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BUSINESS TENDENCY SURVEYS IN TRANSITION ECONOMIES

Methodological review and recommendations for harmonisation

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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FOREWORD

The development of reliable, market-oriented statistics in the transition economies is one of the priority activities in the programme of the Centre for Co-operation with the Economies in Transition (CCET). Activities on statistics include the provision of advice on the practical implementation of western statistical systems, focusing on those areas where the OECD possesses internationally recognised expertise (e.g. national accounts, prices and volume measures, short-term economic indicators and business surveys) and the development of a data base of key economic statistics to monitor economic and social developments.

This document focuses on business tendency surveys, which provide a cost-effective means of generating timely information on short-term economic developments. It sets out the guidelines used by Belarus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Russian Federation, the Slovak Republic and Slovenia for the harmonisation of their business tendency surveys, and also provides a review of the surveys being undertaken in these countries. The harmonisation ensures the comparability data both between the countries concerned and with data produced in OECD and European Union Member countries. The methodological issues involved in the design and implementation of business tendency surveys are discussed in the document. Many aspects of the methodology can be used in the collection of other statistics.

The programme to develop business surveys in the transition economies involves co-operation between the Transition Economies Division of the OECD Statistics Directorate and the European Commission and its Statistical Office (Eurostat). Statistics based on business surveys from selected transition economies are published by the OECD in the quarterly publication *Short-term Economic Indicators: Transition Economies*. This document is published under the responsibility of the Secretary-General of the OECD.

Salvatore Zecchini
OECD Deputy Secretary-General
Director of the CCET

TABLE OF CONTENTS

FOREWORD	3
INTRODUCTION.....	6
CHAPTER 1. RECOMMENDATIONS AND GUIDELINES FOR THE HARMONISATION OF BUSINESS TENDENCY SURVEYS	8
1.1. Overview.....	8
1.2. Requirements for comparability	9
1.3. Content.....	9
1.4. Coverage	13
1.5. Units and coverage.....	14
1.6. Target universe.....	17
1.7. Timeliness of results	24
1.8. Data content	24
1.9. Presentation of Results.....	24
CHAPTER 2. PRACTICAL CONSIDERATIONS IN THE DESIGN AND IMPLEMENTATION OF BUSINESS TENDENCY SURVEYS	28
2.1. The frame	28
2.2. The units.....	28
2.3. The required sample size	29
2.4. Non-Response	30
2.5. Measurement Errors.....	32
2.6. Processing Errors	33
2.7. Dissemination of Results	34
CHAPTER 3 REVIEW OF BUSINESS TENDENCY SURVEYS IMPLEMENTED IN TRANSITION COUNTRIES	35
3.1. Introduction.....	35
3.2. Content.....	36
3.3. Survey characteristics	40

CHAPTER 4	DESCRIPTIONS OF BUSINESS TENDENCY SURVEYS IMPLEMENTED IN INDIVIDUAL TRANSITION COUNTRIES.....	45
	BELARUS	45
	BULGARIA.....	46
	CZECH REPUBLIC	48
	ESTONIA.....	50
	HUNGARY.....	52
	LATVIA.....	57
	LITHUANIA.....	60
	POLAND	62
	ROMANIA.....	67
	RUSSIAN FEDERATION.....	70
	SLOVAK REPUBLIC	76
	SLOVENIA.....	78
ANNEX A	HARMONIZED QUESTIONNAIRES AND RESPONSE ALTERNATIVES	79
ANNEX B	WEIGHTING METHODS	83
ANNEX C	CLASSIFICATION BY ECONOMIC ACTIVITY AND SIZE FOR SURVEYS IN INDUSTRY	94
ANNEX D	RECOMMENDATIONS FOR THE TECHNICAL DESIGN OF SURVEYS IN INDUSTRY	96

INTRODUCTION

Within the framework of the Centre for Co-operation with the Economies in Transition (CCET) programme, the Transition Economies Division of the OECD Statistics Directorate has worked since 1991 with the European Commission and its Statistical Office (Eurostat) to develop a programme of Business Tendency Surveys in the transition economies. This programme is part of a larger OECD/EC-Eurostat project to assist these transition countries to develop appropriate short-term indicators.

Member countries of the European Union have found it useful to standardise (or “harmonize”) a number of the questions included in their business surveys so that the results are internationally comparable. Transition economies are also being encouraged to use a number of standard questions to make their survey results internationally comparable.

A series of workshops has been held for the participants in this programme of work. A workshop on *Opinion Surveys for Business and Consumers and Time Series Analysis* was organised at the IFO Institute for Economic Research in Munich in June 1991 to promote the introduction of Business Tendency surveys in transition countries. Two further workshops on the *Harmonisation of Business Tendency surveys in Transition Countries* were held at the Slovak Statistical Office in Bratislava in April 1992 and at the Polish Statistical Office in Warsaw in November 1992. The Bratislava Workshop focused on surveys in the industrial sector and the Warsaw Workshop on construction and retail trade surveys. Experiences with implementation and harmonization of business surveys in transition countries were exchanged at a fourth Workshop, organised at the Academy of Economics in Poznan in June 1993. The technical design and harmonized content of these surveys were evaluated and discussed at a fifth Workshop, which was held at the Estonian Institute for Economic Research in Tallinn in September 1994. Workshops held in 1995 and 1996 focused on the use of business survey results in economic analysis.

Current work on the development and implementation of business tendency surveys in transition countries is focused on the construction of composite leading indicators using survey information and other short-term economic indicator data, and the development of alternative approaches for analysing cyclical and structural changes using survey information.

Chapter 1 of this document discusses the requirements of comparability and sets out recommendations for the harmonisation of these surveys. Chapter 2 addresses some of the common problems faced in meeting these requirement with some numeric examples set out in Annex B. These two chapters are mainly based on a paper entitled “Criteria in Achieving Comparability Between Business Surveys” prepared by Mr. Åke Lönnqvist, as consultant to the project, for the Workshop in Tallinn. Chapter 3 contains a review of business surveys implemented in transition countries, whilst Chapter 4 provides summary descriptions of the business tendency surveys implemented in individual transition countries and evaluates the degree of survey harmonisation achieved in each country.

Selected business survey results have been included in the OECD’s quarterly publication *Short-term Economic Indicators: Transition Economies* since April 1993. Business survey results in Bulgaria,

Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Belarus and the Russian Federation are now included on a regular basis. An annual Business Tendency Survey Annex, provides more detailed results from a wider range of surveys. The first such Annex was included in *Short-term Economic Indicators: Transition Economies*, Number 2/1995.

The Annex contains the full set of results from surveys conducted in manufacturing, construction and retail trade. The complete set of questions for all three surveys corresponding to these results is included in Annex A of this document. Departures from these harmonized questions are indicated where applicable.

CHAPTER 1. RECOMMENDATIONS AND GUIDELINES FOR THE HARMONISATION OF BUSINESS TENDENCY SURVEYS

1.1. Overview

This chapter presents recommendations for a common set of standards for defining and delineating the target universe, its sub-aggregates and the units involved in Business Tendency surveys. It also describes the content of surveys and provides guidelines for designing surveys of acceptable quality.

Business Tendency surveys (BT-surveys) collect qualitative information from business managers on their assessment of the current economic situation and their intentions and expectations for the immediate future. Such surveys are conducted in all OECD Member countries and have proved a cost-effective means of generating timely information on short-term economic developments. Current economic information is of particular interest to countries in transition and a reliable system of both quantitative and qualitative short-term indicators is of prime importance.

Compared to traditional quantitative statistical surveys, BT-surveys present many advantages as a source for short-term economic information. They collect information which is easier for enterprises to supply because the answers are not based on precise records and the returns can be submitted more quickly. BT-surveys cover a wide range of variables selected for their ability to monitor the business cycle and include information on variables not covered by quantitative statistics, such as capacity utilisation and views on the overall economic situation.

The chief characteristic of BT-surveys is that instead of asking for exact figures, they usually ask for the respondents' assessment of the current business situation compared with the "normal" state, i.e. a question on *levels*, or they ask for a judgement on the direction of changes, i.e. a question on *tendency*. Answers are typically given as "above normal/normal/below normal" or as "up/same/down". Questions may refer either to the present situation or to expectations, i.e. questions on *future tendency* for the next three to six months.

The answers received are usually weighted according to the size of the responding firm and, for convenience, the results are usually given as one figure. This is straightforward where a single figure is requested from respondents, i.e. *percentage* of capacity utilisation. Sometimes, respondents are asked to indicate one or several choices in a nominal list of alternatives, in which case the weighted *proportion* of firms selecting the alternative is given. This latter type of question is used for information concerning limits to production or investment, limits to improvement in business situation, and type of investment.

In the case of three-choice questions the data are generally presented in the form of a per cent *balance*. "Normal" and "same" answers are ignored and the balance is obtained by taking the difference between the weighted percentages of respondents giving favourable and unfavourable answers. Negative balances indicate that unfavourable answers exceed favourable answers; positive balances show that

favourable responses predominate. In the case of two-choice questions, i.e. do you plan fixed investment for this or next year -- “yes or no”, the weighted *proportion* of firms indicating “yes” is given.

The harmonization of BT-surveys is very important if the results are to be used for international comparisons of short-term economic developments. Lack of harmonisation with regard to definitions, question format, periodicity etc. creates difficulties when comparing data from different countries.

As mentioned above the purpose of this chapter is to identify and describe the requirements which should be fulfilled to achieve co-ordinated and comparable BT-surveys carried out by transition countries. Comparability is discussed in two respects: (a) over time *within* a country and (b) over space *between* countries.

1.2. Requirements for comparability

In practice, comparability between surveys is achieved when the same information is sought and acquired. Inadequate comparability is caused by differences in the information sought and/or in the success in obtaining the desired data. Conceptually, comparable information is obtained when:

- values for the same variables are estimated;
- the data are collected for corresponding groups of reporting units;
- the classifications and measurement scales used are the same or at least transformable into identical classifications, etc.;
- the estimates have reasonable precision in terms of sample variance.

Comparability both *over time* (within countries) and *in space* (between countries) requires conformity between surveys in terms of:

- what information is sought (content);
- reference group (coverage i.e. type of unit and population of such units);
- how reliable the estimates are (accuracy).

These three conditions are discussed below. The first condition (content) is discussed below for the BT-surveys in industry, construction, and retail trade. The other two conditions (coverage and accuracy) are discussed in the remainder of this chapter with reference to BT-surveys in industry. The recommendations and guidelines presented are also valid for BT-surveys in construction and retail trade with appropriate modification for main structural differences related to size and the activity structure of units.

1.3. Content

The first step in achieving comparability over time and space involves careful consideration of the content of the questionnaires regarding the variables covered, definitions, form of questions, periodicity etc. Comparability with respect to the information sought (such as change in production, evaluation of stocks etc.) may be achieved by use of the same questionnaire (i.e. harmonizing the questionnaire) by all countries where comparability is required. Countries requiring additional information not sought in the Harmonized Questionnaire, could include further questions. However, to avoid over-burdening respondents this option should be used with moderation.

The exact formulation of the harmonized questions may vary slightly between surveys depending on the national language. The main concern, however, is not the exact formulation of the wording but the underlying meaning of the questions.

1.3.1. Recommendations for the content of the surveys

The following principles concerning definitions and specifications, have been agreed to by transition countries for their surveys on industry, construction and retail trade:

- unless otherwise stated, all information should be qualitative;
- unless otherwise stated, all questions refer to the unit being surveyed and not to the industry or economy as a whole;
- questions referring to an assessment of the current situation should imply a comparison with a “normal” situation;
- questions concerning judgements about past/present and present/future changes or tendencies should make use of a three-point ordinal scale (+, =, -) with values +1, 0 and -1 (refer Harmonized Questionnaires provided in Annex A);
- all questions on past/present changes should refer to a common time span of one period (month or quarter, according to the periodicity of the survey);
- unless otherwise stated, all questions on present/future changes should be evaluated on a 3–4 month basis;
- surveys conducted four times a year (quarterly) should be carried out in January, April, July and October;
- the question on planned investment should be asked twice a year (in April and October), and other questions related to investment (type and limiting factors) should be asked once a year (in October).

1.3.2. Harmonizing the questionnaire variables

The following is a summary of the variables agreed for inclusion in the harmonized set of questions. These form the basis for surveys in industry, construction and retail trade in transition countries. The questionnaires for these branches are to include the variables listed in Table 1 below:

Table 1. Overview of harmonized variables

	Type (scale) and assigned value of variable and period covered			
	Present period		Future period	
	Type/scale*	Assigned value	Type/scale*	Assigned value
Industry Survey				
Production	tendency	(+1), (0), (-1)	tendency 3–4 months	(+1), (0), (-1)
Order books, total and export	level	(+1), (0), (-1)	tendency 3–4 months	(+1), (0), (-1)
Stocks of finished goods	level	(+1), (0), (-1)	tendency 3–4 months	(+1), (0), (-1)
Selling prices			tendency 3–4 months	(+1), (0), (-1)
Employment			tendency 3-4 months	(+1), (0), (-1)
Production constraints	situation	n.a.		
Production capacity	level	(+1), (0), (-1)		
Capacity utilisation	level	percentage		
Investment			tendency 12 months	(+1), (0), (-1)
Type of investment	situation	n.a.		
Investment constraints	situation	n.a.		
Business situation	tendency	(+1), (0), (-1)	tendency 6 months	(+1), (0), (-1)
Construction survey				
Business activity	tendency	(+1), (0), (-1)		
Production constraints	situation	n.a.		
Order books	level	(+1), (0), (-1)		
Employment			tendency 3–4 months	(+1), (0), (-1)
Output prices			tendency 3–4 months	(+1), (0), (-1)
Period of production secured	situation	months		
New orders (contracts)			tendency 3–4 months	(+1), (0), (-1)
Financial situation	tendency	(+1), (0), (-1)		
Delays in payment by clients	tendency	(+1), (0), (-1)		
Technical capacity	level	(+1), (0), (-1)		
Retail survey				
Business situation	tendency	(+1), (0), (-1)	tendency 6 months	(+1), (0), (-1)
Stocks	level	(+1), (0), (-1)		
Orders placed			tendency 3–4 months	(+1), (0), (-1)
Employment			tendency 3–4 months	(+1), (0), (-1)
Selling prices	tendency	(+1), (0), (-1)	tendency 3–4 months	(+1), (0), (-1)
Financial situation	tendency	(+1), (0), (-1)		
Competition in own sector	tendency	(+1), (0), (-1)		
Activity constraints	situation	n.a.		

* The exact scale used for each variable is given in the harmonized questionnaires in Annex A.

1.3.3 *Harmonized questionnaires*

Outlines of the harmonized questionnaires, including the wording of each question and answer alternatives, are given in Annex A for Industry, Construction, and Retail Trade branches respectively.

1.3.4 *Variable measurement scales*

The variables in the co-ordinated BT-surveys are specified in the harmonized questionnaires referred to above. These questionnaires also contain the measurement scale to be used for each variable. With some exceptions respondents are asked to use *ordinal* scales, i.e. scales of type:

- Up/Unchanged/Down (for changes/tendencies).
- High/Good/About right/Sufficient/Low/Bad (for levels).

In some cases respondents may be asked to use *nominal* scales, for instance when indicating the presence or absence of different factors that limit production. The two exceptions to this concern capacity utilisation, and period of production secured where respondents are asked to use a *ratio* (quantitative) scales, i.e. the current percentage of normal capacity utilisation, and the number of months, respectively.

Finally, instructions are given about reference points and periods, and the handling of seasonal variations.

The selected measurement scale determines the information contained in the BT-surveys and consequently, the statistical measures that can be produced and presented. The following guidelines are recommended when selecting the appropriate measurement scale for a variable:

- Whenever possible the data presented should refer to the target universe. In the case of sample surveys, this means that only estimates taken from the target universe sample are to be used. The method for achieving this is discussed below.
- Where a nominal scale has been used, the relative frequency of the different replies should be derived. These figures need not necessarily add up to 100 per cent; the total can deviate above and below this figure.
- When an ordinal scale has been used, it should be transformed into a ratio scale. There is no theoretically correct way for doing this but the established practice, which has given useful results, is to assign a value of +1 where the ordinal scale indicates an “increase”, 0 where there is “no change” and –1 where there is a “decrease”.

The transformation referred to in the last point above converts the question responses i.e. scales (see Annex A) for the variables indicated in Section 1.3.2 above (*Harmonising the questionnaire variables*) by (+), (=) and (–) to +1, 0 and –1 respectively¹. The unique feature of BT–surveys, involving the use of ordinal rather than ratio scales, is that it is easier to achieve comparability between BT–surveys, than traditional surveys, which use quantitative (ratio) measurement scales. The reason for this is that when ratio scales are used errors have a direct impact on levels and changes in the variables investigated, whereas most errors only affect measurements with ordinal scales indirectly. This may be due to over or under representation of some groups of reporting units in the “voting” on different response alternatives.

1.4. Coverage

The achievement of comparability also requires that the information collected by BT–surveys should relate to the same part of the enterprise sector. To achieve this it is necessary to determine:

- the type of units the data should relate to (enterprises, kind of activity units, local units or establishments);
- the total population of units (the target universe) and sub–aggregates for which information is sought;
- the standard classification (e.g. classification of enterprises by industrial activity, size in terms of employment) used to distinguish units in the target universe from units outside it.

¹ The question on price developments (Q6 in the industry survey) consists of two parts: the first dealing with the direction of price change (Increase -- Remain stable -- Decrease); refer Annex A; the other with the rate of price increase (at a higher rate -- at about the same rate -- at a lower rate). This should be reflected in the tabulation for the question by using two table cells: The first shows the general direction of price movements and the other the rate of change of price increase for those enterprises which expect increased selling prices. This tabulation method is illustrated in the following two examples (data in percentage points of all replies):

EXAMPLE 1			EXAMPLE 2		
Direction of price change		Strength of price increase	Direction of price change		Strength of price increase
UP	100	Higher rate: 10 Same rate: 60 Lower rate: 30	UP	50	Higher rate: 5 Same rate: 30 Lower rate: 15
STABLE	0	--	STABLE	30	--
DOWN	0	--	DOWN	20	--

Question 13 combines the following two questions into:

- i) Do you plan any fixed investments this year/next year? Yes/No
- ii) If "Yes", how large compared to last year/this year? Higher/About the same/Lower

The tabulation of the replies to this question should therefore be presented in two cells, as illustrated by the following example (data in percentage points of all replies):

Do you plan to invest this year/next year?		Size of investments this year/next year compared to last year/this year	
YES	75	Higher	40
		About the same	20
		Lower	15
NO	25	--	--

It should not be necessary to survey all the units in the target universe. Collecting data from a representative sample and deriving estimates for the whole target universe from this sample should be sufficient.

1.5. Units and coverage

A number of the concepts and definitions used in discussions on units in this document are described below:

The *reporting unit* is the part of an enterprise for which data are collected. This unit may differ significantly from the *sampling units* used to select participants in a survey, and the units to whom questionnaires are sent, the *response units*.

The basic building block for capturing the activity and location of enterprises is the “true” *establishment unit*. This unit is defined as: “one type of economic activity carried out in *one* location by *one* legal entity”.

The *local unit* is derived by adding together establishments at the same location. This constitutes “the activity(ies) of *one* enterprise at *one location* regardless of type of industrial activity”.

The *kind of activity unit (KAU)* is derived by combining the establishments carrying out the same industrial activity. The *KAU* consists of “the activity of *one* enterprise in *one industry* regardless of the location of the activity”.

Finally, by adding together all establishments of an enterprise the *enterprise unit* is derived. This unit comprises “*all* activity in *all* locations carried out by *one* legal entity”.

To sum up, the different units of an enterprise are linked to each other as follows:

The <i>establishments</i> in <i>one location</i> sum up to the <i>local unit</i>
The <i>establishments</i> in <i>one industry</i> sum up to the <i>kind-of-activity unit</i>

The <i>establishments</i> sum up to <i>the enterprise</i>
The <i>local units</i> sum up to <i>the enterprise</i>
The <i>kind-of-activity units</i> sum up to <i>the enterprise</i>

Many companies, especially smaller ones, are located at just one location and their whole activity is in one industry. For these the establishment, local unit, kind of activity unit and enterprise are the same.

