Box 5

THE NEW APPROACH TO SEASONAL ADJUSTMENT[1] OF EUROPEAN AGGREGATES IN SHORT-TERM STATISTICS

Starting with the observation period of January 2012 (or the first quarter of 2012 for quarterly data), Eurostat, the statistical office of the EU, has changed its way of seasonally adjusting short-term economic indicators for the euro area and the EU from a "direct" approach to an "indirect" approach. Until December 2011 non-seasonally adjusted national data were used to produce a European aggregate, which was then directly seasonally adjusted. While this direct seasonal adjustment made use of the most adequate statistical setting for the respective European time series, in certain periods, the results, especially the month-on-month growth rates, differed from the weighted average of the seasonally adjusted national components. By contrast, under the indirect approach, European totals are calculated as a weighted average of the seasonally adjusted national data in order to obtain a fully consistent set of seasonally adjusted European totals and national components. This box describes the indirect approach adopted, as well as the revisions to euro area industrial production, retail trade turnover and construction production growth rates following the switch from the direct to the indirect method.

Indirect seasonal adjustment of European aggregates

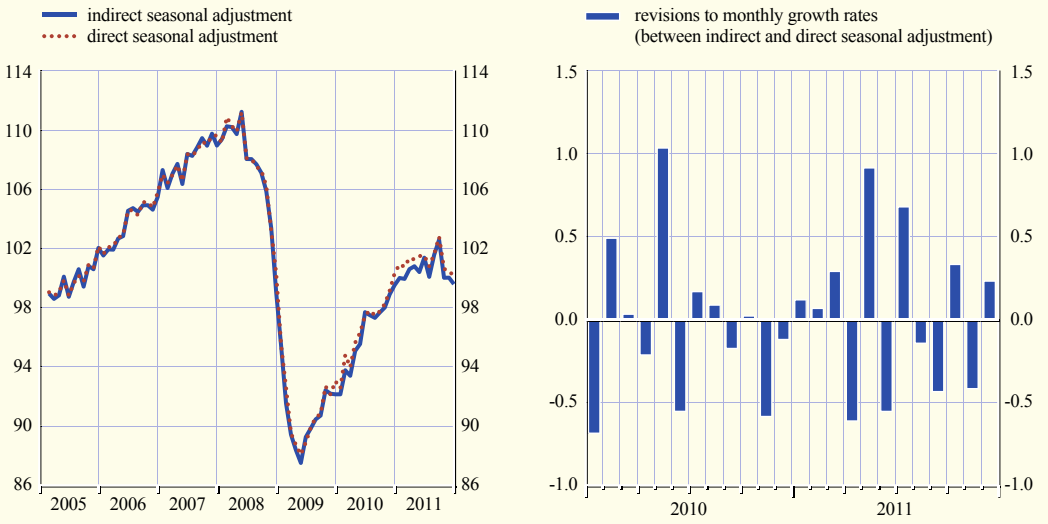
Short-term indicators, such as industrial production or retail trade turnover, are typically adjusted for the average effects of regular seasonal events such as summer holidays on industrial production or Christmas shopping on retail trade turnover. Now that it has adopted an indirect approach, Eurostat is using national data that have been seasonally adjusted by national statistical institutes, based on the assumption that adjustment at a national level is more appropriate in terms of taking into account information on specific developments affecting the data.[2] A change to indirect seasonal adjustment in short-term statistics increases coherence with other statistical domains. For example, the indirect approach is already used for compiling seasonally adjusted euro area GDP and its components in the quarterly national accounts.

The main advantage of indirectly derived European aggregates is their consistency with the national components. If national data are released earlier than the European totals, such national

1 For the sake of simplicity, in this box, seasonal and working day adjustment are referred to as seasonal adjustment.
2 For more information on the indirect and direct approaches to seasonal adjustment, see the "ESS Guidelines on Seasonal Adjustment", available on Eurostat's website at: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-09-006/EN/KS-RA-09-006-EN.PDF

Seasonally adjusted euro area industrial production using indirect and direct seasonal adjustment

(index 2005 = 100 and revisions to monthly growth rates in percentage points)



Sources: Eurostat and ECB calculations.

data can be used to adequately estimate the forthcoming European aggregates. However, the indirect approach requires the application of harmonised practices among countries, for example in the treatment of outliers, so that the same phenomena are treated in the same way across Member States.

