Metodologia badań statystycznych
Statistical research methodology

GUS

Zeszyt metodologiczny
Badanie koniunktury gospodarczej

Methodological report
Business tendency survey

Warszawa Warsaw 2023

Metodologia badań statystycznych
Statistical research methodology

Zeszyt metodologiczny
Badanie koniunktury gospodarczej

Methodological report
Business tendency survey

Główny Urząd Statystyczny Statistics Poland

Warszawa Warsaw 2023

Content-related works
Statistics Poland, Macroeconomic Studies and Finance Statistics Department

Editorial team
Olga Gaca, Łukasz Gontarz, Hubert Stefaniak, Magdalena Święcka

supervised by
Mirosław Błażej

Publication available on website
stat.gov.pl/en/

When publishing Statistics Poland data – please indicate the source.

METADATA

Title of methodological report	**Business tendency survey**
Authors	Macroeconomic Studies and Finance Statistics Department
Scope of survey/research area	Companies operating in manufacturing, construction, trade and services More detailed information can be found in the chapter 2.1. Subjective scope
Objective scope of survey/research area	Subjective assessment of companies' economic situation Subjective forecast of companies' economic situation
Type and method of survey/research area	Method – business tendency test Type – combined (full/sample survey) Sample selection – stratified sampling scheme Respondents' selection – based on SP and SP-3 surveys
Data collection tools/data sources	E-questionnaires on Reporting Portal, Statistics Poland's data sets: AK-P, AK-B/m, AK-H/m, AK-U/m
Presentation of survey/research area results	Statistics Poland / Topics / Business tendency Business tendency | Dashboard | DBW (stat.gov.pl)
Classifications used	Polish Classification of Activities 2007 (PKD 2007) – consistent with NACE Rev.2 Polska Klasyfikacja Działalności PKD 2007 - podstawa prawna wraz z klasyfikacją (stat.gov.pl)
Date of preparation	December 2023

Contents

The standard symbols and main abbreviations

BCI	Business climate indicator
BTS	Business tendency survey
DBW	Knowledge Databases
DG ECFIN	Directorate-General Economic and Financial Affairs
ESI	Economic Sentiment Indicator
EUROSTAT	Statistical Office of the European Union
NACE	Nomenclature statistique des Activités économiques dans la Communauté Européenne (Statistical Classification of Economic Activities in the European Community)
PKD 2007	Polish Classification of Activities 2007
SI	General synthetic indicator GUS (SI)
SP	Annual enterprise survey
SP-3	Report on the economic activity of enterprises
WU	Confidence Indicators

Introduction

The implementation of business tendency survey (BTS) with the use of business tendency test method was introduced by Statistics Poland in 1992, regarding questionnaire on manufacturing. The surveys are conducted on the basis of the Programme of Statistical Surveys of Official Statistics introduced annually by the Regulation of the Prime Minister. The first detailed description of the methodology is presented in the publication entitled *Business tendency survey*, published in March 1994. The next edition of the methodology was released in 2007 (both in the Methodological Notebooks and Classifications series). Due to modifications introduced in each survey, the publication is updated accordingly. It is prepared by the Macroeconomic Studies and Finance Statistics Department, which is responsible for all surveys described in the presented Methodological report. The Department is responsible for developing the methodology, indicating sources of data, defining both subjective and objective scope of research, as well as analyzing and presenting the results. Furthermore, it cooperates with abroad in the field of BTS, implementing tasks resulting from the Joint Harmonized EU Programme of Business and Consumer Surveys. Conducting surveys is also within the competence of Statistical Office in Zielona Góra.

The publication aims to present updated, basic information on the size of samples, along with the method of their selecting for each BTS, scope of information obtained, principles of constructing, calculating and interpreting various types of business tendency indicators, as well as on the interpretation and possibilities of using the results of these surveys to assess the current and future economic situation.

The publication consists of eight chapters. First chapter presents the history and purpose/essence of these surveys. The second part contains subjective and objective scope of research. The way of conducting the surveys, along with the sampling are presented in the third chapter, while the tools used in the study and its course are described in the fourth one. The description of all questionnaires, along with definitions and classifications used are included in the fifth chapter. Sixth section of the publication presents the process of collecting the data and its processing into results presented in various types of publications published by Statistics Poland. Methods of presenting the data, as well as forms of dissemination are discussed in the seventh chapter. Last part is dedicated to the quality assessment of the surveys.

Current edition of the Methodological report also contains a description of changes introduced in the questionnaires. These changes resulted, among others, from adapting surveys to the needs of national recipients or adjusting them to the requirements of the European Commission. The following publication takes into account all changes introduced to the surveys for 2023.

Chapter 1. Research characteristics

1.1. Research history

The history of BTS conducted with the use of business tendency test method in Europe dates back to the turn of 1940s and 1950s. First surveys were implemented by the German ifo Institute, French Insee (Institut National de la Statistique et des Études Économiques) and Italian Istat (Istituto Nazionale di Statistica). Growing interest in this type of surveys, including possibility of using it to describe the current and future economic situation, resulted in formation of International Committee for the Study of Business Tendency Methods (CIMCO – Comité International pour l'Etudes des Méthodes Conjouncturelles) by Western European dealing with this subject, including ifo, Insee as well as Instat. In 1960 it changed its name to Centre for International Research on Economic Tendency Surveys (CIRET). Statistics Poland has been a CIRET member since 1996.

Within the European Economic Community (EEC), qualitative business tendency surveys were harmonized on the basis of European Commission's Decision dated 15 November 1961. First harmonized indicators regarding industry started to be published in 1962. In 1966, harmonized surveys in construction, along with investments in industry were implemented. In 1984, BTS in trade was introduced. Due to the increasing role of other services in the economy, in 1996 European research also covered units operating in this sector.

In the early 1990s, OECD and European Commission (Directorate General for Economic and Financial Affairs DG ECFIN - responsible for business cycle surveys, as well as Eurostat) initiated a series of workshops for representatives of Central and Eastern European countries (mainly statistical offices), which were to help in introducing business tendency surveys in these countries. The process of economic transformation taking place at that time in this part of Europe resulted in creation of specific questionnaires concerning industry, construction and trade. In addition to the questions asked to respondents in the European Union, they included additional questions allowing for a better analysis of the situation of these economies. In the following years, as the economies of Eastern European countries became more and more stabilized, specific questions were gradually abandoned and at present all European Union Member States conduct their surveys according to a uniform thematic scope.

From the very beginning, representatives of the Statistics Poland took part in workshops organized by OECD and European Commission, which allowed for a relatively quick implementation of regular surveys. In June 1992, first survey in industry was introduced. In July 1993, survey in construction was launched and in October of the same year survey in retail trade was added. In 1999, questions on investments in industry and construction were removed to the separate questionnaire, adjusting it to the European requirements at the same time. In January 2003, survey in services was introduced. Since January 2011, survey in trade has also been covering entities operating in the field of wholesale trade. In the same year, a sampling scheme enabling presentation of the results broken down by voivodships was implemented.

In March 2014, a composite business tendency indicator (business cycle clock) was constructed and presented to facilitate the analysis of the course of business cycle. It graphically presents the place of various economic variables (aggregated or individual indicators) in the business cycle and makes significant use of data from a standard BTS. It serves primarily to illustrate the phenomenon in the medium term.

In 2018, the form and layout of the published data was thoroughly reconstructed, e.g. information on the synthetic indicator and confidence indicators in presented areas of the economy was moved to the news releases, while the remaining information was included in the publication. Two years later, another modification took place, resulting in moving the general economic climate indicator to the news releases.

In 2020 (construction and trade) and in 2021 (services), the number of entities in given samples was reduced in order to limit the burden on respondents.

Changes agreed at the EU level were implemented in the following areas: questions on investments (resignation from a separate survey starting from 2021 in manufacturing and construction and moving the questions to main questionnaires, changing the type of these questions from quantitative to qualitative and implementing them in services survey); adding a question on the future development of business

situation in all surveys (from January 2021); a new synthetic indicator on Labor Hoarding was introduced (from March 2022).

As part of Polish official statistics, BTS became also a platform that enabled to implement the experimental research on the impact of COVID-19 pandemic[1] and full-scale war in Ukraine[2] on Polish enterprises, as well as quick diagnosis of the most important macroeconomic processes at the microeconomic level[3].

1.2. The essence and purpose of the study

Before determining the purpose of BTS, it is necessary to define what business tendency is. The PWN (Polish Scientific Publishers) dictionary gives two definitions – it is either a situation creating conditions, usually favorable, for the development of some activity, or the entirety of indicators of economic life characterizing state of the economy of a given country or commodity market. In the case of surveys conducted by Statistics Poland, but also other organizations, national and international institutions, the latter definition is used.

BTS in Statistics Poland is conducted with the use of business tendency test method, which means that the source of information are questionnaires addressed to a specific group of respondents, and collected information usually is of qualitative nature, i.e. it does not require providing any figures, but only to assess the state or trends (e.g. good/satisfactory/bad or increase/remain unchanged/decrease). Simple and short questionnaires allow to collect and release data quickly, what is the main advantage of these surveys. Hence, it is often treated not only as a supplement, but also as a source of information that is ahead of quantitative statistics, and its purpose is to provide information on assessments of the current and expected economic situation expressed by persons who have the necessary information about the current situation, as well as future plans of these units.

Apart from the advantages of this method, there is a debate over its limitations, but it has been successfully used internationally for several decades in a number of research centers. A range of research trends related to this method are being developed and knowledge about the substantive content of the results obtained is constantly being accumulated and expanded.

The above-mentioned research results take into account the needs of the following groups of recipients:

1. Domestic, including:
   - ministries as well as central and local offices,
   - entrepreneurs, employers, investors, associations of producers,
   - scientific and educational institutions, researchers, students,
   - labour organizations,
   - financial and insurance institutions,
   - media - press, television, Internet.
2. Foreign, including:
   - European Commission (subjective and objective scope, considering additional national needs (questions), but also includes the entire scope of the Joint Harmonized EU Programme of Business and Consumer Surveys),
   - Organization for Economic Co-operation and Development (OECD),
   - European Central Bank,
   - Eurostat,
   - scientific and educational institutions, researchers, students.

[1] Standard BTS was supplemented by additional questions about the impact of COVID-19 pandemic on the situation of enterprises. Already on 22 April 2020 extensive data package was published regarding the impact of pandemic (data from March 2020). The study was continued until May 2022 (moment when the state of epidemic was lifted).

[2] BTS in April 2022 was supplemented by additional questions concerning a number of aspects of the impact of full-scale war in Ukraine on enterprises. The first data were published on 22 April 2022.

[3] Since June 2022, BTS has been supplemented by additional questions diagnosing macroeconomic processes at the level of enterprises, which processes are of key current importance for the economy (investments, labour market and price developments). This study is more of a systematic continuation of the phenomena analysis of the impact of COVID-19 pandemic and war in Ukraine on Polish enterprises in a longer period, as well as a reference to the idea created even before outbreak of the pandemic. Questions concern the scale of phenomenon, mechanisms, ways of impact on it as well as additional questions allowing for an in-depth diagnosis of the microenomic basis of these processes.

1.3. Legal basis for conducting the research

BTS is conducted on the basis of the Act of 29 June 1995 on Official Statistics.

The thematic scope, data sources, implementation deadlines, types of result information and data dissemination deadlines are specified in the Programme of Statistical Surveys of Official Statistics introduced annually by the Regulation of the Prime Minister.

BTS takes into account both subjective and objective scope applicable in the Joint Harmonized EU Programme of Business and Consumer Surveys as well as a number of extensions for national needs. The methodology, deadlines and quality requirements are defined in European Commission's decisions and announcements.

