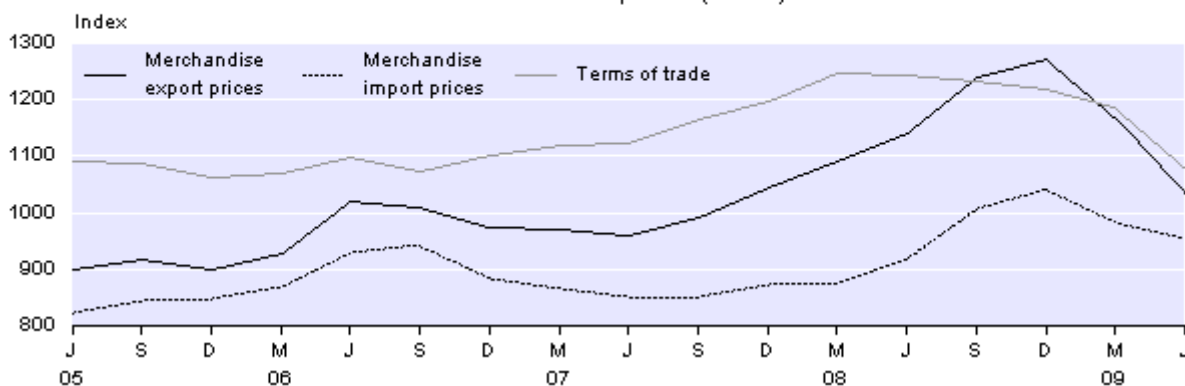
### Services Price and Terms of Trade Indexes Quarterly

Base: June 1997 quarter (=1000)



### Merchandise Price and Terms of Trade Indexes Quarterly

Base: June 2002 quarter (=1000)



Geoff Bascand  
Government Statistician

10 September 2009  
ISSN 1178-0339

## **Commentary**

### **Terms of trade**

The merchandise terms of trade fell 9.0 percent in the June 2009 quarter due to export prices (down 11.6 percent) decreasing more than import prices (down 2.9 percent). The terms of trade index is at its lowest level since the September 2006 quarter. The June 2009 quarter fall follows a 2.7 percent fall in the March 2009 quarter. The latest fall is the fifth consecutive quarterly fall, and also the largest for the merchandise terms of trade since a fall of 14.1 percent in the March 1975 quarter.

The latest quarterly fall in the merchandise terms of trade means that in the June 2009 quarter, 9.0 percent less merchandise imports could be funded by a fixed quantity of merchandise exports than in the March 2009 quarter.

In the year to the June 2009 quarter, the merchandise terms of trade fell 13.1 percent compared with rises of 10.7 percent and 2.3 percent in the years to the June 2008 and 2007 quarters, respectively. The latest annual fall is the largest since a 15.3 percent fall in the year to the June 1980 quarter.

The terms of trade for services rose 3.8 percent in the June 2009 quarter following four consecutive quarterly falls, including a 2.3 percent fall in the March 2009 quarter. The increase in the latest quarter was due to services export prices (down 3.3 percent) decreasing less than import prices (down 6.9 percent). In the year to the June 2009 quarter, the terms of trade for services fell 9.7 percent compared with rises of 1.3 percent in the year to the June 2008 quarter and 10.3 percent in the year to the June 2007 quarter.

### **Merchandise export prices**

The merchandise export price index fell 11.6 percent in the June 2009 quarter, following a 7.9 percent fall in the March 2009 quarter and a 2.5 percent rise in the December 2008 quarter. The fall in the latest quarter is the largest since a 40.0 percent fall in the June 1951 quarter which was influenced by a large price decrease for wool. All of the export price indexes in the Hot Off The Press tables fell in the June 2009 quarter. The appreciation of the New Zealand dollar had a downward influence on export prices in the latest quarter. The Reserve Bank's trade weighted index (TWI) showed a rise of 8.7 percent in the June 2009 quarter, which was the largest since a 9.6 percent rise in the September 1985 quarter.

