This module is part of the

Memobust Handbook

on Methodology of Modern Business Statistics

26 March 2014

Theme: Different Types of Surveys

Contents

General section

1.   Summary

Business surveys provide information on different aspects of the economy and economic activity of enterprises, e.g., production, employment, wages and salaries, trade, financial results, etc. They enable us to observe progress and changes in given domains of the economy, as well as monitor developments in the whole economy and identify specific phases of economic conditions of a country. This information is also used to make decisions concerning individual business activities as well as formulate economic and monetary policies. Different types of surveys are designed for different purposes. A distinction can be made between two main groups of business surveys – Structural Business Statistics (SBS) for annual or multiannual statistics and Short-Term Statistics (STS) for monthly and quarterly information on economic activity of enterprises.

The aim of this module is to present general information about the above surveys – STS and SBS – taking into account, among other things, the subjective and objective scope of surveys and type of statistical output. The module also describes differences between the two kinds of surveys, especially concerning the output information and its role in the informational system.

The module is also devoted to the classification of surveys in terms of characteristics, sources and methods of data processing. It highlights the role of classification for statistical processes.

2.   General description

National Statistical Institutes (NSIs) conduct a number of surveys aimed at providing statistical information about the economy and society of their countries. Despite the diversity of surveys, some methods of data production are common to many of them. As a result, we can classify surveys into several groups. This section gives an overview of a typology of surveys based on common features related to the process of statistical production. There are different criteria of survey classification – from sources of data, methods of data collection and processing, to the type of output information. For example, business surveys can be divided into two main types, STS and SBS, which differ from each other in terms of output information.

The structure of section 2 is organised as follows. Subsection 2.1 describes two main types of business surveys, i.e., STS, SBS, and differences between them with respect to their scope and aims. Section 2.2 presents a classification of surveys based on a typology of surveys used in the Central Statistical Office (CSO) of Poland. Subsection 2.3 deals with a division of statistical surveys in terms of the type of data sources and methods of data processing.

2.1   Different types of surveys

Each statistical survey is usually unequivocally described by a set of characteristics, such as the objective and subjective scope of a statistical survey, form and frequency of data collection, type of output information, etc. These characteristics are the basis of a classification of statistical surveys, mentioned below:

Survey topic

A statistical survey can focus on many **areas, domains** and **phenomena** of economic or social life and analyse them with statistical methods (SCO, 2012b). For example, in the case of a business survey, there are, among others, surveys on business tendency, financial results of enterprises, production, labour market, retail trade, production of manufactured goods, etc. One survey can cover one or more areas. For example, the monthly report on economic activity of enterprises, conducted in Poland, monitors many aspects of business operation, e.g., it delivers information on sold production, turnovers, new orders, wages and salaries and employment. On the other hand, some surveys are devoted to one topic or activity-related entities to obtain more detailed information about a given domain (e.g., industrial production; construction activity; transport and communication; materials, fuel and energy market; retail trade, etc.) (CSO, 2012a).

Survey type - scope of the surveyed population

In terms of the surveyed population, we can distinguish a **complete survey of the entire population,** for example an economic census, economic activity of large enterprises, or a **sample survey** based on a randomly (e.g., economic activity of micro-enterprises) or purposefully (e.g., producer prices) selected sample from a given population (CSO, 2012b). Full and detailed information on sampling methods and consequences of their applications in business surveys can be found in the topic entitled Sample Selection; see "Sample Selection – Main Module".

Subjective and objective scope

Statistical surveys may vary in terms of the scope of collected data and units obliged to provide data, taking into account, among others, such characteristics of entities as legal and organisational form, type of activities performed, size of enterprises, etc.

