Beginners:Short-term business statistics

Statistics Explained

Short-term business statistics provide information on relevant aspects of economic activities within an economy, investigating production, sales, and other elements essential to their functioning.

Why is this information important? STS are key instruments in formulating and monitoring the 'European Monetary Policy' and provide important information for national policy makers, businesses and academia.

This article is part of Statistics 4 beginners , a section in Statistics Explained where indicators and concepts are explained in a simple way to make the world of statistics a bit easier for pupils and students as well as for everyone else with an interest this topic.

What are short-term business statistics?

Short-term business statistics , or STS, describe developments of economic activities within the business economy. STS data are not provided for individual businesses, but for **economic activities** .

STS data are used to track the **business cycle** of an economy, for example a single country, the **euro area** , or the **European Union (EU)** as a whole. To these ends, the main indicators reflect sales (turnover), production volumes, labour input or prices. And, in order to be relevant and to reflect recent developments, they have to be available quickly.

As STS data are intended to show developments over time, they are presented as **indices** , whose value is expressed as a percentage, compared to a base year (which is the reference value of 100 %), and as **rates of change** calculated from the indices.

What is a business cycle?

A business cycle describes the expansions and contractions of activity in an economy over a period of time and is usually represented in a graph showing changes (positive and negative) over time. Economic indicators such as production, hours worked, employment (or gross domestic product (GDP) from **national accounts**) are the variables used to measure the level of activity in the economy.

What is the business economy?

For STS, the business economy has traditionally been defined as:

- **industry** (including mining and quarrying, manufacturing, utilities such as electricity and gas supply, and materials recovery);
- **construction** ;
- **retail trade** ;
- **non-financial and non-public service activities** (including wholesale and motor trades, transportation and storage, accommodation and food service activities, information and communication, most professional, scientific and technical activities, and most administrative and support service activities).

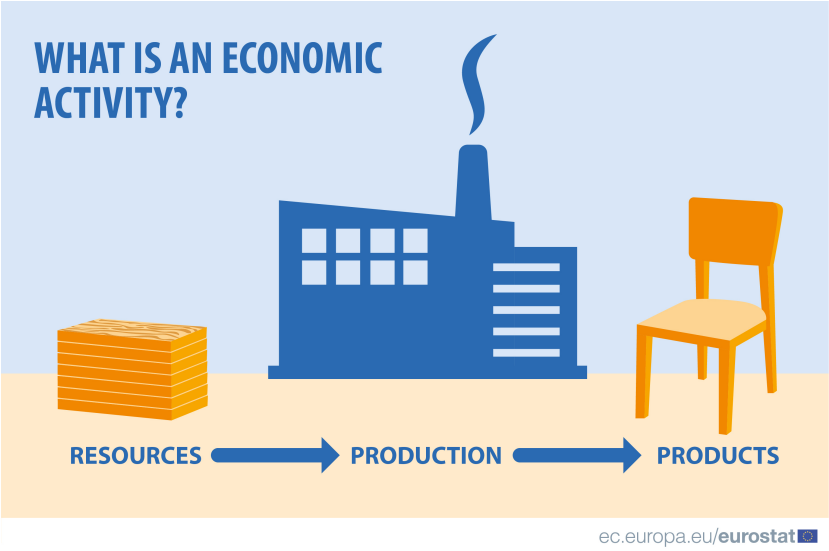
Thus, STS do not cover agriculture, forestry and fishing, nor some other specific services (such as veterinary services).

After 2021, EU Member States are required to provide STS data for real estate services, rental and leasing activities, combined facilities support activities, and landscape service activities. Member States are given few years to comply with this new requirement, and by the end of this transition period all Member States should be able to provide the new data consistently.

STS data from the start of 2021, however, continues to exclude financial services, activities of head offices, scientific research and development services, veterinary activities, health, education, arts, entertainment and recreation services, public administration and defence, compulsory social security, and activities of membership organisations (such as trade unions), as well as continuing to exclude activities of households as employers and activities of extraterritorial organisations and bodies.

What is an economic activity?

An economic activity takes place when different resources are combined to produce specific goods or services. These resources can be capital goods (like machinery or equipment), labour (workers), manufacturing techniques or intermediary products. Thus, an economic activity is composed by an **input of resources** , a **production process** and an **output of products** (goods or services).



The list and definitions of economic activities used in EU statistics are specified in the **statistical classification of economic activities in the European Community** , commonly referred to as **NACE** . Although there were earlier classifications of activities in the EU under different names, the first version of NACE was adopted in 1970. Three revisions at fairly long intervals have led to the current version of the classification, referred to as NACE Rev. 2.