Due to restrictions in data availability, most enterprises cannot provide information for their establishments. While some enterprises can report for their local units, others can report for their kind of activity units. In some instances data may only be provided for the whole enterprise.

If distortions caused by faults in the sampling frame (register), the sampling procedure, and by non-response are not taken into consideration, the choice of reporting unit can influence survey results as follows:

- If the survey is based on *establishment units* the aggregates by industry only cover all activity in each industry. In addition, aggregates for different regions will contain all industrial activity for that region and no activity in other regions. This is the ideal situation.
- If *local units* are used as the reporting unit, they have to be classified by their main activity. Therefore, aggregates by industry will contain both too much and too little at the same time. They will include activity in industries other than the main activity of the local units, while at the same time excluding activity in that industry at local units mainly engaged in other industries. Aggregation by region will give correct information (the same result as for establishments).
- *Kind-of-activity* units give the same aggregates by industry as establishments. In other words they cover all activity in each industry and nothing else, which means that important aggregates by region cannot be derived.
- If the whole *enterprise unit* is used, aggregates by industry will include activity in industries other than the main one, and exclude activity in that industry at enterprises mainly engaged in other industries. This problem with under-coverage and over-coverage can often be more pronounced if the enterprise is used as the reporting unit rather than the local unit. The reason for this is that one can expect a larger and more pronounced diversity of industrial activity within an enterprise, than in a local unit. Useful aggregates by region cannot be derived.

The impact of using these different definitions is illustrated in the following simple example (size is measured by the number of employed persons):

ENTERPRISE A			ENTERPRISE B		
<i>consists of:</i>			<i>consists of:</i>		
ESTABLISHMENT A.1			ESTABLISHMENT B.1		
Size	60		Size	110	
Industry	X		Industry	Y	
Location	L1		Location	L1	
ESTABLISHMENT A.2			ESTABLISHMENT B.2		
Size	40		Size	60	
Industry	Y		Industry	X	
Location	L1		Location	L2	
<i>which combine to:</i>			<i>which combine to:</i>		
Local unit A (L1)			ESTABLISHMENT B.3		
Size	100		Size	30	
Industry	X		Industry	X	
Location	L1		Location	L1	
<i>Also, they combine to:</i>			<i>which combine to:</i>		
Kind of activity unit A (K1)			Local unit B (L1)		
Size	60		Size	140	
Industry	X		Industry	Y	
			Location	L1	
<i>and:</i>			<i>and:</i>		
Kind of activity unit A (K1)			Local unit B (L2)		
Size	40		Size	60	
Industry	Y		Industry	X	
			Location	L2	

Each

- establishments,
- local units and
- KAU-units

Also, they combine to:

Kind of activity unit A (K2)	
Size	110
Industry	X

sum up to:

ENTERPRISE A

Size	100
Industry	X
Location	L1

ENTERPRISE B

Size	200
Industry	Y
Location	L1

The aggregates by industrial sector and location for the two enterprises combined will differ depending on the report units used. This is illustrated in the following table.

Table 2. **Aggregates by industry and location**
Number of employed persons

Report unit	Industry X	Industry Y	Location 1	Location 2
Establishment	150	150	240	60
Local unit	240	60	240	60
Kind of activity unit	150	150	300	0
Enterprise	100	200	300	0

The example illustrates that reporting by:

- *establishment units* give the correct information on both the industrial composition and regional distribution of the activity of enterprises;
- *local units* provide correct regional distribution, but can also provide a rather misleading picture of the industrial structure;
- *kind-of-activity units* give a correct industrial structure and a faulty regional distribution;
- *enterprise units* can be misleading in both respects.

The degree of error resulting from using reporting units other than true establishments, depends upon the industrial structure of each country. Errors are less likely where enterprises are more homogenous in terms of industrial activity and more concentrated at one location.

As the above example demonstrates, true establishment units cannot be used in practice. The primary reason being that, as a rule enterprises often do not have data for this type unit and cannot provide reliable information at the establishment level. Therefore, enterprise registers often do not list these units. Since BT-surveys place a greater emphasis on information about different industries, kind-of-activity units are a fully acceptable alternative because the industry specification and cross-country comparability will be as accurate as if true establishment units were used.

However, countries interested in studying regional differences will not have access to the information they need. If the local unit is chosen to remedy this problem the industry specification will suffer and many enterprises will experience difficulty in supplying reliable information, particularly with

regard to expected future developments. For these reasons it is recommended that the kind-of-activity unit be used as the reporting unit in the BT-surveys.

In some countries an approximate establishment unit is used as the reporting unit in economic surveys. This unit is basically identical to the local unit, but larger local units with a substantial part of their activity in industries other than the predominant one, are subdivided into more homogenous parts in terms of industrial activity.

1.6. Target universe

The ideal in respect of coverage of BT-surveys into industry for example would be that each country would provide information on all activities carried out by enterprises classified to ISIC tabulation category D (Manufacturing), with the exception of division 37 (Recycling) -- see Annex C. Consequently, the ideal target universe for BT-surveys for industry should consist of all enterprises engaged in Manufacturing. This is regardless of their ownership and legal form, size, or whether or not manufacturing is their predominant activity or secondary activity. For practical purposes the target universe should be determined by specifying which groups of enterprises are to be included in terms of:

- i. Characteristics of the enterprise such as kind of activity, institutional form, size and location (expressed in international standards and classifications, in order to achieve international comparability of the BT-surveys).
- ii. Which point of time or period the universe of enterprises is linked to. Ideally, each survey should consist of all enterprises active some time during the period(s) covered in that survey (including any forecast period).

There are valid practical reasons for deviating from the ideal in the operational definition of the target universe. Firstly, it may not be possible to comply with the ideal as specified in (ii) above, with respect to enterprises established during the forecast period. Secondly, in many cases existing enterprise registers do not include information on secondary activity(ies) in Manufacturing at non-industrial enterprises.

Therefore, it is recommended that the target universe be defined to consist of all enterprises regardless of ownership, legal form and size, which were primarily engaged in Manufacturing at the beginning of each survey year. This means that the survey sample should be updated every year.

Application of this definition dictates that manufacturing activities performed in non-manufacturing enterprises will not be covered in the survey, and that the BT-surveys will not reflect the dynamic effect of new enterprises appearing in the course of the year. Information about the impact of new enterprises on the economy of births, will have to be derived from other sources such as short-term updates of the enterprise register.

1.6.1. Characteristics of enterprises in the target universe

Three criteria are recommended for use as the basis for determining the target universe of BT-surveys. These are based on kind of activity, size and location, and are listed in the table below together with coverage proposals for each criteria. All other criteria are immaterial in determining whether or not a given enterprise should be included. Thus, enterprises fulfilling the criteria for inclusion set out in Table 3 below should be included regardless of their institutional form (unincorporated, government owned. etc.).

Countries not having any activity in one or more of the industries specified in Annex C should include a note to this effect in their BT–survey report. The fact that no information can be collected for the industry/ies concerned does not affect comparability.

The exclusion of any manufacturing industries in a national survey from the target universe should be avoided. It is preferable to introduce a cut–off limit at 9 or 19 employed, i.e. the smallest size group (1–9 employed) or the two smallest size groups (1–19 employed) are excluded from the survey.

Table 3. **Criteria for determining the target universe**

KIND OF ACTIVITY⁽¹⁾	SIZE⁽²⁾	LOCATION
Standard: ISIC Rev. 3/NACE	Standard: EUROSTAT: Industrial Structure Statistics (Regulation proposal). Size groups by the number of persons employed(= working proprietors + unpaid family workers + employees)	Standard: The "domestic" concept of the System of National Accounts (SNA)
Coverage: Tabulation category D, MANUFACTURING except Division 37 Recycling	Coverage: Enterprises employing 1 – w persons	Coverage: All manufacturing establishments within the territorial boundaries of the country.
Specification: Divisions and groups according to the list in Annex C	Specification: Not required. If size groups are shown (aggregates of) the groups given in Annex C should be used	Specification: Not required. National classification should be used if regions are shown

1. In order to maintain comparability with countries not covering all these industries, each industry’s share of the weight of the total should be specified

2. In order to maintain comparability with countries using survey cut–offs the smallest size–group/s and their share of the weight of the total should be specified by countries surveying these groups

1.6.2. Accuracy

Information on the accuracy of the estimates derived from the individual surveys is necessary, in order to be able to determine whether actual differences in comparisons (over time and between countries) are significant.

1.6.3. Reliability

The term reliability refers to the total error of the BT–surveys, as determined by the mean square error (MSE). It is defined as follows:

$$MSE = \sigma^2 + B^2 \tag{1}$$

where: σ^2 = the variance of the estimates for the universe from the sample; and
 B^2 = the bias of the estimate

Provided that random sampling has been used, an estimate of σ^2 (denoted by s^2) can be computed from the sample. The bias is the deviation between the true value and the expected value of the

estimates. It is the net effect of all shortcomings of the survey, such as measurement errors, under and over-coverage and systematic non-response. It is not possible to measure the size of the bias, but the risk of errors can be reduced by testing the measurement procedure, developing a reliable list frame (enterprise register), keeping non-responses to a minimum, etc.

If random sampling is not used, MSE will be reduced by s^2 but the risk of bias will be increased substantially.

1.6.4. The sample

There are three methods for collecting data from enterprises that can be used to draw conclusions about the target universe.

The simplest method is to collect data from all enterprises. This is a costly and lengthy procedure except where small target universes are concerned. This is not recommended for BT-surveys.

Another technique is to use a type of purposive (or judgmental) selection of a sample of units from the target population. In order to be able to draw inferences about the target universe from such a purposive sample, one has to introduce assumptions about the data. In most cases, including BT-surveys, there is no reliable method of checking the accuracy of these assumptions. For this reason, purposive selection should also be avoided.

The most reliable method is to use random sampling with known inclusion (selection) probabilities for all units in the target universe. In this case no assumptions about representativeness are needed and it is possible to estimate parameters for the target universe, such as totals, averages etc. from the random sample, and to determine the precision of these estimates. The use of random sampling is recommended for BT-surveys.

A random sample may be designed in many different ways. The more that is known about the target universe from other sources, the more efficient the design can be. It is useful to apply stratified random sampling, provided the survey frame contains data on industrial classification and/or the size of enterprises.

To improve the precision of the estimates industry by industry, the tabulation categories by industrial activity in Annex C should be used. The weighting procedure recommended in the next section results in large enterprises contributing much more to the variance of the BT-estimates than small enterprises.

Therefore, use of information in the list frame on the size of the enterprises (in terms of employment) for an additional stratification according to size would further improve the precision. The strata should consist of (groups of) the standard size classes by employment recorded in Annex C. Such a sample design results in a substantial reduction of the variance compared to simple random sampling both for the industry by industry estimates and for the estimates for Manufacturing. An additional advantage is that the resulting estimates are far more reliable by size groups than those derived from simple random sampling.

1.6.5. Estimators and weighting

For most variables in BT-surveys, the balance between positive and negative replies, the net value (NV), is the population parameter sought. Assigning values to the alternatives listed in Table 1 the net values can be computed using the formulas presented below.

In situations where the enterprise is used as the reporting unit, and simple random sampling is also used where the inclusion probability is the same for all enterprises, we get:

$$NV = \sum_{i=1}^n (x_i / n) \quad (2)$$

where: $x_i = +1, 0$ or -1 depending upon the answer given by enterprise i
 $n =$ the number of enterprises in the sample

By multiplying the NV s estimated from formula (2) by 100 the result is the NV expressed as a percentage.

If stratified random sampling or Probably Proportional to Size (PPS) sampling is used the formula gets slightly more complicated as follows:

$$NV = \sum_{i=1}^n (1 / f_i) \times (x_i / N) \quad (3)$$

where the additional symbols are defined as follows:

$f_i =$ the sampling probability of enterprise i ; and
 $N =$ the total number of enterprises in the sampling frame (ideally identical with the target universe).

As before the NV expressed as a percentage is derived by multiplying the NV -estimate by 100.

The " f_i " in formula (3) are sampling weights used to adjust for different sampling fractions. This type of weighting has to be applied to obtain unbiased estimates when sampling with unequal inclusion probabilities is used.

Both formulae (2) and (3) result in what is called "unweighted" estimates of the NV s. This means that all enterprises in the frame have the same weight in the NV -estimate. For opinion poll type questions where the "one person one vote" approach is deemed to be the most appropriate these unweighted estimates are the best choice. In the BT-surveys, however, the economic significance of the replies from different enterprises is linked to the size of the enterprise -- the larger the enterprise the more important is its reply.

It is therefore desirable to weight the replies as a measure of its quantitative effect on the different variables, i.e. questions about production in one industry ought to be weighted by the size of the production of the enterprise in that industry, questions about employment with the number of persons employed, etc.

It would be costly, or even impossible, for many countries to obtain such a set of weights for each enterprise. Furthermore, practical experience has shown that the NV values have no bearing on the choice of weighting variables. It is therefore sufficient to use one variable reflecting the general economic importance of the enterprise in the industry/ies in which it is active. The best choice, from a theoretical point of view, is value added but this variable is also not readily available. For practical reasons therefore employment is preferable. Also, because it is purely quantitative this variable is better suited for international comparisons than value added.

Employment is a fairly good proxy for value added for activity *within* a specific industry. The best practical choice would be to weight replies for individual reporting units of enterprises by their employment, when aggregating them to totals for different industries, and to weight these industry NV :s by each industry's value added taken from other sources when calculating the grand total for manufacturing and the subtotals for the use categories given in Annex C. It is recommended that this weighting procedure is applied. However, it cannot be expected that weights for individual report units (the $KAUs$) will be available from external sources. Therefore, information about the size of the $KAUs$ (in terms of employment) need to be collected at the first BT-survey each year.

The best national and international comparability of aggregates of industries, such as the use groups, will be obtained if the NV s by industry are weighted with the value added for them according to the National Accounts. The next best choice is to use employment weights from a reliable external source.

The fact that the sample will consist of enterprises, but that the data are collected for their $KAUs$ complicates the estimators for the NV s. We can no longer denote the answer to a question provided by enterprise “ i ” with “ x_i ”, because there is a separate answer for KAU -unit of the enterprise. The notation “ x_{ik} ” has to be used instead, as it denotes the answers of enterprise “ i ” regarding its activity in industry “ k ”.

The formula for estimating the NV of industry k (NV_k) at simple random sampling without weighting for the size of individual KAU units will be:

$$NV_k = \sum_{i=1}^{n_k} (x_{ik} / n_k) \quad (4)$$

where: $x_{ik} = +1, 0$ or -1 depending upon the answer given by enterprise i regarding its activity in industry k ; and

$n_k =$ the number of KAU :s in the sample which are classified to industry k .

In the case with random sampling with varying sampling fractions for different enterprises the formula will change to:

$$NV_k = \sum_{i=1}^{n_k} (1 / f_i \times x_{ik}) : \sum_{i=1}^{n_k} (1 / f_i) \quad (5)$$

where $\sum_{i=1}^{n_k} (1/f_i)$ is an estimate of N_k , the number of *KAUs* belonging to industry k in the target universe.

If an additional stratification by size is introduced, the formula for the balance of size group s in industry k (NV_{ks}) will be:

$$NV_{ks} = \sum_{i=1}^{n_{ks}} (1 / f_{iks} \times x_{iks}) : \sum_{i=1}^{n_{ks}} (1 / f_{iks}) \quad (6)$$

where: f_{iks} = the sampling probability for enterprise i in industry k belonging to size groups;
and

x_{iks} = +1, 0 or -1 depending upon the answer given by enterprise i belonging to size group s for its activity in industry k .

When each report unit (KAU) is given a weight according to its size, the estimates of the balances (NV_{ks}) from the sample will be:

$$NV_{ks} = \sum_{i=1}^{n_{ks}} (1 / f_{iks} \times w_{iks} \times x_{iks}) : \sum_{i=1}^{n_{ks}} (1 / f_{iks} \times w_{iks}) \quad (7)$$

$$NV_k = \sum_{s=1}^s (w_{ks} \times NV_{ks}) : \sum_{s=1}^s w_{ks} \quad (8)$$

$$\text{where } w_{ks} = \sum_{i=1}^{n_{ks}} (1 / f_{iks} \times w_{iks}) \quad (9)$$

$$NV = \sum_{k=1}^k (w_k \times NV_k) : \sum_{k=1}^k w_k \quad (10)$$

$$w_k = \sum_{s=1}^s w_{ks} \quad (11)$$

Only estimates containing individual weights for the report units (w_i -- values) are labelled weighted estimates in this paper.

In order to facilitate international comparability, when some countries use cut-off limits varying from country to country, it is recommended that countries apply stratified random sampling with the strata defined by employment, and to use the following strata at least:

- 1–19 employed
- 20–199 employed
- 200–w employed

This has the additional advantage of allowing the production of international comparisons by size of the enterprises. Countries using weighted estimates may need to stratify further. It is recommended that the strata are defined on basis of the size classes given in Annex C.

In summary, it is recommended that countries use formulas (7), (8) and (10) for estimating the NV_s .

If the w_{ks} values (total value added or employment in size group s of industry k) and/or the w_k values (total value added or employment in industry k) are known from other sources, these values should be used for weighting rather than the estimates of them derived from the sample.

1.7. Timeliness of results

The aim of BT-surveys is to provide up to date information about both the present situation and short-term prospects. It is therefore important that survey results are presented quickly. The norm should be for monthly BT-surveys to be presented no later than a month following the end of the reference period. Quarterly surveys should be produced within two months of the end of the reference quarter.

1.8. Data content

Standardization of the content of national publications of BT-survey results is not necessary except for the need to ensure that some basic data is reported in the same form by all countries. Uniformity in the basic table is needed to permit users to evaluate and compare the statistics from different countries, and to enable them to combine the data to comply with any special information needs. The standardized basic table will contain the information in the following table. The layout of the table(s) giving this information will be decided by the countries themselves.

Table 4. Contents of basic table for BT-survey reports

Industry/use	COL. 1	Specification given in Annex C
Frame weight	COL. 2A	Number of employment in the industry/use group
Units	COL. 2B	Total of enterprises in the industry/use group
Sample units	COL. 3A	Number of reporting units in the industry/use group
Size weight	COL. 3B	Total weight of reporting units in the industry/use group
Response rate	COL. 4	Weighted rate for the industry/use group according to formula 14 in Section 2.4.1. below
Variable	COL. 5	Questions 1–17 for each industry/use group and Manufacturing (refer Annex A)
Response alternative	COL. 6	Balance (+) – (–) and percentage for response alternative (+/–0)

1.9. Presentation of Results

The presentation of the results is the culmination of the development and collection phases of BT-surveys. It is therefore essential for users to be provided with sufficient information (or meta-data) about the content and quality of the survey to enable them to draw accurate inferences from the data presented in tabulation form. It also enables users to determine whether the results of surveys conducted in different countries are comparable.

This information should be provided in the survey report at least once a year, preferably for surveys conducted in January or for the first quarter. The following points should be covered:

1.9.1. The frame

Information about the coverage of the survey should be provided in terms of:

- which categories of enterprises are covered;
- (guess)timates of the extent of under–coverage for different categories;
- (guess)timates of the extent of any over–coverage and information about its character (terminated enterprises remaining in the frame, enterprises wrongly classified to Manufacturing, etc.).

1.9.2. The units

Information about the units should include details on:

- Timeliness -- the time the frame refers to.
- Classification standards used and their reliability.
- Sampling unit and reporting unit (enterprise, kind of activity unit, local unit, establishment, etc.).

1.9.3. The sample

The sampling method:

- random or purposive selection;
- simple or stratified selection;
- if stratified selection is used, by which (combination of) criteria:
 - . industry according to the classification nomenclature, etc.;
 - . size in terms of which factor (employment, turnover, etc.);
 - . other, describe.
- method of updating:
 - . fixed panel;
 - . fixed panel complemented with new enterprises at regular intervals (yearly, etc.);
 - . rotated panel (enterprises selected with sampling fraction less than 1 are replaced after a certain number of years);
- the whole sample (except for possibly the largest enterprises) renewed at regular intervals (yearly, etc.).