The food and beverages index (down 14.8 percent) made the most significant contribution to the decrease in total export prices in the June 2009 quarter. The latest quarterly fall is the largest since the series began in the September 1971 quarter, and follows an 8.1 percent fall in the March 2009 quarter and a 6.5 percent rise in the December 2008 quarter. The decrease in prices of dairy products (down 24.1 percent) and meat (down 7.0 percent) were the main contributors to the latest fall in the food and beverages index. In the year to the June 2009 quarter, the food and beverages index fell 9.5 percent compared with an increase of 28.3 percent in the year to the June 2008

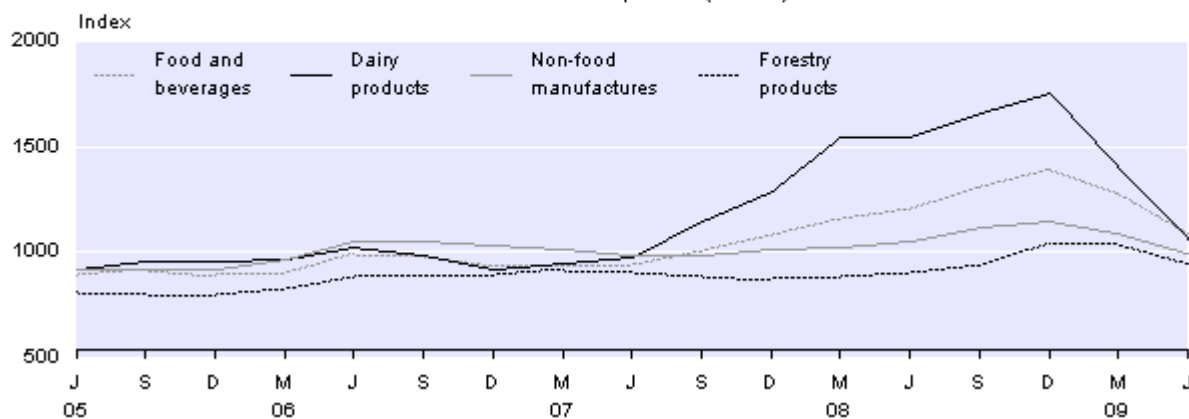
quarter. The latest annual fall is the largest since a 13.3 percent fall in the year to the June 2003 quarter.

The dairy products index fell 24.1 percent in the June 2009 quarter, which is the largest quarterly fall since the series began in the March 1950 quarter. The latest fall brings the dairy products index to its lowest level since the June 2007 quarter. The latest decrease compares with a 19.9 percent decrease in the March 2009 quarter and a 5.5 percent increase in the December 2008 quarter. The June 2009 quarter fall was driven by price decreases for milk powder (down 22.8 percent), cheese (down 23.7 percent), and butter (down 25.7 percent). In the year to the June 2009 quarter, the dairy products index fell 31.1 percent compared with a 57.5 percent rise in the year to the June 2008 quarter. The latest annual fall is the largest since a 31.6 percent fall in the year to the March 2003 quarter.

Another significant contributor to the decrease in the total exports index was the non-food manufactured goods index (down 9.4 percent). This fall is the largest since a decrease of 11.0 percent in the June 1995 quarter, and follows a 4.9 percent decrease in the March 2009 quarter and a 2.4 percent increase in the December 2008 quarter. Price falls for aluminium (down 15.4 percent) and casein (down 29.5 percent) contributed to this decrease. In the year to the June 2009 quarter, the non-food manufactured goods index fell 5.8 percent compared with a rise of 7.0 percent in the year to the June 2008 quarter.

### Selected Merchandise Export Price Indexes Quarterly

Base: June 2002 quarter (=1000)



In the June 2009 quarter, the forestry products index fell 9.4 percent, which is the largest quarterly fall since a decrease of 12.2 percent in the December 1993 quarter. The latest fall follows a 0.2 percent decrease and an 11.0 percent increase in the March 2009 and December 2008 quarters, respectively. Lower prices of pinus radiata sawn timber and kraft linerboard were the main drivers of the latest quarterly fall. In the year to the June 2009 quarter, the forestry products index rose 5.1 percent, compared with a 1.1 percent fall in the year to the June 2008 quarter.