Chapter 2. Subjective and objective scope of research

2.1. Subjective scope

General population to which the generalization of the results of the survey applies are:

- within the scope of manufacturing – partnerships, capital companies, civil partnerships, operating on the basis of an agreement concluded in accordance with the Act of 23 April 1964 - Civil Code, state-owned enterprises, cooperatives, natural persons' enterprises, in which the number of employees is 10 people and more, for which the predominant activity is classified in section C according to PKD 2007;
- within the scope of construction – partnerships, capital companies, civil partnerships, operating on the basis of an agreement concluded in accordance with the Act of 23 April 1964 - Civil Code, state-owned enterprises, cooperatives, natural persons' enterprises, in which the number of employees is 1 person and more, for which the predominant activity is classified in section F according to PKD 2007;
- within the scope of trade – partnerships, capital companies, civil partnerships, operating on the basis of an agreement concluded in accordance with the Act of 23 April 1964 - Civil Code, state-owned enterprises, cooperatives, natural persons' enterprises, in which the number of employees is 1 person and more, for which the predominant activity is classified in section G according to PKD 2007;
- within the scope of services – partnerships, capital companies, civil partnerships, operating on the basis of an agreement concluded in accordance with the Act of 23 April 1964 - Civil Code, state-owned enterprises, cooperatives, natural persons' enterprises, banks, both insurance and reinsurance companies, cooperative savings and credit unions in which the number of employees is 1 person and more, for which the predominant activity is classified in sections: H, I, J, K, L, M, N, R (excluding cultural institutions with legal personality), S (excluding division 94) according to PKD 2007.

2.2. Objective scope

Data collected with the use of the following questionnaires: manufacturing (AK-P), construction (AK-B/m), trade (AK-H/m), services (AK-U/m) concern:

- subjective assessment of companies' economic situation,
- subjective forecast of companies' economic situation.

Each of the entities included in the survey is obliged to answer questions on a monthly basis regarding selected factors affecting the current and future situation of the company.

As part of the assessment of the economic situation of enterprises, questions were included regarding i.a.:

- general economic situation of the company,
- order-books, including foreign,
- production,
- financial situation, including delays of payment,
- factors limiting activity

On the other hand, as part of forecasting the economic situation of enterprises, the questions concern i.a:

- general economic situation of the company,
- order-books, including foreign,
- production,
- financial situation,
- prices,
- employment

In addition, AK-P, AK-B/m as well as AK-U/m questionnaires also contain questions on investment activities.

Chapter 3. Type and method of the survey

3.1. Method of the survey and reference period

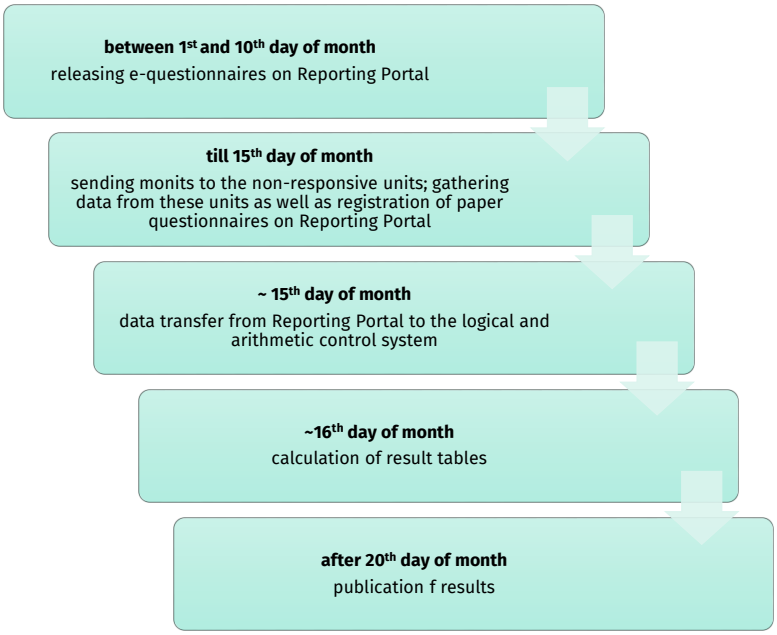
BTS is carried out on a monthly basis. Within the scope of manufacturing, every quarter additional questions are added, i.a.: capacity utilization of the enterprise, duration of assured production, enterprise's position in comparison to competitive units. Twice a year questions on investments are included in manufacturing, construction and services surveys.

BTS conducted with the use of business tendency test method is based on the assumption that the psychological (behavioral) aspects of economic entities' behavior play an important role in the mechanisms of cyclical economic fluctuations. Psychological determinants of economic decisions taken by companies are reflected in the assessments of current and future economic activities conducted by economic entities (*Poland's business tendency: analysis of product groups:* collective work / edited by Marek Rekowski, ACADEMIA, 1997).

In the survey, data are collected with the use of enterprise method, in which it is assumed that the results of the entire activity of the enterprise (enterprise is considered as one legal unit) are attributed to the main activity and, at the same time, to the region in which enterprise's head office is located. The specifics of the survey, i.e. referring to the subjective opinions of directors, and not to the company's accounting, allows it to be conducted at the beginning of the reporting period to which the questions asked relate, and not only after its completion. It also allows to diagnose the reasons for making economic decisions by enterprises (including those with social consequences) in relation to the most important dimensions of the enterprise's activities.

Respondents provide answers within the first 10 days of a given month, which in turn allows the recipients to be provided with the first, quick information about the current economic situation. These deadlines must be observed by all countries that have implemented a system of BTS compliant with the Joint Harmonized EU Programme of Business and Consumer Surveys.

Diagram 1. Timeline of the survey



3.2. Sampling

Samples for the survey are designed once a year, separately for manufacturing, construction, trade and services. The database of statistical units in connection with the results of annual SP and SP-3 surveys is the source. The sampling is carried out according to a layered scheme, without replacement, on a proportional basis and is to ensure adequate representativeness and precision of the results in each strata. These layers are basically defined within the Joint Harmonized EU Programme of Business and Consumer Surveys.

All entities from the following size classes shall be included in the sample:

- in the case of manufacturing and services – entities with 250 or more persons employed (large),
- in the case of construction and trade – entities with 50-249 persons employed (medium) and 250 or more persons employed (large).

Due to the large population size and in order to reduce the burden on respondents along with the costs of the survey, entities from the following size classes are randomly selected:

- in the case of manufacturing – 10-49 persons employed (small) and 50-249 persons employed (medium),
- in the case of services – up to 9 persons employed (micro), 10-49 persons employed (small) and 50-249 persons employed (medium),
- in the case of construction and trade – up to 9 persons employed (micro) and 10-49 persons employed (small).

In the survey, stratification was based on two features, i.e. PKD 2007 groupings along with size classes determined by the number of employees.

Number of units in the samples for 2023 and their percentage share in the groups of entities participating in the SP and SP-3 surveys are presented in Table 1.

Table 1. Number of units in the survey samples for 2023 and their percentage share in the groups of entities participating in the SP and SP-3 surveys by areas of economic activity and size classes

	Size classes by number of employees				Sample size
	Up to 9	10 – 49	50 – 249	250 and more	
Manufacturing		10% of entities		all	ca. 3500 (including 1790 drawn)
Construction	1% of entities		all		ca. 4000 (including 2900 drawn)
Trade	1% of entities		all		ok. 7800 (including 4600 drawn)
Services	1% of entities			all	ok. 4300 (including 3180 drawn)

Source: own work.

Chapter 4. Characteristics of data collection tools

4.1. Methods of data collection in the survey

Since January 2009, BTS has been conducted mainly through Statistics Poland's Reporting Portal. Only entities employing up to 5 persons have the ability to fill in paper questionnaires (in 2022, approximately 3-4% of all respondents used this option monthly). Such questionnaires are sent from all over Poland to Statistical Office in Zielona Góra.

Employees of Statistical Office in Zielona Góra, in the case of any questions related to a specific questionnaire or e-questionnaire, provide support to respondents - by phone or via e-mail.

4.2. Survey tools

BTS is carried out with the use of questionnaires with the following symbols: AK-P, AK-B/m, AK-H/m, AK-U/m.

Basic tool for collecting the data are e-questionnaires implemented on Statistics Poland's Reporting Portal.

Templates of questionnaires (AK-P, AK-B/m, AK-H/m, AK-U/m) attached at the end of the publication present a graphical version of detailed format of submitted data and provide guidelines for designers of e-questionnaires (on-line) along with application intended for the processing and control of the acquired data.

Chapter 5. Variables in the survey – main measures and indicators

5.1. Layout of the questionnaires

Scope, content and setup of questions on the AK-P, AK-B/m, AK-H/m, AK-U/m questionnaires are in line with the regulations of the Joint Harmonized EU Programme of Business and Consumer Surveys. In addition, each questionnaire is supplemented by questions that respond to the needs of domestic users, e.g. delays of payments in manufacturing, construction and services, dominant sources of financing the current assets in trade, selected factors limiting activity (e.g. unclear and unstable legal regulations, costs of labour, high bank interests), etc.

At the top of each questionnaire, there is an information enabling identification of the entity (including the REGON number, its name and address), and at the bottom - information on the estimated time needed for filling it in.

AK-P questionnaire (BTS in manufacturing) is divided into 4 sections:

- Section 1 – Assessment of economic situation (including factors limiting activity),
- Section 2 – Expectations of economic situation,
- Section 3 – Assessment of economic situation (supplementary questions),
- Section 4 – Investments.

AK-B/m questionnaire (BTS in construction) is divided into 3 sections:

- Section 1 – Assessment of economic situation (including factors limiting activity),
- Section 2 – Expectations of economic situation,
- Section 3 – Investments.

AK-H/m questionnaire (BTS in trade) is divided into 2 sections:

- Section 1 – Assessment of economic situation (including factors limiting activity),
- Section 2 – Expectations of economic situation.

AK-U questionnaire (BTS in services) is divided into 4 sections:

- Section 1 – Assessment of economic situation (including factors limiting activity),
- Section 2 – Expectations of economic situation,
- Section 3 – Investments,
- Section 4 – Supplementary data on bank and insurance activities.

Detailed list of questions for each survey and list of changes made as compared to the last edition of the Methodological report (March 2018) are included in annexes to this publication:

- AK-P questionnaire – annex 1,
- AK-B/m questionnaire – annex 2,
- AK-H/m questionnaire – annex 3,
- AK-U/m questionnaire – annex 4
- List of changes in the questionnaires – annex 5.

5.2. Definitions of basic terms used in the survey

These definitions are displayed for respondents filling in questionnaires on Statistics Poland's Reporting Portal:

Factors limiting activity – obstacles to enterprise's production/activity.

Competitive import – influx of products from abroad that are cheaper, more modern and of better quality.

Costs of labour – total remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter during an accounting period.

Financial problems – related with i.a. loss of financial liquidity, lack of ability to settle company's liabilities.

Payments to state revenue – non-returnable benefits of the entity for the budget i.e. various types of taxes (CIT, PIT, VAT, excise tax, duties).

Construction/assembly activity – construction of buildings; civil engineering; specialised construction activities (demolition and site preparation; electrical, plumbing and other construction installation activities; building completion and finishing; other specialised construction activities).

Own funds – funds generated by unit from the sale of goods and services.

Investments – expenditures on investments (i.e. purchase of machinery, equipment, means of transport, construction and modernization of buildings and structures etc.).

Bank credit – funds granted by a bank to an enterprise on the basis of a written credit agreement concluded with it.

Mercantile credit – situation in settlements between enterprises, when the supplier agrees on postponed payment for the goods or services by recipient.

Capacity utilization – incl. employees, lands, buildings, machines, technical equipment, means of transport and other capital assets used in industry process.

Order-books – the list of orders submitted by customers of the enterprise.

Insurance against damage caused by natural forces – include damage to property caused by e.g. fire, explosion, storm, other elements, nuclear energy, landslides or cave-ins.

Accident insurance, in this case at work, during occupational disease and when transporting people.

In the past three months – concerns three months preceding the month in which the question is asked and the comparison should refer to even earlier months (e.g. question asked in April of a given year will refer to January-March period of a given year, which should be compared with a period between October and December of the previous year).

5.3. Classifications

Classifications used in the survey:

The Polish Classification of Activities 2007 (PKD 2007), introduced by the regulation of the Council of Ministers of 24 December 2007 (Journal of Laws No 251, item 1885), developed on the basis of the Statistical Classification of Economic Activities in the European Community, Rev. 2 (NACE Rev. 2).

https://stat.gov.pl/Klasyfikacje/doc/pkd_07/pkd_07.htm

Chapter 6. Organization of the survey – the method of data collection

6.1. Obligation to participate in the survey

According to Articles 30 and 30a of the Act on Official Statistics, BTS is compulsory and covers annually ca. 19600 companies operating in manufacturing, construction, trade as well as services. The selection of units for the survey is described in section 3.2 of this Methodological report.

6.2. Frequency of the survey

BTS is conducted on a monthly basis using four questionnaires. In questionnaire on manufacturing there is also a section containing questions asked to respondents once a quarter (in January, April, July and October) along with the one including questions asked bi-annually (in March and October), whereas questionnaires on construction and services incorporate additional set of questions asked twice a year (in March and October).