NACE has a four-level hierarchical structure. The highest level is composed of sections (coded with a single letter, such as C for manufacturing). The next three levels — divisions, groups and classes — are coded with two, three or four-digits respectively, for example:

- 10 manufacture of food products;
- 10.5 manufacture of dairy products;
- 10.52 manufacture of ice cream.

At the most detailed NACE level, the entire economy is divided into 615 classes. The level of detail used for STS data varies. For example, for industry STS data are presented for the class (four-digit) level of NACE, with data aggregated to the less detailed group, division and section levels. At the most detailed level, 255 industrial activities are used in STS. Furthermore, industrial data are published for special aggregates called **main industrial groupings** (see below for more information), as well as various totals for industry as a whole.

An example of an industrial activity is the*manufacture of plastic plates, sheets, tubes and profiles* (NACE Class 22.21). An example of a service activity is*event catering activities* (NACE Class 52.61). A statistical unit such as an enterprise (for example, a company, a partnership, or a sole proprietor) can carry out more than one economic activity. For this reason, units are classified according to their **principal activity** .

An example of a unit with multiple activities is one which manufactures leather products (such as shoes) and several different types of wearing apparel (such as workwear, other outerwear and underwear). These are considered as different manufacturing activities and so the unit will be classified to whichever of these is the largest, for example the manufacture of workwear.

If an enterprise is significant and its non-principal activities are also relevant for the economy, the enterprise can be split into more statistical units, so called **kind-of-activity units (KAU)** . To cover all activities of the economy, for relevant cases STS data are collected based on such KAUs.

Other key classifications

Main industrial groupings

The main industrial groupings, abbreviated as MIGs, provide an alternative analysis of the economic activities of industry, as compared with the detailed hierarchical approach of NACE. In terms of their level of aggregation, the MIGs are at an intermediate level between the NACE sections on one hand and the divisions/groups on the other.

There are five MIGs:

- intermediate goods;
- capital goods;
- consumer durables;
- consumer non-durables;
- energy.

What is an index?

An index number represents the relationship between two values. Within the calculation of an index, the second of these two values — the one to which the first is compared — is known as the **reference value** .

Several values may be compared simultaneously with a single reference value. The most common type of statistical index is for a time series, although others exist. The indices used for STS all concern time series.

Indices are typically shown with the reference value assigned the default value of 100 (in fact 100 %, although in practice the % sign is not normally shown). When considering an index for a time series, this reference value may be fixed for a particular point within the time series or the index may have a moving reference period.

Often, but not always, the first period in the time series is used as a fixed reference period. For example, a time series of annual data from 2015 to 2020 might use 2015 as the fixed reference period. This would be illustrated by a note that the unit for the time series is ’2015 = 100’.

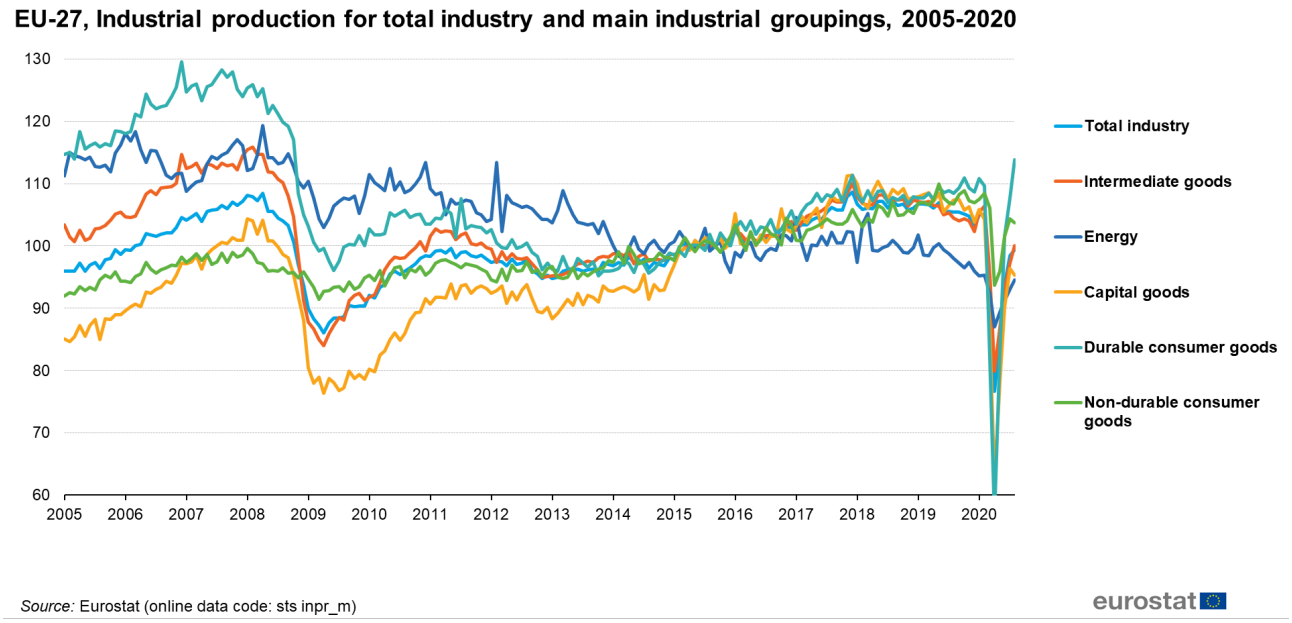
The index values for all other periods within the time series then show the value for those periods as a percentage of the value in the reference period. So, if the 2016 value of the indicator shown in the index was 5 % higher than the 2015 value, the index value for 2016 would be 105. If the 2020 value was 13 % higher than the 2015 value, the index value for 2020 would be 113.

