

Embargoed until 10:45am – 23 December 2010

Gross Domestic Product: September 2010 quarter

Highlights

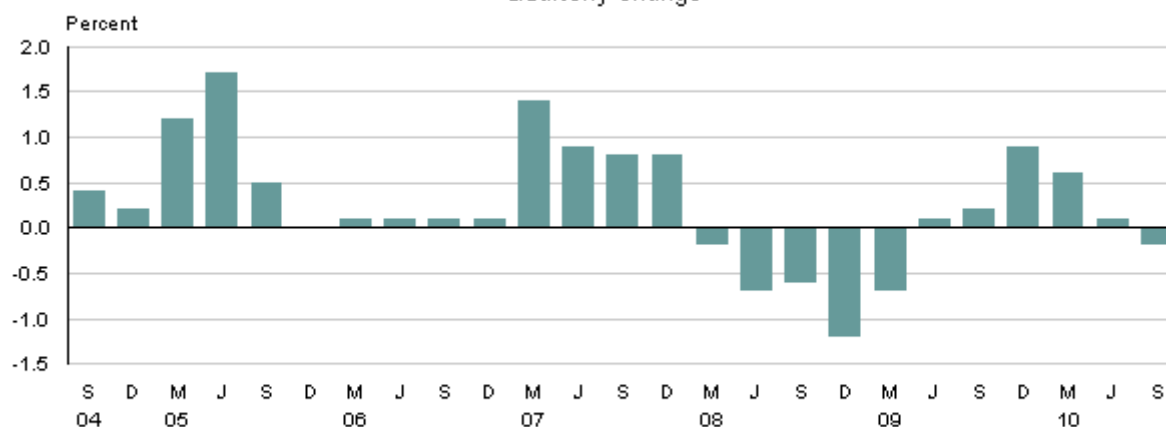
Gross domestic product (GDP):

- Economic activity was down 0.2 percent in the September 2010 quarter, following a 0.1 percent increase in the June 2010 quarter.
- Manufacturing was down 1.7 percent, and construction down 2.5 percent.
- Gross domestic product increased 1.4 percent in the year ended September 2010 compared with the year ended September 2009.

On the expenditure measure of GDP:

- The expenditure measure of GDP was down 0.4 percent in the September 2010 quarter.
- Household consumption expenditure was up 0.5 percent.
- Gross fixed capital formation was down 1.8 percent.

Gross domestic product⁽¹⁾
Quarterly change



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

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Commentary

New Zealand economy declines 0.2 percent

Gross domestic product was down 0.2 percent in the September 2010 quarter, following an increase of 0.1 percent in the June 2010 quarter. The decline in economic activity this quarter follows five consecutive quarters of growth.

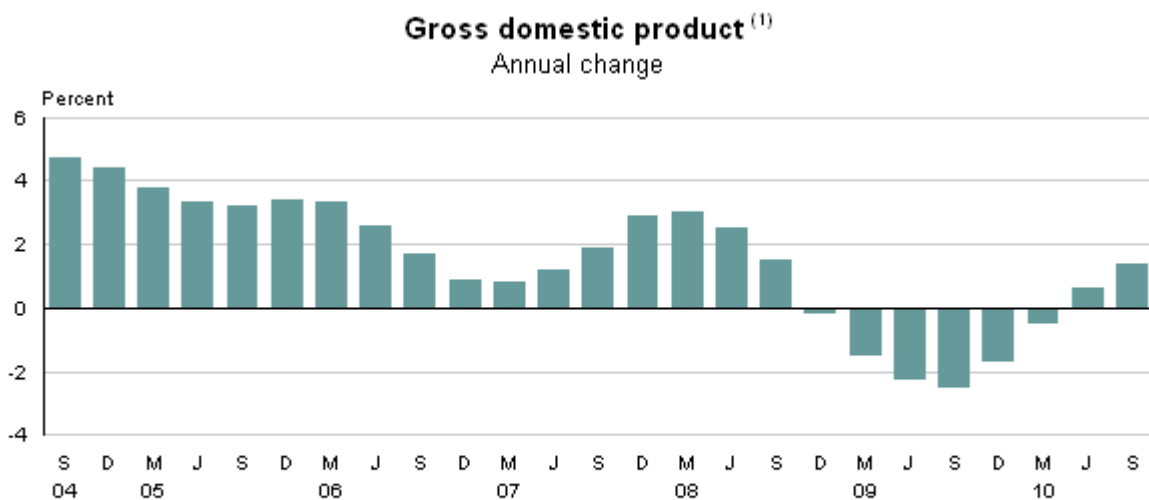
In the September 2010 quarter, the decline in economic activity was due to falls in the primary and goods-producing industries, while activity in the services industries increased.

The main movements by industry this quarter were:

- Manufacturing (down 1.7 percent). Petroleum, chemical, plastic, and rubber products manufacturing, and machinery and equipment manufacturing were the largest contributors to the fall this quarter.
- Construction (down 2.5 percent). This is the first fall in construction activity since a 3.1 percent decline in the September 2009 quarter.
- Real estate and business services (down 0.7 percent). This follows a 1.2 percent increase in the June 2010 quarter.
- Wholesale trade (up 2.4 percent). This is the fourth consecutive quarter of growth in the wholesale trade industry.
- Transport and storage (up 3.4 percent). This is the largest increase in transport and storage since a 4.1 percent increase in the December 2003 quarter.

Activity in the September 2010 quarter was 1.5 percent higher than activity in the September 2009 quarter.

Economic activity for the year ended September 2010 was up 1.4 percent when compared to the four quarters ended September 2009.



1. Actual chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

The expenditure measure of GDP fell 0.4 percent in the September 2010 quarter. The expenditure and production measures of GDP are conceptually the same. The production

measure of GDP measures the volume of goods and services produced in the economy, while the expenditure measure shows how those goods and services were used.

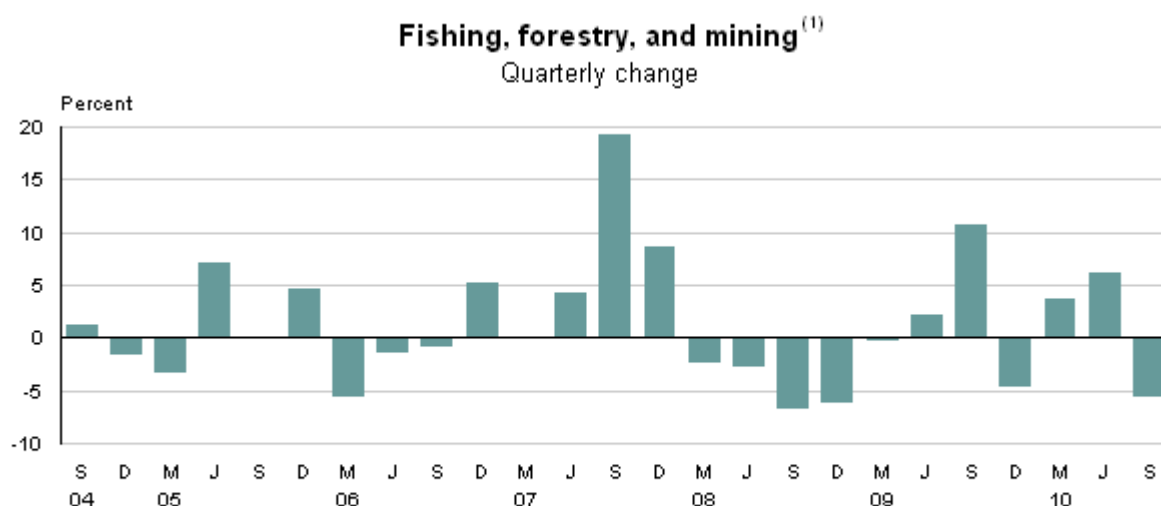
The main movements in the expenditure measure of GDP this quarter were:

- Imports (up 3.0 percent). Increased imports of machinery and plant was the largest contributor this quarter.
- Exports (down 1.1 percent). The largest contributions came from decreased exports of meat and dairy products.
- Gross fixed capital formation (down 1.8 percent). Decreased investment in residential buildings was the main reason for the fall.
- Household consumption expenditure (up 0.5 percent). Household expenditure on durable goods and services increased, while expenditure on non-durable goods fell.