Companies are obliged to provide information (fill in the questionnaire) by the 10th day of each month. These data are collected and published in the month to which they refer.

6.3. Statistical confidentiality

According to Article 10 of the Act on Official Statistics, official statistics services responsible for conducting and supervising business tendency survey are obliged to keep confidential the information obtained in response to all questions included in questionnaires, filled in by entities.

Article 10 of aforementioned Act reads as follows: *microdata collected in statistical research are strictly protected. These data can be used only for studies, overviews, statistical analysis and for creating sampling frame by the President of Statistics Poland; sharing or using these data for purposes other than those specified in the Act is prohibited (statistical confidentiality).*

6.4. Units of official statistics conducting the survey

In Statistics Poland, Macroeconomic Studies and Finance Statistics Department (Business Tendency Survey Division) is the unit responsible for research methodology, initiating new approaches, analysis, along with presentation of results. It conducts research and development activities on methods of assessing the socio-economic situation in Poland as well as business tendency, supervises the continuity and cohesion of the research, analyzes and develops the obtained results, a number of publications and controls their availability. The unit is also responsible for meeting the needs of data recipients, such as: universities, organizations, individual ones, etc.

The survey is prepared in cooperation with Programming and Coordination of Statistical Surveys Department in Statistics Poland (in terms of sampling), along with, by specialization, Statistical Office in Zielona Góra.

Statistical Office in Zielona Góra specializes in collecting, gathering, processing and analysis of data regarding business tendency; cooperates with Macroeconomic Studies and Finance Statistics Department in Statistics Poland, the unit responsible for implementation of research, including research and development activities. It also develops and publishes news releases at the voivodship level, whilst being responsible for, among others, importing data to Business Tendency Knowledge Database.

6.5. Data collection process

Data collection as part of research is preceded by creating the database of statistical units. Statistical Office in Zielona Góra in cooperation with Macroeconomic Studies and Finance Statistics Department in Statistics Poland is responsible for preparing it. At this stage, the Department prepares weighing schemes necessary to achieve results of the survey that can be generalized for general population.

Statistical Office in Zielona Góra, using Sample Generator application specifies the algorithm for selecting statistical units for research, on the basis of which further stages of the organization of research are carried out (structure of units, structure of sampling frame). In Sample Generator, a sampling frame is

created, from which units forming the sample are drawn. Once approved in Sample Generator, the set of statistical units is placed on Statistics Poland's Reporting Portal.

6.6. Compilation of results

Collected data on business tendency are subject to ongoing control. First control – in the e-questionnaire – is carried out on the basis of assumptions of the logical and accounting control for e-questionnaires created in Macroeconomic Studies and Finance Statistics Department in Statistics Poland. After testing the applications, potential corrections are introduced.

Another one is carried out both by coordinators of the survey at Statistical Office in Zielona Góra and employees of Macroeconomic Studies and Finance Statistics Department in Statistics Poland – correctness of data obtained as well as their completeness is validated. Result tables are analyzed, and their approval allows to develop the output information.

6.7. Calculation of indicators

Answers to the questions included in BTS questionnaires, received from individual respondents are basis for calculating the indicators. It is done separately for each question and various stages of calculating the balances along with composite indicators provide data in cross-sections adopted in research assumptions.

Balances

In the case of qualitative single-choice question with three variants of answer (e.g. question on demand, production, financial situation), the first stage of calculation is to add up the number of responses for each of variants: positive (+) – advantageous from the entity's point of view, neutral (=) – indicating that the situation has not changed and negative (-) – disadvantageous, reported by entities included in a given classification stratum (e.g. small enterprises producing rubber and plastic products). The second step is to calculate the structure of these three answers adding up to 100% (e.g. 50% positive, 30% neutral, 20% negative). This structure reflects business tendency. Balances for this type of questions are calculated using the formula (1) as a difference between percentage share of positive answers (+) and negative ones (-). It means that neutral variant (=) is not taken into account. According to the example above, the indicator is plus 30 (50% - 20%).

$$x_j = p_{j(1)} - p_{j(3)} \tag{1}$$

where:

x_j – unweighted balance for "j" question,

$p_{j(1)}$ – percentage share of answers to 1st variant (positive) of "j" question,

$p_{j(3)}$ – percentage share of answers to 3rd variant (negative) of "j" question.

It is worth emphasizing that the balance with a value of e.g. plus 10 may be result of different number of positive and negative answers: 50% of positive answers, 10% neutral and 40% negative ones or 20%, 70% and 10% respectively, etc. Therefore, this indicator indicates the advantage of positive opinions over negative ones (if it receives a "+" sign) or negative over positive ones (if it receives a "-" sign). In extreme cases, it can reach +100 or -100. Positive value of balance means that the business situation is "good' while negative one indicates a "bad" business situation.

In Polish official statistics, it has been adopted that in BTS the indicator's increase, by design, indicates improvement, whereas its decrease is a sign of deterioration. Thus, for some questions balances are calculated by subtracting the first variant from the third one, as presented in formula (2). This applies to questions concerning volume of stock as well as delays of payments, i.e. questions in which the first variant (increase) means that from entrepreneurs' point of view the situation is essentially negative. As a result of such calculation, similarly to the first group of questions, a positive indicator is obtained in the case of a favorable situation for the enterprise, and a negative one - in the case of an unfavorable situation.

$$x_j = p_{j(3)} - p_{j(1)} \tag{2}$$

where:

x_j – unweighted balance for "j" question,

$p_{j(1)}$ – percentage share of answers to 1st variant (positive) of "j" question,

$p_{j(3)}$ – percentage share of answers to 3rd variant (negative) of "j" question.

In the case of questions, which have additional variants alongside three basic ones, e.g. "I do not know", "does not concern", "it is not expected", the balances are calculated according to the formula (1) on the basis of answers to three basic variants, excluding these additional.

Questionnaires regarding BTS in manufacturing and construction contain question on production capacity in relation to current order-books, for which the indicator is calculated in a different way, i.e. by subtracting percentage share of answers to third variant (not sufficient) from arithmetic mean of percentage shares of answers to first and second variant (more than sufficient, sufficient), as shown in formula (3).

$$x_j = \frac{p_{j(1)} + p_{j(2)}}{2} - p_{j(3)} \tag{3}$$

where:

x_j – unweighted balance for "j" question,

$p_{j(1)}$ – percentage share of answers to 1st variant (more than sufficient) of "j" question,

$p_{j(2)}$ – percentage share of answers to 2nd variant (sufficient) of "j" question,

$p_{j(3)}$ – percentage share of answers to 3rd variant (not sufficient) of "j" question.

In questions where it is possible to tick more than one variant, e.g. factors limiting activity, initially the number of entities not reporting such factors and then their percentage share in total number of entities responding to that question are calculated. Indicators for this type of question are calculated as percentage share of ticking a given variant in total number of entities choosing at least one of variants (total sum of these indicators can add up to more than 100%), as shown in formula (4).

$$x_{j(i)} = \frac{n_{j,i}}{n - n_{j,1} - n_{j,b}} * 100 \tag{4}$$

where:

$x_{j(i)}$ – ratio for "i" variant of „j" question,

n – number of units that reported in a given classification stratum,

$n_{j,i}$ – number of respondents choosing "i" variant of "j" question in a given classification stratum,

$n_{j,1}$ – number of respondents choosing 1st variant (none) of "j" question in a given classification stratum,

$n_{j,b}$ – number of non-responses to "j" question in a given classification stratum.

In the case of quantitative questions, e.g. capacity utilization or duration of assured production/activity, the indicator for given classification stratum is calculated according to the formula (5) as arithmetic mean of responses.

$$x_j = \frac{\sum o_j}{n_j} \tag{5}$$

x_j – unweighted balance for "j" question,

o_j – answer to quantitative question: $\boldsymbol{o_j} \in \langle 0; 100 \rangle$ *for question* on capacity utilization
$\boldsymbol{o_j} \in \langle 0; 99{,}9 \rangle$ *for question* on assured production/activity,

n_j – number of units that answered "j" question.

Method of calculating business tendency indicators for harmonized questions adopted in Statistics Poland is consistent with methodology recommended by European Commission. The way of calculating the indicator regarding volume of stock is an exception, which in Statistics Poland is a result of subtracting first variant from third one, so the indicator's change consequently shows the direction of changes in business tendency, whereas all EC indicators without exception are calculated by subtracting third variant from the first one. The fact that they are treated as a negative phenomenon is taken into account by the EC only at the point of describing the results and creating the so-called composite indicators.

Aggregation of balances

The unweighted indicators that were calculated as described above are then aggregated according to formulas (6), (7), (8), (9), (10).

$$X_{j,d} = \frac{\sum_k x_{j,k,d} * w_{k,d}}{\sum_k w_{k,d}} \tag{6}$$

$$X_{j,MIG} = \frac{\sum_k x_{j,k,MIG} * w_{k,MIG}}{\sum_k w_{k,MIG}} \tag{7}$$

$$X_{j,k} = \frac{\sum_d x_{j,k,d} * w_{k,d}}{\sum_d w_{k,d}} \tag{8}$$

$$X_{j,R} = \frac{\sum_k x_{j,R,k} * w_{R,k}}{\sum_k w_{R,k}} \tag{9}$$

$$X_j = \sum_d x_{j,d} * \frac{\sum_k w_{k,d}}{\sum_{k,d} w_{k,d}} \tag{10}$$

$X_{j,d}$ – weighted balance for "j" question and PKD 2007 "d" section,

$X_{j,MIG}$ – weighted balance for "j" question and "MIG" grouping,

$X_{j,k}$ – weighted balance for "j" question and "k" size class,

$X_{j,R}$ – weighted balance for "j" question and "R" voivodship,

X_j – weighted balance for "j" question,

$x_{j,k,d}$ – unweighted balance for "j" question, "k" size class, PKD 2007 "d" section,

$x_{j,R,k}$ – unweighted balance for "j" question, "R" voivodship, "k" size class,

$x_{j,d}$ – unweighted balance for "j" question and for PKD 2007 "d" section,

$w_{k,d}$ – „d" section revenues across „k" size class,

$w_{k,MIG}$ – „MIG" grouping revenues across "k" size class,

$w_{R,k}$ – „R" voivodship revenues across "k" size class.

Sales revenues, taken from the latest annual research on economic activity of enterprises, are used as weights in BTS.

Composite indicators

Balances calculated as shown above, can be used in constructing so called composite indicators, which allow for a more general, synthetic view on what is business tendency in a given sector of the economy. For instance, it is possible to calculate composite indicators as an arithmetic mean of two balances for variables respondents are asked about in both diagnostic and forecasting part of the questionnaire (i.a. order-books, production, financial situation). On that basis, general business climate indicator (BCI) is calculated in Statistics Poland. It consists of two balances regarding current and expected economic situation of enterprises and it is calculated according to the formula (11) for each of four BTS.

$$BCI = \frac{x_{(b)} + x_{(p)}}{2} \tag{11}$$

where:

BCI – general business climate indicator,

$x_{(b)}$ – balance for question on current economic situation of enterprise,

$x_{(p)}$ – balance for question on expected economic situation of enterprise.

General business climate indicator (BCI) is based on the composite indicator applied by German ifo Institute. This indicator, as with balances, takes values from -100 to +100. Negative values indicate bad business tendency, whereas positive ones are a sign of good business tendency. When the indicator's value is equal to zero, it means that business tendency does not change.

The other example of composite indicators are so called confidence indicators (CI) that are calculated by European Commission according to the unified methodology, with the use of chosen balances regarding different questions for each of economic sectors. Depending on survey, they are calculated according to formula (12), using two (construction) or three (manufacturing, retail trade, services) seasonally adjusted balances:

- manufacturing – current order-books (its status), current stocks of finished products (with reversed mark), expected production,
- construction – current order-books (its status), expected employment,
- retail trade – sales in the past 3 months, volume of stock (with reversed mark), expected business activity,
- services - business situation in the past 3 months, demand in the past 3 months, expected demand.

$$WU = \frac{\sum_1^n x_j}{n} \tag{12}$$

where:

WU – confidence indicator,

x_j – balance for "j" question (seasonally adjusted data),

n – number of balances used to calculate CI composite indicator in a given BTS.