Impact of the change from direct to indirect seasonal adjustment of euro area aggregates

The change from direct to indirect seasonal adjustment of European aggregates was applied to the data as of January 2012 as well as to the historical parts of the European time series. While the revisions to the index levels were small, the revisions to the monthly growth rate of euro area aggregates were higher. The left-hand chart shows the revisions to the index levels and the right-hand chart shows the revisions to the monthly growth rate for euro area industrial production.

Over the period 2005-11, for industrial production, retail trade turnover and construction production[3], average revisions did not significantly differ from zero, both at the aggregated level and at the first level of breakdown (see the table). This reflects the fundamental property of seasonal adjustment, which should not alter the series' medium-term trend levels irrespective of the approach or procedure applied. Despite average revisions being negligible, the ranges between the highest and the lowest revisions point to revisions being more pronounced for individual observations.

The breakdown of the European totals into their components, for example the main industrial groupings (MIGs), is still not fully consistent. This is due mainly to the use of different national methodologies (such as the direct approach for the seasonal adjustment of totals and

3 As some Member States deliver national data only at a quarterly frequency, the monthly European aggregates for construction production are compiled only using national data at monthly frequency, whereas quarterly European results cover the full range of national data from Member States. As a result, the index levels of monthly and quarterly construction production differ.

Revisions to euro area industrial production, retail trade turnover and construction production monthly growth rates after the introduction of indirect seasonal adjustment

(in percentage points)

Indicator	Average revision	Range of revision	Absolute average revision	*Memo item:* Absolute average of monthly changes
Industrial production (excluding contruction)	-0.01	-1.4 to 1.2	0.33	*0.93*
of which:				
Manufacturing	-0.01	-0.9 to 1.2	0.32	*0.99*
MIG Intermediate goods	-0.01	-1.7 to 1.6	0.39	*1.14*
MIG Capital goods	-0.01	-1.8 to 2.2	0.62	*1.56*
MIG Consumer goods	-0.01	-1.2 to 0.9	0.36	*0.85*
MIG Durable consumer goods	0.00	-2.8 to 4.2	0.69	*1.50*
MIG Non-durable consumer goods	-0.02	-1.2 to 0.8	0.30	*0.89*
MIG Energy	0.00	-1.8 to 1.9	0.33	*1.54*
Retail trade turnover (including fuel)	-0.01	-0.9 to 0.6	0.15	*0.48*
of which:				
Food, bevarages, tobacco	-0.02	-1.4 to 0.7	0.31	*0.55*
Non-food	-0.01	-0.9 to 1.6	0.31	*0.66*
Fuel	0.03	-1.2 to 2.2	0.38	*1.06*
Contruction production[1)]	0.03	-3.4 to 4.9	0.83	*1.59*
of which:				
Buildings[1)]	0.04	-4.7 to 5.5	0.91	*1.64*
Civil Engineering[1)]	-0.01	-4.4 to 7.2	1.49	*1.96*

Sources: Eurostat and ECB calculations.
Notes: Revision to month-on-month changes of seasonally and working day adjusted data from January 2005 to December 2011.
1) The revisions are also affected by the lower country coverage in the monthly European aggregates.

their components at national level) or issues around a set of consistent weights. In particular, for industrial production, the inconsistencies between euro area totals and the aggregation of its MIG components may be not negligible.

A satisfactory degree of harmonisation of national practices in seasonal adjustment is needed to ensure that indirectly seasonally adjusted European aggregates can compare favourably with directly adjusted European totals. The European Statistical System (ESS) is encouraged to increase transparency regarding the methodologies and practices applied among Member States, for example by providing complete metadata on national methodologies regarding seasonal adjustment. Moreover, it needs to actively monitor and promote further harmonisation of the adjustment process at the national level.