Gross domestic product by industry

Primary industries

Activity in the primary industries declined 2.8 percent in the September 2010 quarter, following a 1.0 percent rise in the June 2010 quarter. The fall this quarter is the largest for the primary industries since a 2.9 percent fall in the March 2008 quarter. The main contributor to the fall in primary industries this quarter was a 5.5 percent decline in fishing, forestry, and mining activity.



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

Mining activity decreased 6.9 percent in the September 2010 quarter, following a 6.1 percent rise in the June 2010 quarter. A decline in both extraction and exploration activity this quarter contributed to the fall. The decline in extraction activity is also reflected in the expenditure measure of GDP, with intangible investment falling 1.8 percent. Fishing, a small and variable industry, declined \$10 million in the September 2010 quarter, following a \$14 million increase in the June 2010 quarter.

Agricultural activity declined 1.0 percent in the September 2010 quarter, due to a fall in livestock production, which was partly offset by increased milk production. This is the second consecutive decline in activity for the agriculture industry, following a 1.9 percent decrease in the June 2010 quarter.

Forestry and logging was the only primary industry to record growth in the September 2010 quarter, rising 0.6 percent. Exports of forestry primary products declined in the September 2010 quarter (down 2.7 percent), following increases in both the March 2010 and June 2010 quarters. The increase in forestry and logging activity this quarter is the seventh consecutive quarterly increase, but the smallest of the past seven increases. International demand for logs as reflected in exports of forestry primary products has been strong in recent quarters, but slowed in the September quarter.

For the year ended September 2010, primary industry activity increased 1.1 percent, compared with a 1.1 percent fall in the year ended September 2009. The main contributor to the rise was a 13.5 percent increase in forestry and logging activity.

Goods-producing industries

Activity in goods-producing industries declined 1.5 percent in the September 2010 quarter, following a decline of 1.3 percent in the June 2010 quarter. Manufacturing, down 1.7 percent, was the main contributor to the decrease this quarter, while a 2.5 percent fall in construction activity also contributed. Electricity, gas, and water partly offset the fall, increasing 1.2 percent.

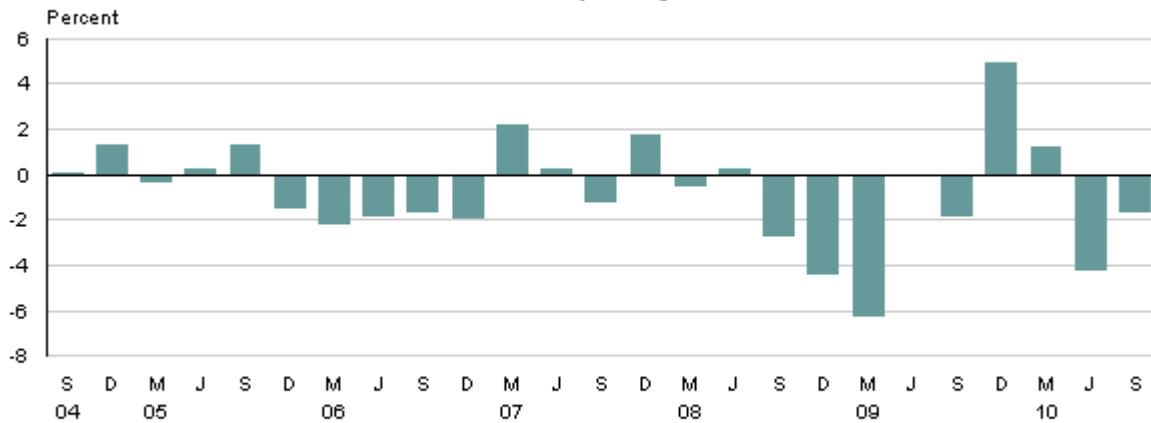
The decline in manufacturing activity this quarter is the second consecutive quarterly decline, following a fall of 4.3 percent in the June 2010 quarter. The largest contributions to the latest fall were:

- A 6.9 percent fall in petroleum, chemical, plastic, and rubber products manufacturing. This is the largest decline for petroleum, chemical, plastic and rubber products manufacturing since an 8.9 percent decrease in the December 2008 quarter.
- A 4.2 percent decrease in machinery and equipment manufacturing. With exports of metal products, machinery, and equipment increasing this quarter (up 4.9 percent), the decline in manufacturing activity, combined with the increased exports, contributed to the run-down in manufacturing inventories, as seen in the expenditure measure of GDP.
- A 1.6 percent decline in wood and paper products manufacturing. This is the largest fall since a 3.1 percent decrease in the March 2009 quarter, and is reflected in decreased exports of wood and paper products (down 8.9 percent) in the expenditure measure of GDP.

Partly offsetting these falls in manufacturing this quarter were increases in:

- furniture and other manufacturing (up 2.5 percent)
- textile and apparel manufacturing (up 2.2 percent)
- printing, publishing, and recorded media (up 0.5 percent)
- food, beverage, and tobacco manufacturing (up 0.1 percent).

Manufacturing⁽¹⁾ Quarterly change



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

In the September 2010 quarter, activity in the construction industry fell 2.5 percent. This is the first fall since a 3.1 percent decrease in the September 2009 quarter, and follows a 5.6 percent increase in the June 2010 quarter. A decline in investment in both residential, and non-residential buildings, as measured in gross fixed capital formation in the expenditure measure, contributed to the fall in construction activity this quarter.

Construction⁽¹⁾ Quarterly change



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

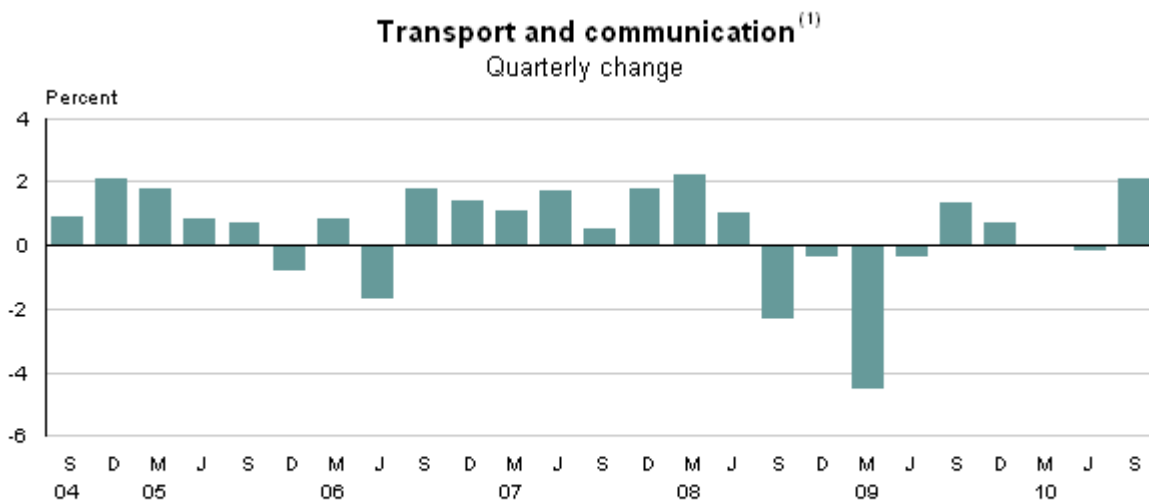
Electricity, gas, and water activity increased 1.2 percent in the September 2010 quarter, due to increased electricity generation and supply.

For the year ended September 2010, activity in the goods-producing industries rose 0.1 percent, compared with a 9.5 percent decline in the year ended September 2009. The increase for the year ended September 2010 is the first annual increase since a 0.3 percent rise in the year ended June 2008.

Service industries

Activity in the services industries rose 0.3 percent in the September 2010 quarter, following a 0.6 percent rise in the June 2010 quarter. The latest rise is the sixth consecutive quarterly increase in service industry activity.