Sources of statistical data

NSIs obtain data from different sources. Generally, we can distinguish surveys based on one source, such as statistical reports, administration data systems, pay cards, mobiles, web services, own estimates, etc., or those based on mixed sources, where some of the sources mentioned above are combined. In recent times, in the case of business surveys, there has been a tendency to combine data form surveys and administrative sources (being one of the category of secondary sources). The module Collection and Use of Secondary Data presents advantages and disadvantages of this approach and practical issues concerning using secondary data in statistical production (link to Collection and Use of Secondary Data). An overview of methods of data integration and problems concerning linking different data sources at micro level (data sources composed of units) is available in the topic Micro-Fusion; see "Micro-Fusion – Data Fusion at Micro Level".

Obligatory reporting of statistical data or voluntary participation in a survey

Statistical offices can collect data on the basis of obligatory or voluntary participation of respondents in a survey. Voluntary participation generally applies to social surveys, so it does not concern entities which conduct business activity. In the case of obligatory surveys, subjects are obliged to provide to statistical offices in due time **complete** and **exhaustive information** in a predetermined scope and form.

Form of data transfer

Statistical data are generally collected by means of reporting forms and questionnaires, which can be delivered to NSIs in electronic (e.g., CAWI - Computer Assisted Web Interviews) or written form (e.g., by post). Another, less popular, way of obtaining information in business surveys is to interview respondents, using either CAPI (Computer Assisted Personal Interviews) or CATI (Computer Assisted Telephone Interviews) mode. The newest, recently developed method of gathering information for statistics is EDI (Electronic Data Interchange), which enables businesses a direct transfer of data from their internal systems.

All the above techniques, conditions of their application, advantages and disadvantages of using them in business surveys are described in the module "Data Collection – Techniques and Tools".

Frequency

Considering survey frequency, the following types of statistical surveys can be distinguished: **one-time** – also known as ad hoc surveys, with no plans for repeat performances (e.g., domain- and activity-related surveys on demand for information) and surveys based on **repeated observations** of major areas and domains of economic or social life. Business surveys are mostly carried out on a regular basis, e.g., monthly, quarterly, semi-annually, annually or multi-annually. In the case of business statistics, regularity and repeatability of surveys is required to provide not only data about the level of economic development at a specific time but also information about changes in the surveyed population or variables over time.

Detailed information on conducting repeated surveys, especially in terms of frame construction, sample design and estimation is presented in the module "Repeated Surveys – Repeated Surveys".

Type of output information

In terms of output information we can distinguish surveys which provide **qualitative data** (e.g., conducted in Poland monthly Business Tendency Survey, based on entrepreneurs opinions and related, among others, to the current and prospective production, demand, financial situation, prices, employment, and barriers faced in respect of the conducted activity (CSO, 2012a)) and **quantitative data**, such as: indicators (e.g., STS), monetary and count values (e.g., SBS), prices (e.g., producer prices).

The above classification of surveys is based on a typology applied by CSO of Poland (CSO, 2012b). Using this typology, we can classify surveys conducted in other NSIs, but it does not exhaust all aspects of surveys and other classifications (like those described in subsection 2.3) can be used.

2.2   STS v. SBS

Structural business statistics, abbreviated as **SBS**, present the structure and main characteristics of economic performance in the European Union (EU) and each of the EU Member States.

Data are produced under the legal basis provided by **Regulation (EC) No. 295/2008 of the European Parliament and of the Council of 11 March 2008** concerning structural business statistics and a number of Commissions Regulations implementing and amending the Council Regulation, among

others (Eurostat, 2013b): Commission Regulation (EC) No. 251/2009 of 11 March 2009 and Commission Regulation (EC) No. 250/2009 of 11 March 2009.

Regulations establish a common framework for the collection, compilation, transmission and evaluation of statistics on the structure, activity, competitiveness and performance of businesses in the EU. In particular, according to the Regulation (EC) No. 295/2008, statistics provide information to analyse:

— the structure and evolution of the activities of businesses;

— the factors of production used and other elements allowing business activity, competitiveness and performance to be measured;

— the regional, national, EU and international development of businesses and markets;

— business conduct;

— small and medium-sized enterprises;

— specific characteristics of enterprises related to particular breakdown of activities.

