Box 8

THE RELIABILITY OF ESTIMATES OF EURO AREA GDP GROWTH AND ITS COMPONENTS

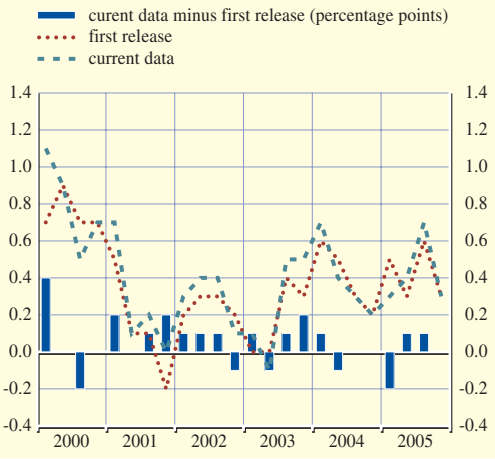
This box analyses the reliability of Eurostat's first estimates of euro area GDP growth and its expenditure components. The analysis focuses on seasonally and working-day-adjusted quarter-on-quarter volume growth rates. The period under investigation extends from the first quarter of 2000 to the fourth quarter of 2005.[1] Reliability is measured as the proximity of the latest available (current) results to the initial estimate. Three aspects are distinguished: the stability of the first releases (measured by the average absolute difference between the latest and the first releases), the potential bias (the average size of revisions) and the volatility of the first releases (the range of revisions).

The first "flash" estimates of quarter-on-quarter euro area GDP growth – which were introduced by Eurostat in May 2003 – currently have a country coverage of around 96% of euro area GDP and are released some 41 to 46 days after the end of the reference quarter. Expenditure breakdowns are published around 63 and 103 days after the quarter. Regular revisions are due to the incorporation of improved quarterly or annual source data, while benchmark revisions every five years reflect improved multi-year source data or methodological improvements. The last benchmark revision of GDP data based on the ESA 95 was in 2005. Revisions are also due to regular updates of the factors for the correction of seasonal and working-day variations.

The revision analysis leads to a relatively favourable assessment of the reliability of the first estimates of quarterly euro area GDP growth. From 2000 to 2005, the average absolute revision of the first euro area estimates was 0.11 percentage point. These estimates exhibit a small bias of 0.05 percentage point (i.e. there have been slightly more positive than negative revisions), which

Chart A Euro area GDP

(quarter-on-quarter percentage changes, unless otherwise indicated)

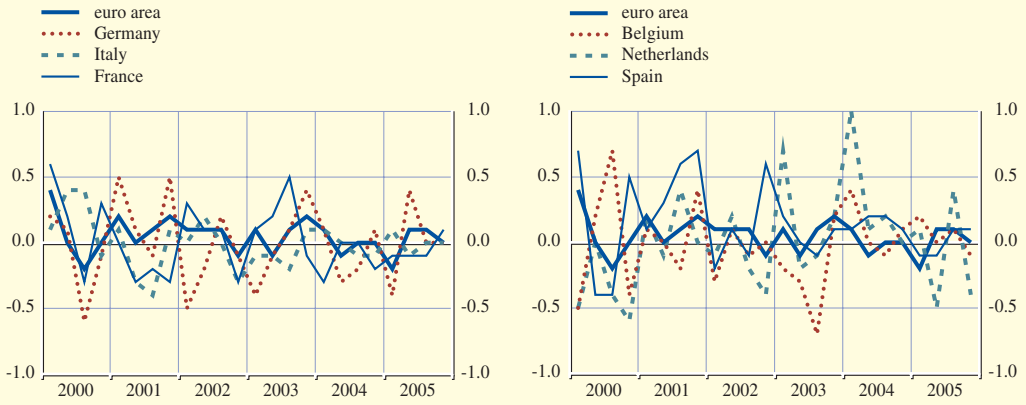


Source: ECB calculations based on Eurostat data.

