Explanatory notes

Seasonal adjustment

The Deutsche Bundesbank's purpose in seasonally adjusting time series is to filter out the usual seasonal fluctuations within the movements of the times series under review. "Usual seasonal fluctuations" are those movements which recur with similar intensity in the same season each year and which, on the basis of past movements of the time series in question, can, under normal circumstances, be expected to recur. Thus, fluctuations due to exceptionally strong or weak seasonal influences (for example, extreme weather conditions or atypical holiday constellations) will continue to be visible in the seasonally adjusted series to the extent that they exceed, or fall short of, the normal seasonal average. In general, other random disruptions and unusual movements that are readily understandable in economic terms (for example, the consequences of economic policy, large-scale orders or strikes) are also not eliminated.

Seasonal adjustment also includes the elimination of working-day variations insofar as influences deriving from differences in the number of working days or the dates of particular days (e.g. public holidays, weekday on the last day of the month in the case of stock series) can be demonstrated and quantified.

For the most part, seasonal adjustment is based on the Census X-13ARIMA-SEATS method, as implemented in the seasonal adjustment software JDemetra+, version 2.2.2. Some time series are seasonally adjusted with the Census X-12-ARIMA method, version 0.2.8, but will be successively migrated to JDemetra+. This is not impairing the analysis of current economic developments. As a rule, the breakdown of time series is based on a multiplicative model. Time series adjusted using the additive approach are marked with an (A).

Discrepancies between the aggregated series and their components are due to the fact that some of the seasonally adjusted aggregates are estimated directly and not derived from seasonally adjusted components.

For details of the Census method as well as on seasonal and calendar adjustment please refer to:

Julius Shiskin, Allan Young and John Musgrave, The X-11 Variant of the Census Method II, Seasonal Adjustment Program, Technical Paper No. 15, US Department of Commerce, Bureau of the Census, US Government Printing Office, Washington D.C., 1967.

Deutsche Bundesbank, Seasonal adjustment by the Census Method, Monthly Report, March 1970, pp. 37-41.

Deutsche Bundesbank, Seasonal adjustment as a tool for analysing economic activity, Monthly Report, October 1987, pp. 30-39.

Deutsche Bundesbank, Data, adjusted for seasonal and working-day variations, on the expenditure components of GNP, Monthly Report, April 1991, pp. 35-40.

Deutsche Bundesbank, Results of the national accounts for Germany as a whole, Monthly Report, October 1995, pp. 45-57.

David F. Findley, Brian C. Monsell, William R. Bell, Mark C. Otto and Bor-Chung Chen, New Capabilities and Methods of the X-12-ARIMA Seasonal Adjustment Program, Journal of Business & Economic Statistics, Vol. 16, April 1998, pp. 127-177.

Deutsche Bundesbank, The changeover from the seasonal adjustment method Census X-11 to Census X-12-ARIMA, Monthly Report, September 1999, pp. 39-50.

Robert Kirchner, Auswirkungen des neuen Saisonbereinigungsverfahrens Census X-12-ARIMA auf die aktuelle Wirtschaftsanalyse in Deutschland, Discussion Paper 7/99, Economic Research Group of the Deutsche Bundesbank, December 1999.

Bureau of the Census, X-12-ARIMA Reference Manual, Version 0.2.8., Washington D.C., 17 January 2001.

Deutsche Bundesbank, Calendar effects on economic activity, Monthly Report, December 2012, pp. 51-60.

Classifications

Directive ECB/2001/13 and the Deutsche Bundesbank's Special Statistical Publication 1 – Banking statistics guidelines and customer classification form the basis for the harmonised balance sheet data from monetary financial institutions (MFIs) in Tables I.

The data in the national accounts (Tables II) are based on the European System of Accounts (ESA 2010).