SBS covers business economy, according to NACE Rev. 2, Sections B to N and Division 95, which contains industry, construction, distributive trades and services. SBS does not survey agriculture, forestry, fishing, public administration and largely non-market services, such as education and health.

There are two kinds of units being under observation within the confines of SBS surveys: enterprises and kind of activity units (KAU). Most statistics are created as a result of observations of enterprises or parts of enterprises (local units) conducting economic activity. When an enterprise consists of several legal units (sometimes at a few locations) and/or performs more activities, all surveyed variables are compiled under the enterprise's principal activity, which normally generates the largest amount of value added (Eurostat, 2012). The use of kind-off activity units for the compilation of statistics is specified in the sector specific annexes to the Regulations. For example, Member States are oblige to prepare KAU characteristics for industry and construction, i.e., value of production, turnover, number of persons employed, wages and salaries, number of kind-off activity units.

According to the Regulations, Member States may obtain required data using a combination of different sources: compulsory surveys, other sources (e.g., administrative) and statistical estimations procedures. Choosing the collection method, NSIs should take into account the cost of obtaining data, the response burden on enterprises and quality of data. In most countries SBS data are usually collected through statistical surveys and/or administrative sources. The advancement of the EU countries in using administrative data for producing SBS statistics is presented in the module "Data Collection – Techniques and Tools".

Main variables, compiled within the confines of SBS surveys are (EC, 2008):

demographic statistics:

— structural data, e.g., number of enterprises, number of local units;

enterprise statistics:

— accounting data, e.g., turnover, production value, value-added at factor costs, total purchases of goods and services, personnel costs, wages and salaries;

— data related to the capital account, e.g., gross investment in tangible goods;

— data on employment, e.g., number of persons employed, number of employees.

Detailed information on statistics transmitted to Eurostat (first reference year, frequency, activity coverage and level of activity breakdown) is included in sector specific annexes for industry, trade, construction, insurance services, credit institutions, pension funds, business services and business demography, being a part of mentioned regulations. Requirements concerning characteristics differ depending on sectors. Each sector have wider, then mentioned above, list of statistics to be compiled for the study of special subjects.

The reference period for STS data is calendar year, which usually corresponds to the fiscal year. Most of statistics is transmitted to Eurostat annually, however some specific characteristics (burdensome in collection) are compiled only multi-annually. The annual national enterprise statistics are available to the four digits level (classes) of the NACE classification. A subset of SBS information (e.g., wages and salaries, number of persons employed) is also accessible for European regions, according to NUTS (Nomenclature of Territorial Units for Statistics) classification, as well as enterprise size-class − defined by the number of employed persons (or by size of turnover in retail trade), combined with three digits level (group) of NACE classification (Eurostat, 2013c).

Results of SBS surveys are generally presented as monetary values, mainly concerning operating income, expenditure or investment and as counts, covering business demography and employment, e.g., numbers of enterprises, employees and persons employed. This constitutes the main difference with respect to short-term statistics, where data are shown as monthly and quarterly indices generally calculated with reference to a base year.

Short-term business statistics, also called short-term statistics and abbreviated as STS, describe current developments of the economies of the whole European Union (EU) and each of the EU Member States. STS indicators are used by many national institutions and organisations, like governments and central banks, companies and financial markets to analyse current economic situation in their states. Short-term information is in great demand in the European Commission (EC) and European Central Bank (ECB) to monitor the situation of the EU and the euro area and to conduct the monetary policy.

STS surveys are conducted on the legal basis provided by Council Regulation (EC) No. 1165/98 of 19 May 1998 concerning short-term statistics, amended by the Regulation No. 1158/2005 of the European Parliament and of the Council of 6 July 2005 concerning short-term statistics, the so-called STS Regulations (STS-R), and a number of Commissions Regulations implementing and amending the Council Regulation, among others (Eurostat, 2013):

— Commission Regulation (EC) No. 1503/2006 of 28 September 2006,

— Commission Regulation (EC) No. 657/2007 of 14 June 2007,

— Commission Regulation (EC) No. 1178/2008 of 28 November 2008,

— Commission Regulation (EC) No. 329/2009 of 22 April 2009,

— Commission Regulation (EU) No. 461/2012 of 31 May 2012.