1 GDP figures based on the current European System of Accounts (ESA 95) have been released since 1999. Revisions to 1999 data are not considered in the analysis as these were influenced by one-off effects due to the staggered introduction of the ESA 95 in the Member States. For more information on 1999/2000 revisions, see Box 4 – "Revisions to quarterly national accounts for the euro area" – in the August 2001 issue of the Monthly Bulletin.

Chart B GDP growth revisions in the euro area and selected countries [1)]

(percentage points)



Source: ECB calculations based on Eurostat data.
1) Current data minus first release; quarterly volume growth.

should be seen in comparison with an average GDP growth rate of 0.4% in this period. The range of total revisions is relatively wide (between -0.2 percentage point and +0.4 percentage point). However, a revision exceeding 0.2 percentage point has occurred only once (in the first quarter 2000). Moreover, the data for 18 of 24 quarters have either not been revised or have been revised by not more than 0.1 percentage point. This may partly be due to the high country coverage of the more recent first estimates compared with the coverage of such first estimates around the turn of the century. At that time, the coverage of the first release some 75 days after the reference quarter was around 77% of euro area GDP.

The implementation of benchmark revisions and introduction of new methods by national statistical institutes and Eurostat in 2005 have not led to significant changes in the quarterly growth pattern of euro area GDP. On average, the quarterly results for 2005 have not been revised more than those for earlier quarters. Regular and benchmark revisions have been somewhat more pronounced at the level of individual countries, but national revisions tend to cancel one another out at the euro area level. The higher reliability of euro area data, as compared with national data, is illustrated in Chart B, which compares revisions of quarterly GDP growth for the euro area with those for the six largest euro area economies.

The results for the euro area compare favourably with the United States, for which first estimates of GDP growth are somewhat less stable (an average absolute revision of 0.3 percentage point). However, the average quarterly GDP growth is higher in the United States (0.6%) and first estimates there are released around 30 days after the reference quarter.[2]

A revision analysis of the expenditure components provides further insight into the reliability of GDP growth estimates (see the table below). The first estimates of the expenditure components are less stable and more volatile than those of GDP. This is most pronounced for gross fixed capital formation (an average absolute revision of 0.6 percentage point) and for exports and imports (including trade between euro area countries). The highest bias is observed for gross

2 Source: ECB calculations for the period from the first quarter of 2000 to the second quarter of 2005, based on data from the OECD Quarterly National Accounts (QNA) – Main Economic Indicators (MEI) Revisions Database, September 2005.

Revision indicators of euro area GDP growth and its expenditure components [1)]

(percentage points)

	Average revision [2)]	Average absolute revision	Range of total revisions	Average quarterly volume growth (%)
GDP	0.05	0.11	-0.2 to 0.4	0.40
Private consumption	0.10	0.23	-0.3 to 0.9	0.37
Government consumption	0.11	0.27	-0.5 to 0.6	0.47
Gross fixed capital formation	0.30	0.57	-0.7 to 1.7	0.35
Changes in inventories [3)]	-0.05	0.19	-0.4 to 0.4	-
Exports	-0.09	0.59	-1.4 to 2.1	1.07
Imports	-0.06	0.59	-1.4 to 1.3	1.08

Source: ECB calculations based on Eurostat data.
1) Quarterly volume growth, observations from the first quarter of 2000 to the fourth quarter of 2005.
2) Positive (negative) revision indicates upward (downward) revision of the first release.
3) Contributions to growth.

fixed capital formation (0.3 percentage point). The large revisions of some of these expenditure components have to be seen against the background of the high quarterly growth rates for those components. Moreover, the higher uncertainty that surrounds the expenditure components is cancelled out at the aggregate GDP level.

In summary, the first estimates of quarterly euro area GDP growth have been quite reliable and have only shown a small positive bias. GDP expenditure components, in particular gross fixed capital formation, as well as exports and imports, have been subject to larger revisions than total GDP. However, the lower reliability with respect to the expenditure components tends to cancel out at the aggregate GDP level, as do the revisions of national data in the euro area aggregates. Furthermore, it can be concluded that the introduction of the GDP flash estimates by Eurostat in 2003 has brought an improvement in timeliness, but not at the expense of any reduced reliability of euro area statistics.