For STS data, a fixed reference period is used within each time series that is published. In order to keep this period relatively recent, the reference period is changed every five years.

The current reference period for STS data published by Eurostat is 2015; in other words, at the time of writing (January 2021) all STS indices published by Eurostat have ’2015 = 100’ as their unit.

The use of an index number allows the analysis to focus on*developments over time* rather than structural differences at a particular point in time. Multiple time series, for example for many different activities or for many different EU Member States, can easily be compared, as they all show developments in comparison with a common reference period, namely 2015.

Below you can see what a graph showing indexes looks like:

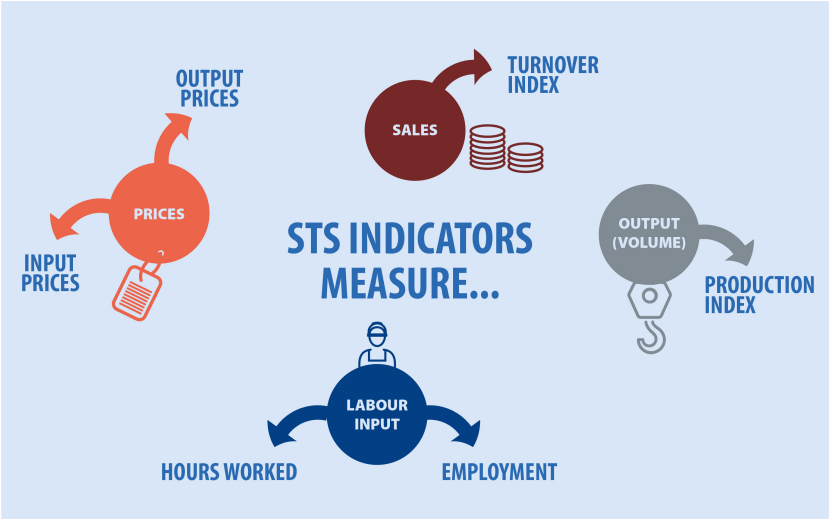


EU-27, Industrial production for total industry and main industrial groupings, 2005-2020, monthly data, seasonally adjusted, 2015 = 100 -Source: Eurostat (sts_inpr_m)

STS indicators

In detail, the selection of STS indicators varies between the four basic groups of activities (industry, construction, retail trade and other services). However, in general they concern measures of:

- sales in current prices, for example the **turnover index** (which, in broad terms, is the income from the sale of goods and services);
- output in volume terms, for example the **production index** (which, despite its name, aims to show the development of value added, in other words the value difference between production value and intermediate consumption) and the **volume of sales index** for retail trade (which shows the value of turnover, adjusted to remove price changes of the retailed goods);
- labour input, for example indices of **employment** , wages and salaries, or **hours worked** ;
- prices, for example for **output prices** (the prices of goods and services as sold by their producers) or **import prices** (the prices paid by importers).



In addition, two indicators based on **building permits** are compiled, and indicators concerning business registrations and bankruptcies are now also available.

STS indicators usually come as a monthly or a quarterly index. Eurostat then aggregates these figures across time to produce quarterly indices (from monthly indices, when available) and annual indices from quarterly indices.

Data are also presented as rates of changes, comparing either:

- the index value for a month or quarter with the same month or quarter of the previous year; or
- the index value for a month, quarter or year with the previous month, quarter or year.