In the year to the June 2009 quarter, the merchandise export price index fell 9.4 percent, the largest fall since a 9.5 percent decrease in the year to the September 2003 quarter. The latest annual fall follows a rise of 19.0 percent in the year to the June 2008 quarter and a 5.8 percent fall in the year to the June 2007 quarter.

## **Merchandise import prices**

In the June 2009 quarter, the merchandise import price index fell 2.9 percent, following a fall of 5.4 percent in the March 2009 quarter and a rise of 3.5 percent in the December 2008 quarter. The fall in import prices was partly due to the appreciation of the New Zealand dollar against four of the five major trading partners. (According to exchange rates provided by the New Zealand Customs Service for valuing imports, the trade weighted index of the New Zealand dollar rose 4.5 percent in the June 2009 quarter). Import indexes fell across the board in the June 2009 quarter, with the exception of the non-fuel crude materials index (up 21.9 percent) and the food and beverages index (up 3.7 percent).

Falls in the chemicals and related products index, the mechanical machinery index and the electrical machinery and apparatus index were the major contributors to the overall fall in import prices in the June 2009 quarter.

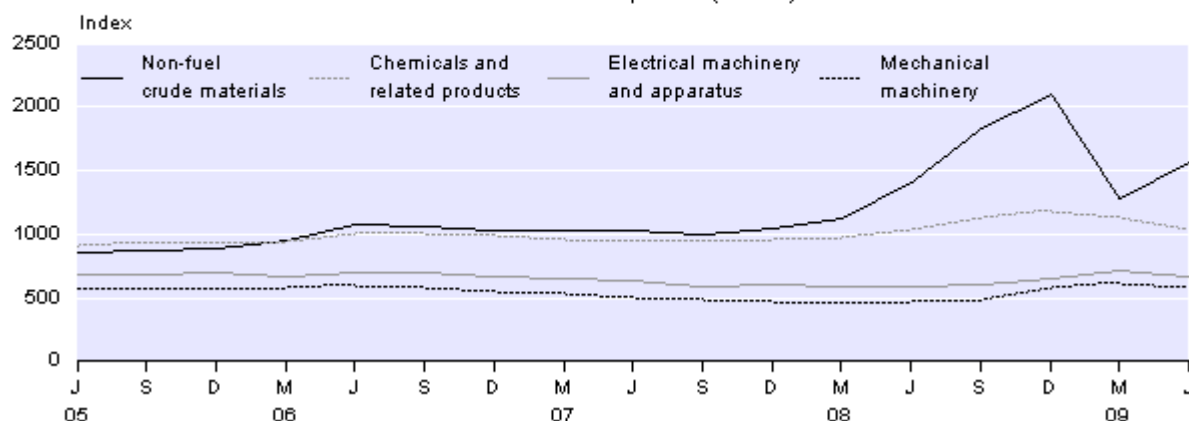
In the June 2009 quarter, the chemicals and related products index made a major contribution to the overall fall in import prices, with a fall of 7.9 percent following a 3.6 percent decrease in the March 2009 quarter and a 5.1 percent increase in the December 2008 quarter. The latest quarterly fall is the largest since an 8.3 percent decrease in the March 2001 quarter. The latest fall was influenced by large volumes of potassium chloride at relatively high prices in the March 2009 quarter. In the year to the June 2009 quarter, the chemicals and related products index rose 2.9 percent, following a rise of 7.9 percent in the year to the June 2008 quarter, and a fall of 4.4 percent in the year to the June 2007 quarter.

Another large contributor to the fall in total import prices was the mechanical machinery index, which fell 5.1 percent in the June 2009 quarter. This compares with increases of 8.2 percent in the March 2009 quarter, 18.1 percent in the December 2008 quarter, and 5.9 percent in the September 2008 quarter. Lower prices for computers and machinery parts and accessories pushed this index down in the June 2009 quarter. (Computer-related producer price indexes from the United States are used as a proxy to measure price change for imported computers. The United States indexes are exchange rate adjusted, and the appreciation of the New Zealand dollar against the United States dollar in the June 2009 quarter had an impact on the decrease in computer prices). In the year to the June 2009 quarter, the mechanical machinery index rose 28.5 percent compared with falls of 10.5 percent in the year to the June 2008 quarter, and 16.2 percent in the year to the June 2007 quarter.