1.9.4. The estimator

Methods for estimating target universe totals from the sample:

- at the lowest aggregation level (the individual stratum);
- for higher aggregation levels (industries, industry groups, and grand total).

The documentation should include the formulae used and/or text descriptions of how responses have been weighted according to: sampling fraction and size of enterprises; how strata have been weighted at the aggregation to industries; and how industries have been weighted for aggregations to industry groups, and to the grand total for, for example, Manufacturing.

1.9.5. *Data collection method(s)*

A brief description of the data collection method(s) should be provided. These could include:

- mail
- telephone interview
- personal interview
- other

When several methods have been used, the approximate proportion of replies received with the different methods should be indicated.

1.9.6. *Treatment of non-response*

Information on the extent of non-response should be provided by size groups according to the appropriate measures M1–M3 (see formulae 12–14 in Section 2.4.1 below). Information is also required on the procedures used impute data for non-responding enterprises. These include:

- substitution (enterprises who have replied have been included as substitutes for non-responding enterprises), and the method for selecting substitutes;
- imputation (a completed questionnaire has been constructed), and the method of imputation;
- assumption that non-responding enterprises are a random sample of enterprises in the survey;
- other methods, details of which need to be specified.

1.9.7. *Over-coverage*

Information on over-coverage for example would include details on its extent according to measure M1 and the appropriate (if any) of M2 and M3) and how it is treated.

1.9.8. *The respondents*

Information should be provided on the respondent's position in the enterprise.

1.9.9. *Precision*

The inaccuracy of the estimates caused by use of a sample instead of complete enumeration (census). Ideally, estimates of the variance and the (95 per cent) confidence interval should be given for the total, the (main) industry aggregates, and the use aggregates. These measures are only relevant when random sampling has been used. On the other hand, it is useful to have these calculations at hand for illustrative purposes.

1.9.10. Comparability

Information provided should include descriptions of survey comparability with regards to comparisons of data between:

- consecutive surveys, especially between the last quarter/month one year and the first in the following year;
- surveys and other national, (usually) quantitative, statistics.

There should also be a brief discussion of the differences between the survey and the Harmonized Contents according to the recommendations in this document.

Finally, the documentation should include the questionnaire prepared for the survey and the instructions to respondents.

CHAPTER 2. PRACTICAL CONSIDERATIONS IN THE DESIGN AND IMPLEMENTATION OF BUSINESS TENDENCY SURVEYS

This chapter provides advice on a number of practical issues involved in the design and implementation of BT-surveys.

2.1. The frame

If BT-surveys are to include information on the whole target universe, they need to be based on a frame containing all enterprises belonging to that universe. Actual frames in countries differ more or less from this ideal. There is under-coverage, i.e. some of the enterprises belonging to the target universe are not included in the frame. There is also over-coverage, usually due to the fact that enterprises no longer active are still included in the frame. Usually it is not too difficult to make adjustments for over-coverage. However, under-coverage is much more of a problem as there is no reliable method of compensating for it. The only really reliable method is to improve the coverage of the frame

The impact of under-coverage on BT-surveys is the same as that of non-response. How serious this is depends upon whether or not (and by how much) the response pattern of excluded enterprises would deviate from enterprises which are in the frame. The theoretical maximum distortion caused by under-coverage can be derived, on the basis of the (unrealistic) assumption that all of the excluded enterprises belong to one response alternative for each of the questions asked (refer Table 5 below). On the other hand there would be few errors if these enterprises did not deviate from those included in the frame.

The basic table proposed in Table 4 above contains information about the size of the frame (in columns 2A and 2B). This information, when used with the (guess)estimate of the size of under-coverage given in the description of the frame proposed in section 1.9.1. above, can be used to calculate the effect of under-coverage for different assumptions, depending on how much the response pattern of the not-covered enterprises would deviate from those included in the frame.

2.2. The units

A problem in most countries conducting BT-surveys is that many do not have the desired reporting unit (the *KAUs*) available in their list frames. The most common situation is that:

- all countries have a frame consisting of enterprise units;
- some countries have local units of the enterprises in their frames;
- in a few cases larger local units with diversified activity have been split according to activity into establishment type units.

This situation would not prove to be so difficult, if the BT-survey data were collected from all enterprises in the frame. However, for reasons given earlier it is recommended that the surveys are limited to a sample. Therefore, the lack of information on the *KAUs* in country frames is a problem.

Although it might be possible to create a frame of *KAU*-units in a few cases (using establishment type local units as building blocks), the general recommendation is that this problem is resolved by using the enterprise as the sampling and response unit (i.e. the unit from which data are collected), and the *KAU* as the reporting unit (i.e. the unit for which data are collected). This means that under coverage is built into the surveys in the sense that industrial activity carried out by non-industrial enterprises will be excluded. In order to counteract this effect to some extent, known cases of large industrial establishments operated by non-industrial enterprises could be included in the sample with certainty.

2.3. The required sample size

Recommendations on the sampling method and the sample design have been provided in Sections 1.6.4. and 1.6.5 above. However, nothing has yet been said about the required sample size. What is needed is a sample sufficiently large to give estimates of the balances and other parameters of interest, which are reliable enough to meet the requirements of users. This means that in order to be able to determine the appropriate sample size the following details are needed:

- the level of precision required by users; and
- the precision obtained with different sample sizes.

There are no quick answers to either of these two questions. However, assuming, that an acceptable specific confidence interval can be identified, a rough estimation of the necessary sample size can be calculated. For instance, assuming that:

- a confidence interval of plus or minus 10 per cent can be accepted for the balance (NV) of a question in the BT-survey;
- simple random sampling has been used;
- the sampling fraction is small, say less than 15 per cent;
- individual weighting of the reporting units has not been used; and
- a response pattern giving the maximum variance for the balance estimate has been observed (i.e. 50 per cent answering [+] and 5 per cent[-]).

Based on these assumptions, a sample of about 40 reporting units would be sufficient to give an estimate of the balance which is at most 10 percentage points too high or too low.

In reality, the situation is much more complex. Individual replies are weighted by the size of reporting units, a sample of enterprises is taken but data are collected for *KAU*-units, stratification is used in order to reduce the variance of the estimates. The net effect of these deviations from the assumptions listed above is unknown, but it is quite feasible that a larger sample is needed to obtain a confidence interval of not more than plus or minus 10 per cent.

On the other hand, the extreme distribution of replies over response alternatives which has been used here is also unrealistic. In the more normal case that the response distribution were 25 per cent [+], 50 per cent [=] and 25 per cent [-] the needed sample size would be almost a third smaller.

The net effect of all these factors on the confidence interval is uncertain. Therefore, it seems wise to ensure that the sample size for any of the reported aggregates is not smaller than about 50 reporting units.

Although a large sampling fraction would improve the precision of estimates significantly -- doubling the sampling fraction increases precision by about 40 per cent -- there is also a need to restrict the sample size so there are sufficient resources available to minimise non-response.

In order to minimise the effect of random variation when comparing the results from two surveyed periods, it is important to maintain the same sample over time, except for the adjustments needed for terminated and new enterprises. Provided that a fairly large proportion of enterprises are included in the survey in both periods, the precision of the estimates of change will be more reliable than the level estimates within the survey for one period. It is therefore recommended that the same panel is maintained over time, and that it is updated at regular intervals (preferably annually) for changes in the target universe. This updating can be achieved by rotating segments of the sample over time, in order to distribute the reporting work more evenly thereby improving the response rate.

2.4. Non-Response

2.4.1. Measures of non-response

The simplest measure (labelled M1 here) of non-response¹ is the percentage of enterprises in the sample from which information for the actual survey were not obtained, that is

$$M1 = \left[\frac{n''}{n} \right] * 100 \quad (12)$$

where: n = the number of enterprises in the survey; and
 n'' = the number of enterprises which did not submit usable information.

This measure is useful for checking the efficiency of the data collection procedure. It is a good indicator of the importance of non-response in censuses and in sample surveys with uniform sampling fractions where all reporting units are given equal weight ("unweighted" estimates). For sample surveys with different inclusion probabilities for different enterprises, and for surveys where answers are weighted according to the size of the reporting units, the measure is *not* a good indicator of the importance of non-response.

For sample surveys with unequal inclusion probabilities for different (groups of) units and equal weights for all units, a proper measure of non-response (labelled $M2$ below) is as follows:

¹ Units which do not respond because they have ceased to belong to the target universe (terminated, switched to non-manufacturing activity, etc.) are not part of non-response.

$$M2 = \frac{\sum_{i=1}^{n'} \frac{1}{f_i}}{\sum_{i=1}^n \frac{1}{f_i}} \times 100 \quad (13)$$

where: f_i = the sampling probability for unit i .

The measure to use (called $M3$ here) if, in addition, responses are weighted by the size of the report units is

$$M3 = \frac{\sum_{i=1}^{n'} \frac{1}{f_i} w_i}{\sum_{i=1}^n \frac{1}{f_i} w_i} \times 100^1 \quad (14)$$

where: w_i = the weight for unit i .

2.4.2. *Handling non-response*

Handling of non-response should be based on three rules:

Rule 1: Devote sufficient resources to reduce non-response to acceptable size.

Rule 2: Separate non-response from over-coverage (terminated units or units not belonging to the target universe included in the sample).

Rule 3: Check if some industries/size groups and/or development types (for instance particularly successful enterprises) are over/under represented in non-response

The effect on the distribution of replies over response alternatives for different ways of adjusting for non-response is illustrated in Table 5 below.

Table 5. **Relative distribution of answers to a question in a BT-survey**
Fictional data, percentage points

STATISTIC	UP	SAME	DOWN	NON-RESPONSE	BALANCE	TOTAL
REPORTED	30	40	10	20	+ 20	100
ADJUSTED ⁽¹⁾	38	50	12	--	+ 26	100
ADJUSTED ⁽²⁾	50	40	10	--	+ 40	100
ADJUSTED ⁽³⁾	30	60	10	--	+ 20	100
ADJUSTED ⁽⁴⁾	30	40	30	--	+/- 0	100

1. Non-responding enterprises are assumed to have the same distribution over "up", "same", "down" as the responding enterprises
2. All non-responding enterprises assumed to have replied "up"
3. All non-responding enterprises assumed to have replied "same"
4. All non-responding enterprises assumed to have replied "down"

¹ For these calculations it is assumed that non-responding enterprises for which no prior *KAU*-information is available consist of just one *KAU*-unit.

The above table illustrates the theoretical maximum uncertainty introduced by non-response. In practice alternative (1) ought to be reasonably close to the truth. It means that an "automatic" adjustment for non-response is made at the estimation stage by using n_{ks} [the number of *responding* units in the stratum (ks) under consideration] instead of n_{ks} (the number of units in stratum ks in the sample) at the calculation of the percentage reporting "up" (+), "same" (=) and "down"(-).

If non-response can be expected to be markedly systematic, in the sense that units which have had or are expecting an especially good or bad development are also an unduly large part of non-response, then special measures need to be taken in order to avoid bias. One possible approach would be to construct a separate "non-response stratum", and take a repeat sub-sample from this stratum for which further strong efforts are made to collect data. This information could be used for making a separate estimate for this "non-response stratum".

2.5. Measurement Errors

Measurement errors are generated by questionnaires and respondents. Errors stemming from the questionnaire may be caused by:

- a) ambiguous phrasing of questions;
- b) more than one question to be replied by one answer;
- c) unclear layout of questionnaire.

Errors stemming from the respondent may be caused by:

- d) insufficient reporting capacity;
- e) lack of motivation to report correctly.

Causes (a) to (c) are may occur even if the Harmonized Questionnaire is used. The same holds for the part of cause (d) which necessitates balancing user requirements for information against the reporting capacity of respondents.

Recommendations in this document address part of cause (d) which is linked to relating the questions to the appropriate organisational unit (the firm , its *KAUs*, etc. and to the appropriate function (or even person) within the unit. The recommendation to use the *KAU* as report unit, and to collect the information from members of top management, or the close associates to top management aim at minimising cause (d).

The best way to minimise cause (e) is to demonstrate that the data produced from BT-surveys are useful for the enterprises themselves. To do this, organisations conducting BT-surveys need to identify what information enterprises would be interested in obtaining.

In qualitative enterprise surveys, the main areas where measurement errors are likely to occur lies in the formulation of questions and the choice of function and person within the firm from whom the data are collected. As mentioned above it is important to have persons in, or working close to, top management filling in the forms because sound insight into the views of top management is required of respondents.

If the questions are designed carefully there is little risk of any serious measurement error appearing in this type of survey. The reason for this is that most of the questions relate to an assessment

of levels (“too high”, etc.), or the direction of change (“up” etc.) rather than to actual levels or changes in quantitative terms. Therefore, the need for editing of BT–survey information received from individual respondents is significantly less than that required for quantitative surveys. Editing could be limited to logical controls, i.e. detecting seemingly illogical combinations of response alternatives to different questions. No replies, except for obvious mistakes, should be changed without information from the respondent.

It is also helpful to link error statistics to the edit. These are useful for identifying areas where improvements are required in the questionnaires and instructions to respondents. They are also useful for evaluating the edit specifications.

Finally, it should be stressed that the most efficient strategy for reducing measurement errors is to eliminate possible causes of such errors during the survey design stage. In this respect it is useful to pilot test questionnaires, instructions to respondents, and processing procedures before the commencement of the actual survey.

2.6. Processing Errors

Processing errors may be introduced at:

- data entry
- data editing
- data tabulation

Methods of avoiding errors at the data entry stage are dependent on the data collection method used. For personal and telephone interviews the best approach is to use computer assisted personal interview (CAPI) and computer assisted telephone interview (CATI) support respectively, and to build logical and consistency controls into these systems. When reporting directly to a computer from a button telephone, the same types of controls should be built into the computerised dialogue.

Regardless of the method of data collection used, the questionnaire should be designed so that correct data entry is facilitated. This means that questions and replies should be close together without any ambiguity as to which question a particular reply refers to. It is strongly recommended that practical tests involving the persons actually performing the data entry should be made before the questionnaire is finalised.

It might seem somewhat odd for data editing to be listed as a source of error. It is true that it has quite the opposite purpose, to find and eliminate errors in the primary data. However, there is a (small) risk that errors are introduced either by erroneous registration of an adjustment, or by making the wrong adjustment. The risk of introducing errors into the data, by changing correct data at the editing stage, is best avoided by strictly adhering to logical controls and checking apparent logical errors and other inconsistencies with the respondents before any adjustment are made (except in cases when a respondent has made an absolutely obvious error). The general rule is that, whenever possible, editing should be done simultaneously with registration of the data on EDP–medium. In this way errors at registration can best be detected and eliminated directly when they arise.

The risk of error at the data tabulation stage arises due to use of an incorrect estimation formula, incorrect parameter values in the formula, or incorrect programmes for processing the individual records. The first cause can be avoided by using the correct formulae and by consulting methods experts to work

together with EDP specialists developing the EDP system for the survey. The second cause of this type of error can be eliminated by “proof-reading”, and the third cause by testing the EDP systems on a special set of data before accepting it for actual use.

2.7. Dissemination of Results

There are three important requirements which should be met where the distribution of survey results is concerned.

The first is that the information must be correct (“the truth, the whole truth and nothing but the truth”).

The second requirement is that the users should be helped to interpret the results, i.e. they should be informed about the reliability of the results, and the extent to which they are affected by seasonal factors, price changes, etc.

The third requirement is that it should be easy to have access to the results. This requirement is best met by making the results available in a number of different media: on paper in press releases, periodicals and special reports; and via EDP in appropriate electronic media such as public databases and floppy discs.

In order for users to be able to use the information from a survey effectively, they need technical documentation describing the content and the reliability of the survey results. The points presented in section 1.9. above can be used as a check-list for the content of such documentation.

CHAPTER 3 REVIEW OF BUSINESS TENDENCY SURVEYS IMPLEMENTED IN TRANSITION COUNTRIES

3.1. Introduction

This chapter presents a review of implemented BT-surveys in the industry, construction and retail trade sectors in twelve transition countries. The content of the surveys in individual countries is summarised in Chapter 4 below where the degree of harmonisation against the recommendations outlined in Chapter 1 above is also evaluated.

The surveys considered in this paper refer to regular monthly or quarterly surveys conducted by national statistical offices/institutions in the following transition countries:

National Statistical Offices:

- Bulgaria (BU)
- Czech Republic (CR)
- Latvia (LA)
- Lithuania (LI)
- Poland (P1)
- Romania (RO)
- Slovak Republic (SR)
- Slovenia (SL)

Research Institutes:

- Belarus (BE)¹
- Estonia (ES)²
- Hungary (H1) and (H2)³
- Poland (P2) and (P3)⁴
- Russian Federation (R1), (R2) and (R3)⁵

¹ The survey is conducted by the Economic Institute in the Ministry of the Economy.

² Estonian Institute for Market Research

³ Surveys are carried out by the Institute for Economic and Market Research and Information (KOPINT-DATORG) - (H1) and the GKI Research Company (H2)

⁴ In addition to National Statistical Office (GUS) - (P1), separate surveys are carried out by the Academy of economics (AEP) in Poznan - (P2) and the Research Institute of Economic Development (RIED) at the Warsaw School of Economics - (P3).

⁵ Surveys are conducted by the Russian Economic Barometer, Institute of World Economy and International Relations (MEMO) - (R1), Centre of Economic Analysis (CEA) under the Council of Ministers, Government of the Russian Federation - (R2) and Institute for the Economy in transition (IET), Academy of National Economy, Russian Academy of Sciences - (R3).

An overview of BT-surveys conducted on a regular basis by the above agencies in the industrial, construction and retail trade sectors is presented in Table 6 below.

Table 6. **Business tendency surveys in transition countries**
Date of implementation and frequency of surveys

Country/agency	Sector					
	Industry		Construction		Retail trade	
	Since	Frequency	Since	Frequency	Since	Frequency
Belarus	1994	Quarterly				
Bulgaria	1991	Monthly	1992	Monthly	1992	Monthly
Czech Republic	1992	Monthly	1992	Monthly	1992	Monthly
Estonia	1991	Quarterly	1993	Quarterly	1993	Quarterly
Hungary (Kopint)	1987	Quarterly	1993	Quarterly	1992	Quarterly
Hungary (GKI)	1995	Monthly	1996	Quarterly	1995	Monthly
Latvia	1993	Quarterly	1993	Quarterly	1996	Quarterly
Lithuania	1993	Monthly	1994	Quarterly	1995	Quarterly
Poland (GUS)	1992	Monthly	1993	Monthly	1993	Monthly
Poland (RIED)	1986	Monthly	1993	Quarterly	1993	Quarterly
Poland (AEP)	1988	Quarterly				
Romania	1991	Quarterly	1993	Quarterly	1994	Quarterly
Russian Fed. (IMEMO)	1992	Monthly				
Russian Fed. (CEA)	1992	Quarterly	1993	Quarterly	1994	Quarterly
Russian Fed. (IET)	1992	Monthly	1993	Quarterly		
Slovak Republic	1992	Monthly	1992	Monthly	1992	Monthly
Slovenia	1995	Monthly				

Business surveys in the industrial sector have been conducted on a regular basis for several years in Hungary (1987) and Poland (1986), while in other countries regular surveys were introduced after 1991. Surveys in the industrial sector are now implemented in all of the twelve transition countries considered here. The surveys are conducted on a monthly basis in eight of the countries.

All surveys in the construction sector were introduced in 1992 or later. Surveys are conducted in all of above countries with exception of Belarus and Slovenia. The surveys are conducted quarterly in most of the countries.

A few surveys in the retail trade sector were implemented in 1992 and 1993, though most were started in 1994 or later. Surveys are carried out all countries with exception of Belarus and Slovenia. Surveys are conducted quarterly in most of the countries.

The rapid development of new surveys in transition countries since 1991 has increased the need for harmonisation of the content and technical design of the surveys to ensure that the output produced is comparable across countries. Progress in harmonizing the content of the surveys in transition countries is presented in the following section.