Time series adjustment

All indices are initially calculated in what is known as a*gross or unadjusted form* . However, this sometimes makes it challenging to compare data between different months. For example, comparing the volume of output in May with that in March is not simple, due to the different number of working days (as non-working days can be unevenly distributed). Equally, seasonal factors can make comparisons of unadjusted data more complicated, for example when comparing retail sales data for December (boosted by Christmas shopping) with those for February.

For these reasons, many monthly and quarterly indices (but not prices) are adjusted using statistical methods to decompose a time series into various components. Based on this type of analysis, Eurostat publishes not only the unadjusted series, but also:

1. a series which has been adjusted just for calendar affects (also known as working-day adjusted data); and
2. a series that has been adjusted for seasonal influences and for calendar affects (referred to as seasonally and calendar adjusted data).

The **calendar adjusted series** is particularly useful for making comparisons of a month/quarter with the same month/quarter of the previous year, without the comparison being impacted by changes in the number of working days.

A particular month might have four weekends in one year but five in another and this fact (rather than any real economic development) might influence an index value. For example, retail trade sales might be higher in a month with five Saturdays than in one with only four Saturdays.

If the time series has a seasonal pattern, the **seasonally adjusted series** is useful for making comparisons of a month/quarter with the previous month/quarter, or with any other month/quarter.

The seasonal adjustment removes the effects of recurring seasonal influences which have been observed in the past, thereby showing non-seasonal trends more clearly. For example, the turnover of hotels typically increases

during traditional holiday seasons.

Seasonal effects vary between EU Member States, depending on their economic structure as well as social, cultural, climatic and environmental influences.

So, what makes STS data special?

There are several specialist types of activity-based business statistics that are similar to STS. However, STS have some standout characteristics:

1. STS data are *available quickly* , normally within a period ranging from 1 to 3 months after the end of a month or quarter. As such, alongside **opinion surveys of business confidence/sentiment** , they are among the quickest indicators available showing how the business economy is developing.

2. STS data are explicitly designed to be used for **analysing developments over time** . Other types of business statistics may present a time series of annual snapshots of the business economy, but methodological changes from year to year may limit their usefulness for evaluating developments. By contrast, the production of STS data involves ensuring that the resulting indicators reflect economic developments over time, facilitating an analysis of the *business cycle* .

3. STS data are the only type of business statistics with data on output prices and therefore the only one that can show the business economy's *real change in output* (using a volume index), in other words, after adjusting for price changes (inflation or deflation).

STS are widely used for monitoring the development of the economy at an aggregated and detailed level and for formulating and monitoring economic and monetary policies.

Several STS indicators are considered to be **principal economic European indicators** , to which the **European Central Bank** and the **European Commission** pay particular attention.

STS data are also used by national central banks and governments, private enterprises, professional organisations representing businesses, and participants in financial markets.

A number of articles on Eurostat's Statistics Explained website provide some examples of how STS statistics can be used to analyse the business economy.

What makes STS data difficult to compile?

It may seem that STS data are quick to collect and relatively simple to produce, however, this is only relatively true for a small group of indicators. In fact, several STS indicators are actually among the hardest statistics to produce, considering the need to provide high quality data.

Data collection

The statistical authorities in each EU Member State implement what they consider to be the most appropriate data collection methods. Generally they use a combination of sources, such as:

- **administrative data** , such as tax declarations or information relating to social security contributions;
- direct **statistical surveys** of businesses;
- **estimations** and **modelling** .

The use of direct statistical surveys was the traditional way of producing STS data for many years. Over time, the use of administrative data has become more common, with **statistical business registers** often serving as a key piece of statistical infrastructure to facilitate the linking of data from multiple sources.

Compared with statistical surveys, administrative data have some disadvantages, mainly resulting from the fact that

they were often not designed for statistical purposes. Consequently, the data they can provide do not necessarily align perfectly with the definitions and methods required for STS.

However, direct statistical surveys have the disadvantages that they are costly to conduct and may exert a considerable burden on the business community (having to fill in statistical questionnaires every month or quarter). For these reasons, many national statistical authorities combine administrative data and statistical sample surveys to produce STS data.

Timeliness and revisions

Another issue faced by the producers (and subsequently also the users) of STS data is timeliness. Precisely because they are expected by users to be among the fastest business indicators and are eagerly awaited by users, great attention is paid to producing STS data*quickly and on time* (according to a predetermined schedule).

As a consequence, the producers of data have to invest considerable resources in keeping survey response rates high (within a fixed timetable) and getting timely access to administrative data.