Since 1985, European Commission has also been calculating a composite indicator for the entire economy of each EU member state as well as for the entire EU. It is so called Economic Sentiment Indicator (ESI), which comprises above mentioned balances, constituting the basis for the calculation of individual confidence indicators along with the weights assigned to them: for manufacturing – 40%, services 30%, construction – 5%, retail trade – 5%, consumers – 20%.

Confidence indicators (WU) in Statistics Poland are calculated with the use of method for European indicators. Yet, the method of calculating the synthetic indicator for Poland (General synthetic indicator GUS (SI)) is based on adjusted methodology of European indicator (ESI) – however, households condition survey (consumer attitudes)[4] results are not taken into account.

Due to the fact that balances with different levels of values are used for constructing confidence indicators (WU), all components are standardized each month using the following formulas:

$$Y_{j,t} = \frac{X_{j,t} - \bar{X}_j}{S_j} \tag{13}$$

$$\bar{X}_j = \frac{1}{T\prime} \sum_{t=1}^{T\prime} X_{j,t} \tag{14}$$

$$S_j = \sqrt{\frac{1}{T'-1}} \sum_{t=1}^{T\prime} \left(X_{j,t} - \bar{X}_j \right) \tag{15}$$

where:

$Y_{j,t}$ – standardized indicator for "j" question and "t" month,

$X_{j,t}$ – balance for "j" question and "t" month,

$\bar{X}_j$ – mean calculated for "j" question balance,

S_j – standard deviation calculated for "j" question balance,

T' – number of months, starting from the month in which calculation started until the current one (e.g. indicator for services section regarding employment in the past three months has been being calculated since January 2004, therefore it will be 228 months until December 2022).

Similarly to the indicators calculated by DG ECFIN, general synthetic indicator for Poland (SI) is constructed using seasonally adjusted and standardized balances. Weights used for calculation of SI by Statistics Poland are, though, adjusted to a lack of data on consumer survey and amount to: manufacturing – 50%, services – 38%, retail trade – 6%, construction – 6%.

Similarly to ESI, synthetic indicator (SI) is standardized to 100, therefore values above 100 indicate that SI is below the long-term mean, whereas values below 100 show that it is below the long-term mean.

[4] EC uses Ststistics Poland's BTS data, while households conditions survey data are provided by GfK Polonia (ESI data for Poland are available on EC website). Statistics Poland does not have GfK Polonia's results on consumer attitudes. Statistics Poland's households condition survey (consumer attitudes) conducted in accordance with the standard international methodology (just like GfK Polonia) provides different results. Thus, when constructing SI Statistics Poland uses only BTS confidence indicators (excluding consumer survey) – in order to avoid problems with interpreting already complicated structure of indicators from various sources.

Chapter 7. The way of presenting the results

7.1. Basic results obtained from the survey

BTS presents economic situation of the enterprises employing 1 person or more (in the case of manufacturing – 10 persons or more), as regards type of reporting unit, taking into account the above-mentioned characteristics, namely:

- size of units,
- types of activity,
- spatial arrangement.

Presentation of the results

The results are released and disseminated monthly in the following forms – at national and regional level:

1. at national level:
   - news release: „Business tendency in manufacturing, construction, trade and services – (month, year)",
   - publication: „Business tendency in manufacturing, construction, trade and services 2000 – 2023",
   - Databases in Excel format as part of publication " Business tendency in manufacturing, construction, trade and services 2000-2023" (at national and regional level),
   - Knowledge Database (on both national and regional level),
   - infographic – Business tendency – (month, year) (at national and regional level),
   - publication of Statistical Products Department „Socio-economic situation of the country (month, year)",
   - publication of Statistical Products Department „Statistical Bulletin (month, year)".
2. at regional level:
   - news release: „Business tendency in voivodship ... (month, year)",
   - infographic: „Business tendency in voivodship ... (month, year) – INFOGRAPHIC",
   - Statistical Bulletin for voivodship ... – (quarter, year),
   - Report on socio-economic situation of voivodship ... – (year).

At national level, the results are presented as time series starting from 2000 in the following cross-sections:

- size classes (up to 9 persons employed, 10-49 persons employed, 50-249 persons employed, 250 and more persons employed),
- PKD 2007 sections, divisions and chosen branches,
- Main Industrial Groupings – in manufacturing.

Since January 2011, the results for each voivodship are also available[5]. In every BTS they are presented at a section level (at a division level in trade) according to PKD 2007.

These are:

- manufacturing – section C,
- construction – section F,
- retail trade – joined divisions 45 and 47,
- wholesale trade – division 46,
- services – sections H, I and J.

When interpreting the indicators, it should be remembered that the results present the opinions of enterprises based in a given voivodship, whose activities may, however, go beyond its borders, as well as beyond the borders of Poland.

[5] Data are aggregated to the voivodship level, based on headquarter of the enterprise.

Selected time series (seasonally and non-seasonally adjusted) are published on a monthly basis in Statistical Bulletin. They include general business climate indicator (BCI) along with diagnostic and forecasting indicators of most importance for each survey. Chosen non-seasonally adjusted BTS results for particular voivodships are also presented in regional Statistical Bulletins.

Since 2015, Knowledge Databases have been available. Similarly to Excel databases added to the publication, they contain time series from all BTS according to PKD 2007, at national and regional level along with supplementary information (e.g. basic definitions, FAQ).

Nationwide publications are prepared by employees of Macroeconomic Studies and Finance Statistics Department. Additional news releases at regional level are developed by employees of Statistical Office in Zielona Góra and then published on the websites of proper Statistical Offices.

Short information on selected business tendency indicators are published on Statistics Poland's social media.

7.2. Seasonal adjustment

Many of researched social and economic phenomena are characterized by seasonality, i.e. the occurrence of a pattern of changes in the level of the phenomenon repeated in subsequent years (seasonal fluctuations). This means that time series with frequency higher than annual (e.g. quarterly, monthly) contain, so-called, seasonal component. If seasonal effect occurs in time series, it is difficult to formulate conclusions on the short-term changes in the level of phenomenon on the basis of raw data, because mere comparison of values for two consecutive months/quarters does not allow to decide whether we are dealing with a real change in shaping the phenomenon or rather change resulting from the seasonal effect.

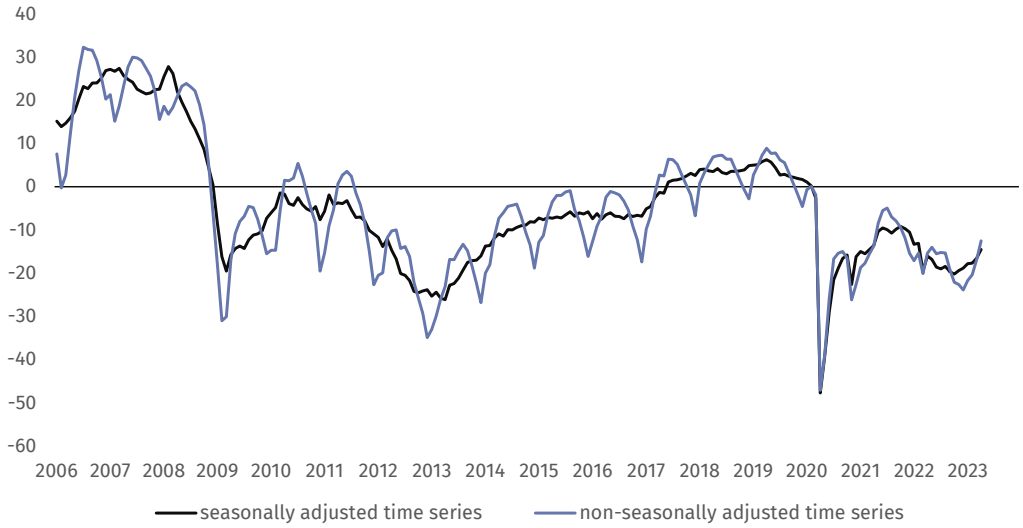
Seasonal adjustment shall be made by decomposing time series into components, using dedicated methods of analysis. Among the elements extracted in such a manner there is a seasonal component, which is removed from time series by subtracting or dividing by its estimated values, depending on the applied model of series decomposition (additive or multiplicative)[6]. Seasonal adjustment in Statistics Poland is carried out using TRAMO/SEATS[7] method, that is implemented in JDemetra+ software. It is one of the two methods recommended by Eurostat.

Seasonal adjustment of selected data on business tendency is made on entire time series, updated each month with the use of constant model parameters throughout the year. Survey results are seasonally adjusted without taking into account the adjustment of working days and calendar effect. In the case of identifying unusual values, the correction is made automatically. New model is generated in February each year. Selected but entire time series are reviewed and published in news release, Excel database attached to the publication as well as in Statistical Bulletin.

Starting from 1 May 2022 European Commission (DG ECFIN) uses TRAMO/SEATS method (as in Statistics Poland) with automatic detection of outliers to eliminate seasonal fluctuations. This method replaced previously used one called Dainties. However, in the case of composite indicators a different sequence of recalculations is adopted: in Statistics Poland as regards general business climate indicator (BCI), the indicator is seasonally adjusted, whereas in DG ECFIN – the indicator's components. Regarding SI indicator for Poland calculated in Statistics Poland, the same method as in DG ECFIN is used, i.e. seasonal adjustment at the level of its components.

[6] The use of additive or multiplicative model depends on the nature of time series. In the case Statistics Poland's BTS, multiplicative model applies only as regards one presented time series, whereas the additive one – to the rest of time series.
[7] The method that consists of two processes – Time Series Regression with ARIMA Noise, Missing Observations and Outliers Signal Extraction in ARIMA Time Series.

Graph 1. General business climate indicator in construction – seasonally and non-seasonally adjusted time series



Source: own data.

7.3. Cognitive value of BTS indicators

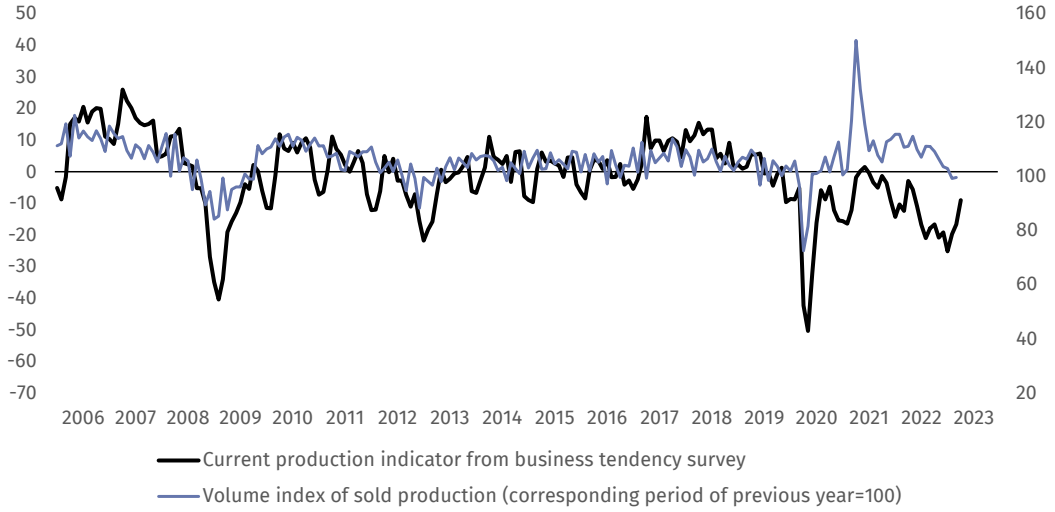
Above all, it should be emphasized that the survey provides information on directions of changes observed in the economy and, to a lesser extent, on the level of a given indicator. Thus, it is used to analyze economic development trends[8]. Hence, an important condition that must be met before results can be used in long-term analysis of current and future economic situation is to have time series with appropriate length. It is usually assumed, that these series should cover at least five year period. On the other hand, in the case of short-term statistics, to confirm trend three to six month period is considered. Therefore, when presenting BTS results, attention should be paid not only to whether the indicator takes positive or negative value (which indicates optimistic or pessimistic opinions of respondents, respectively), but mainly to the direction of changes observed in a given segment of the economy. To this end, it is necessary to compare value of the indicator with its value from the previous point, or – more broadly – previous points in time. This principle applies to both diagnostic and forecasting indicators.

As the amount of information available increases and thus having longer time series, the results can be used for research of multi-annual economic cycles, identification of growth phases, decline and turning points of cycles. They can also be a source of information used in the development of short-term forecasts of the economic situation, but also to predict turning point in economic cycle.