## Selected Merchandise Import Price Indexes

### Quarterly

Base: June 2002 quarter (=1000)



Another significant contributor to the fall in total import prices in the June 2009 quarter came from the electrical machinery and apparatus index (down 4.8 percent). This compares with increases of 9.1 percent and 7.8 percent in the March 2009 and December 2008 quarters, respectively. In the year to the June 2009 quarter, the electrical machinery and apparatus index rose 15.6 percent, compared with decreases of 7.7 percent in the year to the June 2008 quarter, and 8.9 percent in the year to the June 2007 quarter.

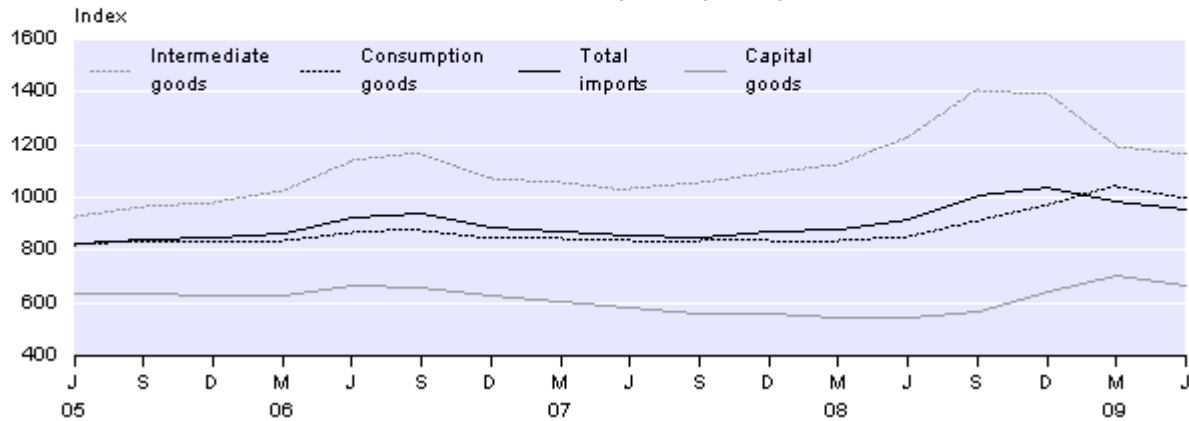
The non-fuel crude materials index rose 21.9 percent, making a significant upward contribution to the overall fall in import prices in the June 2009 quarter. This increase compares with a 39.1 percent decrease in the March 2009 quarter and a 14.5 percent increase in the December 2008 quarter. The fall in the March 2009 quarter and the rise in the June 2009 quarter were influenced by changes in the pattern of crude fertiliser imports. There were no imports of calcium phosphate in the March 2009 quarter and no imports of sulphur in the June 2009 quarter. Sulphur prices in the March 2009 quarter were relatively low, whereas calcium phosphate prices in the June 2009 quarter were relatively high. In the year to the June 2009 quarter, the non-fuel crude materials index rose 10.9 percent, following an increase of 37.5 percent in the year to the June 2008 quarter, and a decrease of 4.2 percent in the year to the June 2007 quarter.

The total import price index rose 4.3 percent in the year to the June 2009 quarter. This follows a 7.5 percent rise in the year to the June 2008 quarter, and a 7.9 percent fall in the year to the June 2007 quarter.

## Import Prices by Broad Economic Category

Quarterly

Base: June 2002 quarter (=1000)



All three broad economic categories showed price falls in the June 2009 quarter. The intermediate goods index (down 2.7 percent) was a significant contributor to the 2.9 percent fall in the total import price index. The capital goods index and consumption goods index also made significant contributions to the overall fall in import prices.