A 2.1 percent increase in activity for transport and communication was the largest contributor to the rise this quarter. Activity for both transport and storage (up 3.4 percent) and communication services (up 0.4 percent) increased this quarter, contributing to the overall rise. The latest increase in transport and storage activity is the largest since a 4.1 percent increase in the December 2003 quarter, and was mainly driven by an increase in air transport activity. The rise in communication services was driven by increased volumes in both telecommunication and postal services.



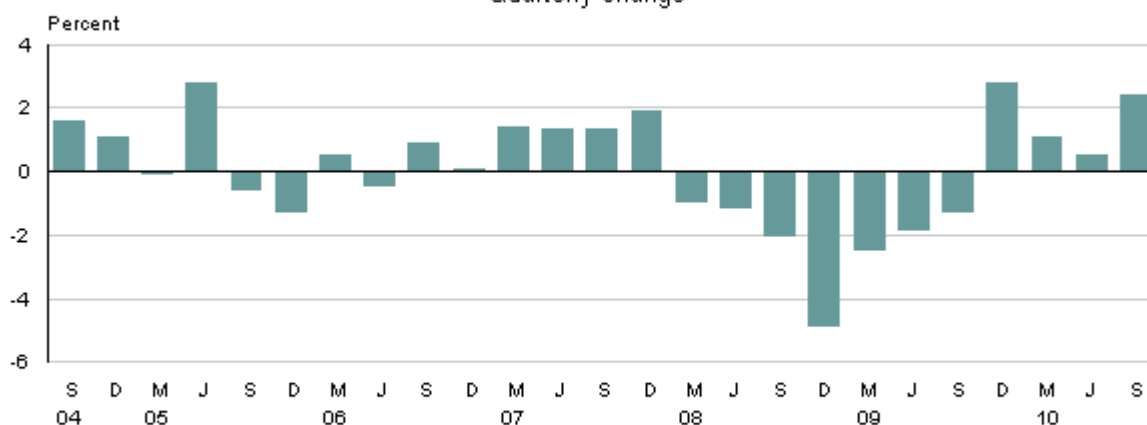
1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

Other service industries which had increased activity this quarter were:

- wholesale trade (up 2.4 percent), with the main contributor being machinery and equipment wholesaling
- retail, accommodation, and restaurants (up 0.4 percent), due to an increase in retail trade activity. A fall in activity in accommodation, restaurants, and bars partly offset the rise in retail trade
- government administration and defence (up 0.6 percent), with activity in central and local government increasing.

Wholesale value added ⁽¹⁾ Quarterly change

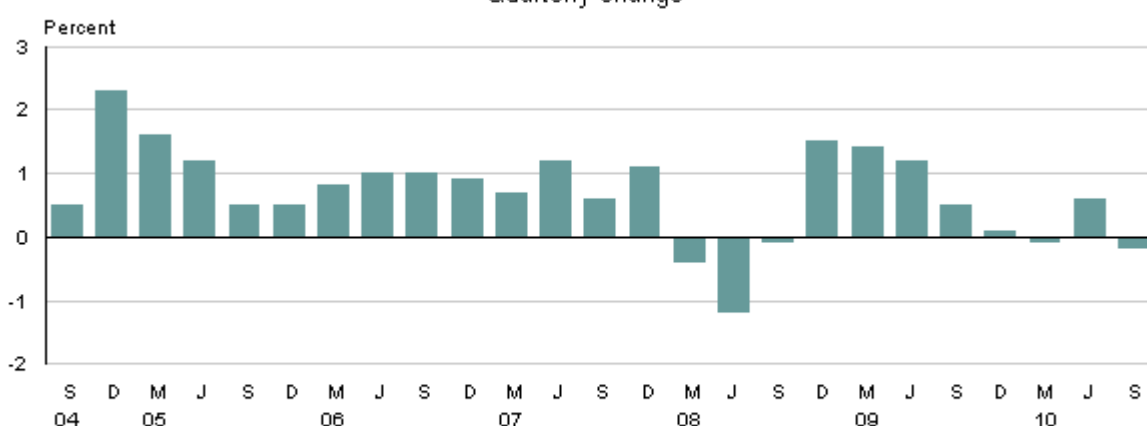


1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

Finance, insurance, and business services recorded the largest decline of all service industries in the September 2010 quarter, falling 0.2 percent. Real estate and business services was the largest contributor to the fall. Activity for personal, health, and community services also declined (down 0.3 percent), largely due to decreased activity for culture and recreation.

Finance, insurance, and business services ⁽¹⁾ Quarterly change



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

For the year ended September 2010, activity in the services industries rose 1.3 percent, compared with a 0.4 percent rise in the year ended September 2009.

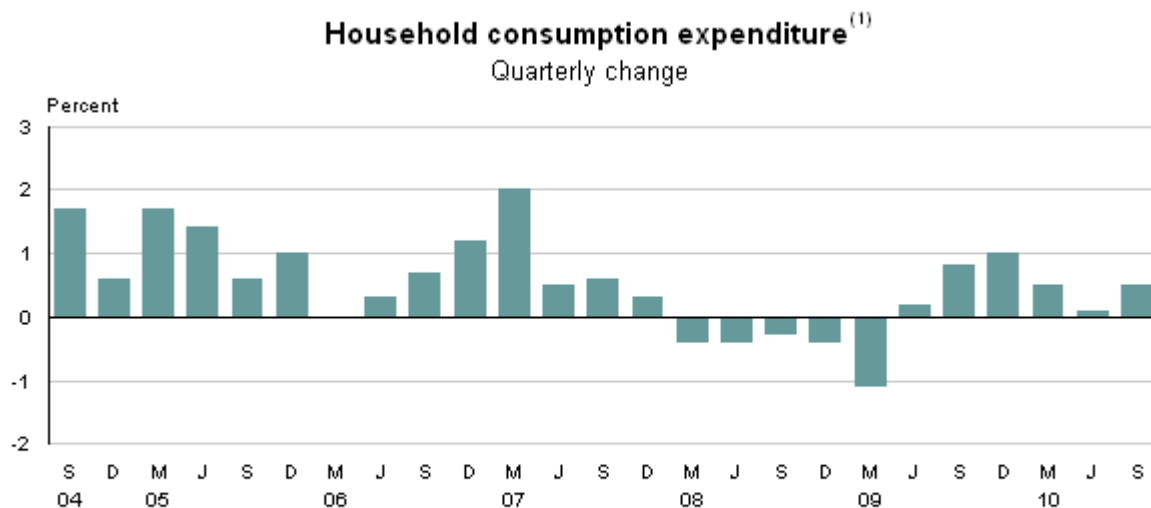
Expenditure on gross domestic product

Expenditure on GDP decreased 0.4 percent in the September 2010 quarter, following a 0.3 percent increase in the June 2010 quarter. While the production- and expenditure-based measures are both official series, the production-based measure has historically shown less volatility and is the preferred series for quarter-on-quarter changes.

For the year ended September 2010, expenditure on GDP increased 1.7 percent compared with the year ended September 2009.

Household consumption

Household consumption expenditure increased 0.5 percent in the September 2010 quarter, following a 0.1 percent increase in the June 2010 quarter. Household consumption expenditure measures the volume of spending by New Zealand-resident households on goods and services.