One of the ways to confirm that the subjective opinions expressed by entrepreneurs quite accurately reflect the economic situation and its changes is to control the quality of opinions formulated by the surveyed entities by verifying their assessments of a given phenomenon with subsequent quantitative data, i.e. its actual implementation (an example of such comparisons are shown on graph 2).

[8] The tests (note: the quote refers to the business tendency test) do not measurably determine the level of activity or the scale of changes, but limit themselves to a verbal assessment of the state and trends (Z. Matkowski, Metody diagnozowania i prognozowania koniunktur, Instytut Koniunktur i Cen Handlu Zagranicznego, Warszawa 1993).

Graph 2. Manufacturing – current production from the survey and sold production index



Source: own data.

Due to the subjective nature of the survey as well as the range of asked questions on both current and future economic situation of the company, as regards cognitive value of the indicators it is crucial that the answers are provided by a person who has the necessary information on the current situation of the entity, but also about the plans for the future. According to the guidelines, the questionnaire should be completed by a member of the company's management or board of directors, although manager or a properly informed employee of the finance department is also acceptable. Survey on the process of completing business tendency questionnaires (survey of survey) carried out in 2016 among the respondents shows that in more than 70% of cases, questionnaires are filled in by managerial members/executive board/company management, heads of the financial department or employees of the financial department who have the knowledge on the current and future activities of the company, due to their position in management structure. Ongoing contacts with respondents also confirm this situation.

7.4. Limitations on results publishing

When publishing data regarding business tendency, limitations on presenting the results for indicated cross-sections are taken into account. They arise from the need to preserve statistical confidentiality, but also maintenance of high-quality results. Hence, data are available in the following cross-sections:

- at national level data are published in the following cross-sections, depending on the type of activity:
  - manufacturing – size classes, PKD 2007 sections/divisions/Main Industrial Groupings (MIG),
  - construction – size classes, PKD 2007 sections,
  - trade – size classes, PKD 2007 sections/groupings,
  - services – PKD 2007 sections/divisions,
- at regional level in selected areas (manufacturing, construction, retail and wholesale trade, transportation and storage, accommodation and food service activities, information and communication) data are broken down by voivodships.

7.5. Data sharing policy

In accordance with the Act of 29 June 1995 on Official Statistics, data are made available following the rule of equal, equivalent and simultaneous access to statistical information, in particular to the basic values and indicators.

Collected and stored data are confidential and are a subject to special protection. These data may be used only for statistical studies, summaries as well as analyses. Their disclosure or use for purposes other than those specified above is prohibited (statistical confidentiality).

Identifiable microdata appear only at the stage of collecting data from reporting units.

Results are made available as an aggregated data.

Chapter 8. Quality assessment of the survey

Both results and statistical research organizing are a subject to quality assessment, which is determined in accordance with the guidelines of European Statistical System (ESS) on the basis of following criteria:

- data suitability/usefulness/adequacy,
- data precision/accuracy,
- data timeliness (time between data availability and described phenomenon) and punctuality,
- data availability and transparency,
- data comparability (time-based, spatial and domain),
- data integrity/substitutability.

When assessing the quality, the costs and burden of respondents, confidentiality, transparency and data security are also taken into account, which are not quality components in the strict sense.

One of the elements of measuring, assessing and monitoring quality of statistical surveys are quality reports – reports on data quality containing a description of the above-mentioned basic quality components. In the case of BTS, they are prepared after the survey is completed in a given year (within the deadline specified by Statistical Office in Łódź).

The structure of quality report is adapted to ESS standards and the obligation to prepare them is specified in the *Internal Regulation of the President of Statistics Poland No. 35 of 28 December 2011 on the measurement, evaluation and monitoring of the quality of statistical surveys in official statistics services*.

The results of the quality report allow e.g. to determine the strengths and weaknesses of the survey, the degree of completeness of the survey or to decide what actions to take in order to improve the quality and effectiveness of the survey.

The completeness of the survey, i.e. the percentage of respondents responding to the survey, is regularly reviewed. Reasons for non-participation in the study are monitored, e.g. due to lack of activity (unit under construction, in suspension, in liquidation or bankruptcy, termination of activity), refusal or incorrect selection.

Table 2. Response rate (in %) in particular areas of the survey for each month in 2016-2022

Manufacturing (AK-P)

Specification	01	02	03	04	05	06	07	08	09	10	11	12	average
2016	98.1	97.4	96.4	96.6	96.8	96.5	95.6	95.2	96.2	95.9	95.9	95.5	96.4
2017	95.6	96.6	93.5	95.8	96.3	94.2	95.2	93.8	95.2	93.8	94.0	94.1	94.8
2018	88.5	89.2	88.0	88.6	88.8	88.5	87.8	87.7	88.0	87.9	88.4	88.3	88.3
2019	92.8	93.7	91.5	90.5	91.1	90.3	90.1	88.1	90.7	90.2	90.5	88.6	90.7
2020	90.3	93.6	90.4	79.3	89.3	84.1	88.7	87.0	88.5	87.9	85.8	86.1	87.6
2021	94.0	94.2	91.9	91.7	92.9	91.9	91.9	91.0	92.6	91.9	90.7	89.8	92.0
2022	93.9	93.9	93.5	92.8	93.1	93.2	92.8	90.7	93.0	92.0	92.1	91.7	92.7

Construction (AK-B/m)

Specification	01	02	03	04	05	06	07	08	09	10	11	12	average
2016	88.4	88.0	86.9	88.4	87.7	87.3	85.7	84.9	86.5	86.6	85.7	85.8	86.8
2017	83.0	84.2	83.6	83.9	85.1	82.6	83.8	81.6	83.3	82.8	82.6	82.3	83.2
2018	78.9	79.9	79.2	79.3	78.7	78.8	78.4	76.7	77.6	76.8	77.2	76.8	78.2
2019	83.8	85.9	85.0	82.5	82.8	82.2	81.6	81.3	81.4	81.2	81.3	79.9	82.4
2020	84.7	86.3	83.0	73.2	80.2	78.6	80.9	79.4	79.7	79.7	77.3	77.4	80.0
2021	88.9	89.2	87.4	85.3	85.5	84.3	84.5	82.8	83.5	84.0	81.4	82.0	84.9
2022	88.5	89.2	88.1	86.9	86.8	86.2	86.3	84.3	86.0	86.4	85.6	85.3	86.6

Trade (AK-H/m)

Specification	01	02	03	04	05	06	07	08	09	10	11	12	average
2016	86.9	87.4	85.9	86.4	86.2	85.8	85.0	84.1	85.3	85.6	85.4	84.6	85.7
2017	83.7	84.3	84.7	85.3	84.8	83.5	83.7	82.9	83.9	83.9	83.5	83.1	83.9
2018	78.5	78.8	79.4	79.1	79.1	78.6	78.1	77.7	77.9	77.7	78.1	77.6	78.4
2019	86.4	87.7	86.7	85.2	85.1	84.3	84.9	83.8	84.7	84.6	83.8	82.5	85.0
2020	87.4	88.2	86.8	75.3	83.1	80.7	82.7	82.7	83.3	83.0	81.1	81.0	82.9
2021	90.3	90.2	89.5	87.6	88.6	87.1	87.5	86.5	87.3	88.3	86.0	86.5	88.0
2022	90.5	90.4	89.9	89.6	89.1	89.1	88.3	87.0	88.7	88.9	87.9	88.0	88.9

Services (AK-U/m)

Specification	01	02	03	04	05	06	07	08	09	10	11	12	average
2016	90.5	90.9	90.2	90.8	90.5	89.4	88.5	88.3	89.3	89.5	88.6	88.0	89.5
2017	86.2	86.0	86.5	86.6	86.6	84.7	85.9	85.1	85.6	85.6	85.6	84.9	85.8
2018	79.2	80.9	81.2	81.7	81.2	80.7	80.1	79.6	79.9	80.7	79.4	79.1	80.3
2019	84.4	85.7	86.0	84.2	84.4	84.1	83.7	82.5	82.9	84.3	82.9	81.7	83.9
2020	86.5	87.5	86.3	74.9	82.4	79.1	83.0	81.2	82.4	82.7	80.0	80.7	82.2
2021	90.6	89.9	89.6	87.8	88.7	87.3	87.9	86.4	87.5	87.6	86.6	86.6	88.0
2022	91.2	91.4	90.2	90.0	89.7	89.9	90.0	88.2	89.0	89.5	88.5	88.2	89.7

Source: own work.

The analysis of response rate and non-response is crucial i.a. at the stage of sampling as well as preparing weights for the year-ahead survey. Too low level of response rate may be adversely affect the number of cross-sections in which data can be presented, the accuracy of results and thus also the incorrect data interpretation.

Data precision of the survey is assessed based on analysis of random and non-random errors. Reducing and eliminating these errors improves data quality.

Random errors are related to sample size and sampling scheme. Their essence stems from the fact, that the lack of full information on phenomenon results in uncertainty as to the accuracy of assessments obtained from the survey.

Random errors include i.a.:

- errors caused by discrepancies between target population and researched population,
- measurement errors, which occur during data collection and cause that collected values of variables differ from actual values,
- processing errors, i.e. errors occurring at the stage between data collection and data analysis (e.g. coding, editing, imputation errors, etc.),
- non-response errors.

In order to reduce non-random errors, respondents receive:

- information on the reporting obligation (for entities that do not have an account in Reporting Portal, with up to 5 employees - in paper form),
- information from Reporting Portal about the approaching deadline for submitting reports,
- reminders from Reporting Portal via e-mail as well as phone calls and explanations (also in terms of respondent's potential errors and mistakes or methodological explanations).

In addition, recalculations are verified, data validation is done, but also contacts with respondents are maintained regarding their reporting obligations, both in order to quickly and efficiently enforce this obligation and to provide them with all necessary assistance in completing questionnaires and clarifying doubts.

Indirect action having an impact on reduction of both random and non-random errors are frequent activities promoting the survey, including respondents. The aim of these activities is to raise respondents' awareness about structure and significance of the survey results.

An indirect method of encouraging respondents to participate in the survey, while at the same time devoting appropriate time and attention to it are additionally new directions of promotional activities, e.g. entrepreneurs' organizations. For the first time in January 2023, in addition to the notification about being selected for a given year's sample a leaflet was sent to each of these entrepreneurs. It was a printout

that contained information on the survey, its advantages, types of publications as well as chosen survey results for a particular voivodship, to which the information was addressed.

Precision of estimations (survey results) is measured i.a. by relative standard error of a given parameter, i.e. standard deviation of parameter's estimator related to the value of this parameter's estimator. The smaller the relative standard error, the higher the precision of obtained results and vice versa – the bigger the relative standard error, the lower the precision. In BTS, a method based on multiple sampling of samples (replications) was used to estimate the precision for a selected variable, the so-called bootstrap method. Based on the general method, a case was used for a stratified sampling scheme with size-significant sampling fractions in individual stratum.

Data precision in the survey is shown in the table below.

Table 3. Values of standard deviation and coefficient of variation (relative standard error) for a given variable's estimator along with error evaluation in each BTS in 2021

	Manufacturing	Construction	Trade	Services
Value of standard deviation (pt.)	1.9	1.0	1.2	1.6
Value of coefficient of variation (%)	3.3	2.3	1.2	5.7
Error evaluation	non-significant	non-significant	non-significant	non-significant

Source: own work.

References

One of the first publications on BTS methodology is Measuring Business Cycles by Burns, A. F., Mitchell, W. C. (1946). The issues of survey's methodology, business cycle as well as research methods used are can be found in numerous publications and studies (also published in Polish), of which a small part is listed below as an example:

Adamowicz, E. (2013). *Badania koniunktury. Fakty. Użyteczność.* Warszawa: Oficyna Wydawnicza SGH.

Barczyk, R. (1997). *Główne teorie współczesnych wahań koniunkturalnych.* Poznań: Akademia Ekonomiczna w Poznaniu.

Barczyk, R., Lubiński, M., Konopczak, K., Marczewski, K. (2010). *Synchronizacja wahań koniunkturalnych Mechanizmy i konsekwencje.* Poznań: WYD UE POZNAŃ.

Bieć, M. (1996). *Test koniunktury : Metody, techniki, doświadczenia.* Warszawa: Prace i Materiały Instytutu Rozwoju Gospodarczego.