3.2. Content

Harmonisation of business surveys is very important if the results are to be used for analysing short-term economic developments on an international level. The first step in this process involves the content of the questionnaires with regards to variables covered, definitions, form of questions, periodicity

etc. This type of harmonisation implies that a common questionnaire is used in all countries where comparability is required. The variables included in the harmonized questionnaires (listed in Section 1.3.2. above) proposed for use in transition countries for surveys in industry, construction and retail trade is used to define the common questionnaires (provided in Annex A).

3.2.1. Industry surveys

Frequency

The surveys are conducted on a monthly basis in eight of the twelve transition countries, namely Bulgaria, the Czech Republic, Hungary Lithuania, Poland, the Russian Federation, the Slovak Republic and Slovenia. Quarterly surveys are carried out in Belarus, Estonia, Latvia and Romania. The monthly surveys are in most countries extended with a set of questions included every quarter. These quarterly questions in most surveys concern variables such as employment, limits to production, production capacity, and capacity utilisation. Questions related to investment are in many countries only included in the surveys once or twice a year. Table 7 below shows the coverage and frequency of harmonized questions and variables in industry surveys conducted in transition countries.

Table 7. **Business surveys in industry in transition countries**
Coverage and frequency of harmonized questions/variables

Country/Agency Variable	BE	BU	C R	ES	H1	H2	LA	LI	P1	P2	P3	R0	R1	R2	R3	SR	SL
1. Production, tendency	Q	M	M	Q	Q	M	Q	M	M	M	Q	Q	M	Q	M	M	M
2. Order books total, level	Q	M	M	Q	Q	M	Q	M	M	M	Q	Q	M	Q	M	M	M
3. Order books export, level	Q	M	M	Q	Q	M	Q	M	M	M		Q		Q	M	M	M
4. Stocks of finished goods	Q	M	M	Q	Q	M	Q	M	M	M	Q	Q	M	Q	M	M	M
5. Production, future tendency	Q	M	M	Q	Q	M	Q	M	M	M	Q	Q	M	Q	M	M	M
6. Selling prices, future tendency	Q	M	M	Q		M	Q	M	M	M	Q	Q	M		M	M	M
7. Employment, future tendency	Q	Q	M	Q	Q	Q	Q	Q	M	M		Q		Q	Q	M	Q
8. Limits to production	Q	M	Q	Q	Q	B	Q	Q	Q		Q	Q	M	Q	Q	M	M
9. Production capacity	Q	Q	Q	Q	Q		Q	Q	Q	M		Q	M	Q	Q	M	Q
10. Demand total, future tendency		Q	M	Q	Q		Q	Q	M		Q	Q		Q	Q	M	Q
11. Demand export, future tendency	Q	Q	M	Q	Q		Q	Q	M	M	Q	Q		Q	Q	M	Q
12. Capacity utilisation	Q	Q	Q	Q	Q	B	Q	Q		M		Q	M	Q	Q	M	Q
13. Investment, future tendency		B	B	Q	Y	B	Q	B		M		Q		Q		Y	M
14. Type of investment		Y	Y	Q	Y	B	Q	B	Q		Q	Q				Y	M
15. Investment constraints		Y	Y	Q		B	Q	B				Q				Y	M
16. Business situation		M	M	Q	Q		Q	Q	M	M	Q	Q		Q		M	M
17. Business situation, future tendency		M	M	Q	Q	B	Q	Q	M	M	Q	Q		Q		M	M

M = monthly, Q = quarterly, B = bi-annual, Y = yearly

BE = Belarus

BU = Bulgaria

CR = Czech Republic

ES = Estonia

H1 = Hungary, Kopint-Datorg

H2 = Hungary, GKI

LA = Latvia

LI = Lithuania

P1 = Poland (GUS)

P2 = Poland (RIED)

P3 = Poland (AEP)

RO = Romania

R1 = Russian Federation (IMEMO)

R2 = Russian Federation (CEA)

R3 = Russian Federation (IET)

SR = Slovak Republic

SL = Slovenia

Coverage of harmonized questions

All of the harmonized questions are included in the surveys conducted by the following eight countries: Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Romania, the Slovak Republic and Slovenia.

The only two countries in Central and Eastern Europe (including the Baltic states) conducting surveys with less coverage of the harmonized questions are Hungary and Poland. In Hungary, the survey conducted by Kopint–Datorg (H1) excludes the question on selling prices, and the GKI survey (H2) excludes questions on production capacity, total demand, export demand and present business situation. In Poland, the GUS survey (P1) excludes questions on capacity utilisation and investment, and the RIED survey excludes questions on limits to production, total demand, type of investment and investment constraints. Finally, the AEP survey (P3) excludes questions on order books, employment, production capacity, capacity utilisation, investment and type of investment.

The surveys conducted by the different institutes in the Russian Federation cover only a sub-set of the harmonized questions. The IMEMO survey (R1) excludes questions on order books, employment, demand, business situation and all questions related to investment, whilst the CEA survey (R2) excludes questions on selling prices, type of investment and investment constraints. The IET survey (R3) excludes questions on business situation and all questions related to investment.

The survey in Belarus also covers only a sub-set of the harmonized questions. The survey excludes the question on demand and all questions related to investment.

3.2.2. Construction surveys

Frequency

Surveys are conducted on a quarterly basis in six of the ten countries conducting construction surveys, namely: Estonia, Hungary, Latvia, Lithuania, Romania and the Russian Federation. Monthly surveys are carried out in Bulgaria, the Czech Republic and the Slovak Republic. In Poland, the GUS survey (P1) is conducted monthly and the RIED survey (P2) is conducted quarterly. The monthly survey in Bulgaria includes only a sub-set of monthly questions and is extended with additional question every quarter. The quarterly GKI survey (H2) in Hungary includes the question on limits to production only twice a year. Table 8 below shows the coverage and frequency of harmonized questions and variables in construction surveys in transition countries.

Table 8. **Business surveys in construction in transition countries**
Coverage and frequency of harmonized questions/variables

Country/Agency Variable	BU	CR	ES	H1	H2	LA	LI	P1	P2	R0	R2	R3	SR
1. Business activity, tendency	M	M	Q	Q	Q	Q	Q	M	Q	Q	Q		M
2. Limits to production	M	M	Q	Q	B	Q	Q	M	Q	Q	Q	Q	M
3. Order books, level	M	M	Q	Q	Q	Q	Q	M	Q	Q			M
4. Employment, future tendency	Q	M	Q	Q	Q	Q	Q	M	Q	Q	Q	Q	M
5. Output prices, future tendency	M	M	Q	Q	Q	Q	Q	M	Q	Q		Q	M
6. Period of production secured	Q	M	Q	Q	Q	Q	Q	M		Q	Q	Q	M
7. New orders, future tendency	Q	M	Q	Q		Q	Q	M	Q	Q	Q	Q	M
8. Financial situation, tendency		M	Q	Q		Q	Q	M	Q	Q	Q		M
9. Delays in payment by clients	M	M	Q	Q		Q	Q	M	Q	Q			M
10. Technical capacity, situation	Q	M	Q	Q		Q	Q	M		Q			M

M = monthly, Q = quarterly, B=bi-annual

For Country/Agency code see note to Table 7.

Coverage of harmonized questions

All variables corresponding to the harmonized set of variables or questions are covered by surveys in eight of the ten countries, namely: the Czech Republic, Estonia, Hungary (Kopint-Datorg -- H1), Latvia, Lithuania, Poland (GUS -- P1), Romania and the Slovak Republic.

The only country in Central and Eastern Europe (including the Baltic states) with more restricted coverage of the harmonized questions is Bulgaria. The survey in Bulgaria excludes the question on financial situation. The GKI survey (H2) in Hungary, however, excludes questions on new orders, financial situation, delays in payment and technical capacity, and the RIED survey (P2) in Poland excludes questions on period of production secured and technical capacity.

The surveys conducted by the two institutes in the Russian Federation cover only a sub-set of the harmonized questions. The CEA survey (R2) excludes questions on order books, prices, delays in payment and technical capacity, and the IET survey (R3) excludes questions on business activity, order books, financial situation, delays in payment and technical capacity.

3.2.3. Retail trade surveys

Frequency

Surveys are conducted quarterly in six of the ten countries conducting retail surveys, namely: Estonia, Latvia, Lithuania, Poland, Romania and the Russian Federation. Monthly surveys are carried out in Bulgaria, the Czech Republic and the Slovak Republic. In Hungary, the Kopint-Datorg survey (H1) is conducted quarterly and the GKI survey (H2) is conducted monthly. The monthly survey in Bulgaria includes only quarterly the question on employment, and the monthly survey in the Czech Republic includes only quarterly the question on limits to activity. The monthly GKI survey (H2) in Hungary includes only quarterly the questions on employment and financial situation and the question on limits to production is included only twice a year.

Coverage of harmonized variables

All variables corresponding to the harmonized set of variables or questions are covered by surveys in nine of the ten countries, namely: Bulgaria, the Czech Republic, Estonia, Hungary (Kopint-Datorg -- H1) Latvia, Lithuania, Poland (RIED -- P2), Romania and the Slovak Republic. The GKI survey (H2) in Hungary, however, excludes the question on competition in own sector, and the GUS survey (P1) in Poland excludes the question on orders.

The only country with less coverage of the harmonized questions is the Russian Federation. The CEA survey (R2) in Russia excludes questions on prices and competition in own sector.

Table 9 below shows the coverage and frequency of harmonized questions and variables in retail surveys in transition countries.

Table 9. **Business surveys in retail trade in transition countries**
Coverage and frequency of harmonized questions/variables

Country/Agency Variable	BU	CR	ES	H1	H2	LA	LI	P1	P2	R0	R2	SR
1. Business situation, tendency	M	M	Q	Q	M	Q	Q	M	Q	Q	Q	M
2. Stocks, level	M	M	Q	Q	M	Q	Q	M	Q	Q	Q	M
3. Orders placed, future tendency	M	M	Q	Q	M	Q	Q		Q	Q	Q	M
4. Business situation, future tendency	M	M	Q	Q	M	Q	Q	M	Q	Q	Q	M
5. Employment, future tendency	Q	M	Q	Q	Q	Q	Q	M	Q	Q	Q	M
6. Selling prices, tendency	M	M	Q	Q	M	Q	Q	M	Q			M
7. Selling prices, future tendency	M	M	Q	Q	M	Q	Q	M	Q			M
8. Financial situation	M	M	Q	Q	Q	Q	Q	M	Q		Q	M
9. Competition in own sector	M	M	Q	Q		Q	Q	Q	Q			M
10. Limits to activity	M	Q	Q	Q	B	Q	Q	Q	Q	Q	Q	M

B = bi-annual, M = monthly, Q = quarterly

For Country/Agency code see note to Table 7.

3.3. Survey characteristics

3.3.1. Industry surveys

All countries conduct surveys covering manufacturing industries. The Estonian survey, however, covers the consumer goods industry only, and the Polish AEP survey is restricted to engineering, chemical, and food industries, and light industries. The Bulgarian, Czech, Hungarian, Polish RIED survey, and the Slovak surveys cover energy production, manufacturing production, and in the case of Hungary, mining.

The enterprise is used as the sampling unit in all countries. Refer Table 10 below for the size, coverage, response rate and structure of the sample in the different surveys.

Sample size

Poland has the largest sample size of all countries, with 3 400 units in the GUS survey (P1) and 2 100 units in the RIED survey (P2). The samples in the surveys in Bulgaria, the Czech Republic, Hungary and two of the surveys in the Russian Federation are between 1 000 and 2 000 units and in the remaining countries the sample size in the different surveys is less than 760 units, the smallest being 170 units in Lithuania.

Sample coverage

The representativeness of the sample is expressed in terms of turnover and employment coverage, i.e. per cent of total value of turnover and total number of employees in the sector. Of the countries with available information, eight countries (Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Poland, Romania and the Slovak Republic) have a coverage in terms of turnover in the range of 50–70 per cent. Lithuania's coverage is much lower, at 32 per cent. Coverage in terms of employment is in the range of 30–61 per cent for the Czech Republic, Estonia, Latvia, Lithuania, Poland, Romania and the Slovak Republic. Belarus' and Slovenia's coverage are much higher, at 100 and 78 per cent, respectively. The coverage is, however very low in the GKI survey (H2) in Hungary and the IET survey (R3) in the Russian Federation, in the range of 11–18 per cent.

Response rate

Response rates are in the range of 68–100 per cent in Bulgaria, the Czech Republic, Estonia, Latvia, Romania, the Slovak Republic and Slovenia and for the remaining countries much lower. This is partly explained by the different stages of transformation each country has reached, i.e. the degree of privatisation achieved in each country (see size and ownership structure below). The GKI survey (H2) in Hungary, for example, is as low as 20–25 per cent.

Sample structure

In terms of average size of surveyed units, the structure of the samples reveals that larger enterprises (those with over 500 employees) take a larger share of the samples in Belarus, Bulgaria and Romania. However, the figure for Bulgaria only refers to state-owned enterprises. In the remainder of the countries the share is low, and smaller enterprises (those with under 500 employees) have the larger share of the samples at around 50–80 per cent. With respect to privately-owned enterprises, however, the share is over 50 per cent in these countries, with the exception of the RIED survey in Poland.

Table 10. **Business surveys in industry in transition countries**
Survey characteristics

Country/Agency surveys	Sample size Units	Coverage		Response rate	Structure of sample (per cent)			
		T	E		Size of units		Ownership of units	
					<500	>500	State	Private
Belarus	500	n.a.	n.a.	100	17–37	40–45	n.a.	n.a.
Bulgaria	1000	70 ²	n.a.	83	--	100	10	90
Czech Republic	1250	60	55	70	60	40	10	90
Estonia	250	60	60	70–80	80	20	20	80
Hungary/H1	1000	65	n.a.	40	n.a.	n.a.	n.a.	n.a.
Hungary/H2	1600	n.a.	16–18	20–25	n.a.	n.a.	n.a.	n.a.
Latvia	234	57	54	68	76	24	43	57
Lithuania	170	32	30	100	55	45	20	80
Poland/P1	3400	67	61	58	75	25	45	55
Poland/P2	2100	50	40	40–45	n.a.	n.a.	100	--
Poland/P3	600	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Romania	600	54	49	80–83	25	75	70	30
Russia/R1	500	n.a.	n.a.	34–40	50	50	52	48
Russia/R2	2000	n.a.	n.a.	35–40	n.a.	n.a.	n.a.	n.a.
Russia/R3	1000	n.a.	11	50–60	n.a.	n.a.	18	82
Slovak Republic	220	56	45	70	n.a.	n.a.	35	65
Slovenia	760	n.a.	78	85–90	n.a.	n.a.	22	78

1. For country/Agency codes see notes to Table 7.

2. State owned enterprises; for private firms: 30%

Units = number of participating firms

T = per cent of turnover

E = per cent of employment in industry

3.3.2. Construction surveys

The construction survey generally covers construction works with a breakdown between buildings and public works and with buildings separated further into housing and other buildings with a specification on new housing or buildings and renovations.

The enterprise is used as sampling unit in all countries. Sample size, coverage, response rate and structure of sample for the different surveys are set out in Table 11 below.

Sample size

The sample size is less than 500 units in four of the transition country surveys and as low as 100 units in Estonia. The samples in most transition country surveys are between 600 and 800 units. The only surveys with a larger sample are the Polish GUS survey (P1) with a sample size of 3 500 units, the RIED survey (P2) with a sample size of 2 500 units, and the Hungarian GKI survey (H2) with a sample size of 1 200 units.

Table 11. **Business surveys in construction in transition countries**
Survey characteristics

Country/Agency Surveys ¹	Sample size	Coverage		Response rate	Structure of sample (per cent)			
		T	E		Size of units		Ownership of units	
					<200	>200	<200	>200
Bulgaria	490	50 ²	n.a.	83	--	100	10	90
Czech Republic	650	55	50	68	70	30	2	98
Estonia	100	50	40	60–70	100	--	0	100
Hungary/H1	600	50	n.a.	20	n.a.	n.a.	n.a.	n.a.
Hungary/H2	1200	n.a.	10–12	10–12	n.a.	n.a.	n.a.	n.a.
Latvia	113	n.a.	32	59	92	8	28	72
Lithuania	350	40	53	70	63	37	10	90
Poland/P1	3500	78	74	54	65	75	22	78
Poland/P2	2500	1	1	20	n.a.	n.a.	5	95
Romania	600	74	76	70–73	37	63	38	49
Russian Fed./R2	800	n.a.	n.a.	35–40	n.a.	n.a.	n.a.	n.a.
Russian Fed./R3	630	n.a.	n.a.	40–50	n.a.	n.a.	n.a.	n.a.
Slovak Republic	516	51	49	38	64	36	14	86

Units = number of participating firms; T= % of turnover; E= % of employment

1. For Country/Agency codes see notes to table 7.
2. State-owned enterprises; for private firms: 25%.

Sample coverage

The coverage of the sample in terms of turnover is in the range of 40–78 per cent in all countries with available information, with the exception of the RIED survey (P2) in Poland where the coverage is as low as 1 per cent. The coverage in terms of employment is in the range of 40–76 per cent in most countries with available information, but as low as 1 per cent in the RIED survey (P2) in Poland, only 10–12 per cent in the GKI survey (H2) in Hungary and 32 per cent in Latvia.

Response rate

The response rate is over 70 per cent in Bulgaria, Lithuania and Romania and over 50 per cent in the Czech Republic, Estonia, Latvia and the GUS survey (P1) in Poland. The surveys in the Russian Federation show rates in the range of 35–50 per cent, the RIED survey (P2) in Poland with a rate of 26 per cent and the surveys in Hungary with rates in the range of 10–20 per cent.

Sample structure

The structure of the samples in terms of the average size of the surveyed units reveals that smaller enterprises (under 200 employees) make up the larger share of the samples in all countries with the exception of Bulgaria and Romania. However, the figure for Bulgaria refers to state-owned enterprises only. The share of smaller enterprises is in the range of 63–70 per cent in four countries and as high as 92 per cent in Latvia and 100 per cent in Estonia. The structure of the samples in terms of ownership reveals that private-owned enterprises make up the larger share of the samples in all countries and the share is over or equal to 90 per cent in six countries with available information.

3.3.3. Retail trade surveys

The retail trade survey in most countries covers retailing with a breakdown on the following groups: (1) food, drink and tobacco, (2) textiles, clothing and footwear, (3) household goods, (4) motor vehicles and (5) large multiple shops.

The enterprise is used as sampling unit in all countries. Sample size, coverage, response rate and structure of sample for the different surveys are set out in Table 11 below.

Sample size

The sample size is less or equal to 500 units in Bulgaria, Estonia, Latvia, Lithuania and the Slovak Republic, and 600 units in the Czech Republic and the Kopint-Datorg survey (H1) in Hungary. Larger samples, in the range of 1 600 to 5 200 units, are used in the GKI survey (H2) in Hungary, in the two surveys in Poland, in Romania, and the CEA survey (R2) in the Russian Federation.

Sample coverage

The coverage of the sample in terms of turnover is in the range of 20–38 per cent for all countries with exception of the Slovak Republic and the RIED survey (P2) in Poland, with a coverage of 8 and 4 per cent, respectively. The figure for Bulgaria refers to state-owned enterprises, but the coverage for private enterprises is 20 per cent. The coverage in terms of employment shows about the same picture as the one based on turnover for most countries. The GKI survey (H2) in Hungary shows a coverage on this measure in the range of 6–8 per cent.

Response rate

The response rate is very high in Bulgaria and Romania with a rate of 78 and around 80 per cent, respectively. The Czech Republic, Estonia and Lithuania show response rates in the range of 50–75 per cent, and Latvia and Poland in the range of 30–44 per cent, while very low rates in the range of 8–20 per cent are shown for the two surveys in Hungary.

Sample structure

The structure of the samples in terms of ownership reveals that private enterprises make up the larger share of the samples in all countries with the exception of the Slovak Republic. The share of private enterprises in countries with available data is in the range of 74–99 per cent, and as low as 8 per cent in the Slovak Republic.