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

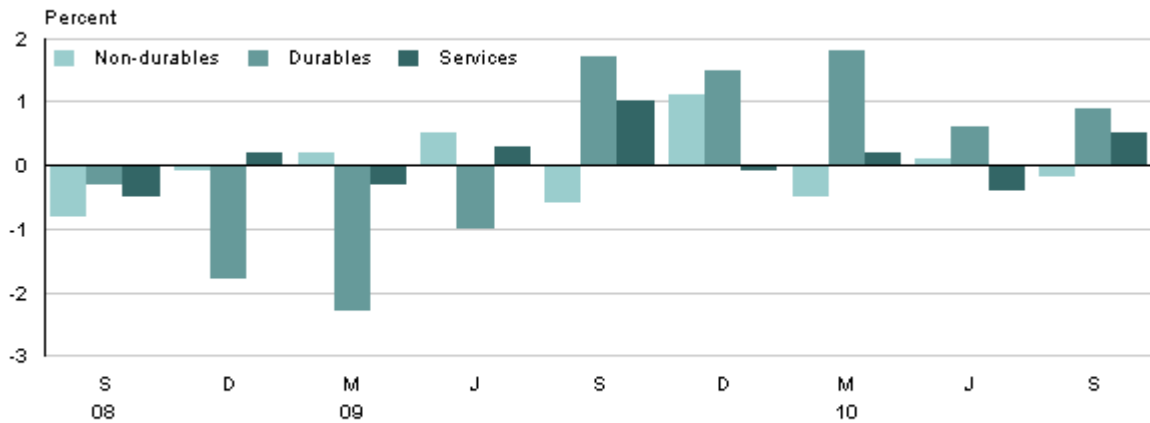
Volumes of durable goods expenditure by households increased 0.9 percent in the September 2010 quarter, following a 0.6 percent increase in the June 2010 quarter. This is the fifth consecutive quarterly increase in expenditure on durable goods, and also the fifth consecutive quarter where retail furniture and major appliances has been the main driver of the increase. Increased expenditure on used vehicles, and clothing and footwear also contributed to the rise this quarter.

The volume of expenditure on services by households increased 0.5 percent in the September 2010 quarter, following a decline of 0.4 percent in the June 2010 quarter. Contributing to the rise this quarter were increases in communications and domestic air travel. The increase in communications is the result of increased toll calls and is reflected in an increase in communication services in the production measure of GDP.

Offsetting the increases in household expenditure was expenditure on non-durable goods, declining 0.2 percent in the September 2010 quarter. This follows an increase of 0.1 percent in the June 2010 quarter and is mainly due to lower volumes of alcoholic beverages purchased, the third consecutive quarterly decrease of this item. This decrease was partly offset by increased spending on electricity.

Household consumption expenditure ⁽¹⁾

Quarterly change in components



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

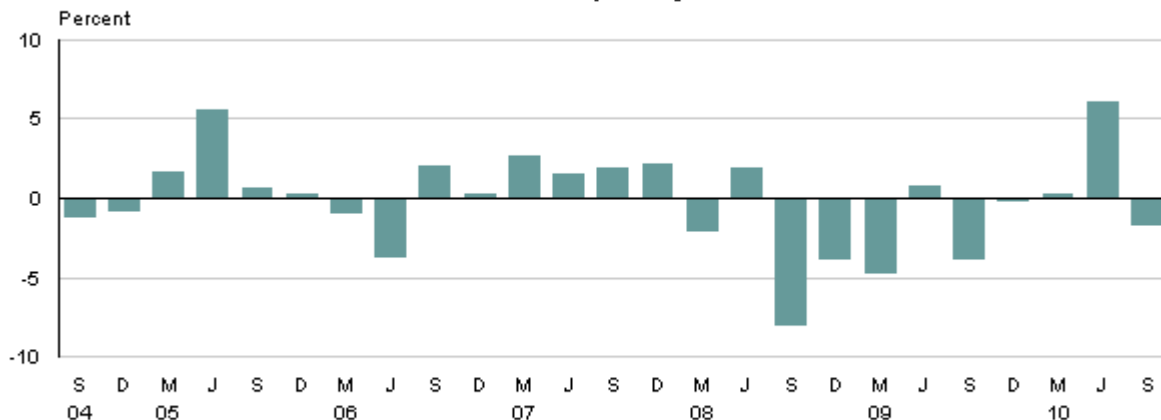
For the year ended September 2010, household consumption expenditure increased 1.8 percent. This rise is the largest since a 2.2 percent increase in the year ended June 2008, and was the result of increased spending for all three categories; durables up 3.5 percent, non-durables up 0.5 percent and services up 0.8 percent.

Gross fixed capital formation

Gross fixed capital formation (GFKF) measures investment in fixed assets by households, business, and government.

Gross fixed capital formation ⁽¹⁾

Quarterly change



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

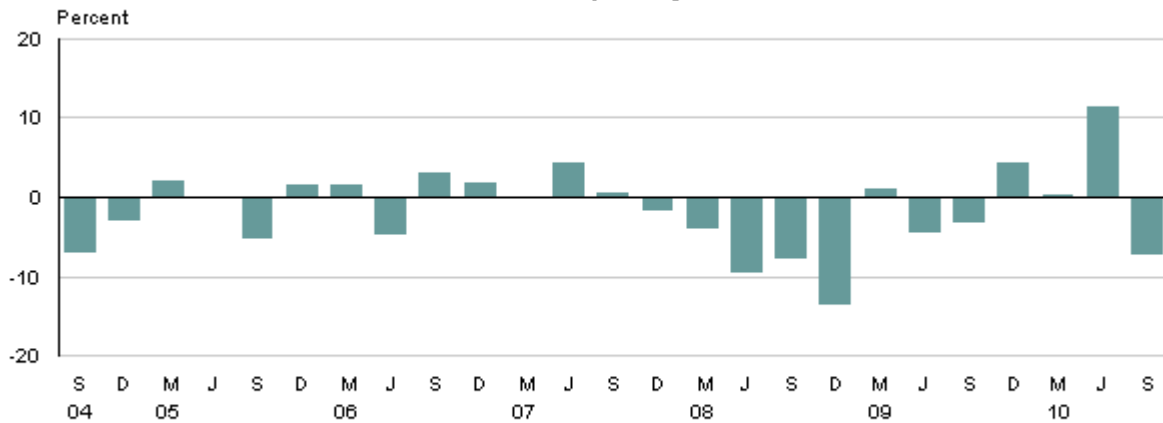
Source: Statistics New Zealand

GFKF decreased 1.8 percent in the September 2010 quarter, the largest quarterly decline since a 3.9 percent decrease in the September 2009 quarter. The decrease in the September 2010 quarter was due to lower investment in all categories of GFKF with the exception of plant, machinery, and equipment, and land improvements.

Investment in residential building decreased 7.4 percent, the largest quarterly decrease since a 13.7 percent decrease in the December 2008 quarter. Investment in non-residential building also decreased (3.4 percent). This decrease is reflected in the movement of construction activity, which decreased 2.5 percent in the production measure of GDP.

Gross fixed capital formation – residential building ⁽¹⁾

Quarterly change



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

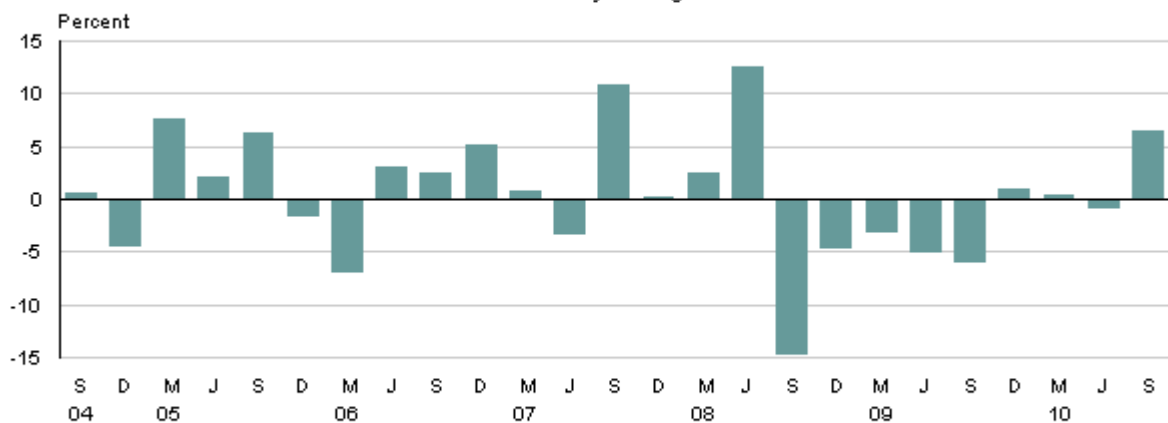
Source: Statistics New Zealand

Investment in transport equipment (down 8.3 percent) and other construction (down 2.2 percent) also contributed to the decrease in GFKF in the September 2010 quarter.