Burns, A. F., Mitchell, W. C. (1946). *Measuring Business Cycles.* NBER.

Drozdowicz-Bieć, M. (2006). *Wskaźniki wyprzedzające, Prace i materiały Instytutu Rozwoju Gospodarczego SGH.* Warszawa: SGH.

European Commission Directorate-General for Economic and Financial Affairs. (2022). *The Joint Harmonised EU Programme of Business and Consumer Surveys. User Guide* .

Garczarczyk, J. (2009). *Analiza i prognozowaniu wahań koniunkturalnych w gospodarce polskiej.* Poznań.

Garczarczyk, J., Mocek, M. (2009). *Koniunktura na rynku finansowym w Polsce w ujęciu regionalnym.* Poznań: Zeszyty Naukowe / Uniwersytet Ekonomiczny w Poznaniu.

Główny Urząd Statystyczny, Departament Przedsiębiorstw. (2018). *Zeszyt metodologiczny. Badanie koniunktury gospodarczej.* Warszawa.

Hübner, D., Lubiński, M., Małecki, W., Matkowski, Z. (1994). *Koniunktura gospodarcza.* Warszawa: Państwowe Wydawnictwo Ekonomiczne.

Lehmann, R. (2020). The Forecasting Power of the ifo Business Survey. *CESifo Working Paper*.

Lubiński, M. (2002). *Analiza koniunktury i badanie rynków.* Warszawa: Dom Wydawniczy ELIPSA.

Matkowski, Z. (1993). *Metody diagnozowania i prognozowania koniunktur.* Warszawa: Instytut Koniunktur i Cen Handlu Zagranicznego.

OECD. (2003). *Business Tendency Surveys: A Handbook. OECD 2003.*

Rekowski, M. (1997). *Koniunktura gospodarcza Polski. Analiza grup produktowych.* Poznań: AKADEMIA.

Skrzypczyński, P. (2006). *Analiza synchronizacji cykli koniunkturalnych w strefie euro.* Warszawa: Materiały i Studia, Zeszyt 210, s.1-48.

Furthermore, releases devoted entirely to broadly understood issues of BTS are works and materials published by Research Institute for Economic Development (currently suspended series) and in relation to the international forum, CIRET conference materials and workshops along with its Journal of Business Cycle Research publication can be mentioned.

Research using official statistics' data on business tendency as well as developing chosen methodological aspects related to this area are also conducted by employees of Statistics Poland.

They include i.a.:

Błażej, M., Ulrichs, M. (2016). Uncertainty Analysis of the Composite Business Cycle Indicators for the Polish Economy. *33rd CIRET Conference.* Kopenhaga.

Ulrichs, M., Błażej, M. (2014). Zastosowanie metod statystycznych i ekonometrycznych do badania koniunktury gospodarczej. *Wiadomości Statystyczne vol. 59*, 57-74.

Ulrichs, M., Błażej, M., Jędrych, J. (2014). *Równoległy oraz wyprzedzający zagregowany wskaźnik koniunktury, zegar koniunktury. Identyfikacja mechanizmów i przebiegu cyklu koniunkturalnego dla Polski.. Metodologia.* GUS.

Ulrichs, M., Górajski, M., Błażej, M. (2021). Firm-level output gap estimation with business tendency surveys data: does capacity utilization help to predict output gap in Poland? *35th CIRET Conference.* Poznań.

Ulrichs, M., Górajski, M., Błażej, M. (2022). Micro-founded output gaps estimation with business tendency survey data: sectorial and regional output gap decomposition in Poland. *36th CIRET Conference.* Istanbul.

Walkowska, K. (2002). *Badanie kondycji polskiego budownictwa na podstawie wyników badania koniunktury prowadzonego przez Główny Urząd Statystyczny.* Warszawa: Prace i Materiały Instytutu Rozwoju Gospodarczego SGH.

Zagoździńska, I., Walkowska, K., Gaca, O. (2006). Situation in Service Sector in Poland on the Basis of Business Tendency Survey Results. *28th CIRET Conference.* Rzym.

Annexes

Annex 1 – Questionnaire on business tendency in manufacturing for 2023 – AK-P

Statistics Poland **STATISTICS POLAND** al. Niepodległości 208, 00-925 Warszawa
http://stat.gov.pl/

Name and address of the enterprise	**AK-P/m** **Business Tendency Survey – Industry**	the CSO Web Data collection portal portal.stat.gov.pl Statistical Office in Zielona Góra ul. Spokojna 1 65-954 Zielona Góra
Identification number – **REGON**	**month 2023**	Please, return by the 10th of the current month

(e-mail of entity's secretary office filling in a questionnaire – FILL UP WITH CAPITAL LETTERS)

Thank you for filling in the questionnaire on time, we guarantee to ensure statistical confidentiality
Answers to all questions should be given by abstracting from seasonal variations, i.e. bypassing changes specific to a particular period of year.

I. Assessment of economic situation

*In questions **1 – 10** please mark a symbol of the proper answer (only one). In question number **11** you can choose more than one factor.*

1.	**How production of your enterprise has changed over the past three months:** • increased ..... 1 ☐ • remained unchanged ..... 2 ☐ • decreased ..... 3 ☐
2.	**What is current general economic situation of your enterprise:** • good ..... 1 ☐ • satisfactory ..... 2 ☐ • bad ..... 3 ☐
3.	**How do current order-books (domestic and foreign) for your enterprise's products change:** • increase ..... 1 ☐ • remain unchanged ..... 2 ☐ • decrease ..... 3 ☐
4.	**What are current order-books (domestic and foreign) for your enterprise's products:** • more than sufficient ..... 1 ☐ • sufficient ..... 2 ☐ • not sufficient ..... 3 ☐
5.	**How do current foreign order-books for your enterprise's products change:** • increase ..... 1 ☐ • remain unchanged ..... 2 ☐ • decrease ..... 3 ☐ • the enterprise doesn't produce for export ..... 4 ☐
6.	**What are current foreign order-books for your enterprise's products:** • more than sufficient 1 ☐ • sufficient ..... 2 ☐ • not sufficient ..... 3 ☐ • the enterprise doesn't produce for export ..... 4 ☐
7.	**How does current production of your enterprise change:** • increases ..... 1 ☐ • remains unchanged ..... 2 ☐ • decreases ..... 3 ☐
8.	**What are current stocks of finished products in the enterprise:** • too large ..... 1 ☐ • adequate toward demands ..... 2 ☐ • too small ..... 3 ☐
9.	**How does financial situation of your enterprise change:** • improves ..... 1 ☐ • remains unchanged ..... 2 ☐ • decreases ..... 3 ☐
10.	**How do delays of payments for sold products of your enterprise change:** • increase ..... 1 ☐ • remain unchanged ..... 2 ☐ • decrease ..... 3 ☐ • lack of delays of payments 4 ☐

I. Assessment of economic situation (cont.)

11.	**What main factors are currently limiting your production:**	• none 01 ☐ • insufficient domestic demand 02 ☐ • insufficient foreign demand 03 ☐ • shortage of labour 04 ☐ • shortage of skilled labour 05 ☐ • shortage of raw materials, materials and semi-finished products (due to non-financial reasons) 06 ☐ • costs of labour 07 ☐ • financial problems 08 ☐ • high payments to state revenue 09 ☐ • competitive imports 10 ☐ • unclear and unstable legal regulations 11 ☐ • uncertainty of economic environment 12 ☐ • others (please, specify them) 13 ☐

II. Expectations of economic situation

In each question please mark a symbol of the proper answer (only one).

12.	**How general economic situation of your enterprise will change in the next three months:**	• will be better . . . . . 1 ☐ • will not change. . . . . 2 ☐ • will be worse . . . . . 3 ☐
13.	**How order-books (domestic and foreign) for your enterprise's products will change in the next three months:**	• will increase . . . . . 1 ☐ • will not change. . . . . 2 ☐ • will decrease . . . . . 3 ☐
14.	**How foreign order-books for your enterprise's products will change in the next three months:**	• will increase . . . . . 1 ☐ • will not change. . . . . 2 ☐ • will decrease . . . . . 3 ☐ • the enterprise won't produce for export 4 ☐
15.	**How production of your enterprise will change in the next three months:**	• will increase . . . . . 1 ☐ • will not change. . . . . 2 ☐ • will decrease . . . . . 3 ☐
16.	**The future development of your business situation is currently:**	• easy to predict . . . . . 1 ☐ • moderately easy to predict . . . . . 2 ☐ • moderately difficult to predict . . . . . 3 ☐ • difficult to predict . . . . . 4 ☐
17.	**How financial situation of your enterprise will change in the next three months:**	• will be better . . . . . 1 ☐ • will not change. . . . . 2 ☐ • will be worse . . . . . 3 ☐
18.	**How employment in your enterprise will change in the next three months:**	• will increase . . . . . 1 ☐ • will not change. . . . . 2 ☐ • will decrease . . . . . 3 ☐
19	**How selling prices of your enterprise's products will change in the next three months:**	• will increase . . . . . 1 ☐ • will not change. . . . . 2 ☐ • will decrease . . . . . 3 ☐

III. Assessment of economic situation (supplementary questions)

*In each question **20, 21, 24, 25, 26**, please mark a symbol of the proper answer (only one).*

20.	**How order books (domestic and foreign) of your enterprise have changed over the past three months:**	• increased . . . . . 1 ☐ • remained unchanged . . . . . 2 ☐ • decreased . . . . . 3 ☐
21.	**Considering current order books and expected change in demand over the coming months, current production capacity of the enterprise is:**	• more than sufficient . . . . . 1 ☐ • sufficient . . . . . 2 ☐ • not sufficient . . . . . 3 ☐
22.	**What percentage of capacity utilization of your enterprise is currently used:**	☐☐☐,☐ %
23.	**What is the duration of assured production of your enterprise** *(in months)* **considering a given overall order-books:**	☐☐,☐
24.	**How your enterprise's position in comparison to competitive units has changed on the domestic market in the last three months:**	• improved . . . . . 1 ☐ • remained unchanged . . . . . 2 ☐ • deteriorated . . . . . 3 ☐
25.	**How your enterprise's position in comparison to competitive units has changed on foreign markets inside the EU in the last three months:**	• improved . . . . . 1 ☐ • remained unchanged . . . . . 2 ☐ • deteriorated . . . . . 3 ☐ • doesn't concern . . . . . 4 ☐
26.	**How your enterprise's position in comparison to competitive units has changed on foreign markets outside the EU in the last three months:**	• improved . . . . . 1 ☐ • remained unchanged . . . . . 2 ☐ • deteriorated . . . . . 3 ☐ • doesn't concern . . . . . 4 ☐

IV. Investments

On question 27 and 32 please answer in March and in October (m, o), on questions 28 and 29A only in March (m) and on questions 29B, 30, 31 and 33 – only in October (o).

*In questions **27**, **28** and **29A** (for respective variants) as well as questions **29B** and **30** please mark a symbol of the proper answer (only one), in questions **31, 32** and **33** there can be given a few answers.*

27. m, p Has your company incurred, incurs or will incur investments (i.e. purchase of machinery, equipment, means of transport, construction and modernization of buildings and structures) in:

2021	☐ YES	☐ NO	
2022	☐ YES	☐ NO	
2023	☐ YES	☐ NO	(if **NO**, please don't answer the question 32 as well as 31 and 33 in the part concerning 2023)
2024	☐ YES	☐ NO	(if **NO**, please don't answer the question 31 and 33 in the part concerning 2024)

28. m Compared with two years ago (2021) investments of your enterprise last year (2022) has:

Overall investment	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Machinery and equipment	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Land, building and infrastructure	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Intangibles (R&D, software, data, intellectual property, vocational training, etc.)	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐

29A. m Compared with last year (2022) investments of your enterprise this year (2023) will:

Overall investment	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Machinery and equipment	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Land, building and infrastructure	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Intangibles (R&D, software, data, intellectual property, vocational training, etc.)	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐

29B. p Compared with last year (2022) investments of your enterprise this year (2023) will:

increase ..... 1 ☐ remain unchanged ..... 2 ☐ decrease ..... 3 ☐

30. p Compared with this year (2023) investments of your enterprise next year (2024) will:

increase ..... 1 ☐ remain unchanged ..... 2 ☐ decrease ..... 3 ☐

31. p Investments carried out this year and planned investment for next year is, or will be, of the following kind (choose the appropriate cate-gory or categories):

	2023	2024
replacement of worn-out plant or equipment	1 ☐	1 ☐
extension of production capacity	2 ☐	2 ☐
investment designed to streamline production	3 ☐	3 ☐
other investment objectives (pollution control, safety, etc.)	4 ☐	4 ☐

32. m, p Financial sources of investments in the present year:

own sources	1 ☐	leasing	3 ☐
bank credit	2 ☐	others	4 ☐

33. p What main factors are stimulating your investments?