In the June 2009 quarter, the intermediate goods index fell 2.7 percent, following decreases of 14.4 percent and 0.9 percent in the March 2009 and December 2008 quarters, respectively. The latest fall in the index primarily came from the processed industrial supplies subgroup (down 6.3 percent), which was mainly driven by price falls for aluminium oxide, chemical preparations, and glass. The primary industrial supplies sub-index (up 81.6 percent after a 62.1 percent fall in the March 2009 quarter) contributed the largest offsetting increase. The March 2009 and June 2009 quarter movements were influenced by changes in the pattern of crude fertiliser imports (detailed above).

The capital goods index showed a fall of 5.2 percent in the June 2009 quarter, compared with rises of 8.8 percent in the March 2009 quarter, and 13.2 percent in the December 2008 quarter. The latest fall is the largest since a 5.8 percent fall in the December 2004 quarter. A 6.1 percent fall in the latest quarter for the non-transport equipment sub-index was the major driver of the fall in the capital goods index. Items in this subgroup that fell in price included computers and computer accessories (such as storage devices).

The consumption goods index fell 4.1 percent in the June 2009 quarter compared with four consecutive rises in previous quarters. Four of the five published sub-indexes had price falls in the latest quarter, except for a small rise in the processed food and beverages sub-index (up 0.3 percent). A 6.9 percent fall in the semi-durable consumption goods sub-index drove the movement in the consumption goods index. Price falls within this subgroup included clothing and footwear items.

## **Services export prices**

In the June 2009 quarter, services export prices fell 3.3 percent, which is the first quarterly fall since a 0.3 percent decrease in the June 2007 quarter. The latest quarterly fall follows rises of 0.5 percent in the March 2009 quarter, and 3.1 percent in the December 2008 quarter. In the latest quarter, the transportation index (down 10.4 percent) made the largest contribution to the overall fall in services export prices.

In the year to the June 2009 quarter, the services export price index rose 2.8 percent, following a 6.0 percent increase in the year to the June 2008 quarter.

## **Services import prices**

Services import prices fell 6.9 percent in the June 2009 quarter, compared with increases of 2.9 percent in the March 2009 quarter and 10.2 percent in the December 2008 quarter. The latest quarterly decrease is the largest recorded since the series began in the June 1997 quarter. All the published services import indexes showed decreases in the June 2009 quarter. The contributions to the latest overall fall in services import prices primarily came from the transportation index (down 8.2 percent) and the travel index (down 6.9 percent). The decrease in the transportation index was driven by the sea freight sub-index, and the personal travel sub-index was the main reason for the fall in the travel index.

In the year to the June 2009 quarter, the services import price index rose 13.9 percent, following a rise of 4.6 percent in the year to the June 2008 quarter and a fall of 8.6 percent in the year to the June 2007 quarter.

## **Exchange rate movements**

According to the exchange rates published by the Reserve Bank of New Zealand, the trade weighted index (TWI) of the New Zealand dollar rose 8.7 percent in the June 2009 quarter. In this quarter, the New Zealand dollar appreciated against four of the five currencies of the major trading partners, excluding the Australian dollar (down 1.1 percent). The greatest appreciation was against the Japanese yen (up 17.7 percent), followed by a 13.1 percent appreciation against the United States dollar.

Exchange rates used in the calculation of merchandise import values differ from the weekly exchange rates used in the calculation of merchandise export values. Import values are converted from foreign currencies using exchange rates set by the New Zealand Customs Service (NZCS) every two weeks. These exchange rates are prepared 11 days before the effective date and are then applied for two weeks. Therefore, the NZCS rates of exchange lag from 11 to 25 days compared with exchange rates published by the Reserve Bank.

In the June 2009 quarter, the NZCS TWI recorded a rise of 4.5 percent, with the New Zealand dollar rising against four of the five currencies of our major trading partners, except the Australian dollar.

The appreciation of the New Zealand dollar has a downward influence on both import and export prices in New Zealand dollars. In the June 2009 quarter, the influence of the

Reserve Bank TWI (up 8.7 percent) on export prices was greater than the influence on import prices from the Customs Service TWI (up 4.5 percent).