Offsetting these decreases was investment in plant, machinery, and equipment, which increased 6.4 percent, the largest quarterly increase since a 10.2 percent increase in the September 2007 quarter. The latest increase was reflected in imports of capital goods during the quarter, with capital goods imports increasing 19.8 percent. Investment in land improvements increased 0.7 percent.

Gross fixed capital formation – plant, machinery, and equipment ⁽¹⁾

Quarterly change



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

For the year ended September 2010, GFKF was down 3.0 percent compared with the year ended September 2009. The largest declines were in plant, machinery, and equipment (down 9.5 percent) and non-residential building (down 8.0 percent).

Business investment in fixed assets showed no movement in the September 2010 quarter, following quarterly increases of 0.2 percent and 4.6 percent in the March 2010 and June 2010 quarters, respectively. Business investment consists of GFKF less investment in residential building. For the year ended September 2010, business investment in fixed assets declined 4.8 percent.

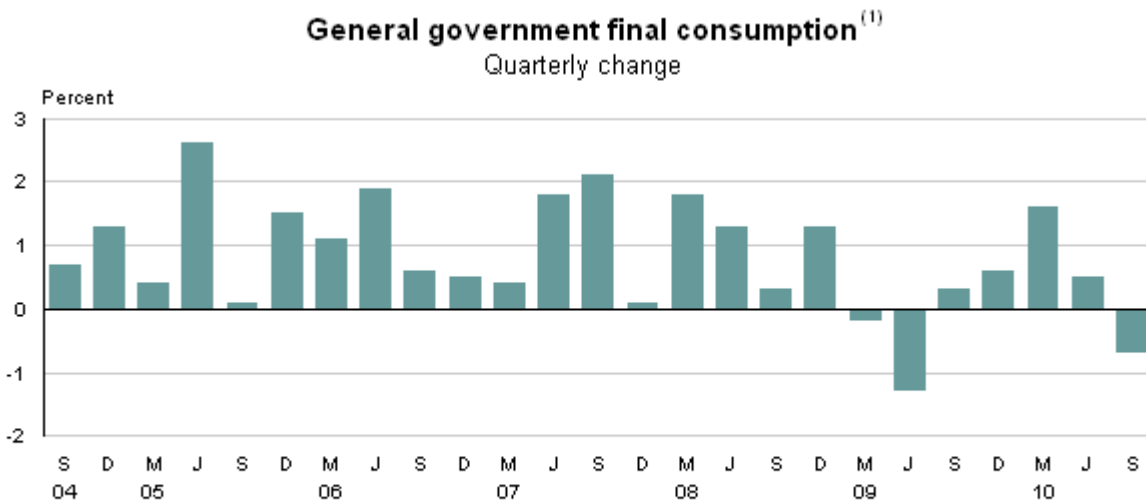
Inventories

Total inventories were built up by \$82 million in the September 2010 quarter, following a run-down of \$657 million in the June 2010 quarter. The rise in inventories this quarter was driven by a \$483 million increase in distribution inventories, which includes retail and wholesale trade. Partly offsetting this was a run-down of \$561 million in manufacturing inventories.

The Canterbury earthquake caused significant damage to stock in shops and warehouses in the September 2010 quarter. Our surveys collect the value of inventories at the end of each quarter, and the difference between opening and closing stock is assumed to be a run-down or a build-up of inventories. However, stock losses should be treated as write-offs rather than a change in inventories. For this reason, a \$150 million adjustment was made to distribution inventories this quarter to reflect a conservative estimate for stock losses that would have otherwise been treated as a run-down in inventories.

Government

General government final consumption expenditure decreased 0.7 percent in the September 2010 quarter, following a 0.5 percent increase in the June 2010 quarter.



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

Central government expenditure decreased 0.6 percent in the September 2010 quarter. This follows increases of 0.4 percent and 1.8 percent in the June 2010 and March 2010 quarters, respectively. Both these quarters included the acquisition of offshore patrol vessels (the HMNZS *Wellington* in the June 2010 quarter, and the HMNZS *Otago* in the March 2010 quarter). If there

had not been an offshore patrol vessel acquired in the June 2010 quarter, central government expenditure would have increased 0.4 percent in the September 2010 quarter.

This decrease was partly offset by increases in central government administration (up 1.1 percent) and health (up 0.7 percent), resulting in a smaller overall decline in central government expenditure. Local government final consumption expenditure decreased 2.0 percent in the September 2010 quarter, down from a 1.5 percent increase in the June 2010 quarter.

From 1 November 2010, eight councils combined to form the Auckland Council. The eight councils were Auckland Regional Council, Auckland City Council, Franklin District Council, Manukau City Council, North Shore City Council, Papakura District Council, Rodney District Council, and Waitakere City Council. This merger may impact on local government expenditure numbers in the December 2010 quarter.

For the year ended September 2010, general government final consumption expenditure increased 1.5 percent, compared with a 1.9 percent rise in the year ended September 2009.

Exports and imports

Export volumes of goods and services decreased 1.1 percent in the September 2010 quarter, following increases of 1.3 percent and 0.6 percent in the March 2010 and June 2010 quarters, respectively.

The volume of goods exported decreased 2.3 percent in the September 2010 quarter, following a 0.8 percent decrease in the June 2010 quarter. The main drivers of the decline in goods exported were:

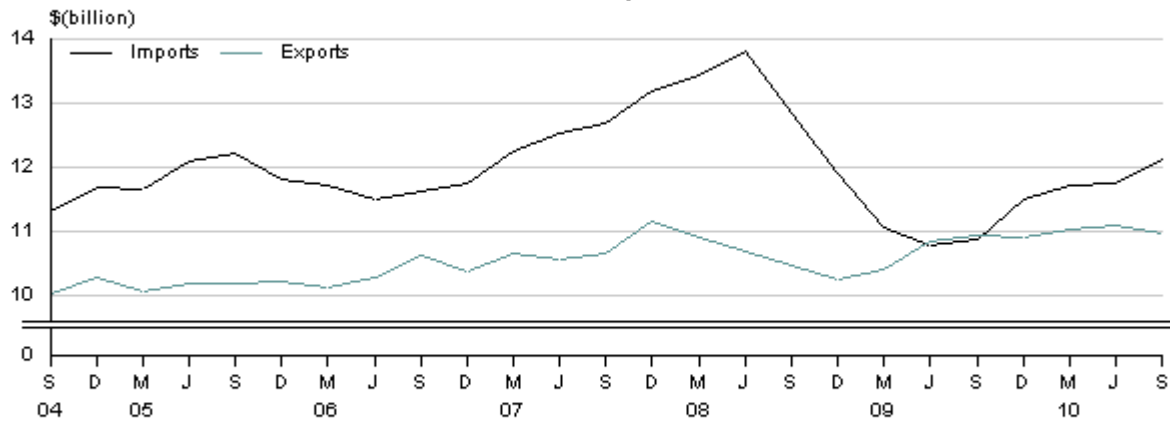
- meat products (down 17.0 percent)
- dairy products (down 6.0 percent)
- wood and paper products (down 8.9 percent), reflecting decreased manufacturing activity for wood and paper products as measured in the production measure of GDP.

Partly offsetting these decreases was a 10.6 percent increase in exports of agriculture and fishing primary products.

Exports of services were up 0.9 percent in the September 2010 quarter, following quarterly declines of 0.3 percent in the June 2010 quarter, and 2.8 percent in the March 2010 quarter.

Imports and exports of goods and services⁽¹⁾

Quarterly



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

Import volumes of goods and services increased 3.0 percent in the September 2010 quarter, the fifth consecutive increase, following a rise of 0.3 percent in the June 2010 quarter.

The volume of goods imported increased 4.6 percent in the September 2010 quarter, following a 0.1 percent increase in the June 2010 quarter. This is the fourth consecutive quarterly increase in the volume of goods imported. The main driver of this increase was a rise in the volume of machinery and plant imports (up 17.2 percent). This is reflected in GFKF through increased investment in plant, machinery, and equipment (up 6.4 percent) and a build-up of distribution inventories (increasing \$483 million).