Regulations establish a common European framework for collecting, processing and compiling short-term data on supply and demand, factors of production and prices in the European Union. They also stipulate ways of transferring data to Eurostat and confidentiality of sensitive data. Regulations oblige national statistical authorities to apply all these rules in the production of STS to ensure good quality of European aggregates, consistency and comparability between national statistics and make sure they reflect the actual condition of the economy.

The aim of STS is to provide current information on the situation of enterprises conducting economic activity in four major domains, defined by NACE rev. 2, as industry, construction, retail trade and repair and other services, for which, according to aforementioned regulations, the following indicators are compiled:

Industry:

— Production

— Turnover: Total, Domestic, Non-domestic

— Number of persons employed

— Hours worked

— Gross wages and salaries

— Producers prices (Output prices): Total, Domestic market, Non-domestic market

— Import prices

Construction:

— Production: Total, Building construction, Civil engineering

— Number of persons employed

— Hours worked

— Gross wages and salaries

— Construction costs, Material costs, Labour costs

— Building permits: number of dwellings, square metres of useful floor area

Retail trade and repair

— Turnover

— Number of persons employed

— Deflator of sales

— Hours worked

— Gross wages and salaries

Other services:

— Turnover

- — Number of persons employed

- — Producer prices (output prices)

- — Hours worked

- — Gross wages and salaries.

In contrast to SBS, STS statistics do not present absolute amounts or monetary values. They are released as indices generally with monthly (e.g., industrial production, retail trade turnover, producer prices in industry) or quarterly frequency (e.g., turnover in other services, producer prices in services, labour input indicators) to indicate recent developments in the European Union and in each of the EU Member State. In order to monitor or predict structural changes over time and show trends observed in the economies, indices are released in form of time series with reference to a base value, which is representative for a base year – i.e., for a monthly series, the base value is the monthly average during the base year (Eurostat, 2006). The base year (currently 2010 = 100), according to the STS regulations, is adjusted every five years (using the years ending with a "0" or a "5").

STS data are very sensitive to the calendar effect. The number of working hours in a month affects, among others, the level of production or turnover. Indicators are also influenced by seasonal factors, such as holidays, the weather, events, tradition or habits. "In order to increase comparability between different periods, time series are adjusted for calendar effects (working-day adjustment) and seasonal effects (seasonal adjustment) (link to Seasonal Adjustment). Without such adjustments a figure for May (a month with many public holidays) might wrongly indicate a decline in economic activity. Similarly, a comparison between countries, e.g., between Sweden (holidays in June) and France (holidays in August) could be misleading" (Eurostat, 2011).

STS regulations don't require (but allows) to transmit to Eurostat seasonally adjusted data, but they oblige Member States to compile working-day adjusted figures for six indicators (Eurostat, 2013a):

- — Industrial production

- — Production in construction

- — Hours worked in industry and construction (since 31 March 2015 also in retail trade and other services)

- — Retail trade turnover

- — Retail trade deflator of sales

- — Turnover in other services.

According to STS-R, in order to produce short-term statistics, Member States may acquire data using different collection methods: conducting compulsory surveys, using administrative sources, applying statistical estimations procedures, as well as combining data from mentioned sources. All Member States obtain most of data using statistical questionnaires. Some information, e.g., value of turnover, buildings permits or data concerning employment are derived by NSIs from administrative source. The existing practices in Member States for using administrative data for compilation of STS indices are presented in the modules "Data Collection – Techniques and Tools" and "Data Collection – Collection and Use of Secondary Data".