<b>Exchange Rates</b> New Zealand Customs Service					
	USA (NZ\$:US\$)	UK (NZ\$:pound)	Australia (NZ\$:A\$)	Japan (NZ\$:yen)	EU (NZ\$:euro)
Change from March 2009 quarter (%)	7.8	2.8	-2.0	13.8	5.7

### Updates to previously published material

The overseas merchandise trade indexes are provisional for one quarter to allow for receipt and editing of late and amended trade documentation.

<b>March 2009 Quarter Overseas Trade Indexes (Prices)</b> Merchandise			
	Export price index	Import price index	Terms of trade index
<i>Series ref: OTPQ</i>	<i>SEO1E95</i>	<i>SIO1I95</i>	<i>STTZZ5</i>
Published on 11 June 2008			
Provisional March 09	1165	986	1182
Published on 10 September 2008			
Final March 09	1168	985	1185

For technical information contact:  
Stephanie Ye or Dylan Xu  
Wellington 04 931 4600  
**Email:** [info@stats.govt.nz](mailto:info@stats.govt.nz)

### Next release ...

*Overseas Trade Indexes (Prices): September 2009 quarter (provisional)*  
and  
*Overseas Trade Indexes (Volumes): September 2009 quarter (provisional)*  
will both be released on 10 December 2009.

## Technical notes

### Definitions

capital goods	Produced assets used repeatedly or continuously (for longer than one year) in industrial production processes. Examples are machinery, trucks and aircraft.
consumption goods	Goods used (without further transformation in industrial production processes) by households, government, or non-profit institutions serving households. – 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 linen, shoes, toys. – non-durables have an expected usage of less than a year, eg soap, yarns, books.
fob	Free on board (the value of goods at New Zealand ports before export, which includes the cost of the goods plus the cost (including loading charges) of putting them on a vessel or aircraft).
government services (exports)	Includes sales of capital assets excluding land, estimated expenditure of foreign embassies in New Zealand, the portion of the government's international aid spent in New Zealand, and the government's receipts from immigration fees.
government services (imports)	The operational expenses of New Zealand's embassies overseas, and the costs of the New Zealand defence forces stationed overseas.
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.
other services	Services other than transportation, travel, and government services. Examples are insurance, royalties and licence fees, banking and financial services, computer and information services, telecommunications, and personal, cultural and recreational services.

re-exports	Exported goods that were earlier imported into New Zealand and include less than 50 percent New Zealand content by value.
transportation	The international carriage of goods and passengers. Includes freight, airfares, port services, and stevedoring.
travel (exports)	The expenditure of overseas visitors while travelling in New Zealand, and the expenditure by international students in New Zealand.
travel (imports)	The expenditure of New Zealanders while travelling overseas.
vfd	Value for duty (the value of imports before insurance and freight costs are added).

## What the price indexes measure

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

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

Price measurement relates to the decomposition of transaction values in current prices into their price 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.

## Time of recording

The merchandise price indexes in this release are calculated from the same data as that used in the Overseas Merchandise Trade: July 2009 Hot Off The Press published on 27 August 2009. Updates published after these dates are not included.

Merchandise price indexes are provisional for one quarter, to allow for the inclusion of late data and amendments to the merchandise trade source data. Merchandise figures in this release that relate to the March 2009 quarter are based on later data than that which was available for the previous overseas trade indexes release (for the March 2009 quarter), published on 10 June 2009.

The price indexes for services are final figures (unlike the merchandise series, which are first published as provisional figures). The services indexes are revised only for significant errors. An exception is when lagged prices are used in new indexes and are

later replaced by current prices. Revisions are notified by an R beside the revised number in the release table.

## **Source of information – merchandise trade**

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

Data is classified using the Harmonised System (HS) classification for processing 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 being 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 have been selectively supplemented with prices collected directly from importers and exporters, and by international price indexes.

### **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 an ongoing one and is part of the 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 (for example, public transport equipment), imported to one-off specifications (for example, telephonic and telegraphic apparatus), and technically complex goods subject to rapid quality change (for example, computer equipment).