Partly offsetting the increase in imports of goods was a 41.6 percent decline in imports of military and other goods. This large decline is due to the importation of the offshore patrol vessel, HMNZS *Wellington*, in the June 2010 quarter.

In the September 2010 quarter, imports of services declined 0.8 percent, following a decrease of 0.4 percent in the June 2010 quarter.

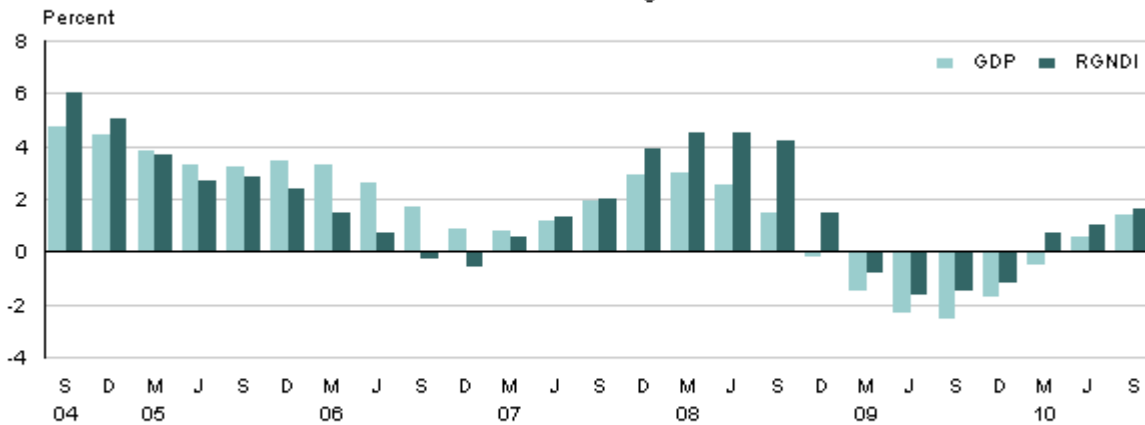
For the year ended September 2010, export volumes were up 3.7 percent and import volumes increased 5.5 percent. This is the first annual increase in import volumes since a 2.6 percent increase in the year ended December 2008.

Real gross national disposable income

Real gross national disposable income (RGNDI) increased 1.6 percent in the year ended September 2010, while GDP grew 1.4 percent over the same period. GDP is a measure of economic activity, while RGNDI is a measure of the volumes of goods and services that New Zealand residents have command over. RGNDI takes into account changes in the terms of trade effect (the price of imports relative to the price of exports), and real gains from net investment and transfer income with the rest of the world.

Gross domestic product and real gross national disposable income ⁽¹⁾

Annual change



1. Actual chain-volume series expressed in 1995/96 prices.

Source: Statistics New Zealand

Implicit price deflators

The GDP implicit price deflator (IPD) for the year ended September 2010 increased 1.1 percent. The GDP IPD is a broad measure of the overall price change for final goods and services produced in New Zealand.

The IPD for gross national expenditure was up 0.4 percent for the year ended September 2010. This provides a broad measure of the overall price change for final goods and services purchased in New Zealand (such as consumer and investment goods).

Revisions to GDP

A number of revisions were incorporated into GDP this quarter. These revisions are discussed below.

Incorporation of new annual benchmarks

Updated benchmarks for the production and expenditure measures of GDP, due to the incorporation of the latest annual national accounts and institutional sector accounts data. Usually, the annual benchmarking affects only the last two or three years, as new balanced annual data are incorporated. In November 2010 the annual national accounts released revisions back to 1988. These revisions have been incorporated into the QGDP benchmarks resulting in revisions to the quarterly accounts back to 1988. Incorporation of annual benchmarks tends to impact on the level of GDP with little change to quarterly movements.

Changes to methodology for property services

Changes to the methodology for commercial property operators and developers in the property services industry were made in the annual national accounts. These revisions affect QGDP during the benchmarking process. Changes to the methodology for property services are discussed in the paper [Improvements to Annual National Accounts](#).

This improved methodology for property services was incorporated from 1988 onwards. As well as revisions to the property services industry, revisions also affected the following industries:

- food, beverage, and tobacco manufacturing
- petroleum, chemical, plastic, and rubber manufacturing
- construction
- wholesale trade
- retail trade
- communications services
- finance and insurance.

Expenditure weights updated

Weights for the expenditure measure of GDP were updated following the release of the annual national accounts. The weights for the expenditure measure of GDP are now up-to-date for the year ended March 2010. These updated weights resulted in minor revisions to all components on the expenditure measure of GDP from the year ended March 2008 onwards. Weights for the production measure of GDP are updated when new balanced years are available. The latest balanced year is currently the year ended March 2007.

Communications industry weights updated

Indicator weights for the communications industry were updated. A paper about [measuring the communications industry in GDP](#) was published on 16 November 2010. The impact of this revision is shown in the table below.

The communications industry makes up around 6 percent of GDP in volume terms. The communications industry represents the value added to the economy of providing services to businesses and households in:

- postal and courier services
- fixed line rental
- fixed line international and domestic toll calls
- mobile phone calls
- Internet usage.

Communication services, percent change from previous quarter		
Quarter	Previously published	Revised
December 2008	2.8	2.9
March 2009	-3.6	-3.9
June 2009	1.3	2.8
September 2009	3.9	2.6
December 2009	-2.3	-1.1
March 2010	-2.2	-2.0
June 2010	-2.6	-0.7

Updated livestock numbers

Livestock numbers for 2009 and 2010 were updated due to new information. The updated livestock numbers affect the agriculture component of the production measure of GDP, as well as inventories on the expenditure measure of GDP.

Impact of GST rise on GDP

On 1 October 2010, (the December 2010 quarter) the rate of GST rose from 12.5 percent to 15 percent. GST is a tax that is imposed on the final consumption of most goods and services.

The headline measure of GDP is a chain-volume measure, which means that the impact of prices has been removed. GST is a component of prices, so chain-volume measures are not directly affected by the GST rise. Chain-volume measures may be indirectly affected, if there is a change in behaviour due to the price change.

Conceptually, the current price expenditure measure of GDP (GDE) includes GST. This means that when GST goes up, if everything else remains the same, current price GDE will go up. It is important to note that not all components of GDE will go up. As with GDP, chain-volume measures of GDE are not directly affected by the rise in GST.

Household final consumption expenditure (HCE) measures the goods and services consumed by households. In current prices HCE measures the total cost of goods and services and includes GST. Indirectly, the volume of goods and services may be influenced by the rise in GST. For example, some people may bring forward purchases of some goods and services before GST is raised.

Indicator series that are used in HCE that are GST exclusive have the GST added back later in the compilation process.

Indicator series

The following series that are used in the compilation of GDP are collected exclusive of GST:

- retail trade
- wholesale trade
- economic survey of manufacturing
- building work put in place.

Impact of the Canterbury earthquake

GDP measures the goods and services produced by an economy in a given period of time. Clean up and reconstruction activity in the wake of the September 2010 earthquake in Canterbury will be significant. Much construction work is required to rebuild houses and buildings and even the activity related to demolition of buildings is included in GDP. Data for rebuilding work would come through building consents initially, then the Building Work Put in Place Survey (QBAS), then finally into the construction component of GDP. While this work is a boost to GDP, it replaces assets that have been lost.

In the short term, the earthquake could have had a negative impact on GDP as many Canterbury businesses were closed and people were unable to go to work. This effect could come through the Retail Trade Survey, Wholesale Trade Survey, and the Economic Survey of Manufacturing. Disruption to infrastructure such as roads, ports, and the airport could also impact on GDP. However, it is important to note that any change to the level of activity could be due to a number of factors, and for most components it is not possible to isolate the impact of the earthquake.

Impact on capital stock

GDP is not a complete measure of the health of the economy. The balance sheet (assets and liabilities) is important too. Many homes and businesses were destroyed by the earthquake. Some estimates put the cost of assets destroyed at upwards of \$5 billion. This represents New Zealand's capital assets that can no longer be used in production.