2.3   Types of statistical processes

Considering different types of sources used during the statistical production and methods of data processing, there is another typology which is used in the European Statistical System (ESS). This division of surveys was created for the purpose of the handbook *"ESS Handbook for Quality Reports"*, which is aimed at providing detailed guidelines, recommendations and practical examples for preparation of comprehensive quality reports covering all steps of the statistical production processes and their outputs. According to the handbook we can distinguish the six following types of statistical processes:

"**Sample survey**. This is a survey based on a, usually probabilistic, sampling procedure involving direct collection of data from respondents. For this kind of survey there is an established theory on accuracy that allows reporting on well-defined accuracy components (sampling and non-sampling errors).

Census. This can be seen as a special case of the sample survey, where all frame units are covered. There are population, economic and agricultural censuses.

Statistical processes using administrative source(s). This sort of process makes use of data collected for other purposes than direct production of statistics" (Eurostat, 2009).

The overview of existing practises in the use of administrative data for producing business statistics can be found in the module "Data Collection – Techniques and Tools". This module, in the subsection *Use of administrative data*, presents four domain, i.e., Business register, STS, SBS and PRODCOM, in which administrative data are applied to statistical purposes.

"When discussing accuracy, three main types of processes using administrative sources are distinguished: tabulations based on one register, integration of several registers, and event reporting systems.

Statistical process involving multiple data sources. In many statistical areas, measurement problems are such that one unified approach to sampling and measurement is not possible or suitable. For example, in a structural business survey in which basic economic data – production, finance, etc. – about businesses are aggregated, different units, questionnaires, sampling schemes and/or other survey procedures may be used for different segments of the survey. Furthermore, one or more segments may depend upon administrative data.

Price or other economic index process. The reasons for distinguishing economic index processes as a special type of statistical process can be described as altogether fourfold (not everyone being strong enough on its own): (i) there is a specialised economic theory to define the target concepts for economic indexes; (ii) their error structure involves specialised concepts such as quality adjustment, replacement and re-sampling; (iii) sample surveys are used in several dimensions (weights, products, outlets), mixing probability and non-probability methods in a complex way; and (iv) there is a multitude of these indexes playing a key role in the national statistical systems and the ESS.

Statistical compilation. This statistical process assembles a variety of primary sources, including all of the above, in order to obtain an aggregate, with a special conceptual significance. Mainly, but not only, these are economic aggregates such as the National Accounts and the Balance of Payments" (Eurostat, 2009).

It is obvious that the diversity in methods of producing ESS statistics requires a typology of statistical processes, but according to the handbook's authors, "defining these six types should be regarded simply as a pragmatic device solely for the purpose of the Handbook. It is expected that in the future new categories and improved distinctions will emerge, so such a typology can be drawn up in a variety of different ways" (Eurostat, 2009).

3.   Design issues

4.   Available software tools

5.   Decision tree of methods

6.   Glossary

For definitions of terms used in this module, please refer to the separate "Glossary" provided as part of the handbook.

7.   References

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Interconnections with other modules

8.   Related themes described in other modules

1. User Needs – Specification of User Needs for Business Statistics

2. Repeated Surveys – Repeated Surveys

3. Sample Selection – Main Module

4. Data Collection – Techniques and Tools

5. Data Collection – Collection and Use of Secondary Data

6. Micro-Fusion – Data Fusion at Micro Level

7. Seasonal Adjustment – Introduction and General Description

9.   Methods explicitly referred to in this module

1.

10.   Mathematical techniques explicitly referred to in this module

1.

11.   GSBPM phases explicitly referred to in this module

1.

12.   Tools explicitly referred to in this module

1.

13.   Process steps explicitly referred to in this module

1.

Administrative section

14. Module code

General Observations-T-Different Types of Surveys

15. Version history

Version	Date	Description of changes	Author	Institute
0.1	31-08-2012	first version	Monika Natkowska	GUS (Poland)
0.2	02-12-2013	updated version according to reviews	Monika Natkowska	GUS (Poland)
0.2.1	18-12-2013	preliminary release		
0.3	15-03-2014	updated version according to the remarks	Monika Natkowska	GUS (CSO)
1.0	26-03-2014	final version within the Memobust project		

16. Template version and print date

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