The following table lists the areas of the HS classification where international price indexes have been used, and the type of index selected as a proxy for change in prices faced by New Zealand importers. Most use has been 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 have been converted to quarterly index numbers and then exchange-rate adjusted using the NZCS rates of exchange.

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

<b>Goods Using International Price Indexes</b>		
<b>HS chapter</b>	<b>Goods</b>	<b>International price index</b>
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 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 computer indexes 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 for quarterly constant price imports in gross domestic product.

### **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 overseas 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 (used cars) and make of car (new cars), 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. The new standards 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.

## Imputation

Explicitly priced items are defined as those items displaying reliable unit-value behaviour, those items for which prices are collected directly from importers or exporters, and those items for which international price indexes are used as price indicators. Remaining items have imputed to them price movements of items that are more reliable indicators of a similar type. 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.

<b>Imputation Procedures</b>				
<b>Type of index</b>	<b>First level</b>	<b>Second level</b>	<b>Third level</b>	<b>Fourth level</b>
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) index	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. For the June 2009 quarter, there was a base annual imputation rate of 20.0 percent for exports and 37.1 percent for imports.

## Source of information – services trade

Value data used in calculating the weights for the service indexes is derived from Statistics NZ's balance of payments data, which is in turn processed from various

surveys operated by the Balance of Payments business unit. New weights were implemented in the September 2008 quarter, using balance of payments data for the year ended June 2008.

Pricing information used for calculating the indexes is obtained from Statistics NZ's Commodity Price Survey. The Commodity Price Survey collects prices for approximately 13,000 individual items. The prices are collected by postal survey from about 3,000 respondents and from international price indexes. Prices are generally collected each quarter, with the price on the 15th of the middle month of the quarter measured for domestic prices. Prices may be obtained quarterly or annually depending on the nature of the item. For the import services indexes, much of the pricing is from international price indexes. The collection of these prices (index numbers) depends on the frequency and timeliness of their publication. If they are published monthly, the middle month of the quarter is used; however, in some cases the prices are lagged a month or a quarter if the value for the relevant period is not available in time.

## **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 vfd values (the value of goods excluding the cost of freight and insurance). Prior to the September 2003 quarter, the merchandise import indexes used 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. The vfd valuation for imports is recommended in the System of National Accounts 1993 and is used in the New Zealand national accounts.

Vfd values are converted from foreign currencies when import documents are processed by NZCS. The NZCS exchange rates are prepared 11 days prior to the effective date and are then applied for two weeks. Therefore, the exchange rate used in the imports prices will be 11 to 25 days old when it is used in imports documentation. This means that the NZCS exchange rate, and therefore the imports 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 indexes are not directly affected by changes in the rates of duty payable on imported goods, as vfd 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 price indexes.

The services price indexes use New Zealand dollar values for both exports and imports. Exchange rates used in the calculation of the services indexes differ from those used for the merchandise indexes. Prices collected in foreign currencies are converted using the exchange rate supplied by Westpac Bank for the 15th day of the middle month of the

quarter for the relevant currencies. The foreign currencies used in the services indexes are the US dollar, Australian dollar, Fijian dollar, Japanese yen, and the United Kingdom pound.

## **Index coverage**

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

The System of National Accounts 1993 provides the conceptual base for the services indexes. It establishes the range of services that should be included in the indexes, and key practices, for example the treatment of insurance.

## **Index type and calculation**

### **Merchandise trade**

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 (that is, 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 goods New Zealand exports and imports change.

### **Services trade**

The services indexes are an annually chain-linked Laspeyres price index series. The weights are determined by the relative importance of services and businesses within the service industry. Information from various surveys, censuses and other sources is used to determine the weights.

### **Expression base**

The merchandise index series expression base is the quarter ended June 2002 (=1000). The merchandise terms of trade index expression base is the quarter ended June 2002 (=1000).

The services price indexes expression base is the quarter ended June 1997 (=1000). The services terms of trade index expression base is the quarter ended June 1997 (=1000).

### **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 subject to revision. 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 will be subject to substantial revisions.