The classification of further economic indicators (Tables III.1 to III.4 and III.6) is based on the Classification of Economic Activities, 2008 edition (WZ 2008). This is the national implementation and breakdown of the European classification NACE Rev. 2 which contains the aggregated sections down to the disaggregated level for the classes (four-digit codes) (Regulation (EC) No 1893/2006). The main industrial groupings are defined in Regulation (EC) No 656/2007. The item "Industry" has been added and is defined as an aggregate of producers of intermediate, capital and consumer goods. Energy and industry have been merged to form the item "Mining and quarrying, manufacturing and electricity, gas, steam and air conditioning supply" (WZ 2008 sections B, C and D). The production sector also includes the areas "Water supply; sewerage, waste management and remediation activities" as well as "Construction" (WZ 2008 sections E and F). However, section E and item 41.1 in section F are not included in the production index for the production sector. The statistics for industrial new orders include data for the following sections of WZ 2008: 13, 14, 17, 20, 21 and 24 to 30. These economic activities account for just about 75% of industrial sales from 2010. Statistics regarding building permits granted for structural engineering work (Table III.2.h) are regulated by the Act on Construction Statistics (Hochbaustatistikgesetz). The national term "Main construction industry" (Tables III.1.a, III.2.f and III.2.g) includes WZ 2008 items 41.2, 42, 43.1 and 43.9. The results for this area are listed by building type and contracting party.

An overview of the definitions used in the labour market statistics (Table III.5) can be found in the glossary for statistical reporting at the back of the Federal Employment Agency's monthly publication "Amtliche Nachrichten der Bundesagentur für Arbeit". All persons who have reached the age of 15 but have not yet reached the age of 65 and who are without employment or only with short-time employment (less than 15 hours per week) and seeking an employment of at least 15 hours per week subject to compulsory insurance are counted as unemployed. They must be registered as unemployed at an employment agency or at a basic allowance institution and be available for employment services and not be unfit for work owing to sickness.

The balance of payments statistics are based on the sixth edition of the IMF's Balance of Payments Manual (BPM6) (see Deutsche Bundesbank, Changes in the Methodology and Classifications of the Balance of Payments and the International Investment Position, June 2014, pp. 57-68). Up to December 2008, the categorisation of groups of goods in Tables IV.2.b, IV.3.b and IV.3.c follows the Product Classification for Production Statistics, 2002 edition (Güterverzeichnis für Produktionsstatistiken, GP 2002). Since the changeover in foreign trade statistics, the categorisation of groups of goods has been based on the Product Classification for Production Statistics, 2009 edition (GP 2009). The allocation of groups of goods from GP 2002 to main industrial groupings is carried out pursuant to Regulation (EC) No 586/2001. For GP 2009, this classification is based on Regulation (EC) No 656/2007.

Data in the national accounts at previous-year prices and contributions to growth

Chain-linked Laspeyres indices (annual overlap) are at the centre of the report on the quarterly data at previous-year prices. This method evaluates the quarterly volume data of any given year at the average prices of the previous year and expresses them in terms of the quarterly average of the nominal values of the previous year. This ratio is then chain-linked with the successively chain-linked annual average ratios. The resulting time series for the volumes may contain statistically-related breaks from the fourth quarter of one year to the first quarter of the following year. The smaller the relative price change from year to year and the less the volume structure in the fourth quarter of the previous year deviates from that of the entire previous year, the smaller such breaks arising from the change of the price basis are. Within a year, however, the volume series do not experience any breaks. In addition, the method ensures that the annual average of the seasonally and calendar-adjusted indices is equal to the average of the only calendar adjusted series and that the annual average of the only seasonally adjusted results is equal to the average of the unadjusted values (except for rounding differences).

Balancing items for which a change in the plus or minus sign is possible (e.g. changes in inventories and net exports) cannot be meaningfully expressed as chain-linked indices. Even so, in order to ascertain their importance for economic dynamics, mechanical contributions to growth are identified. For example, the mechanical contribution of net exports to growth is the difference between the actual rate of growth of GDP and that which one would obtain if, under otherwise equal conditions, both imports and exports had remained constant vis-à-vis the comparable period. Owing to the statistical break from the fourth

quarter of one year to the first quarter of the following year, the sum of the contributions to growth of the components of GDP at previous-year prices for this period is not necessarily equal to the rate of change in real GDP. The additivity of the contributions to growth within one calendar year, however, is assured (except for rounding differences).

Sources of unadjusted figures

The source of the unadjusted figures of the seasonally adjusted time series is the Deutsche Bundesbank, unless stated otherwise in the tables.