After first publishing, as more or better data become available, many short-term indices are recalculated and revised values are published. Such revisions are analysed to identify whether there are patterns to the revised data. For example, due to data collection practices it may be that the earliest published figures are regularly too low (or too high); this information can be used to try to improve the quality of the earliest published data (in the future) to reduce the magnitude of revisions.

Conceptual difficulties

This article is designed to give an introduction to the subject of STS data and so is not an appropriate place for a detailed methodological presentation. However, the next few paragraphs will try to explain the basic underlying issues that make — as claimed above — some of the STS indicators among the hardest official statistics to compile.

The two types of indicators that are particularly difficult to produce are price and production indices. Production indices are what is known as 'volume' indices. The difficulties concerning the compilation of price and volume indices are related, as price indices are often used to compile volume indices.

What is an appropriate price index? One that a) reflects the developments over time of the prices of products resulting from the activity for which the volume index is needed and b) correctly accounts for any changes over time in the quality of those products. Getting a good price index can often be difficult.

For example, how do you follow over time the price of unique products, for example ships? Almost every commercial ship (like a ferry or a freight transporter) is unique.

If you compare the price of one ship with another ship produced a few months later, what does the price difference show? Is it a real (also known as pure) price change, reflecting inflation resulting from changes in supply and demand? Or is it a quality difference in the specification of the two ships that are being compared in different time periods?

While the example of a ship relates to a unique product and is relatively easy to understand, the same difficulty can also apply to smaller mass-produced products.

If the manufacturer of a mobile phone changes the specification for one of its products, there is almost certainly a quality change (for example a screen with a higher resolution, a faster processor inside the phone, or a better camera). If the quality improves, how does this affect the price charged for each item?

And how should this change be accounted for within a price index? A pure price index should be adjusted so that it correctly reflects any changes in quality.

Now consider construction: almost every single construction job is different, regardless of whether it is a maintenance job that takes a few hours or a major civil engineering project that takes many years. Construction prices (and therefore volume indices for production in construction) are therefore extremely difficult to compile accurately.

There are many other difficulties with prices. How do you produce a monthly price index for seasonal products (for

example related to some manufactured food products) that may only be available for part of a year?

How do you price very large products (ships again for example) that take many months if not years to produce: is the price of a ship recorded in the month when it is ordered, when construction starts, or when it is handed over to the customer? These are just a few examples of what can be complicated issues for compilers of some STS indicators.

With good reason, some of the longest methodological handbooks for business statistics (and for national accounts) concern the issues of producing price indices and volume measures of output. Do you like studying but are not sure what to do with the rest of your life? Become an expert in price indices — you will never stop learning!

Links to other statistics

Many types of statistics have links to STS data or appear to overlap in some way. Two are mentioned below.

Many STS indicators are related to key **national accounts** concepts. Normally, STS data are released first and then quarterly national accounts are released shortly afterwards.

The quarterly national accounts are often compiled with the help of STS data, although they also tend to make use of other sources as well. In particular, STS price indices are often used for producing volume measures within national accounts.

Structural business statistics (commonly referred to as SBS) also provide detailed data by activity. From the perspective of STS, the main advantages compared with SBS are the speed with which data are provided, the greater frequency of data (monthly or quarterly rather than just annual data), and their emphasis on comparability over time.

Legal basis

In 1998, the first EU regulation on STS was adopted, covering industry, construction, retail trade and other services; this replaced older legislation (from 1972 and 1978) restricted to industrial and construction activities. Between 2003 and 2012, various modifications were made to the regulation.

In 2019, the STS legislation was combined with legislation for many other business statistics domains (such as SBS), resulting in the European business statistics regulation . That regulation entered into force from the 2021 reference year. For STS data, the first reference periods under the provisions of the new regulation are January or the first quarter of 2021.

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Other articles

Related articles in Statistics 4 beginners:

- Structural business statistics
- GDP

Related articles in Statistics Explained:

- All articles on short-term business statistics

Glossary items in Statistics Explained:

- Short-term (business) statistics
- Economic activity
- Business cycle
- Euro area
- European Union (EU)
- Indices
- Gross domestic product (GDP)
- National accounts
- Types of statistical units
- Kind-of-activity unit
- Enterprise
- Principal activity
- Statistical classification of economic activities in the European Community
- Main industrial groupings
- Classification of types of construction
- Turnover index
- Production index
- Volume of sales index
- Employment
- Hours worked
- Output prices
- Import prices
- Building permits
- Time series analysis
- Opinion surveys of business confidence/sentiment
- Principal economic European indicators
- European Central Bank
- European Commission
- Administrative data
- Statistical surveys
- Estimations
- Modelling
- Statistical business registers
- Structural business statistics