Table 12. **Business Surveys in retail trade in transition countries**
Survey Characteristics

Country/Agency Surveys	Sample size Units	Coverage		Response rate	Structure of sample (per cent) Ownership of units	
		T	E		State	Private
Bulgaria	500	60 ²	n.a.	78	2	98
Czech Republic	600	20	18	52	2	98
Estonia	110	20	20	68	5	95
Hungary/H1	600	30	n.a.	20	n.a.	n.a.
Hungary/H2	1600	n.a.	6–8	8–12	n.a.	n.a.
Latvia	463	38	53	44	10	90
Lithuania	400	35	50	75	18	82
Poland/P1	5200	36	36	38	1	99
Poland/P2	3700	4	5	30	12	88
Romania	2000	36	32	80–82	26	74
Russian Fed./R2	4000	n.a.	n.a.	n.a.	n.a.	n.a.
Slovak Republic	300	n.a.	n.a.	36	n.a.	n.a.

Units = number of participating firms; T= % of turnover; E= % of employment

1. For Country/Agency codes see notes to Table 7.
2. State-owned enterprises; for private firms: 20%

CHAPTER 4 DESCRIPTIONS OF BUSINESS TENDENCY SURVEYS IMPLEMENTED IN INDIVIDUAL TRANSITION COUNTRIES

BELARUS

Economic Institute in the Ministry of the Economy

A BT-survey in the industrial sector has been conducted on a regular quarterly basis since the second quarter of 1994.

The survey includes 500 industrial enterprises with a coverage of approximately 100 per cent of total employment in the industrial sector. The survey covers mainly state-owned enterprises (60 per cent) and larger enterprises (i.e. those with over 500 employees). The response rate is in the range of 17–37 per cent.

Survey characteristics

Sector	Since	Frequency	Size of Sample	Coverage of sample ⁽¹⁾	Response rate (per cent)
Industry	1994	quarterly	500	100	17–37

1. Coverage is expressed in per cent of employment in sector.

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	Q	tendency	tendency 3–4 months
Order books, total and export	Q	level	tendency 3–4 months
Stocks of finished goods	Q	level	tendency 3–4 months
Selling prices	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment			
Type of investment			
Investment constraints			
Business situation			

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

BULGARIA

National Statistical Institute (NSI)

In June 1991, the NSI conducted an experimental BT-survey by means of a standardized questionnaire in the industrial sectors of the economy. In October 1991, a quarterly inquiry was conducted for the fourth quarter for the industrial sectors with an expanded sample and an improved questionnaire. The survey covered 25 per cent of the statistical units in the sector. These units covered 75 per cent of the production for nine months of the year and 70 per cent of the employees. The results from this survey were summarised and used for the elaboration of an economic projection for 1991.

From the beginning of 1992, monthly and quarterly BT-surveys in industry, construction and retail trade have been carried out by separate questionnaires. Specialised questionnaires were developed and experimented, taking into consideration peculiarities in the activities of the respective economic sectors.

New questionnaires, based on the harmonized questionnaires for transition countries, were introduced at the beginning of 1993 for the surveys in industry and construction. A separate investment survey was introduced at the same time, covering the harmonized investment questions and some additional quantitative questions. The investment survey is carried out twice a year, in April and October. The retail trade survey was harmonized in June 1993.

From the beginning of 1994 the BT-surveys in all sectors were extended over the private sector, but private enterprises are surveyed only quarterly, in January, April, July and October.

The sampling frame for the surveys is the statistical register maintained by the National Statistical Institute. The units in the register are coded by industry, region, size etc. The new national industrial classification, which is harmonized with ISIC and NACE, has not yet been introduced.

The sampling method used for the industry survey is a stratified random selection with stratification of enterprises by industry and turnover. The sample for the construction survey is based on a purposive selection method with a cut-off level. The retail trade sample for the public enterprises uses a stratified random sampling method with stratification by branch and turnover and a random selection for private enterprises.

For aggregation of survey results a double weighting method is used for the industry survey. In the first stage, individual enterprise answers are weighted with turnover within a branch. For aggregation of branch results to sectors of industry, public and private sectors and total industry, value added is used as weighting variable. The construction survey uses turnover as weighting variable for aggregation of total results and value-added by ownership for aggregation of public and private sector results. The retail trade survey uses turnover as weighting variable at all levels of aggregation of results, i.e. branches, public and private sectors and total retail trade.

Publications

Title	Frequency	Language
Current Economic Business	Monthly	National/English

Survey characteristics

Sector	Since	Frequency	Size of Sample	Coverage of sample ⁽¹⁾	Response rate (per cent)
Industry	1991	Monthly	1000	70 ²	83
Construction	1992	Monthly	490	50 ²	68
Retail trade	1992	Monthly	500	60 ²	78

1. Coverage is expressed as per cent of total turnover in sector.

2. State-owned enterprises; for private firms 30, 25 and 20% in industry, construction and retail trade, respectively.

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total and export	M, Q	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	M	situation	
Production capacity	Q	situation	
Capacity utilisation	M	level	
Investment	B		tendency 12 months
Type of investment	Y		situation
Investment constraints	Y		situation
Business situation	M	situation	tendency 6 months
Construction Survey			
Business activity	M	tendency	
Production constraints	M	situation	
Order books	M	level	
Employment	Q		tendency 3–4 months
Output prices	M		tendency 3–4 months
Period of production secured	Q	situation	
New orders (contracts)	Q		tendency 3–4 months
Financial situation			
Delays in payment by clients	M	situation	
Technical capacity	Q	situation	
Retail survey			
Business situation	M	situation	tendency 6 months
Stocks	M	level	
Orders placed	M		tendency 3–4 months
Employment	Q		tendency 3–4 months
Selling prices	M	tendency	tendency 3–4 months
Financial situation	M	tendency	
Competition in own sector	M	tendency	
Activity constraints	M	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

CZECH REPUBLIC

Czech Statistical Office (CSO)

BT-surveys have been carried out since around 1970 by the Czech and Slovak state statistical bodies. At first, the concepts for these surveys were organised to fit the central planning and management system. The transition to a market economy made it necessary to adjust the surveys to the new conditions and concepts close to those used in surveys in countries with market economies were introduced in 1991.

The first BT-survey in industry, based on the new concepts, was conducted in April 1991 by the former Federal Statistical Office in co-operation with the Czech and Slovak Statistical Offices and with INFOSTAT -- Institute of Informatics and Statistics, Bratislava.

Quarterly BT-surveys were carried out up to the end of 1992 by the CSO in the following sectors of the economy: industry, construction and retail trade. Since February 1993, regular surveys are conducted on a monthly basis in above sectors and the questionnaires conform to a large extent to the harmonized questionnaires developed for transition countries. The monthly surveys contain an extended set of questions each quarter, and questions concerning investments are asked twice a year, in March and September.

The sampling frame for the surveys is the statistical register of organisations and natural persons maintained by the Statistical Office. The units in the register are coded by industry, region, size etc. The industrial classification used is harmonized with ISIC and NACE.

The sampling method used for the industry survey is a stratified purposive selection with stratification by branch and employment. All larger enterprises are included in the sample and other enterprises are selected to obtain a "representative" set of sampling units. This method is also used for the construction and retail trade surveys, but with only employment as stratification variable.

The sampling procedure is effected by the unstable situation in the sampling frame due to the privatisation process. This means changes in ownership and size of enterprises. Large enterprises are being split and a large number of small firms and private entrepreneurs have arisen. However, many new private firms cease to exist a short time after registration. These changes effect response rates and substitution of non-responding enterprises is done in order to maintain stability in the sample over time.

Aggregation of survey results for individual enterprise data is performed in both unweighted and weighted form within a branch. For aggregation of branch results to sectors of industry or total industry weighting is used. For weighting of results at all levels of aggregation, production or employment are used as weighting variables depending on survey question.

Survey characteristics

Sector	Since	Frequency	Size of Sample	Coverage of sample⁽¹⁾	Response rate (per cent)
Industry	1992	Monthly	1250	60	70
Construction	1992	Monthly	650	55	68
Retail trade	1992	Monthly	600	20	52

1. In each sector coverage is expressed in per cent of volume of goods production, construction output and retail turnover. Present samples cover mainly state and co-operative enterprises.

Czech Republic -- CSO (Cont.)

Publications

Title	Frequency	Language
Aktualni Statisticke Informace	Monthly	National
Konjunkturalni Pryskum (Business cycle surveys)		
-- V Prumyslovych Podnicich (Industry)	Quarterly	National
-- V Stavebnich Podnicich (Construction)	Quarterly	National
-- V Podnicich Vnitriho Obchodu (Trade)	Quarterly	National
CSO Bulletin	Monthly	National
Mexinarodni Bulletin	Quarterly	National

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total and export	M	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	M		tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment	B		tendency 12 months
Type of investment	Y		situation
Investment constraints	Y		situation
Business situation	M	situation	tendency 6 months
Construction Survey			
Business activity	M	tendency	
Production constraints	M	situation	
Order books	M	level	
Employment	M		tendency 3–4 months
Output prices	M		tendency 3–4 months
Period of production secured	M	situation	
New orders (contracts)	M		tendency 3–4 months
Financial situation	M	tendency	
Delays in payment by clients	M	situation	
Technical capacity	M	situation	
Retail survey			
Business situation	M	situation	tendency 6 months
Stocks	M	level	
Orders placed	M		tendency 3–4 months
Employment	M		tendency 3–4 months
Selling prices	M	tendency	tendency 3–4 months
Financial situation	M	tendency	
Competition in own sector	M	tendency	
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

ESTONIA

Estonian Institute for Market Research (EKI)

The first BT-tendency survey in industry was conducted in spring 1991 and regular surveys on a quarterly basis have been carried out since then. The industry survey covers the consumer goods sector of industry. Quarterly surveys in the construction and retail trade sectors were introduced in late 1993. A consumer survey has been conducted twice a year since 1991.

The sampling frame for the surveys in industry, construction and retail trade is the statistical register maintained by the Statistical Office and administrative information maintained by EKI. The units in the Statistical register are coded by industry and size. The sampling frame for the construction survey is supplemented with administrative register information from the confederation of construction enterprises and the frame for the retail trade survey is complemented with regional trade directories.

The sampling method used for the industry survey is a stratified purposive selection with stratification by size of enterprises, i.e. number of employees. The number of selected enterprises in strata are directly proportional to the average size of enterprises in each stratum. The sampling method used for the construction and retail surveys is purposive, i.e. a sample of representative units is drawn from the population.

The structure of the sample in the industry is characterised by small and private enterprises with 80 per cent of enterprises having less than 500 employees. 80 per cent are private enterprises. The construction sample contains only small enterprises with less than 200 employees and the retail trade sample include 95 per cent private enterprises.

The consumer survey is based on a sample of 700 persons included in the EKI consumer panel. The survey is conducted twice a year, in June and December. Resource problems prevent a more frequent periodicity for the survey at present.

Processing of survey results for the industry, construction and retail trade surveys is performed by aggregating the individual answers to each question without weighting.

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample⁽¹⁾	Response rate(per cent)
Industry ⁽²⁾	1991	Quarterly	250	60	70–80
Construction	1993	Quarterly	100	50	60–70
Retail Trade	1993	Quarterly	110	20	68

1. Coverage refers to per cent of total turnover in sector

2. Industry refers to consumer goods industry

Publications

Title	Frequency	Language
Konjunktuur	quarterly	National/English

Estonia -- EKI (Cont.)

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	Q	tendency	tendency 3–4 months
Order books, total and export	Q	level	tendency 3–4 months
Stocks of finished goods	Q	level	tendency 3–4 months
Selling prices	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment	Q		tendency 12 months
Type of investment	Q		situation
Investment constraints	Q		situation
Business situation	Q		tendency 6 months
Construction Survey			
Business activity	Q	tendency	
Production constraints	Q	situation	
Order books	Q	level	
Employment	Q		tendency 3–4 months
Output prices	Q		tendency 3–4 months
Period of production secured	Q	situation	
New orders (contracts)	Q		tendency 3–4 months
Financial situation	Q	tendency	
Delays in payment by clients	Q	situation	
Technical capacity	Q	situation	
Retail survey			
Business situation	Q	situation	tendency 6 months
Stocks	Q	level	
Orders placed	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Selling prices	Q	tendency	tendency 3–4 months
Financial situation	Q	tendency	
Competition in own sector	Q	tendency	
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

HUNGARY

Institute for Economic and Market Research and Informatics (KOPINT-DATORG)

Business tendency surveys have been conducted in the industrial sector since 1987. Surveys in the trade sector -- wholesale and retail trade -- were introduced in 1988, and a construction survey was started in 1989. Separate investment surveys in above sectors were introduced in 1990.

The surveys are carried out on a quarterly basis with the exception of the investment survey, which is conducted twice a year.

Since March 1993 almost all the harmonized questions recommended for use in surveys in transition countries are included in the Hungarian surveys.

Up to 1990, the industry survey questionnaire was sent to all industrial enterprises registered by the Central Statistical Office. The sample size was rather stable over this period -- 2 000 in 1987 rising to 2 700 in the first quarter of 1991. The response rate varied, however, between 50 and 20 per cent over this period, but the representativeness as to size and type of activity was relatively good for most surveys. During 1990 the number of new enterprises started to increase and the number of registered enterprises reached 9 400 in the beginning of 1991 and 17 000 in 1994.

Since 1990 a combination of the Statistical Register and the Tax Authority Register has been used for sampling purposes. The tax register contains only firms which are obliged to keep double-entry book keeping and to fill out standardized full or simplified annual (financial) reports. The units in the registers are coded by industry, ownership, region etc. The new national industrial classification introduced in January 1992 is harmonized with ISIC and NACE.

The sampling method used for the surveys in industry, construction and retail trade is a combined purposive and random selection. Enterprises are ranked by their net sales revenues and those enterprises which reach a certain pre-determined minimum level of sales are included in the sample. This part of the sample contains the large and medium size enterprises. A random sample of the small enterprises (filling out simplified annual reports) is drawn and added to the first selected enterprises.

The coverage in terms of number of employees was about 32 per cent in the latest industry survey. Small- and medium-sized enterprises with less than 1 000 employees accounted for over 80 per cent of the total number of enterprises surveyed. The response rate has gone down to 10-20 per cent in recent industry surveys.

The basic method of calculation is to aggregate the weighted answers into one figure for each question. Employment is used as weighting variable in the industry and construction surveys, while sales values are used in the trade survey. No weighting is performed on results to the questions on limits to production and resource problems.

Hungary -- KOPINT-DATORG (Cont.)

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample ⁽¹⁾	Response rate(per cent)
Industry	1987	Quarterly	1000	65	40
Construction	1993	Quarterly	600	50	20
Retail trade	1992	Quarterly	600	30	20

1. Coverage is expressed in per cent of total turnover in sector

Publications

Title	Frequency	Language
Ipari Konjunkturateszt (Industry, BS results)	Quarterly	National
Ipari Konjunkturaturkor (Industry, BS mirror)	Quarterly	National
Epitoipari Konjunkturaturkor (Construction, BS mirror)	Quarterly	National
Kereskedelmi Konjunkturaturkor (Trade, BS mirror)	Quarterly	National

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	Q	tendency	tendency 3-4 months
Order books, total and export	Q	level	tendency 3-4 months
Stocks of finished goods	Q	level	tendency 3-4 months
Selling prices			
Employment	Q		tendency 3-4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment	Y		tendency 12 months
Type of investment	Y		
Investment constraints			
Business situation	Q	situation	tendency 6 months
Construction Survey			
Business activity	Q	tendency	
Production constraints	Q	situation	
Order books	Q	level	
Employment	Q		tendency 3-4 months
Output prices	Q		tendency 3-4 months
Period of production secured	Q	situation	tendency 3-4 months
New orders (contracts)	Q		tendency 3-4 months
Financial situation	Q	tendency	
Delays in payment by clients	Q	situation	
Technical capacity	Q	situation	tendency 6 months

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

Hungary -- KOPINT-DATORG (Cont.)

Main survey variables(Cont.)

	Frequency	Type of variable and period covered	
		Present	Future
Retail survey			
Business situation	Q	situation	tendency 6 months
Stocks	Q	level	
Orders placed	Q		tendency 3-4 months
Employment	Q		tendency 3-4 months
Selling prices	Q	tendency	tendency 3-4 months
Financial situation	Q	tendency	
Competition in own sector	Q	tendency	
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

Hungary -- GKI Research Company

Regular monthly BT-surveys have been conducted by the GKI Research Company in Hungary in the industrial and retail trade sectors since January 1995 and quarterly in the construction sector since January 1996.

The sample for the industry survey includes 1 600 enterprises with a coverage in terms of total employment in the sector of only 16–18 per cent and a response rate of 20–25 per cent. The sample for the construction survey includes 1 200 enterprises with a coverage as low as 10–12 per cent of total employment in the sector and a response rate of only 10–12 per cent. The sample for the retail survey is 1 600 enterprises with a very low coverage of 6–8 per cent of total employment in the sector and a response rate as low as 8–12 per cent.

The sampling frame for the surveys is the statistical register maintained by the Central Statistical Office. The units in the register are coded by industry, ownership, region etc. The national industrial classification is harmonized with ISIC and NACE.

The sampling method used for the surveys in industry, construction and retail trade is random selection. The samples are updated with enterprises at regular intervals.

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample⁽¹⁾	Response rate (per cent)
Industry	1995	Monthly	1 600	16–18	20–25
Construction	1996	Quarterly	1 200	10–12	10–12
Retail trade	1995	Monthly	1 600	6–8	8–12

1. Coverage is expressed in period of total employment in sector

Hungary -- GKI (Cont.)

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total	M	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	B	situation	
Production capacity			
Capacity utilisation	B	level	
Investment	B		tendency 12 months
Type of investment	B		situation
Investment constraints			
Business situation	B		Tendency 6 months
Construction Survey			
Business activity	Q	tendency	
Production constraints	B	situation	
Order books	Q	level	
Employment	Q		tendency 3–4 months
Output prices	Q		tendency 3–4 months
Period of production secured	Q	situation	
New orders (contracts)			
Financial situation			
Delays in payment by clients			
Technical capacity			
Retail survey			
Business situation	M	situation	tendency 6 months
Stocks	M	level	
Orders placed	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Selling prices	M	tendency	tendency 3–4 months
Financial situation	Q	tendency	
Competition in own sector			
Activity constraints	B		

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

LATVIA

State Committee for Statistics/Latvian Statistical Institute (SCS)

At the end of 1992, the SCS began to implement BT-surveys in industry and construction and in 1995 a survey in retail trade. All surveys will be conducted on a quarterly basis and most of the questions will correspond to the harmonized set of questions agreed among the transition countries.

From the second quarter of 1993, regular surveys are conducted in industry, i.e. manufacturing industry and mining and quarrying. The sample includes 234 industrial enterprises of which some 43 per cent are state and co-operative enterprises and the rest private firms. The sampled enterprises cover about 54 per cent of total employment in industry, and small and medium sized enterprises with less than 500 employees account for over 76 per cent of the surveyed units. The present response rate is 68 per cent.

Regular surveys for the construction sector are conducted since third quarter of 1993 and for retail trade sector since the first quarter of 1996. The samples cover 113 construction enterprises and 463 retail enterprises, respectively.

The industry survey contains 23 qualitative questions of the multiple-choice form of which 17 questions correspond to the harmonized set of questions. The construction survey contains 20 questions including all the harmonized questions.

The sampling frame for the surveys in industry and construction is the statistical register maintained by the SCS. The units in the register are coded by industry, size, ownership, region etc. The national industrial classification used is harmonized with ISIC.

The sampling method used for the surveys in all sectors is a purposive selection of enterprises. In the first survey, questionnaires were sent to all large enterprises, most medium sized firms and a part of the small firms. Enterprises were selected ensuring that different industries, size groups and ownership of enterprises and regional districts are represented. These criteria were used taking into account the composition of enterprises responding in the first surveys to build panels of participating enterprises for the surveys.

Survey processing is at present performed by aggregating the individual answers to all questions without weighting.

