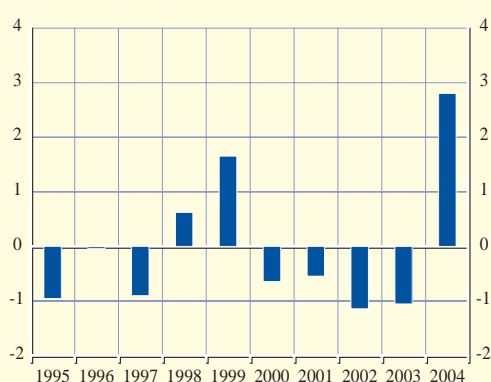


Box 6

THE IMPACT OF THE NUMBER OF WORKING DAYS ON EURO AREA GDP IN 2004

The number of working days in 2004 is unusually large since 2004 is a leap year and several public holidays fall on weekends (e.g. 1 May, as well as 25 and 26 December). As output varies with the number of days worked, this calendar constellation will have a marked impact on this year's unadjusted growth of GDP and its components. The number of working days in 2004 is 2.8 days larger than the average from 1990 to 2004, while it was 1.1 days smaller in 2003 (see chart below). Thus, the unadjusted annual growth rate of GDP will be particularly affected in 2004, since that year has nearly four working days more than 2003, which is the highest working-day difference in recent years.

Deviation of the number of working days in the euro area from the long-term average (1990-2004)



Source: ECB calculations.

The ECB estimates that this calendar effect will contribute around $\frac{1}{4}$ of a percentage point to the euro area's annual GDP growth in 2004. This number is obtained by aggregating estimations of the calendar impact made separately for Belgium, Germany, Spain, France, Italy and the Netherlands. These six countries account for over 90% of euro area GDP. The estimated size of the calendar effect differs across countries. While the estimated calendar effect for Germany in 2004, for instance, accounts for about $\frac{1}{2}$ a percentage point of annual GDP growth, the effect for France is about 0.2 to 0.3 percentage point, and the effect for other euro area countries is likely to be even smaller. Reasons for this fairly wide range of estimates are the different number of public holidays, additional days of leave granted in some countries when public holidays fall on weekends and different value added shares of sectors whose activities are strongly affected by varying numbers of working days. But there might also be variations in the statistical calculation of quarterly GDP figures that could lead to less pronounced calendar effects in the raw data. Differences across countries, as well as the sizeable impact of the working-day situation in 2004 on euro area GDP, support the view that, for many economic analyses, adjustment for calendar effects is necessary. The quarterly euro area GDP and its components published by Eurostat and used in the ECB's Monthly Bulletin are therefore adjusted for both seasonal and working-day variations.

In estimating the working-day effects, the fact is taken into account that most economic activity depends on a week of five working days, excluding public holidays. An upper limit of the working-day effect may be obtained by assuming that each working day's production is proportional to the annual number of official working days. As the average number of working days in the euro area is about 250 days per annum, the potential effect of one working day more or less on annual output is, at maximum, about 0.4%. However, there are many reasons why the actual working-day impact on GDP is less than proportional. This is due, for example, to industries with continuous production, as well as to retail trade turnover on weekends. Moreover, opposite effects may be observed in branches whose activity is high on weekends and holidays (tourism). On balance, the available estimates suggest that each extra working day in the euro area increases annual GDP by 0.05% to 0.1%.