

## Box 1.1

### Introducing the chain volume measures of the Gross Domestic Product

The Gross Domestic Product (GDP) measures the total production or final expenditures on goods and services of an economy.

Conceptually, changes over time in the GDP at current prices can be factored into two components, reflecting (i) changes in the prices of goods and services produced or purchased and (ii) changes in their volumes. In order to measure the volume growth of GDP and its components, the effect of price changes has to be eliminated. Thus, the volume measure of GDP is sometimes referred to as the inflation-adjusted or real GDP. The change in the volume measure of GDP is widely used as a key macro-economic indicator of the real growth of the aggregate economic activity of an economy.

Intuitively, the volume measure of GDP is compiled by aggregating the volumes of various components, using their relative prices as weights to reflect their relative importance to the GDP aggregate.

In recent years, an increasing number of statistically advanced economies<sup>(a)</sup> have changed over from the constant price measure of GDP to the chain volume measure of GDP. This is to gear with the latest international statistical guidelines (*System of National Accounts 1993*) on national accounts statistics.

In respect of Hong Kong, the chain volume measures of GDP and its components have been introduced in October 2007 in place of the previous constant price measures. Compared with the previous constant price approach where the price structure as weights for aggregating the volumes of the GDP components is only updated once every several years, the new calculation of chain volume measure is a more enhanced approach, as the price structure is updated every year, thus providing a better measure of the growth of GDP in real terms.

In order to maintain the comparability of the data series, backdating of historical series of the volume measures of GDP and its expenditure components based on the new calculation method is made for the past 20 years. On the production side, the entire historical series of the real value added by economic activity is backdated to 2000.

In introducing this methodology enhancement, the GDP real growth rate for the first half of 2007 is revised slightly downwards from 6.3% to 6.1%, and for 2006, from 6.9% to 6.8%.

A relatively more significant revision is observed for the real growth

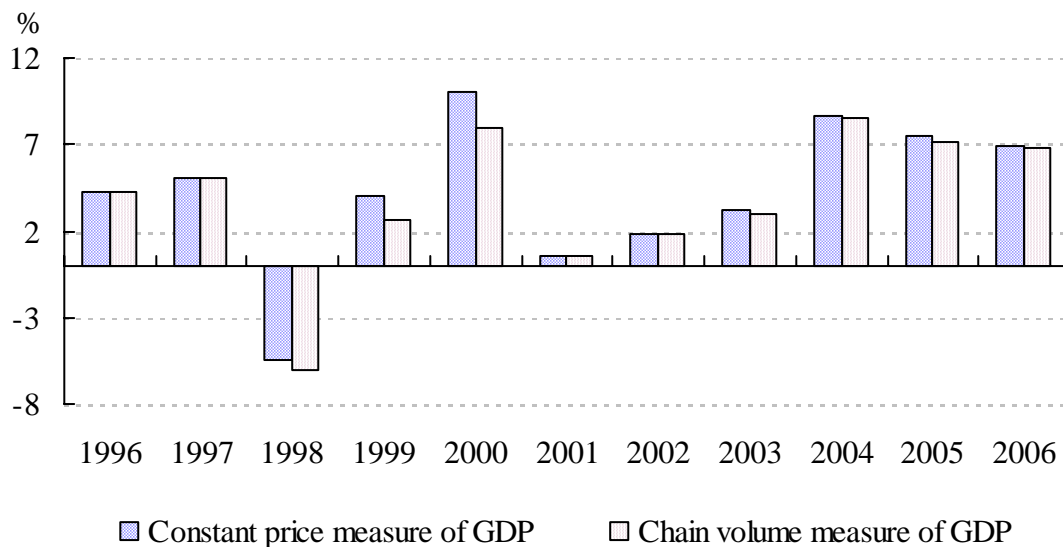
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<sup>(a)</sup> Economies which have changed over to the chain volume measure of GDP include the US, Canada, Australia, New Zealand, Japan, UK and some European economies. Hong Kong is the second economy in Asia (after Japan) which has introduced this enhanced method for calculating the volume measure of GDP.

**Box 1.1 (Cont'd)**

rate of GDP for 2000 (from 10% to 8%) due to volatility in the relative price and volume movements of the GDP components. The five-year (2001 to 2006) trend growth of the volume of GDP is revised downwards from 5.6% to 5.4%. Experience in other economies indicates that such downward revisions are normal when chain volume measures are used instead of constant price measures<sup>(b)</sup>. A comparison of the growth rates in real terms of the revised GDP series based on the chain volume measure against the previously published figures based on the constant price measure is given in the chart below.

**Comparison of the real growth rates of GDP before and after the revision**



A technical feature of the chain volume measures is that for earlier years, the GDP components in real terms may not add up to the GDP aggregate, owing to the fact that the price weights are updated every year. However, it should be noted that this non-additivity element arises from purely mathematical reasons; the discrepancy should not be interpreted as an indication of the quality of the GDP measure.

The adoption of the new calculation method of chain volume measure of GDP does not alter the broad picture of the economic growth cycles in the macro-economy of Hong Kong. The migration to the chain volume measure further aligns Hong Kong's GDP statistics with the latest international statistical guidelines and the good practice of statistically advanced economies. Most importantly, the enhanced calculation method provides a better measure of the real growth of GDP.

<sup>(b)</sup> Experience in other economies indicates that the GDP real growth rates are generally revised downwards when chain volume measure is used instead of the constant price measure. One of the reasons is that the contribution of those components which have recorded faster volume growth accompanied with falling prices or slower price increases are reduced as a result of adopting the up-to-date and more relevant price structure as weights in compiling the volume measure of the GDP aggregate. Thus, such downward revisions to the real growth rates of GDP are normal.