While New Zealand does not have full balance sheets for the economy, the national accounts measure the capital stock of New Zealand in the perpetual inventory model (PIM). This model, which measures the stock of New Zealand's capital assets, will be adjusted for buildings and equipment that have been written off. New Zealand's capital stock measures are published in the annual national accounts release. The impact of the earthquake on New Zealand's capital stock will not be shown until the year ended March 2011 accounts are released, in November 2011.

The impact of insurance and reinsurance on the balance of payments and international investment position statistics are discussed in the paper [Insurance impact of the Canterbury earthquakes on New Zealand's international accounts](#).

Next release...

Gross Domestic Product: December 2010 quarter will be released on 24 March 2011.

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Technical notes

Introduction

Gross domestic product (GDP) is New Zealand's official measure of economic growth.

There are three different approaches that can be taken to calculate GDP; the production approach, the expenditure approach, and the income approach. The two approaches used to calculate New Zealand's GDP on a quarterly basis are the production and expenditure approaches. The production approach is available quarterly on a chain-volume basis, while the expenditure approach is available on a chain-volume basis, and in current prices. Chain-volume estimates have the effect of price change (inflation) removed from them.

The production approach to GDP measures the total value of goods and services produced in New Zealand, after deducting the cost of goods and services used in the process of production. This is also known as the value-added approach.

The expenditure approach to GDP (also known as GDE) measures the final purchases of goods and services produced in the New Zealand domestic territory. Exports are added to domestic consumption, as they represent goods and services produced in New Zealand, while imports are subtracted. Imports represent goods and services produced by other economies.

Conceptually, both the production-based and expenditure-based GDP series should produce the same growth rates, because what is produced by an economy should equal what is used. However, as each series uses independent data and estimation techniques, some differences between the alternative measures arise. The expenditure-based series has historically shown more quarterly volatility and is more likely to be subject to timing and valuation problems. For these reasons, the production-based measure is the preferred measure for quarter-on-quarter and annual changes.

For more information about GDP and the national accounts, go to the [GDP landing page](#) on the Statistics NZ website (www.stats.govt.nz).

Quarterly gross domestic product: sources and methods

The sources and methods used in the compilation of quarterly GDP are presented in [Quarterly Gross Domestic Product: Sources and Methods \(Second edition\)](#) report. A free electronic version is available on the Statistics New Zealand website (www.stats.govt.nz) or contact the information centre (call toll-free 0508 525 525 or email info@stats.govt.nz) for hard copies.

Series available online

To access more data from the GDP time series, go to Infoshare at www.stats.govt.nz/infoshare, and choose:

Subject category: **Economic indicators**

Group: **National Accounts**

The time series can be downloaded in Excel or comma delimited format. More detailed GDP tables can be created using search files which are available on request. See the technical information contacts listed at the end of the commentary of this release.

[More information about Infoshare.](#)

Implementation of Australian and New Zealand Standard Industrial Classification 2006 (ANZSIC06)

The production measure of GDP is presented by industry. The industry classification that Statistics NZ uses is ANZSIC, and the version that is used for GDP is ANZSIC96. Statistics NZ is currently in the process of converting to the newer standard, ANZSIC06. For more information about the implementation of ANZSIC06, refer to [Introduction to ANZSIC 2006](#) on the Statistics NZ website (www.stats.govt.nz).

The System of National Accounts

The conceptual framework used in the compilation of New Zealand's national accounts and GDP is based on the System of National Accounts 1993 (SNA93). The SNA93 is jointly published by the United Nations, The Commission of the European Communities, the International Monetary Fund, the Organisation for Economic Co-operation and Development, and the World Bank.

The latest international standard for National Accounts compilation is the System of National Accounts 2008 (SNA08). So far Australia is the only country to have adopted SNA08. European countries are targeting 2015 for implementation of the new standard. Statistics New Zealand is likely to introduce SNA08 into the New Zealand accounts after 2012.

Use of Quarterly Employment Survey data

Hours worked data from the Quarterly Employment Survey (QES) is used in the compilation of economic activity for the following industries:

- cultural and recreational services
- personal and other services
- health and community services
- business services
- water supply.

The QES now uses the ANZSIC06 industry classification, while GDP is still calculated using ANZSIC96. For the industries in GDP that use QES as an indicator, forward estimates of ANZSIC96, based on ANZSIC06 survey data, are being used.

Chain-volume series expressed in 1995/96 prices

The series in this release are chain-linked and expressed in the average prices of the 1995/96 year. They are best described as annually reweighted, chained Laspeyres volume indexes. Series are expressed in 1995/96 dollars rather than as index numbers, since this has the advantage of showing the relative size of each component.

The chain-volume measures of GDP and expenditure on GDP are constructed by:

(a) compiling a Laspeyres volume index of the component in question, using the previous year's prices as weights; and then

(b) chaining the sequence of annual movements to produce a continuous time series.

This procedure is used at different levels within the accounts. For example, GDP is compiled by weighting together the individual industry value-added components to produce a Laspeyres volume index for each quarter, and then linking the resulting indexes to produce the GDP time series. Each industry component, such as transport and communication, is also a chained-volume series. At this lowest level, the 'elemental series' are not chained and are either single series in their own right or fixed-weight series comprising a number of components. Chaining is not adopted, either because the detailed information needed for annual weights is not available, or relative price changes are not considered significant.

It is important to note that chain-volume series are not additive (ie the chain-volume series for an aggregate will not equal the sum of the values of its components). For a full explanation, see the report *Chain Volume Measures in National Accounts*, available on the Statistics NZ website (www.stats.govt.nz). This report, published as a discussion document in 1998, contains a detailed discussion of the concepts and procedures used to compile chain-volume series.

In most cases, the industry 'elemental series' estimates that make up the production-based GDP are calculated by extrapolating value added, using indicator series that represent the quantities of output produced. The technique known as double deflation, by which volume value added is calculated as the difference between volume outputs and inputs, is not widely used. Double deflation is currently used for the agriculture and electricity industries on a quarterly basis, and for water transport, business services, cultural and recreational services, and personal and other services on an annual basis.

Implicit price deflators

Table 5.1 contains implicit price deflators (IPDs) for expenditure on GDP and its components. IPDs provide a broad measure of price change for total economic activity and each of the expenditure components. They are calculated by dividing the seasonally adjusted current price quarterly series by the equivalent chain-volume series, and consequently provide an estimate of price change between the base period and any other period, using the quantity weights in the latter period. Because weights change from period to period, a change in an IPD between any two periods, neither of which is the base period, reflects changes in both actual prices and weights or compositional changes. Significant compositional changes may result in the IPDs being an unreliable estimate of price change. This problem is more likely to occur in the gross national expenditure (GNE) and expenditure on GDP aggregates, because both include the change in inventories item, which is highly subject to compositional changes, including a change in sign.

Revisions policy

Revisions to the previously published series may be made each quarter. The frequency and cause of these revisions are as follows:

- **Quarterly:** additional data becoming available for the latest quarters, which is used to replace existing estimates; revisions to quarterly data (eg revisions to the Balance of Payments or Retail Trade Survey), which will be incorporated as soon as possible to maintain consistency between published macro-economic statistics.
- **Annual:** introduction of annual data following the release of the latest annual national accounts each year; annual updating of the weights used to link component series to totals and subsequent chaining (see revisions resulting from chain-linking below).
- **Irregular:** for example, methodological changes. However, note that as far as possible, revisions of this nature are incorporated to coincide with the annual cycle of revisions outlined above or are discussed in a separate paper ahead of the changes.

In addition, each of the above causes for revision, and/or the addition of a new point in the actual quarterly series, has the potential to alter seasonal factors and therefore may lead to a revision in the seasonally adjusted series.

Revisions resulting from chain-linking

One of the key benefits gained through adopting chain-volume measures in place of fixed-weight series is that the relative weights of the component series are more up-to-date. This reduces the likelihood of introducing biases in the volume measures, which would otherwise become progressively unrepresentative as relative prices change. However, the disadvantage is that the annual reweighting introduces another cause for revision.