### **What the overseas terms of trade index measures**

The overseas terms of trade index measures the changing volume of merchandise imports that can be funded by a fixed volume of New Zealand's merchandise exports.

## **How the terms of trade are calculated**

The merchandise terms of trade index is calculated as the ratio of the total export price index to the total import price index, and then presented on an expression base of the quarter ended June 2002 (=1000).

The services terms of trade index is calculated as the ratio of the total services export price index to the total services import price index, with the June 1997 quarter used as the expression base.

An index value above (or below) 1000 indicates that the terms of trade are more (or less) favourable than in the base period.

An increase in the terms of trade index indicates that the real purchasing power of exports has increased, while a decrease indicates a drop in the purchasing power of exports.

## **Effect of exchange rate movements on terms of trade**

A decline in the value of the New Zealand dollar has an upward influence on both export and import price levels, and a strengthening of the dollar has a downward impact on prices of both exports and imports. This means that any effect on the terms of trade in either case is likely to be minor and limited to situations where the New Zealand dollar has weakened or strengthened against a particular currency. It is also limited to where there is a significant imbalance in the values of exports and imports transacted in, or with prices determined by, that currency.

## **Broad economic categories (BEC)**

BEC categories are arranged, as far as practicable, to align with the System of National Accounts' three basic classes; namely capital goods, intermediate goods and consumption goods. Commodities in BEC are categorised on the basis of their main end use. This means, for example, that all video recorders are treated as consumption goods even though some are used in business.

## **When latest results are released**

Merchandise provisional indexes are available within 10 weeks of the end of the reference quarter. Final indexes are released within 24 weeks of the end of the reference quarter.

Only final data is released for the services indexes. This data is available at the same time as the provisional merchandise trade indexes.

## **Further information**

A wider range of index series than is presented in this release is available on Infoshare, Statistics NZ's free online database, or can be provided in other media on request. There

are currently 57 export and 55 import merchandise index groupings. There are five export and five import service index groupings available on Infoshare.

For each of the merchandise trade price indexes, there are also related quarterly and annual volume indexes and dollar-value series available.

To access the overseas trade indexes (OTI) time series, go to infoshare at <http://www.stats.govt.nz/infoshare/>, and choose:

Subject category: **Imports and exports**, then choose: **Overseas Trade Indexes – Prices**

More information about infoshare can be found on our website at <http://www.stats.govt.nz/about-infoshare>.

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

Related Hot Off The Press releases are:

- *Overseas Trade Indexes (Volumes)* ISSN 1178-0347
- *Overseas Merchandise Trade* ISSN 1178-0320
- *Overseas Cargo Statistics* ISSN 1178-2838
- *Balance of Payments (Quarterly)* ISSN 1178-0215
- *Balance of Payments (Annual)* ISSN 1178-0223

## More information

For more information, follow the [link](#) from the technical notes of this release on the Statistics New Zealand website.

## Copyright

Information obtained from Statistics NZ may be freely used, reproduced, or quoted unless otherwise specified. In all cases Statistics NZ must be acknowledged as the source.

## Liability

While care has been used in processing, analysing and extracting information, Statistics NZ gives no warranty that the information supplied is free from error. Statistics NZ shall not be liable for any loss suffered through the use, directly or indirectly, of any information, product or service.

## Timing

Timed statistical releases are delivered using postal and electronic services provided by third parties. Delivery of these releases may be delayed by circumstances outside the control of Statistics NZ. Statistics NZ accepts no responsibility for any such delays.

## Tables

The following tables are printed with this Hot Off The Press and can also be downloaded from the Statistics New Zealand website in Excel format. If you do not have access to Excel, you may use the [Excel file viewer](#) to view, print and export the contents of the file.

- 1.01 Overseas trade price and terms of trade indexes
- 1.02 Overseas merchandise trade price and terms of trade indexes
- 2 Merchandise export price indexes
- 3 Merchandise import price indexes
- 4.01 Merchandise imports by broad economic category, price indexes
- 4.02 Merchandise imports by broad economic category, price index percentage change from previous period
- 5 Overseas trade in services price indexes
- 6 Exchange rates, Reserve Bank of New Zealand