	2023	2024
demand	1 ☐	1 ☐
financial conditions	2 ☐	2 ☐
technical factors	3 ☐	3 ☐
other factors	4 ☐	4 ☐

Please, assess how much time do you need to fill in the questionnaire *(in minutes)*.

(e-mail of the person drawing up a report – FILL UP WITH CAPITAL LETTERS)

(telephone number of the person filling up the questionnaire)

Annex 2 – Questionnaire on business tendency in construction for 2023 – AK-B/m

Statistics Poland

STATISTICS POLAND al. Niepodległości 208, 00-925 Warszawa
http://stat.gov.pl/

Name and address of the enterprise

AK-B/m
Business Tendency Survey – Construction

the CSO Web Data collection portal

portal.stat.gov.pl

Statistical Office in Zielona Góra
ul. Spokojna 1
65-954 Zielona Góra

Identification number – **REGON**

month 2023

Please, return by the 10th of the current month

(e-mail of the secretary's office drawing up a report – FILL UP WITH CAPITAL LETTERS)

Thank you for filling in the questionnaire on time, we guarantee to ensure statistical confidentiality
Answers to all questions should be given by abstracting from seasonal variations, i.e. bypassing changes specific to a particular period of year.

I. Assessment of economic situation

*In each question **1, 2, 4, 5, 8, 9, 10** please mark a symbol of the proper answer (only one). In question number **3** you can choose more than one factor.*

1. **How has your construction/assembly activity changed over the past 3 months:**
   - increased ..... 1 ☐
   - remained unchanged ..... 2 ☐
   - decreased ..... 3 ☐

2. **What is current general economic situation of your enterprise:**
   - good ..... 1 ☐
   - satisfactory ..... 2 ☐
   - bad ..... 3 ☐

3. **What main factors are currently limiting your business:**
   - none ..... 01 ☐
   - insufficient demand ..... 02 ☐
   - weather conditions ..... 03 ☐
   - shortage of skilled labour ..... 04 ☐
   - shortage of equipment and/or materials (due to non-financial reasons) ..... 05 ☐
   - costs of labour ..... 06 ☐
   - costs of materials ..... 07 ☐
   - high payments to state revenue ..... 08 ☐
   - too tough competition on market ..... 09 ☐
   - unclear and unstable legal regulations ..... 10 ☐
   - uncertainty of economic environment ..... 11 ☐
   - financial problems ..... 12 ☐
   - others (please, specify them) ..... 13 ☐

4. **How do order-books for construction/assembly works carried out by your enterprise at domestic market change:**
   - increase ..... 1 ☐
   - remain unchanged ..... 2 ☐
   - decrease ..... 3 ☐

5. **What are current order-books for construction/assembly works carried out by your enterprise at domestic and foreign market:**
   - more than sufficient ..... 1 ☐
   - sufficient ..... 2 ☐
   - not sufficient ..... 3 ☐

6. **At what capacity is your company currently operating** *(as a percentage of full capacity)*: ☐☐☐ %

7. **What is the duration of assured activity of your enterprise** *(in months)* **considering a given order-books and normal working hours:** ☐☐

I. Assessment of economic situation (cont.)

8.	**How does construction/assembly production at the domestic market change:** • increases . . . . . 1 ☐ • remains unchanged . . . . . 2 ☐ • decreases . . . . . 3 ☐
9.	**How does financial situation of your enterprise change:** • improves . . . . . 1 ☐ • remains unchanged . . . . . 2 ☐ • worsens . . . . . 3 ☐
10.	**How do delays of payments for construction/assembly works change:** • increase . . . . . 1 ☐ • remain unchanged . . . . . 2 ☐ • decrease . . . . . 3 ☐ • no delays . . . . . 4 ☐

II. Expectations of economic situation

In each question please mark a symbol of the proper answer (only one).

11.	**How general economic situation of your enterprise will change over the next three months:**	• will be better . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will be worse . . . . . 3 ☐
12.	**How will order-books for construction/assembly works at the domestic market change over the next three months:**	• will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
13.	**How will order-books for construction/assembly works at the foreign market change over the next three months:**	• will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐ • does not concern . . . . . 4 ☐
14.	**How will construction/assembly production at the domestic market change over the next three months:**	• will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
15.	**How will financial situation of the enterprise change over the next three months:**	• will be better . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will be worse . . . . . 3 ☐
16.	**How will employment in the enterprise change over the next three months:**	• will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
17.	**The future development of your business situation is currently:**	• easy to predict . . . . . 1 ☐ • moderately easy to predict . . . . . 2 ☐ • moderately difficult to predict . . . . . 3 ☐ • difficult to predict . . . . . 4 ☐
18.	**How will prices of construction/assembly works carried out by the enterprise change over the next three months:**	• will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
19.	**Your enterprise's current production capacities in relation to current order-books and anticipated changes in demand over the coming months are assessed as:**	• more than sufficient . . . . . 1 ☐ • sufficient . . . . . 2 ☐ • not sufficient . . . . . 3 ☐

III. Investments

On question 20 and 25 please answer in March and in October (m, o), on questions 21 and 22A only in March (m) and on questions 22B, 23, 24 and 26 – only in October (o).

*In questions **20**, **21** and **22A** (for respective variants) as well as questions **22B** and **23** please mark a symbol of the proper answer (only one), in questions **24, 25** and **26** there can be given a few answers.*

20. m, p Has your company incurred, incurs or will incur investments (i.e. purchase of machinery, equipment, means of transport, construction and modernization of buildings and structures) in:

2021	☐ YES	☐ NO	
2022	☐ YES	☐ NO	
2023	☐ YES	☐ NO	(if NO, please don't answer the question 25 as well as 24 and 26 in the part concerning 2023)
2024	☐ YES	☐ NO	(if NO, please don't answer the question 24 and 26 in the part concerning 2024)

21. m Compared with two years ago (2021) investments of your enterprise last year (2022) has:

Overall investment	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Machinery and equipment	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Land, building and infrastructure	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Intangibles (R&D, software, data, intellectual property, vocational training, etc.)	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐

22A. m Compared with last year (2022) investments of your enterprise this year (2023) will:

Overall investment	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Machinery and equipment	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Land, building and infrastructure	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Intangibles (R&D, software, data, intellectual property, vocational training, etc.)	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐

22B. p Compared with last year (2022) investments of your enterprise this year (2023) will:

increase ..... 1 ☐ remain unchanged ..... 2 ☐ decrease ..... 3 ☐

23. p Compared with this year (2023) investments of your enterprise next year (2024) will:

increase ..... 1 ☐ remain unchanged ..... 2 ☐ decrease ..... 3 ☐

24. p Investments carried out this year and planned investment for next year is, or will be, of the following kind (choose the appropriate cate-gory or categories):

	2023	2024
replacement of worn-out plant or equipment	1 ☐	1 ☐
extension of production capacity	2 ☐	2 ☐
investment designed to streamline production	3 ☐	3 ☐
other investment objectives (pollution control, safety, etc.)	4 ☐	4 ☐

25. m, p Financial sources of investments in the present year:

own sources	1 ☐	leasing	3 ☐
bank credit	2 ☐	others	4 ☐

26. p What main factors are stimulating your investments?

	2023	2024
demand	1 ☐	1 ☐
financial conditions	2 ☐	2 ☐
technical factors	3 ☐	3 ☐
other factors	4 ☐	4 ☐

Please, assess how much time do you need to fill in the questionnaire *(in minutes)*.

(e-mail of the person drawing up a report – FILL UP WITH CAPITAL LETTERS)

(telephone number of the person filling up the questionnaire)

Annex 3 – Questionnaire on business tendency in trade for 2023 – AK-H/m

Statistics Poland

STATISTICS POLAND al. Niepodległości 208, 00-925 Warszawa
http://stat.gov.pl/

Name and address of the enterprise	**AK-H/m** **Business Tendency Survey – Trade**	the CSO Web Data collection portal portal.stat.gov.pl Statistical Office in Zielona Góra ul. Spokojna 1 65-954 Zielona Góra
Identification number – **REGON**	**month 2023**	Please, return by the 10th of the current month

(e-mail of entity's secretary office filling in a questionnaire – FILL UP WITH CAPITAL LETTERS)

Thank you for filling in the questionnaire on time, we guarantee to ensure statistical confidentiality

Answers to all questions should be given by abstracting from seasonal variations, i.e. bypassing changes specific to a particular period of year.

I. Assessment of the economic situation

*In each question **1, 2, 4, 5, 6** please mark a symbol of the proper answer (only one).*
*In question number **3, 7** you can choose more than one answer.*

1. How the sales of your enterprise have changed in the past three months:

- increased ..... 1 ☐
- remained unchanged ..... 2 ☐
- decreased ..... 3 ☐

2. What is current general economic situation of your enterprise:

- good ..... 1 ☐
- satisfactory ..... 2 ☐
- bad ..... 3 ☐

3. What main factors are currently limiting your enterprise's activity:

- none ..... 01 ☐
- insufficient demand ..... 02 ☐
- shortage of labour ..... 03 ☐
- costs of labour ..... 04 ☐
- high bank interests ..... 05 ☐
- high payments to state revenue ..... 06 ☐
- too tough competition on market ..... 07 ☐
- difficulties in settling accounts with contractors ..... 08 ☐
- unclear and unstable legal regulations 09 ☐
- uncertainty of economic environment 10 ☐
- others (please, specify them) 11 ☐

4. How do sales of your enterprise change:

- increase ..... 1 ☐
- remain unchanged ..... 2 ☐
- decrease ..... 3 ☐

5. What is current volume of stock in your enterprise:

- too large ..... 1 ☐
- adequate toward demands ..... 2 ☐
- too small ..... 3 ☐

6. How does financial situation of your enterprise change:

- improves ..... 1 ☐
- remains unchanged ..... 2 ☐
- decreases ..... 3 ☐

7. What are dominant sources of financing the current assets in your enterprise:

- own sources . . 1 ☐
- bank credit... ... 2 ☐
- mercantile credit... 3 ☐
- others... 4 ☐

II. Expectations of economic situation

In each question please mark a symbol of the proper answer (only one).

8.	**How general economic situation of your enterprise will change in the next three months:** • will be better . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will be worse . . . . . 3 ☐
9.	**How the demand on goods sold by your enterprise will change in the next three months:** • will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
10.	**How the sales of your enterprise will change in the next three months:** • will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
11.	**The future development of your business situation is currently:** • easy to predict . . . . . 01 ☐ • moderately difficult to predict . . . . . 03 ☐ • moderately easy to predict . . . . . 02 ☐ • difficult to predict. . . . . 04 ☐
12.	**How the orders placed with suppliers will change in the next three months:** • will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
12.	**How financial situation of your enterprise will change in the next three months:** • will be better . . . . . 1 ☐ • will not change . . . . . 2 ☐ • will be worse . . . . . 3 ☐
13.	**How employment in your enterprise will change in the next three months:** • will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
14.	**How the prices of goods sold by your enterprise will change in the next three months:** • will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐
15.	**How investment outlays (equipment, transport, buildings etc.) in your enterprise will change in the next months:** • will increase . . . . . 1 ☐ • will remain unchanged . . . . . 2 ☐ • will decrease . . . . . 3 ☐ • no investment activity is expected (there is no need) . . . . . 4 ☐ • no investment activity is expected (lack of resources) . . . . . 5 ☐

Please, assess how much time do you need to fill in the questionnaire *(in minutes)*.	

(contact e-mail regarding filled in questionnaire – FILL UP WITH CAPITAL LETTERS)

(telephone number regarding filled in questionnaire)

Annex 4 – Questionnaire on business tendency in services for 2023 – AK-U/m

Statistics Poland **STATISTICS POLAND** al. Niepodległości 208, 00-925 Warszawa
http://stat.gov.pl/

Name and address of the enterprise	**AK-U/m** **Business Tendency Survey – Services**	the CSO Web Data collection portal portal.stat.gov.pl Statistical Office in Zielona Góra ul. Spokojna 1 65-954 Zielona Góra
Identification number – **REGON**	**month 2023**	Please, return by the 10th of the current month

(e-mail of entity's secretary office filling in a questionnaire – FILL UP WITH CAPITAL LETTERS)

Thank you for filling in the questionnaire on time, we guarantee to ensure statistical confidentiality

Answers to all questions should be given by abstracting from seasonal variations, i.e. bypassing changes specific to a particular period of year.