Breakdown of results on 17 manufacturing branches corresponding to the ISIC, revision 2 classification and two branches of mining and quarrying are presented in the industry survey. Results from the industry survey are also presented by kind of ownership and by size of enterprises, i.e. small, medium and large enterprises (based on the number of employees). The construction survey results are presented with breakdown by sectors, ownership, size groups and regions.

Latvia -- SCS (Cont.)

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample ⁽¹⁾	Response rate (per cent)
Industry	1993	Quarterly	234	54	68
Construction	1993	Quarterly	113	32	59
Retail trade	1996	Quarterly	463	53	44

1. Coverage is expressed in per cent of total sector employment

Publications

Title	Frequency	Language
Monthly Bulletin of Latvian Statistics	Quarterly	National

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	Q	tendency	tendency 3–4 months
Order books, total and export	Q	level	tendency 3–4 months
Stocks of finished goods	Q	level	tendency 3–4 months
Selling prices	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment	Q		tendency 12 months
Type of investment	Q		situation
Investment constraints	Q		situation
Business situation	Q	situation	tendency 6 months
Construction Survey			
Business activity	Q	tendency	
Production constraints	Q	situation	
Order books	Q	level	
Employment	Q		tendency 3–4 months
Output prices	Q		tendency 3–4 months
Period of production secured	Q	situation	
New orders (contracts)	Q		tendency 3–4 months
Financial situation	Q	tendency	
Delays in payment by clients	Q	situation	
Technical capacity	Q	situation	

Latvia -- SCS (Cont.)

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Retail survey			
Business situation	Q	situation	tendency 6 months
Stocks	Q	level	
Orders placed	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Selling prices	Q	tendency	tendency 3–4 months
Financial situation	Q	tendency	
Competition in own sector	Q	tendency	
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

LITHUANIA

Lithuanian Department of Statistics (LDS)

A BT-survey covering the industrial sector, i.e. mining and manufacturing has been conducted on a regular monthly basis since February 1993. Surveys in the construction and retail sectors were introduced in 1994 and 1995, respectively. The surveys in all sectors cover all the harmonized questions agreed among transition countries.

The sampling frame for the surveys is the statistical register maintained by the Department of Statistics. The units in the register are enterprises and the national industry classification used is harmonized with ISIC and NACE.

The sample for the industry survey includes 170 enterprises of which 20 per cent are state owned. The sampled enterprises includes 55 per cent of enterprises with less than 500 employees and cover about 32 per cent of total turnover in industry. The response rate is 100 per cent. The sample for the construction survey includes 350 enterprises of which 63 per cent have less than 200 employees. The response rate is around 70 per cent. The sample for the retail trade survey includes 400 enterprises of which 82 per cent are privately owned. The response rate is 75 per cent.

The sampling method used for the industry survey is stratified purposive selection with stratification of enterprises by industry and production. Updating of the sample is based on a fixed panel approach. The samples for the construction and retail trade surveys are selected by a stratified random method with employment as the stratification variable. For updating the sample, a rotated panel approach is used.

Survey processing is performed by aggregating the weighted answers to all individual questions. The value of production is used as weighting variable in the industry survey, and employment is used as weighting variable in the construction survey.

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample⁽¹⁾	Response rate (per cent)
Industry	1993	monthly	170	30	100
Construction	1994	quarterly	350	53	70
Retail trade	1995	quarterly	400	50	75

1. Coverage is expressed in per cent of total employment in sector

Publications

Title	Frequency	Language
Apdirbamosis Pramanés Imonin, Ekonominė Buklė	Monthly	National

Lithuania -- LDS (Cont.)

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total and export	M	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment	Q		tendency 12 months
Type of investment	Q		situation
Investment constraints	Q		situation
Business situation	Q	situation	tendency 6 months
Construction Survey			
Business activity	Q	tendency	
Production constraints	Q	situation	
Order books	Q	level	
Employment	Q		tendency 3–4 months
Output prices	Q		tendency 3–4 months
Period of production secured	Q	situation	
New orders (contracts)	Q		tendency 3–4 months
Financial situation	Q	tendency	
Delays in payment by clients	Q	situation	
Technical capacity	Q	situation	
Retail survey			
Business situation	Q	situation	tendency 6 months
Stocks	Q	level	
Orders placed	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Selling prices	Q	tendency	tendency 3–4 months
Financial situation	Q	tendency	
Competition in own sector	Q	tendency	
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

POLAND

Central Statistical Office (GUS) and Academy Of Economics in Poznan (AEP)

Business tendency surveys for the manufacturing industry have been conducted by the AEP on a quarterly basis since the second quarter of 1988. The manufacturing survey started initially in 1984, but was restricted to the Poznan region up to 1988. The AEP industry survey covers 600 state-owned or co-operative manufacturing enterprises. The sample will be expanded in the near future and results on products or product groups will be presented.

A new survey for the manufacturing industry was introduced in June 1992 by the GUS in co-operation with the AEP. The sample covers 3 400 industrial enterprises from both public and private sectors of the economy. All enterprises with more than 2 000 employees are included in the sample. These enterprises are around 200 in number and 90 per cent of them are public enterprises. Small enterprises with less than 5 employees are not covered in the sample. Surveys conducted up to June 1992 covered 600 state-owned or co-operative enterprises.

A construction survey was started in July 1993 by the GUS in co-operation with the AEP and a retail trade survey was implemented in October 1993 by the GUS in co-operation with the Institute of Home Market and Consumption. The sample for the construction survey covers 3 500 enterprises with a coverage of 78 per cent of total turnover. The retail trade sample covers 5 200 enterprises of which 99 per cent are private enterprises.

The sampling frame for the GUS surveys is the statistical register maintained by the GUS. The AEP industry survey uses an administrative source for the selection of survey units. The units in the statistical register are coded by industry, size, region etc. The national industrial classification (EKD) is harmonized with NACE.

The sampling method used for the GUS surveys is stratified random selection with stratification of enterprises by branch, employment and ownership in the industry and construction surveys, and by branch in the retail trade survey. The AEP industry survey uses a stratified purposive selection sampling method.

Survey processing of the GUS surveys in industry and construction is performed without weighting inside strata. For aggregation of branch results to sectors of industry, public and private sectors and total industry, production is used as weighting variable. For aggregation of survey results for the retail trade survey, sales value is used as weighting variable at all levels of aggregation.

Survey characteristics(GUS)

Sector	Since	Frequency	Size of sample	Coverage of sample ¹	Response rate
Industry ¹	1992	Monthly	3 400	67	68
Construction	1993	Monthly	3 500	78	54
Retail trade	1993	Monthly	5 200	36	38

1. Coverage is expressed in per cent of turnover in sector.

Poland -- GUS and AEP (Cont.)

Publications (GUS)

Title	Frequency	Language
Badania Konjunktury (Industry and construction)	Monthly	National

Main survey variables (GUS)

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total and export	M	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	M		tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation			
Investment			
Type of investment	Q		situation
Investment constraints			
Business situation	M	situation	tendency 6 months
Construction Survey			
Business activity	M	tendency	
Production constraints	M	situation	
Order books	M	level	
Employment	M		tendency 3–4 months
Output prices	M		tendency 3–4 months
Period of production secured	M	situation	
New orders (contracts)	M		tendency 3–4 months
Financial situation	M	tendency	
Delays in payment by clients	M	situation	
Technical capacity	M	situation	
Retail survey			
Business situation	M	situation	tendency 6 months
Stocks	M	level	
Orders placed			
Employment	M		tendency 3–4 months
Selling prices	M	tendency	tendency 3–4 months
Financial situation	M	tendency	
Competition in own sector	Q	tendency	
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

Poland -- Research Institute of Economic Development (RIED), Warsaw School of Economics

The RIED is at present conducting four different business tendency surveys:

- 1) business survey in industry, state and co-operative sector -- monthly since 1986;
- 2) business survey in industry, private sector -- monthly since October 1992;
- 3) business survey in construction -- quarterly since 1993; and
- 4) business survey in retail trade -- quarterly since 1993

The industry survey conducted in the state sector is based on a questionnaire sent to 2 100 industrial enterprises out of a total of approximately 6 000 state-owned and co-operative industrial enterprises in the Polish economy. The response rate is in the range of 40–45 per cent and the coverage in terms of turnover is about 50 per cent.

The private sector industry survey is based on a sample of some 2 200 private firms out of a total of around 45 000 registered private enterprises. The surveyed enterprises are very small in terms number of employees, over 90 per cent have less than 250 employees. The two surveys in industry will be combined as soon as the results of the private sector survey are reliable.

The construction and retail trade surveys are based on samples of 2 500 and 3 700 enterprises respectively. Coverage in terms of turnover is very low in both surveys -- 1 per cent in the construction survey and 4 per cent in the retail trade survey. The response rate is 26 and 30 per cent in the construction and retail trade surveys, respectively.

The content of the state sector industry survey questionnaire was changed in 1991 in line with changing economic developments, i.e. the transition process from a centrally planned to a market oriented economic system. The current survey contains twelve questions asked every month and eight questions asked every three months. Answers to all questions are requested for both the assessment of the current situation and expectations over, in general, the next 3–4 months.

The sampling frame for the industry, construction and retail trade surveys is the statistical register maintained by the Statistical Office (GUS).

The total number of enterprises in the frame is around 45 000 industrial, 210 000 construction and 746 000 retail trade enterprises. The total number of enterprises in the frames differ from the numbers used by the GUS in their business surveys. The sampling frames used by the GUS are corrected with information from other sources and the total numbers are much lower. This partly explains the differences in response rates between the RIED and GUS business surveys.

The sampling method used for the surveys in industry, construction and retail trade is a stratified random selection with stratification of enterprises by branch and employment in the industry survey and stratification by branch, employment and ownership in the construction and retail trade surveys.

Processing of survey results in the industry, construction and retail trade surveys is performed by aggregating the individual answers to all questions using employment as the weighting variable at all levels of aggregation, i.e. branches of industry, sectors of economy and total economy. However, in the private sector industry survey weights of the numbers 1, 2, 3 and 4 are assigned to four size groups of enterprises, i.e. up to 250, 251–500, 501–1000, and over 1 001 employees.

Breakdown of results on 17 main manufacturing branches and mining, fuels and energy are presented in the public sector industry survey. Results on size groups, i.e. number of employees, are presented with the following breakdown: up to 250, 251–500, 501–1 000, 1 001–2 000, 2 001–4 000, and above 4 000 employees. Regional results concerning the general business situation are shown for nine regions in comparison with the overall country situation.

Results of the public sector industry survey are presented in the form of percentages, i.e. relative frequencies of answers. Net balances, i.e. the difference between the percentages of reported increases and decreases are calculated for all threefold multiple-choice questions.

A composite index of “economic performance” is also calculated for the industry surveys. This index, the general business indicator, is based on the net balances of the survey questions concerning current and expected volume of production.

Ranking of results by branches and size of enterprises are presented for the public sector survey in industry in the form of tables showing the position of each branch or size-group according to the level of the general business indicator for each branch or size-group.

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample¹	Response rate
Industry, public	1986	monthly	2100	50	40–45
Industry, private	1992	monthly	2200	n.a.	10
Construction	1993	quarterly	2500	1	26
Retail trade	1993	quarterly	3700	4	30

1. Coverage is expressed in per cent of turnover in sectors.

Publications

Title	Frequency	Language
Koniunktura W Przemysle, Business Survey (Industry)	Monthly	National/English
Koniunktura W Przemysle, sector prywatny (private)	Monthly	National/English
Koninnkturaw Budownictwie (construction)	Quarterly	National/English
Koninnkturaw Handlu (retail trade)	Quarterly	National/English

Poland -- RIED (Cont.)

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total and export	M	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	M		tendency 3–4 months
Production constraints			
Production capacity	M	situation	
Capacity utilisation	M	level	
Investment	M		tendency 12 months
Type of investment			
Investment constraints			
Business situation	M	situation	tendency 6 months
Construction Survey			
Business activity	Q	tendency	
Production constraints	Q	situation	
Order books	Q	level	
Employment	Q		tendency 3–4 months
Output prices	Q		tendency 3–4 months
Period of production secured			
New orders (contracts)	Q		tendency 3–4 months
Financial situation	Q	tendency	
Delays in payment by clients	Q	situation	
Technical capacity	Q	situation	
Retail survey			
Business situation	Q	situation	tendency 6 months
Stocks	Q	level	
Orders placed	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Selling prices	Q	tendency	tendency 3–4 months
Financial situation	Q	tendency	
Competition in own sector	Q	tendency	
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

ROMANIA

National Commission for Statistics (NCS)

The first business tendency survey in industry was conducted in June 1991 and regular surveys on a quarterly basis have been carried out since then. The industry survey covers the manufacturing sector of industry. In October 1993 a survey in the construction sector was introduced, and in January 1994 a survey for the retail trade sector was implemented.

The industry survey is sent to a sample of 600 enterprises. The coverage of the sample is 54 per cent of turnover in each of the surveyed industrial branches and 49 per cent of the total number of employees in the manufacturing industry. The sample includes mainly enterprises from the public sector (70 per cent) and mainly large enterprises, with over 500 employees (75 per cent).

The construction survey is based on sample of 600 enterprises which cover 76 per cent of total employment in the construction sector. The retail trade survey is based on a sample of 2 000 enterprises which cover 36 per cent of retail trade turnover. The retail trade sample mainly includes enterprises from the private sector (74 per cent).

The sampling frame for the industry survey is provided by the statistical register maintained by the NCS for the compilation of the industrial production indices. The frames for the construction and retail trade surveys are based on administrative sources. Balance sheets for enterprises declaring their main activity to be construction or trade with larger income from retail trade are used to build up the frames for the two surveys, respectively.

The sampling method used for the industry survey is stratified purposive selection. Enterprises are stratified by type of activity at the level of product groups, i.e. 4 digit level of the national CAEN classification, which is aligned to the international standards of UN and EC (ISIC/CITI, rev.3 and NACE, rev.1). Selection of units in each stratum is directed at the larger enterprises and a cut off is introduced when the coverage in terms of marketable output has reached 50 per cent.

The construction survey use a stratified purposive sampling method with ownership as stratification variable and directed selection of enterprises in each stratum, being ordered decreasingly by the number of employees. The retail trade survey uses the same method, but with directed selection of enterprises in each stratum, being ordered decreasingly by the value of retail sales.

Survey processing in the industry survey is performed by aggregating the weighted answers into one figure for each question. The weighting variable used for aggregation up to the level of branch (25 industry groups) is production for about half the number of questions. This variable is, however replaced by employment, deliveries, intermediate consumption or power consumption for weighting answers referring to these questions. For aggregation up to sectors of industry or end-use product groups and total manufacturing industry, the weighting variable used is value added.

For aggregation of survey results a single weighting method is used for the construction and retail trade surveys. At all levels of aggregation, employment is used to weight construction results and the value of retail sales is used as the weight for the retail trade survey.

Romania -- NCS (Cont.)

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample	Response rate
Manufacturing Industry	1991	Quarterly	600	54	80–83
Construction	1993	Quarterly	600	74	70–73
Retail trade	1994	Quarterly	2000	36	80–82

1. Coverage is expressed in per cent of turnover in sectors.

Publications

Title	Frequency	Language
Studii de conjunctura economica: Ancheta de conjunctura in industria prelucratoare	Quarterly	National
Ancheta de conjunctura in constructii	Quarterly	National
Ancheta de conjunctura in comertul cu Amanuntul	Quarterly	National

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	Q	tendency	tendency 3–4 months
Order books, total and export	Q	level	tendency 3–4 months
Stocks of finished goods	Q	level	tendency 3–4 months
Selling prices	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment	Q		tendency 12 months
Type of investment	Q		situation
Investment constraints	Q		situation
Business situation	Q	situation	tendency 6 months
Construction Survey			
Business activity	Q	tendency	
Production constraints	Q	situation	
Order books	Q	level	
Employment	Q		tendency 3–4 months
Output prices	Q		tendency 3–4 months
Period of production secured	Q	situation	
New orders (contracts)	Q		tendency 3–4 months
Financial situation	Q	tendency	
Delays in payment by clients	Q	situation	
Technical capacity	Q	situation	

Romania -- NCS (Cont.)

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Retail survey			
Business situation	Q	situation	tendency 6 months
Stocks	Q	level	
Orders placed	Q		tendency 3–4 months
Employment	Q		tendency 3–4 months
Selling prices			
Financial situation			
Competition in own sector			
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

RUSSIAN FEDERATION

Institute for World Economy and International Relations (IMEMO) -- The Russian Economic Barometer (REB)

The first business tendency survey in industry was conducted in December 1991 by the REB editorial board with organisational support from the Association of Russian Commercial Banks and financial and organisational support from the "AGROCONT" Association (association of agricultural enterprises). The first survey covered 200 Moscow based industrial enterprises.

Regular monthly nation-wide surveys began in 1992 based on a sample of 500 industrial enterprises chosen from different regions of the Russian Federation. The sample covers mainly medium-sized enterprises with the number of employees fluctuating between 100–2 000 persons. The share of public-owned enterprises in the sample is 52 per cent. The response rate is in the range of 34–40 per cent.

The sampling frame for the industry survey is provided by the State Register of Enterprises, a new universal register of organisations of all types of ownership. A corresponding register has been started for Moscow enterprises. At the moment, however, different types of enterprises are still being registered in different state agencies which hampers the sampling procedure.

The sampling method used for the industry survey is stratified purposive selection with stratification of enterprises by industry and employment.

Survey processing of the industry survey is performed by simple addition of individual answers to all questions, i.e. no weighting is applied. Survey results are also presented in the form of diffusion indices, i.e. the share of enterprises having reported an increase compared to the previous period and 50 per cent of the number of enterprises having indicated no change.

Breakdown of results are presented for two product groups: consumer goods (food processing and consumer goods industries) and non-consumer goods (capital goods and defence industries). Results are also presented by ownership, i.e. state enterprises and non-state enterprises.

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample	Response rate
Manufacturing Industry	1992	Monthly	500	n.a.	34–40

Publications

Title	Frequency	Language
The Russian Economic Barometer	Quarterly	National/English

Russian Federation -- IMEMO (Cont.)

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books	M	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M	tendency	tendency 3–4 months
Employment			tendency 3–4 months
Production constraints	M	situation	
Production capacity	M	situation	
Capacity utilisation	M	level	
Investment			
Type of investment			
Investment constraints			
Business situation			

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

Russian Federation -- Institute for the Economy in Transition (IET)

The IET started conducting business tendency surveys in manufacturing industry among enterprises in the Moscow region in March 1992. Regular surveys have been carried out monthly in manufacturing industry since September 1992 and quarterly in the construction sector since September 1993. The regional coverage of the two surveys has been expanded over time and includes since July 1994 the European part of the Russian Federation.

The regular surveys in manufacturing industry were based on a sample of 500 Moscow based enterprises up to June 1994. The response rate over this period was on average about 34 per cent. The Moscow sample was reduced to 350 units in July 1994 and a sample of 650 units in the European part of the Russian Federation (excluding Moscow) was extracted and added to the Moscow sample. The response rate since July 1994 has been in the range of 50–60 per cent. The coverage of the present sample in terms of total employment in sector is 11 per cent.

The first construction surveys included about 100 construction enterprises. The number of participating units has been expanded over time and included at the end of 1995 over 630 enterprises from the European part of the Russian Federation. The response rate is in the range of 40–50 per cent at present.

The sampling frame for the surveys is provided by the State Register of Enterprises. The units in the register are coded by industry, region, size etc. Industrial enterprises are coded both by the national industry classification (former Soviet Union) and ISIC.

The sampling method used for the industry survey is stratified purposive selection with stratification of enterprises by region, industry, and size of enterprise, i.e. number of employees. The number of sampled units are selected in proportion to the total number of units in the region and industry and size group in the region. The sample is adjusted according to the composition of responding enterprises with the aim being to establish a panel of participating enterprises over time.

Processing of survey results for the industry and construction surveys is at present performed by aggregating the individual answers to each question without weighting.

Breakdowns of survey results from the industry and construction surveys are presented by regions, industries, size groups (number of employees) and organisational and legal status.