Reweighting is part of the annual revisions cycle and is usually timed to coincide with the introduction of other new annual data from the current price GDP accounts. These changes are normally incorporated in the September quarter release, which is published at the end of December.

The current price annual accounts provide the detailed component series needed for weighting the production-based series of GDP. There is usually a two-year time lag before these detailed series are available. The latest year for which up-to-date weights have been used for the production-based series is for the year ended 31 March 2007, and all subsequent quarters use these weights.

Current price data is available on a more timely basis for the components comprising the expenditure-based measure of GDP. As a result, the latest year for which up-to-date weights have been used for the expenditure-based series is for the year ended 31 March 2010, and all subsequent quarters use these weights.

When the weights are updated each year, this procedure results in revisions to all periods beyond the latest year for which detailed series are available (currently 2006/07 for the production-based measure and 2009/10 for the expenditure-based measure).

Direct and indirect seasonal adjustment

The level at which a series is seasonally adjusted is important, since it has the potential to affect the quality of that seasonally adjusted series. The individual component series of the main economic variables can be seasonally adjusted and then summed to derive totals. This is called an indirect seasonal adjustment. Alternatively, the main economic variables can be seasonally adjusted at the total level, independently of the seasonal adjustment of their components. The adjustment of the total of an aggregate series is called a direct seasonal adjustment. The indirect approach has the advantage of retaining additivity, but this applies only to the current price series. While the indirect approach conceptually also provides additivity for volume series, additivity is lost by chain-linking.

The direct approach will often give better results if the component series show similar seasonal patterns. At the most detailed level, the irregular factor may be large compared with the seasonal factor and therefore may make it difficult to perform a proper seasonal adjustment. In a small country such as New Zealand, irregular events can have a strong impact on particular data. However, if the component series show the same seasonal pattern, aggregation often reduces the impact of the irregular factors in the component series. This is particularly relevant for New Zealand, where many economic series are affected by seasonal fluctuations in the primary industries.

Statistics NZ has analysed both the direct and indirect approaches for the two quarterly GDP aggregates: production and expenditure on GDP. The direct approach has been chosen as the preferred method because the resulting series are smoother and more stable.

The residual between the seasonally adjusted components and the aggregates is referred to as the balancing item (see tables 1.2 and 1.3). The balancing item will often show significant seasonal variations. This is to be expected, as it captures the undetected seasonality in the component series.

The level at which seasonal adjustment is applied to quarterly GDP series may differ from other Statistics NZ surveys (eg the Economic Survey of Manufacturing and the Wholesale Trade Survey). These may contribute to differences in the aggregate seasonally adjusted series.

Broad industry groups

In tables 2.1 and 2.4, industry groups are combined to form the following broad groupings, based on the Australian and New Zealand Standard Industrial Classification (ANZSIC):

- primary industries (agriculture; fishing, forestry, and mining)
- goods-producing industries (manufacturing; electricity, gas, and water; construction)
- service industries (wholesale trade; retail, accommodation, and restaurants; transport and communications; finance, insurance, and business services; government administration and defence; personal and community services).

As well as these industrial groupings, there is an 'unallocated' category, which includes the nominal industry and unallocated taxes on production and imports (import duties, GST and taxes on capital transactions).

Final consumption expenditure

Private final consumption expenditure is the sum of household outlays on consumer goods and services, and the expenditure on non-capital items by private non-profit organisations serving households. General government final consumption expenditure includes both central and local government, as well as health and education.

Annual percentage changes

When using annual percentage changes, care should be taken to ensure that the measures used are correctly understood. Those in tables 2.4, 2.5, and 3.3 compare the level of economic activity in the latest quarter with the level of activity in the corresponding quarter 12 months earlier. Tables 2.7 and 3.5, on the other hand, display the percentage change in the level of GDP and expenditure on GDP, respectively, for the annual period each quarter, compared with the same period 12 months earlier. Annual measures are calculated by summing the series for each four-quarter period, dividing by the sum of the series of the preceding four quarters, and then expressing this as a percentage.

Real gross national disposable income

Gross national disposable income (GNDI) is the income received (less income payable) by New Zealand residents, from both domestic and overseas sources, after taking account of income redistribution by way of international transfers, or gross national income (GNI) plus international transfers.

Real gross national disposable income (RGNDI) measures the real purchasing power of national disposable income, taking into account changes in the terms of trade, and real gains from net investment and transfer income with the rest of the world. Effectively, it is a measure of the volume of goods and services New Zealand residents have command over.

RGNDI is calculated as follows:

chain-volume measure of **gross domestic product** (production-based measure)
plus a terms of trade effect (trading gain/loss)
equals real gross domestic income
plus real value of total net investment income
equals real gross national income
plus real value of total net transfers
equals real gross national disposable income

where the terms of trade effect is defined as:
current price exports deflated by an imports implicit price index
less chain-volume measure of exports

and the real value of total net investment income equals:
investment income credits
less investment income debits
all deflated by an imports implicit price index

and the real value of total net transfers equals:
transfers credits
less transfers debits
all deflated by an imports implicit price index.

A per capita measure is simply the series in question divided by the projected population of New Zealand. From the March 1991 quarter onwards, the definition used is the 'estimated resident population of New Zealand'. This is defined as New Zealand residents currently in New Zealand plus those temporarily overseas. Overseas tourists visiting New Zealand are excluded from this measure. Before March 1991, the definition used was the 'de facto' population, which excludes New Zealand residents temporarily overseas and includes overseas tourists in New Zealand.

More information

For more information, follow the [link](#) to the Statistics NZ website.

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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.

- 1.1 Gross domestic product, revisions summary
- 1.2 Gross domestic product by industry, chain-volume series expressed in 1995/96 prices
- 1.3 Expenditure on gross domestic product, chain-volume series expressed in 1995/96 prices
- 2.1 Gross domestic product by broad industry group, chain-volume series expressed in 1995/96 prices
- 2.2 Gross domestic product by industry, seasonally adjusted chain-volume series expressed in 1995/96 prices
- 2.3 Gross domestic product by industry, seasonally adjusted chain-volume series expressed in 1995/96 prices, percentage change from previous quarter
- 2.4 Gross domestic product by broad industry group, seasonally adjusted chain-volume series expressed in 1995/96 prices, values and percentage change from same quarter of previous year
- 2.5 Gross domestic product by industry, seasonally adjusted chain-volume series expressed in 1995/96 prices, percentage change from same quarter of previous year
- 2.6 Gross domestic product by industry, actual chain-volume series expressed in 1995/96 prices
- 2.7 Gross domestic product by industry, actual chain-volume series expressed in 1995/96 prices, percentage change in annual values
- 3.1 Expenditure on gross domestic product, seasonally adjusted chain-volume series expressed in 1995/96 prices
- 3.2 Expenditure on gross domestic product, seasonally adjusted chain-volume series expressed in 1995/96 prices, percentage change from previous quarter
- 3.3 Expenditure on gross domestic product, seasonally adjusted chain-volume series expressed in 1995/96 prices, percentage change from same quarter of previous year
- 3.4 Expenditure on gross domestic product, actual chain-volume series expressed in 1995/96 prices
- 3.5 Expenditure on gross domestic product, actual chain-volume series expressed in 1995/96 prices, percentage change in annual values
- 4.1 Expenditure on gross domestic product, seasonally adjusted current prices
- 4.2 Expenditure on gross domestic product, actual current prices
- 5.1 Index of implicit price deflators, 1995/96 = 1000
- 5.2 Index of implicit price deflators, 1995/96 = 1000, seasonally adjusted series percentage change from previous quarter
- 5.3 Index of implicit price deflators, 1995/96 = 1000, percentage change in annual values
- 6.1 Summary statistics
- 6.2 Summary statistics, percentage change in annual values

Analytical tables

The analytical tables are no longer attached to this page. [Infoshare](#), available on the Statistics NZ website (www.stats.govt.nz), provides free online access to all published series. The analytical tables are still available on request. Also available on request are text files that can be used in Infoshare to replicate the tables.