I. Assessment of the economic situation

*In each question **1, 2, 3, 4, 6, 7, 10, 11** please mark a symbol of the proper answer (only one). In question number **5** you can choose more than one factor.*

1. How has your general economic situation in the field of enterprise's service activity changed over the past 3 months:

- improved 1
- remained unchanged 2
- deteriorated 3

2. How has demand for your enterprise's services changed over the past 3 months:

- increased . . . . . 1 ☐
- remained unchanged . . . . . 2 ☐
- decreased . . . . . 3 ☐

3. How has total employment of your enterprise changed over the past 3 months:

- increased . . . . . 1 ☐
- remained unchanged . . . . . 2 ☐
- decreased . . . . . 3 ☐

4. What is current general economic situation of your enterprise:

- good . . . . . 1 ☐
- satisfactory . . . . . 2 ☐
- bad . . . . . 3 ☐

5. What main factors are currently limiting your business:

- none . . . . . 01 ☐
- insufficient demand . . . . . 02 ☐
- shortage of skilled labour . . . . . 03 ☐
- shortage of space and/or equipment . . . . . 04 ☐
- costs of labour . . . . . 05 ☐
- high payments to state revenue . . . . . 06 ☐
- too tough competition of domestic and foreign firms . . . . . 07 ☐
- unclear and unstable legal regulations . . . . . 08 ☐
- uncertainty of economic environment . . . . . 09 ☐
- financial problems . . . . . 10 ☐
- others (please, specify them) . . . . . 11 ☐

6. How does demand for services rendered by your enterprise change:

- increases . . . . . 1 ☐
- remains unchanged . . . . . 2 ☐
- decreases . . . . . 3 ☐

7. How do sales of services rendered by your enterprise change:

- increase . . . . . 1 ☐
- remain unchanged . . . . . 2 ☐
- decrease . . . . . 3 ☐

I. Assessment of economic situation (cont.)

8.	**At what capacity (persons employed, equipment, means of transport, space etc.) is your enterprise currently operating (as a percentage of full capacity):** ☐☐☐☐ %
9.	**What is current duration of assured activity of your enterprise (in months):** ☐☐☐
10.	**How does financial situation of your enterprise change:** • improves ..... 1 ☐ • remains unchanged ..... 2 ☐ • deteriorates ..... 3 ☐
11.	**How do delays of payments for services change:** • increase ..... 1 ☐ • remain unchanged ..... 2 ☐ • decrease ..... 3 ☐ • there are no delays ..... 4 ☐

II. Expectations of economic situation

In each question ***12, 13, 14, 15, 16, 18, 19, 20*** *please mark a symbol of the proper answer (only one). In question number* ***17*** *you can choose more than one answer.*

12.	**How general economic situation of your enterprise in the field of your enterprise's service activity will change in the next three months:** • will be better ..... 1 ☐ • will remain unchanged ..... 2 ☐ • will be worse ..... 3 ☐
13.	**How will demand for your enterprise's services change over the next three months:** • will increase ..... 1 ☐ • will remain unchanged ..... 2 ☐ • will decrease ..... 3 ☐
14.	**The future development of your business situation is currently:** • easy to predict ..... 01 ☐ • moderately difficult to predict ..... 03 ☐ • moderately easy to predict ..... 02 ☐ • difficult to predict ..... 04 ☐
15.	**How will sales of rendered services change over the next three months:** • will increase ..... 1 ☐ • will remain unchanged ..... 2 ☐ • will decrease ..... 3 ☐
16.	**How will enterprise's financial situation change over the next three months:** • will improve ..... 1 ☐ • will remain unchanged ..... 2 ☐ • will worsen ..... 3 ☐
17.	**What kind of sources of financing service activity will be used over the next three months:** • own sources ..... 1 ☐ • state budget ..... 3 ☐ • bank credit ..... 2 ☐ • others ..... 4 ☐
18.	**How will employment in your enterprise change over the next three months:** • will increase ..... 1 ☐ • will remain unchanged ..... 2 ☐ • will decrease ..... 3 ☐
19.	**How will prices of services rendered by the enterprise change over the next three months:** • will increase ..... 1 ☐ • will remain unchanged ..... 2 ☐ • will decrease ..... 3 ☐
20.	**If the demand expanded, could you increase your volume of activity with your present resources?** • NO ☐ • YES ☐ if YES, by how much ..... ☐☐☐,☐ %

III. Investments

On question 21 and 26 please answer in March and in October (m, o), on questions 22 and 23A only in March, on questions 23B, 24, 25 and 27 only in October (o).

*In questions **21**, **22** and **23A** (for respective variants) as well as questions **23B** and **24** please mark a symbol of the proper answer (only one), in questions **25**, **26** and **27** there can be given a few answers.*

21. m, p — **Has your company incurred, incurs or will incur investments (i.e. purchase of machinery, equipment, means of transport, construction and modernization of buildings and structures) in:**

2021	☐ YES	☐ NO	
2022	☐ YES	☐ NO	
2023	☐ YES	☐ NO	(if **NO**, please don't answer the question 26 as well as 25 and 27 in the part concerning 2023)
2024	☐ YES	☐ NO	(if **NO**, please don't answer the questions 25 and 27 in the part concerning 2024)

22. m — **Compared with two years ago (2021) investments of your enterprise last year (2022) has:**

Overall investment	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Machinery and equipment	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Land, building and infrastructure	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐
Intangibles (R&D, software, data, intellectual property, vocational training, etc.)	increased ..... 1 ☐	remained unchanged ..... 2 ☐	decreased ..... 3 ☐

23A. m — **Compared with last year (2022) investments of your enterprise this year (2023) will:**

Overall investment	increase..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Machinery and equipment	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Land, building and infrastructure	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐
Intangibles (R&D, software, data, intellectual property, vocational training, etc.)	increase ..... 1 ☐	remain unchanged ..... 2 ☐	decrease ..... 3 ☐

23B. p — **Compared with last year (2022) investments of your enterprise this year (2023) will:**

increase ..... 1 ☐ remain unchanged ..... 2 ☐ decrease ..... 3 ☐

24. p — **Compared with this year (2023) investments of your enterprise next year (2024) will:**

increase ..... 1 ☐ remain unchanged ..... 2 ☐ decrease ..... 3 ☐

25. p — **Investments carried out this year and planned investment for next year is, or will be, of the following kind (choose the appropriate cate-gory or categories):**

	2023	2024
replacement of worn-out buildings, equipment and IT	1 ☐	1 ☐
extension of capacity for existing or new products/services	2 ☐	2 ☐
investment designed to streamline processes	3 ☐	3 ☐
other investment objectives (regulatory obligations, safety, etc.)	4 ☐	4 ☐

26. m, p — **Financial sources of investments in the present year:**

own sources ..... 1 ☐	leasing ..... 3 ☐
bank credit ..... 2 ☐	others ..... 4 ☐

27. p — **What main factors are stimulating your investments?**

	2023	2024
demand	1 ☐	1 ☐
financial conditions	2 ☐	2 ☐
technical factors	3 ☐	3 ☐
other factors	4 ☐	4 ☐

IV. SUPPLEMENTARY DATA ON BANK AND INSURANCE ACTIVITIES

*In question **28A, 29A, 28B, 29B** please mark a symbol of the proper answer (only one) for each of the listed variants.*

*Service units carrying out **bank activity** are asked to fulfil.*

28A	**How does number of loans change in the current month:**						
	1. granted to households	increases	☐	remains unchanged	☐	decreases	☐
	2. granted to enterprises	increases	☐	remains unchanged	☐	decreases	☐
29A	**How does number of loans which payment is delayed change in the current month:**						
	1. granted to households	increases	☐	remains unchanged	☐	decreases	☐
	2. granted to enterprises	increases	☐	remains unchanged	☐	decreases	☐

*Service units carrying out **insurance activity** are asked to fulfil.*

28B	**How does number of concluded insurance contracts change in the current month:**						
	1. personal and property insurance – total	increases	☐	remains unchanged	☐	decreases	☐
	2. life insurance – total	increases	☐	remains unchanged	☐	decreases	☐
29B	**How does number of paid insurance benefits change in the current month:**						
	1. personal and property insurance – total	increases	☐	remains unchanged	☐	decreases	☐
	2. life insurance – total	increases	☐	remains unchanged	☐	decreases	☐

Please, assess how much time do you need to fill in the questionnaire *(in minutes)*.	

(contact e-mail regarding filled in questionnaire – FILL UP WITH CAPITAL LETTERS)

(telephone number regarding filled in questionnaire)

Annex 5 – List of changes in business tendency questionnaires with regard to the last edition of Methodological report from March 2018

Manufacturing (AK-P)

2019

No significant methodological changes as compared to the previous year.

2020

1. in question on factors limiting activity - removing "lack of appropriate equipment" and " shortage of energy" variants,
2. in question on factors limiting activity - redrafting of "others" variant to "others (please, specify them)".

2021

1. introduction of a new question on the future development of business situation,
2. adding new set of questions on investments (taken from the existing AK-I/p questionnaire on investments along with the new EC ones) to the main questionnaire (AK-P).

2022

1. in section IV. Investments, introduction of a new question on last year's investments in relation to the ones made two years ago,
2. in section IV. Investments, breakdown of question on current year's investments into two sub-questions - one asked in March, second one in October. In addition, the one form March has extensive variants of answer.

Construction (AK-B/m)

2019

No significant methodological changes as compared to the previous year.

2020

1. in question on factors limiting activity - removing "costs of finance" and " difficulties in obtaining bank credit" variants,
2. in question on factors limiting activity - redrafting of "others" variant to "others (please, specify them)".

2021

1. introduction of a new question on the future development of business situation,
2. adding new set of questions on investments (taken from the existing AK-I/p questionnaire on investments along with the new EC ones) to the main questionnaire (AK-B).

2022

1. in section III. Investments, introduction of a new question on last year's investments in relation to the ones made two years ago,
2. in section III. Investments, breakdown of question on current year's investments into two sub-questions - one asked in March, second one in October. In addition, the one form March has extensive variants of answer.

2023

1. in question on factors limiting activity – adding “financial problems” variant.

Trade (AK-H/m)

2019

No significant methodological changes as compared to the previous year.

2020

1. in question on factors limiting activity - removing "selling space", "difficulties in obtaining bank credit", "high level of customs duties and imports charges" and "problems in purchasing the goods" variants,
2. in question on factors limiting activity - redrafting of "others" variant to "others (please, specify them)".

2021

1. introduction of a new question on the future development of business situation,
2. removing question on current prices of goods,
3. redrafting of question on current/expected "amount of goods sold" to "sales".

2022

No significant methodological changes as compared to the previous year.

2023

1. In question on dominant sources of financing the current assets – redrafting of "own funds" to "own sources".

Services (AK-U/m)

2019

No significant methodological changes as compared to the previous year.

2020

1. in question on factors limiting activity - removing "difficulties in obtaining bank credit" variant,
2. in question on factors limiting activity – combining two variants "too big competition of domestic firms" and "too big competition of foreign firms" into one, i.e. "too tough competition of domestic and foreign firms",
3. in question on factors limiting activity - redrafting of "others" variant to "others (please, specify them)".

2021

1. removing questions on current prices of services and expected investment outlays,
2. in section IV. Supplementary data on bank and insurance activities – removing sub-questions on goals and types of credits (in "bank activity" set) along with the ones regarding type of insurance (in "insurance activity" set),
3. in question on expected sources of financing service activity – combining two variants "domestic bank credit" and "foreign bank credit" into one, i.e. "bank credit",
4. introduction of a new question on the future development of business situation,
5. introduction of a new set of questions on investments (asked bi-annually – in March and October).

2022

1. in section III. Investments, introduction of a new question on last year's investments in relation to the ones made two years ago,
2. in section III. Investments, breakdown of question on current year's investments into two sub-questions - one asked in March, second one in October. In addition, the one form March has extensive variants of answer.

2023

1. in question on factors limiting activity – adding “financial problems” variant.