Survey characteristics IET

Sector	Since	Frequency	Size of sample	Coverage of sample¹	Response rate
Manufacturing industry	1992	Monthly	1000	11	50–60
Construction	1993	Quarterly	630	n.a.	40–50

1. Coverage is expressed in per cent of employment in sector.

Publications IET

Title	Frequency	Language
Business Surveys Bulletin	Monthly	National/English

Russian Federation -- IET (Cont.)

Main survey variables IET survey

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total and export	M, Q	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment			
Type of investment			
Investment constraints			
Business situation			
Construction Survey			
Business activity			
Production constraints	Q	situation	
Order books			
Employment	Q		tendency 3–4 months
Output prices	Q		tendency 3–4 months
Period of production secured	Q	situation	
New orders (contracts)	Q		tendency 3–4 months
Financial situation			
Delays in payment by clients			
Technical capacity			

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

Russian Federation -- Centre of Economic Analysis (CEA) Under the Council of Ministers

The CEA has completed several pilot business tendency surveys in the industry and construction sectors since April 1992. Special surveys on innovation activities have also been conducted among industrial enterprises.

The business surveys in the industry and construction sectors are conducted on a quarterly basis since the beginning of 1993. The survey in industry will be conducted on a regular monthly basis in the near future. Business surveys among retail trade enterprises are carried out since 1994.

The present industry survey is based on a sample of 2 000 industrial enterprises from 35 regions of the Russian Federation. The construction survey covers approximately 800 building organisations of which over 80 per cent are medium and small enterprises with less than 300 employees. Most enterprises belong to the public sector. The retail trade survey is based on a sample of 4 000 retail trade enterprises.

The sampling frame for the surveys is the statistical registers maintained by the Regional Statistical Committees in the 35 regions covered by the surveys. The organisational and operational work concerning sampling and data collection is carried out in close co-operation between the CEA and the regional statistical offices.

The sampling method for the surveys is stratified purposive selection with region, industry, employment and ownership as stratification variables. Enterprises are selected on the basis of their importance to a given region. Special emphasis is also given to industries with great importance for the development of the social infrastructure, i.e. food industry and building materials industry.

The results from the surveys in industry and construction are presented by region, industry (11 branches in the industry survey and 6 activity groups in the construction survey), number of employees and organisational and legal status. Building organisations are in addition grouped by construction projects and commercial banks are grouped according to the size of the registered funds.

Survey characteristics (CEA)

Sector	Since	Frequency	Size of sample	Coverage of sample	Response rate
Industry	1993	Quarterly	2 000	n.a.	35–40
Construction	1993	Quarterly	800	n.a.	35–40
Retail trade	1994	Quarterly	4 000	n.a.	n.a.

Publications (CEA)

Title	Frequency	Language
Business activity	Quarterly	National/English
Russia – Economic situation	Quarterly	National/English

Russian Federation -- CEA (cont.)

Main survey variables CEA surveys

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	Q	tendency	tendency 3–4 months
Order books, total and export	Q	tendency	tendency 3–4 months
Stocks of finished goods	Q	tendency	tendency 3–4 months
Selling prices			
Employment	Q	tendency	tendency 3–4 months
Production constraints	Q	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment	Q	tendency	tendency 12 months
Type of investment			
Investment constraints			
Business situation	Q	situation	tendency 6 months
Construction Survey			
Business activity	Q	tendency	
Production constraints	Q	situation	
Order books			
Employment	Q		tendency 3–4 months
Output prices			
Period of production secured	Q	situation	
New orders (contracts)	Q		
Financial situation	Q	tendency	tendency 3–4 months
Delays in payment by clients			
Technical capacity			
Retail survey			
Business situation	Q	situation	tendency 6 months
Stocks	Q	level	
Orders placed	Q	tendency	tendency 3–4 months
Employment	Q	tendency	tendency 3–4 months
Selling prices		tendency	tendency 3–4 months
Financial situation	Q	tendency	tendency 3–4 months
Competition in own sector			
Activity constraints	Q	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

SLOVAK REPUBLIC

Slovak Statistical Office (SSO)

Business tendency surveys have been carried out by the Slovak Statistical Office since around 1970. The concepts for these surveys were organised to fit the central planning and management system. New concepts based on principles used in market economies were introduced in 1991.

The first BT-survey, based on new concepts, was introduced in April 1991 by the former Federal Statistical Office in co-operation with the Czech and Slovak Statistical Offices and with INFOSTAT - Institute of Informatics and Statistics, Bratislava.

Business tendency surveys are now carried out by the SSO in the following sectors of the economy: industry, construction and retail trade. Since May 1992, surveys have been conducted on a monthly basis. Since July 1993, the survey questionnaires in industry, construction and retail trade include the harmonized set of questions developed for transition countries.

The industry survey is based on a sample of 220 enterprises with a coverage of 51 per cent of total turnover in industry. The industry sample mainly includes enterprises from the private sector (65 per cent). The number of participating enterprises are 516 in the construction survey and 400 in the retail trade survey. The construction sample has a coverage of 51 per cent of total turnover in the construction sector and the sample covers mainly medium and small enterprises, with less than 200 employees (64 per cent). 86 per cent of the enterprises in the sample are private-owned. The retail trade sample has a coverage of 8 per cent of total turnover in the sector with 92 per cent of the enterprises being state-owned

The sampling frame is provided by the statistical register maintained by the Statistical Office. The units in the register are coded by industry, region, size etc. The national industrial classification (OKEC) is basically the same as the NACE classification.

The sampling method used for the surveys in all sectors is stratified purposive selection with stratification of enterprises by industry, size, ownership and region. The basic selection of enterprises is done in such a way that the number of units in the different strata reflect the structure in the total population.

Aggregation of survey results is performed in both unweighted and weighted form at all levels of aggregation, i.e. on individual enterprise data, for aggregation of branch results to sectors of industry or total industry. For weighting of results employment and/or production are used as weighting variables in the industry and construction surveys and employment and/or turnover are used as weighting variables in the retail survey.

Slovak Statistical Office --SSO (Cont.)

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample ¹	Response rate
Industry	1992	Monthly	220	51	70
Construction	1992	Monthly	516	51	38
Retail trade	1992	Monthly	400	8	45

1. Coverage is expressed in per cent of turnover in sector.

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total and export	M	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	M		tendency 3–4 months
Production constraints	M	situation	
Production capacity	M	situation	
Capacity utilisation	M	level	
Investment	Y		tendency 12 months
Type of investment	Y		situation
Investment constraints	Y		situation
Business situation	M	situation	tendency 6 months
Construction Survey			
Business activity	M	tendency	
Production constraints	M	situation	
Order books	M	level	
Employment	M		tendency 3–4 months
Output prices	M		tendency 3–4 months
Period of production secured	M	situation	
New orders (contracts)	M		tendency 3–4 months
Financial situation	M	tendency	
Delays in payment by clients	M	situation	
Technical capacity	M	situation	
Retail survey			
Business situation	M	situation	tendency 6 months
Stocks	M	level	
Orders placed	M		tendency 3–4 months
Employment	M		tendency 3–4 months
Selling prices	M	tendency	tendency 3–4 months
Financial situation	M	tendency	
Competition in own sector	M	tendency	
Activity constraints	M	situation	

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

SLOVENIA

Statistical Office of the Republic of Slovenia

A monthly business tendency survey in the industrial sector has been conducted on a regular basis by the Statistical Office since April 1995.

The survey is based on a sample of 760 industrial enterprises with a coverage of 78 per cent of total employment in industry. The sample includes mainly enterprises from the private sector (78 per cent). The response rate is very high, in the range of 85–90 per cent.

The sample frame for the survey is the statistical register maintained by the Statistical Office. The units, i.e. enterprises in the register, are coded by industry, ownership, region etc. The industrial classification is harmonized with ISIC and NACE.

The sampling method issued for the survey is stratified random selection.

Aggregate results are calculated by weighting individual responses for each question. Employment and value added are used as weighting variables.

Survey characteristics

Sector	Since	Frequency	Size of sample	Coverage of sample ¹	Response rate
Industry	1995	monthly	760	78	85–90

1. Coverage is expressed in per cent of employment in sector.

Main survey variables

	Frequency	Type of variable and period covered	
		Present	Future
Industry Survey			
Production	M	tendency	tendency 3–4 months
Order books, total and export	M, Q	level	tendency 3–4 months
Stocks of finished goods	M	level	tendency 3–4 months
Selling prices	M		tendency 3–4 months
Employment	Q		tendency 3–4 months
Production constraints	M	situation	
Production capacity	Q	situation	
Capacity utilisation	Q	level	
Investment	M		tendency 12 months
Type of investment	M		situation
Investment constraints	M		situation
Business situation	M	situation	tendency 6 months

M = monthly — Q = quarterly — B = bi-annual — Y = yearly

ANNEX A HARMONIZED QUESTIONNAIRES AND RESPONSE ALTERNATIVES

Industry Survey

- Q.1 Assessment of production activities in the last month (quarter):
up (+), unchanged (=), down (-)
- Q.2 Assessment of total demand/order books (present level):
above normal (+), normal (=), below normal (-)
- Q.3 Assessment of demand from abroad/export order books (present level):
above normal (+), normal (=), below normal (-)
- Q.4 Assessment of stocks of finished goods (present level):
above normal (+), normal (=), below normal (-)
- Q.5 Production activities for the next 3–4 months:
up (+), unchanged (=), down (-)
- Q.6a Selling price expectations for the next 3–4 months:
increase (+), remain stable (=), decrease (-);
- Q.6b if increase:
increase at a higher rate (+); increase at about the same rate (=); increase at a lower rate (-)
- Q.7 Employment expectations for the next 3–4 months:
up (+), unchanged (=), down (-)
- Q.8 Limits of production (present situation):
- none;
 - insufficient domestic demand;
 - insufficient foreign demand;
 - competitive imports;
 - shortage of labour;
 - shortage of skilled labour;
 - lack of appropriate equipment;
 - shortage of semi-finished goods;
 - shortage of raw materials;
 - shortage of energy;
 - financial problems (e.g. insolvency, credits);
 - unclear economic laws;
 - uncertainty of the economic environment;
 - others, please specify _____

- Q.9 Assessment of current production capacity (with regard to expected demand in the next 12 months):
more than sufficient (+), sufficient (=), not sufficient (-)
- Q.10 Expected total demand in the next 3–4 months:
up (+), unchanged (=), down (-)
- Q.11 Export expectations for the next 3–4 months:
up (+), unchanged (=), down (-)
- Q.12 Current level of capacity utilisation (in per cent of normal capacity utilisation): _____
- Q.13a Do you plan fixed investment for this year (next year):
yes (+1), no (0)
- Q.13b If fixed investment (machinery, buildings etc.) is planned, will investment for this year (next year),
when compared to last year (current year), be:
higher (+), about the same (=), lower (-)
- Q.14 If a fixed investment is planned for next year, what type of investment will it be primarily:
- replacement of old equipment;
 - investment aimed at extending production capacity;
 - with an unchanged product range;
 - so as to extend the product range;
 - rationalisation investment;
 - mechanisation/automation of existing production process;
 - introduction of new production techniques;
 - energy saving;
 - other motives;
 - pollution control;
 - safety measures;
 - others, please specify _____
- Q.15 Factors limiting planned investments for the next year:
- insufficient demand;
 - cost of capital too high;
 - credit guarantees insufficient;
 - insufficient profits;
 - fear of bankruptcy;
 - technical factors;
 - other.
- Q.16 Assessment of present business situation:
good (+), sufficient (=), bad (-)
- Q.17 Expected business situation six month from now:
better (+), same (=), worse (-)

Construction Survey

- Q.1 Assessment of business activity compared to last month (quarter):
up (+), unchanged (=), down (-)
- Q.2 Limits to production (present situation)
- none;
 - demand;
 - weather conditions;
 - cost of materials;
 - cost of labour;
 - cost of finance (e.g. interest rates);
 - access to bank credit;
 - shortage of skilled labour;
 - lack of equipment;
 - shortage of materials;
 - competition in own sector;
 - others, please specify _____
- Q.3 Assessment of order books or production schedules for domestic/foreign contracts:
- domestic: above normal (+), normal (=), below normal (-);
 - foreign: above normal (+), normal (=), below normal (-);
 - total: above normal (+), normal (=), below normal (-)
- Q.4 Employment expectations for the next 3–4 months:
up (+), unchanged (=), down (-)
- Q.5a Price expectations for next 3–4 months:
increase (+), remain stable (=), decrease (-);
- Q.5b if increase:
increase at a higher rate (+); increase at about the same rate (=); increase at a lower rate (-)
- Q.6 With normal working hours, the work in hand and work already contracted will account for approximately months operating time.
- Q.7 Orders (contracts) expectations for the next 3–4 months:
up (+), unchanged (=), down (-)
- Q.8 Assessment of financial situation compared to last month (quarter):
better (+), same (=), worse (-)
- Q.9 Delays in payment by public/private clients compared to last month (quarter):
- public: more widespread (+), unchanged (=), less widespread (-);
 - private: more widespread (+), unchanged (=), less widespread (-);
 - total: more widespread (+), unchanged (=), less widespread (-).
- Q.10 Assessment of technical capacity (amount and quality of equipment) with regard to expected demand in the next 12 months:
more than sufficient (+), sufficient (=), not sufficient (-)

Retail Trade Survey

- Q.1 Assessment of present business situation:
good (+), satisfactory (normal for season) (=), bad (-)
- Q.2 Assessment of stocks:
too small (+), adequate (normal for season) (=), too large (-)
- Q.3 Expected change in the number of orders placed with domestic/foreign suppliers in the next 3–4 months:
-- domestic: up (+), unchanged (=), down (-);
-- foreign: up (+), unchanged (=), down (-);
-- total: up (+), unchanged (=), down (-).
- Q.4 Expected business situation in the coming six months:
better (+), same (=), worse (-)
- Q.5 Employment expectations for the next 3–4 months:
up (+), unchanged, down (-)
- Q.6a Selling prices compared with the last month (quarter):
increase (+), remain stable (=), decrease in absolute terms (-)
- Q.6b if an increase is likely, please specify:
increase at a higher rate (+); increase at about the same rate (=); increase at a lower rate (-)
- Q.7a Selling price expectations for the next 3–4 months:
increase (+), remain stable (=), decrease in absolute terms (-)
- Q.7b If increase is likely, please specify:
increase at a higher rate (+); increase at about the same rate (=); increase at a lower rate (-)
- Q.8 Assessment of financial situation compared to last month (quarter):
better (+), same (=), worse (-)
- Q.9 Assessment of competition in own sector compared to last month (quarter):
up (+), unchanged (=), down (-)
- Q.10 Factors limiting improvements to the present business situation:
-- none;
-- demand;
-- supply;
-- cost of labour;
-- cost of finance (e.g. interest rates);
-- access to bank credit;
-- sales surface;
-- storage capacity;
-- competition in own sector.
-- Others, please specify _____

ANNEX B WEIGHTING METHODS

The weighting and estimation procedures for obtaining unbiased estimates for the target universe on the basis of replies by kind-of-activity reporting units to qualitative questions is described in summary form in Chapter 1 of this document. The methods described can be applied generally, i.e. it is applicable even in the most demanding case when each respondent is given an individual weight (the number of employees is recommended).

This Annex provides more detailed descriptions of the general method mentioned above. Most of the Annex is devoted to numeric illustrations of the two weighting and estimation methods.

The general method

The case of qualitative questions

For additional clarity the notations of the appropriate formulae given in Chapter 1 are simplified somewhat in this Annex by dropping the size group specification. The simplified formulae have been labelled with an additional "A". Thus, the counterpart of the basic estimation formula (7) in Chapter 1 (Section 1.6.5.) has been labelled (7A). The basic formula for estimating the balance between (+) and (-) responses for an industry is as follows:

$$NV_k = \sum_{i=1}^{n_k} 1/f_i \times w_{ik} \times x_{ik} : \sum_{i=1}^{n_k} 1/f_i \times w_{ik}^{-1} \quad (7A)$$

where: NV_k = The balance (= net between (+) and (-) replies) for industry k ;

n_k = The number of report units belonging to industry k ;

f_i = The sampling fraction for enterprise i . (In Chapter 1, the more elaborate notation f_{iks} is used which specifies that the enterprise belongs to size group s of industry k . Because this further specification is not needed here it has been dropped in this Annex.);

w_{ik} = The size of the activity in industry k of enterprise i (i.e. the size of its kind-of-activity unit ik); and

w_{ik} = +1, 0 or -1 for the purely qualitative questions in the survey depending upon the answer given by enterprise i for one specific aspect of its activity in industry k .

¹ In Chapter 1, the notations w_{iks} and x_{iks} are used. The simpler notations have been used here for two reasons. One is that there is some ambiguity as to what size the reference concerns -- the size of the enterprise or of the report (kind-of-activity) unit. The other is that the specification by size group is not needed here.

The NV_k balances can be aggregated to the grand total for Manufacturing by applying formula (10) in Chapter 1 which is:

$$NV = \sum^k w_k \times NV_k : \sum^k w_k \quad (10)$$

where $w_k =$ the weight for industry k , which can be taken from an external source or be

estimated from the sample by the formula $\sum_{i=1}^{nk} 1 - f_{ik} \times w_{ik}$

Formula (10) also applies when estimating the $NV - s$ for groups of industries. In this case, the summation is limited to the industries which belong to the group. In textual terms the formula says that what is done is to:

1. multiply the balance for each industry concerned by the weight for that industry,
2. take the sum of these products and
3. divide it by the sum of the weights for the industries.

A numeric illustration of the weighting and estimation procedure described in this section is presented below in this Annex.

The case of quantitative questions

The survey on Manufacturing contains a quantitative question on the percentage of capacity utilised, and the survey on Construction a similar question on the duration of order books in months. In both cases, formula (7A)¹ applies when deriving the industry averages, and formula (10) at estimating averages for groups of industries and for total Manufacturing. The only differences to the qualitative case is that:

- A) Instead of estimating the balances (NV), estimates are made of the percentage of capacity utilisation for individual industries in Manufacturing and the duration in months of order books for Construction.
- B) The term x_{ik} stands for the percentage respectively number of months reported by respondents.

¹ Formula (7A) could not have been used if the surveys had contained purely quantitative questions, i.e. questions where the size of the report unit is directly reflected in the answers. The reason for this is that the reporting unit size would have been duplicated in the estimation procedure -- once in the value reported and once in the weighting of the reporting unit. Examples of purely quantitative questions are the size of production, the number of employees etc.

[A proper formula for estimating a purely quantitative variable, as for instance the production of an industry, k , would be $\sum_{i=1}^{n_k} 1/f_i \times x_{ik}$ where n_k is the number of report units belonging to industry k , f_i is the sampling probability for enterprise i in which the report unit (ik) belonging to industry k is included and x_{ik} is the production reported by this unit.]

A Simplified Method

In order to reduce the work in the BT-survey in computing the estimates of balances for the different industries the following simplified method can be used.

1. For every size group of report units within an industry the responses of each report unit are multiplied by the inverse of their sampling fraction ($1/f_i$). This fraction (f_i) is identical to the sampling probability of the enterprise they belong to. For each question this gives an unbiased estimate of the number of report units in the target universe which would have responded (+), (=) and (-) at a total survey. These numbers, denoted here as $N_{ks}^*(+)$, $N_{ks}^*(=)$ and $N_{ks}^*(-)$ respectively, sum up to N_{ks}^{*1} , the estimate from the sample of the number of report units in the universe which belong to size category s of industry k . In this document these groups of report units are called report strata.
2. For each report stratum (R_{ks}) the relative frequency of each response is computed. Denoting the relative frequency of response (+) by $A_{ks}^{(+)}$ etc. we get

$$A_{ks}^{(+)} = \frac{N_{ks}^{*(+)}}{N_{ks}^{*(+)} + N_{ks}^{*(=)} + N_{ks}^{*(-)}} \quad (i)$$

The analogous expressions apply to $A_{ks}^{(=)}$ and $A_{ks}^{(-)}$.

The balance for report stratum R_{ks} is $NV_{ks} = A_{ks}^{(+)} - A_{ks}^{(-)}$

3. From an external source (usually the frame from which the sample was drawn) the number of employees in each report stratum is calculated. This number is used as weight for the stratum

¹ A * after a symbol for a variable (i.e. N , the total number of objects in a universe) indicates an *estimate* of the size of that variable while the symbol without an * indicates the actual size of the variable.

4. Within each industry (k) the balance (NV_{ks}) of each report stratum (R_{ks}) is multiplied by the weight for the stratum (w_{ks}) and the products are added together for the industry. The resulting sum divided by the total weight of the industry ($w_k = \sum w_{ks}$) is the balance for this industry, NV_k . The formula for this is

$$NV_k = \sum (w_{ks} \times NV_{ks}) : W_k^1 \quad (\text{ii})$$

Aggregating industries to groups and to total Manufacturing is done in exactly the same way as when the general method is used, i.e. formula (10) is applied.

A numeric illustration of this weighting and estimation method is included below in this Annex using the same data as in the illustration of general method also provided below.

Finally, it should be pointed out that the simplified method means that all reporting units in the same stratum are given the same weights (according to size). It is therefore recommended that the largest size group (200 or more employees) be subdivided into two, 200–499, and 500 or more employees, when the simplified method is used.

Numeric illustrations

This section contains numeric illustrations of the two calculation methods, as described in the previous sections of this Annex. The data are fictitious but realistic. In order to illuminate the differences and similarities between the two methods, the same set of data has been used in both cases.

The numeric data

The assumptions about the size and composition of the universe, and the design and size of the sample are recorded in Table 1 below. The sample described there is a stratified random sample of *enterprises*. Stratification has been done by industry (into Industry A and Industry B), and by size in terms of employment into two size groups, 1 and 2 (with enterprises employing 200 or more persons in size group 1 and enterprises employing 1–199 persons in size group 2). Each enterprise consists of one or more reporting units (kind of activity units). Enterprises have been classified to the industry in which they employ the largest proportion of their personnel. As illustrated in the list given in Table 3, reporting units belonging to an enterprise need not necessarily belong to the same industry and size group (a small reporting unit may belong to a large enterprise) as that enterprise.

¹ If information is wanted about the weighted relative frequency for each response alternative in industry $A_k^{(+)}$ etc. can be estimated in exactly the same way by substituting $A_{ks}^{(+)}$ etc. for $NS_{ks}^{(+)}$ in formula ii. Subtracting the estimate for $A_k^{(-)}$ from that for $A_k^{(+)}$ gives the same value for NV_{ks} as the direct calculation according to (ii) described above.

Table 1. **The target universe, the sample and the reporting units**

Industry and Size Group	Number of Enterprises in the Universe	Number of Enterprises in the Sample	Number of Report units in the Sample
Industry A, size group 1	2	2	6
Industry A, size group 2	20	2	3
Industry B, size group 1	6	2	3
Industry B, size group 2	30	5	8
TOTAL	58	11	20

It is also assumed that the information recorded in Table 2 is available from external sources.

Table 2. **Reporting unit data for the target universe**

Value added by industry and employment by industry and size group

Industry and Size Group of Establishment	Value Added	Number of Employees
INDUSTRY A, size group 1	4 000 000	2 000
INDUSTRY A, size group 2		2 500
INDUSTRY B, size group 1	16 000 000	5 000
INDUSTRY B, size group 2		3 000
TOTAL	20 000 000	12 500

The 11 enterprises and 20 reporting units which the sample consists of according to Table 1 are listed in Table 3 below. The enterprises are numbered 1–11 and the reporting units belonging to enterprise 1 are numbered 1.1, 1.2 and 1.3; those belonging to enterprise 2 are numbered 2.1 and 2.2. etc. The reporting units belonging to the same enterprise all have the same sampling probability as “their” enterprise. Therefore the content of Col 7 is the same for all reporting units belonging to the same enterprise and identical with Col 4 for that enterprise. On the other hand, reporting units belonging to the same enterprise might belong to a different industries and size groups. Examples of this are included in the list.

Table 3. List of enterprises and reporting units

ENTERPRISES				REPORTING UNITS					
N:o	Industry	Size group	Sample. probability	N:o	Industry	Size group	Sample probability	Weight (Number of employees)	Response to question Q
Col 1	Col 2	Col 3	Col 4	Col 5	Col 5	Col 6	Col 7	Col 8	Col 9
1	A	1	1/1	1.1	A	1	1.1	600	+1
				1.1	A	2	1/1	100	0
				1.3	B	1	1/1	300	-1
2	A	1	1/1	2.1	A	2	1/1	300	-1
				2.2	B	1	1/1	250	+1
				2.3	A		1/1	140	-1
3	A	2	1/10	3.1	A	2	1/10	70	-1
4	A	2	1/10	4.1	A	2	1/10	60	-1
				4.2	B	2	1/10	50	+1
5	B	1	1/1	5.1	B	1	1/3	1 000	-1
6	B	1	1/3	6.1	B	1	1/3	400	0
				6.2	A	1	1/3	400	-1
7	B	2	1/6	7.1	B	2	1/6	5	0
8	B	2	1/6	8.1	B	2	1/6	30	+1
9	B	2	1/6	9.1	B	2	1/6	140	+1
				9.2	A	2	1/6	20	0
				9.3	A	2	1/6	10	-1
10	B	2	1/6	10.1	A	2	1/6	40	-1
				10.2	B	2	1/6	80	-1
11	B	2	1/6	11.1	B	2	1/6	170	+1

The general method

Balances (NV) are calculated by formula (7A) as follows. The symbols in the formula for the different items in the record for each reporting unit, are shown within brackets in the appropriate columns of tables recording the calculations.

Table 4. Calculating the balance for industry A, eA

Report unit	Response	Sampling probability	Adjustment factor to universe level	Response adjusted to universe level	Weight	Weight adjusted to universe level	Weighted response at universe level
n:o	$[x_{ik}]$	$[f_i]$	$[1/f_i]$	$[x_{ik} \times 1/f_i]$	$[w_{ik}]$	$[1/f_i \times w_{ik}]$	$[1/f_i \times w_{ik} \times x_{ik}]$
Col 1	Col 2	Col 3	Col 4 (1:Col 3)	Col 5 (Col 2* Col 4)	Col 6	Col 7 (Col 4*Col 6)	Col 8 (Col 5*Col 6)
1.1	+1	1/1	1	+0 1	600	600	600
1.2	0	1/1	1	0	100	100	0
2.1	0	1/1	1	0	160	160	0
2.3	-1	1/1	1	-0 1	140	140	-140
3.1	-1	1/10	10	-1.0	70	700	-700
4.1	-1	1/10	10	-1.0	60	600	-600
6.2	-1	1/3	3	-3	400	1 200	1 200
9.2	0	1/6	6	0	20	120	0
9.3	-1	1/6	6	-6	10	60	-60
10.1	-1	1/6	6	-6	40	240	-1 200
TOTAL	••	••	44	-35	1 600	3 920	-3 300

•• = Irrelevant information

From the TOTAL row the balance for industry A is calculated as the quotient Col 8: Col 7 which amounts to $-3\ 300 : 3\ 920 = -0,84$. Expressed in percentage points this gives the balance -84 . The number of reporting units adjusted to universe level being 44 the *unweighted* balance is the quotient Col 5: Col 4 which amounts to $-35 : 44 = -0,80$ or in percentage points -80 .

Repeating the calculations for industry B we get the information recorded in Table 5.

From the SUM row in Table 5 the balance for industry B is calculated as the quotient Col 8: Col 7 which amounts to $-990 : 7\ 800 = -0,13$. Expressed in percentage points this gives the balance -13 . The *unweighted* balance is derived from the SUM row as the quotient Col 5: Col 4 which amounts to $+19 : 48 = +0,40$ or in percentage points $+40$.

Table 5. Calculating the balance for industry B, eB

Report unit	Response	Sampling probability	Adjustment factor to universe level	Response adjusted to universe level	Weight	Weight adjusted to universe level	Weighted response at universe level
n:o	$[x_{ik}]$	$[f_i]$	$[1/f_i]$	$[x_{ik} \times 1/f_i]$	$[w_{ik}]$	$[1/f_i \times w_{ik}]$	$[1/f_i \times w_{ik} \times x_{ik}]$
Col 1	Col 2	Col 3	Col 4 (1:Col 3)	Col 5 (Col 2* Col 4)	Col 6	Col 7 (Col 4*Col 6)	Col 8 (Col 5* Col 6)
1.3	-1	1/1	1	-1	300	300	-300
2.2	+1	1/1	1	+1	250	250	250
4.2	+1	1/10	10	+10	50	500	500
5.1	-1	1/3	3	-3	1 000	3 000	-3 000
6.1	0	1/3	3	0	400	1 200	0
7.1	0	1/6	6	0	5	30	0
8.1	+1	1/6	6	+6	30	180	180
9. 1	+1	1/6	6	+6	140	840	840
10.2	-1	1/6	6	-6	80	480	-480
11.1	+1	1/6	6	+6	170	1 020	1 020
SUM	+4	••	48	+19	2 425	7 800	-990

•• = Irrelevant information

The combined formula 10 is used when calculating the balance for industry A and B. In our numeric example, the value added data in Table 2 (4 000 000 for industry A and 16 000 000 for industry B) are used as weights. In the formula numeric values are used as follows:

$$\begin{aligned} \text{Industry A:} \quad w_k &= 4\,000 & NV_k &= -84 \\ \text{Industry B:} \quad w_k &= 16\,000 & NV_k &= -13 \end{aligned}$$

Consequently:

$$(w_k \times NV_k) \text{ for industry A} = 4000 \times (-84) = -336000$$

$$(w_k \times NV_k) \text{ for industry B} = 16000 \times (-13) = -208000$$

$$\sum^k (w_k \times NV_k) = -336000 + (-208000) = -544000$$

$$\sum^k W_k = 4000 + 16000 = 20000 \text{ and}$$

$$NV = -544000 / 20000 = -27$$

Applying the same calculation method and industry weights to the unweighted balances we get

$$NV = [4000 \times (-80) + 16000 \times (+40)] / 20000 = [-320000 + 640000] / 20000 = +16$$

The simplified method

Estimates from the sample of the total number of report units in each industry/size group of the universe responding (+), (=) and (-) respectively -- labelled $N_{ks}^{*(+)}$, $N_{ks}^{*(=)}$ and $N_{ks}^{*(-)}$ in formula (i) -- are produced as follows using the data recorded in Table 3.

Table 6. Calculation basis for computing balances by the simplified weighting method

Report unit	Industry	Size group	Response	Sampling probability	Adjustment factor to universe level	Response adjusted to universe level	Industry A Size group 1	Industry A Size group 2	Industry A Size group 1	Industry A Size group 2
n:o				$[f_i]$	$[1/f_i]$	$[x_{ik} \times 1/f_i]$	N^*_{ks}	N^*_{ks}	N^*_{ks}	N^*_{ks}
Col 1	Col 2	Col 3	Col 4	Col 5	Col 6 (1:Col 4)	Col 7	Col 8	Col 9	Col 10	Col 11
1.1	A	1	+1	1/1	1	+1	1			
1.2	A	2	0	1/1	1	0		1		
1.3	B	1	-1	1/1	1	-1			1	
2.1	A	2	0	1/1	1	0		1		
2.2	B	1	+1	1/1	1	+1			1	
2.3	A	2	-1	1/1	1	-1		1		
3.1	A	2	-1	1/10	10	-10		10		
4.1	A	2	-1	1/10	10	-10		10		
4.2	B	2	+1	1/10	10	+10				10
5.1	B	1	-1	1/3	3	-3			3	
6.1	B	1	0	1/3	3	0			3	
6.2	A	1	-1	1/3	3	-3	3			
7.1	B	2	0	1/6	6	0				6
8.1	B	2	+1	1/6	6	+6				6
9.1	B	2	+1	1/6	6	+6				6
9.2	A	2	0	1/6	6	0		6		
9.3	A	2	-1	1/6	6	-6		6		
10.1	A	2	-1	1/6	6	-6		6		
10.2	B	2	-1	1/6	6	-6				6
11.1	B	2	+1	1/6	6	+6				6
TOTAL	•	•	••	••	93	••	4	41	8	40

• = Illogical information •• = Irrelevant information

Table 7 is derived from Table 6. The frequencies in absolute numbers presented in Table 7 add up to the total for column 7 in Table 6.

Table 7. Distribution within report strata of responses to question Q adjusted to universe level

Absolute frequencies.

Report Unit Stratum	Sum of responses			TOTAL
	(+)	(=)	(-)	
Industry A, Size group 1	1	0	3	4
Industry A, Size group 2	0	8	33	41
Industry B, Size group 1	1	3	4	8
Industry B, Size group 2	28	6	6	40

Transforming the absolute numbers in this table to relative (percentage) numbers row by row, gives us the following:

Table 8. **Distribution within report strata of responses to question Q, adjusted to universe level**
Percentage frequencies.

REPORT UNIT STRATUM	(+)	(=)	(-)	TOTAL	BALANCE [(+)-(-)]
Industry A, Size group 1	25	0	75	100	-50
Industry A, Size group 2	0	20	80	100	-0
Industry B, Size group 1	13	37	50	100	-37
Industry B, Size group 2	70	15	15	100	+55

The figures in the cells of the columns (+), (=) and (-) are the A_{ks} -- values according to formula (i) above expressed as percentages and the figures in the cells of column BALANCE are the NV_{ks} values in formula (ii). Applying formula (ii) for estimating the balances for our two industries and using the numeric data presented in Table 2 we get the information recorded in Table 9.

Table 9. **Aggregation of size groups to industries and industries to industry aggregates**

INDUSTRY	SIZE GROUP	W_{ks}	VALUE ADDED	NV_{ks}	NV_k	NV
A	1	2 000		-50		
A	2	2 500		-60		
A	Total	4 500	4 000 000		-56	⁽¹⁾
B	1	5 000		-37		
B	2	3 000		+55		
B	Total	8 000	16 000 000		-3	⁽¹⁾
A + B	TOTAL	12 500	20 000 000			-14⁽²⁾

1. The balances by industry (NV_k) have been calculated by applying formula (ii) below to the numeric data in the table.

For industry A we get $NV_k = [2\,000 \times (-50) + 2\,500 \times (-60)] : 4\,500 = -56$

For industry B we get $NV_k = [5\,000 \times (-37) + 3\,000 \times (+55)] : 8\,000 = -3$

2. The balance for aggregates of industries (g_2) -- in this case industry A plus industry B -- is $g_2 [4\,000 \times (-56) + 16\,000 \times (-3)] : 20\,000 = -14$

Some comments to the numeric examples

In Table 10 the numeric results of our calculations of balances, according to the general and the simplified method, are compared.

Table 10. Comparison of balances for question Q derived by two different methods from the same (fictitious) numeric data (percentages)

INDUSTRY	GENERAL METHOD		SIMPLIFIED METHOD
	Weighted	Unweighted	
A	-84	-80	-56
B	-13	+40	-3
A + B	-27	+16	-14

The table illustrates the obvious fact that the choice of weighting procedure may influence the numeric results. The size of the differences in our example cannot be used as an indicator of what the differences would be with real data in a full scale survey. A common experience is that the choice of weighting method has a rather limited influence on results.

**ANNEX C CLASSIFICATION BY ECONOMIC ACTIVITY AND SIZE FOR SURVEYS IN
INDUSTRY**

Classification by economic activity and use

Classification by industry according to ISIC Rev. 1/NACE

No	ISIC CODE	INDUSTRIAL ACTIVITY
1	15 +16	Manufacture of food products and beverages + Manufacture of tobacco products
2	17	Manufacture of textiles
3	18	Manufacture of wearing apparel, dressing and dyeing of fur
4	19	Tanning and dressing of leather; Manufacture of luggage, handbags, saddlery, harness and footwear
5	19.3	Manufacture of footwear
6	20	Manufacture of wood and products of wood and cork except furniture; Manufacture of products of straw and plaiting materials
7	21	Manufacture of pulp, paper and paper products
8	22	Publishing, printing and production of recorded media
9	23	Manufacture of coke, refined petroleum products and nuclear fuel
10	23.2	Manufacture of refined petroleum products
11	24	Manufacture of chemicals and chemical products
12	24.1	Manufacture of basic chemicals
13	24.7	Manufacture of man-made fibres
14	25	Manufacture of rubber and plastic products
15	25.1	Manufacture of rubber products
16	25.2	Manufacture of plastic products
17	26	Manufacture of other non-metallic products
18	27	Manufacture of basic metals
19	28	Manufacture of fabricated metal products, except machinery and equipment
20	29	Manufacture of machinery and equipment N.E.C.
21	29.3	Manufacture of agricultural and forestry machinery
22	29.4	Manufacture of machine tools
23	30	Manufacture of office, accounting and computing machinery
24	31	Manufacture of electrical machinery and apparatus N.E.C.
25	31.5	Manufacture of lighting equipment and electric lamps
26	32	Manufacture of radio, television and communication equipment and apparatus
27	33	Manufacture of medical, precision and optical instruments, watches and clocks
28	34	Manufacture of motor vehicles, trailers and semi-trailers
29	34.1	Manufacture of motor vehicles
30	34.2	Manufacture of bodies (coachwork) for motor vehicles; Manufacture of trailers and semi-trailers
31	34.3	Manufacture of parts and accessories for motor vehicles and their engines
32	35	Manufacture of transport equipment
33	36	Manufacture of furniture; manufacturing N.E.C.
34	15+16+17+18+19+22+31+32 +33+36	Consumer Goods
35	29+30+31(?) +34+35	Investment Goods
36	20+21+24+25+26+27+28	Intermediate Goods
37	Category D	Manufacturing TOTAL

Size classification by the number of persons employed

Definition and classification according to forthcoming EC Directive for Industrial Structure Statistics

Definition: Working proprietors
+ unpaid family member
+ employees working part-time or full time
= The number of employed persons

Size classes

Primary size classes	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500 +
Aggregated size classes		1-19		20-199			200 +	

ANNEX D RECOMMENDATIONS FOR THE TECHNICAL DESIGN OF SURVEYS IN INDUSTRY

The recommendations for the technical design of industry surveys listed below have been agreed with the transition countries. The recommendations and guidelines presented are also valid for BT-surveys in construction and retail trade with appropriate modification for main structural differences related to size and the activity structure of units.

Industry survey

A. *Target universe*

Manufacturing enterprises with employees (ISIC Rev.3/NACE Rev.1 Category D)¹.

B. *Units*

Sampling unit = the enterprise

Reporting unit = the kind of activity unit

This means that the enterprise in the sample should fill in separate questionnaires for each of their kind of activity units engaged in manufacturing.

C. *Sampling design*

Random sampling with fixed panel updated before the first survey each year.

Stratification of the enterprises by:

- Industry as specified in Annex C to this document;
- Size according to employment in the groups: 1–19, 20–199, 200–w

Option: breakdown of the group 200–w into: 200–499, 500–w

This means that each stratum consists of the enterprises in a particular industry [defined according to (1) above] which belong to the same size group [defined according to (2) above].

¹ Manufacturing activity carried out by enterprises mainly engaged in other activity than manufacturing is not included in the target universe.

D. Weighting

Two procedures are accepted:

1. The replies of a report unit belonging to enterprise i are multiplied by:

$$\frac{1}{f_i} \times w_i$$

where f_i = the sampling fraction for enterprise i
 w_i = the number of employees in the report unit

2. The simplified method as described in Annex B to this document¹.

E. Reliability

Response rate

The lowest acceptable response rate is as follows:

- For surveys using random sampling: At least 50 per cent of the enterprises in the sample
- For surveys using purpose selection: At least 40 per cent of the enterprises in the survey

Treatment of non-response

For qualitative questions

Assume the same distribution over the response alternatives

[(+), (=) and (-)etc.] as the responding report units in the industry concerned have.

For quantitative questions

Assume that the non-responding report units all have the mean value of responding report units in the industry concerned.

¹ A special report on weighting methods with worked example is attached in Annex B.