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EUROSTAT'S TABULAR APPROACH TO EXHAUSTIVENESS
GUIDELINES

Point 4 on the agenda

Introduction

At the previous meeting of the GNI Committee in November 2004, an intensive discussion was held on the issue of exhaustiveness. The question was how to take the earlier work on exhaustiveness based on Commission Decision 94/168 forward, following the move to ESA95 and the accession of the 10 new Member States that have a different background in exhaustiveness work.

A variety of views were expressed during that meeting (see the minutes in GNIC/049) on the feasibility and usefulness of the various elements of Decision 94/168. This showed the need for continued discussion on a common framework that can be applied by all Member States. The framework should contain elements of *documentation* of exhaustiveness adjustments and elements of *verification* of the exhaustiveness of GNI.

A common framework needs common definitions. Eurostat's *Tabular Approach to Exhaustiveness* provides a consistent and complete conceptual framework that incorporates all of the aspects of Decision 94/168 as well those of Commission Decision 98/527 on VAT fraud, by classifying adjustments into 7 types of "non-exhaustiveness". It also provides the framework for the *calculation* of the adjustments, by linking available compilation methods (such as the employment method, fiscal audits, VAT comparisons, etc.) to the non-exhaustiveness types.

The Tabular Approach was developed in the context of several Phare projects with the then Candidate Countries and tested by nearly all these countries, most recently in 2003. Some of these countries (now Member States) have already incorporated the approach into their regular GNI estimation procedures.

Over recent years, there has been a growing interest by other (also non-EU) countries in the application of the Tabular Approach. Therefore, Eurostat – together with OECD – has developed guidelines for the application of the Tabular Approach. In this document, the most recent version of these guidelines is presented.

Eurostat thinks that the Tabular Approach has shown its usefulness in providing a consistent framework for ensuring exhaustiveness, because of its sound concepts, its completeness and because it is practical. Therefore, Eurostat thinks that the Tabular Approach deserves to be studied by all countries in respect of the feasibility of compiling the standard tables.

The GNI Committee is requested to:

- Provide their views on these guidelines and on the Tabular Approach in general
- Consider the possibility of adopting the conceptual framework of the Tabular Approach as a general framework for activities related to exhaustiveness
- Consider the feasibility of using the Tabular Approach by those countries that have not yet done so.

Eurostat's Tabular Approach to Exhaustiveness

Guidelines

15 March 2005

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(including the Annexes to these *Guidelines*)

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ANNEXES:-

CHAPTER 1

A Summary of the Methodology Used to Classify Non- Exhaustiveness

CHAPTER 1

Eurostat's Tabular Approach to Exhaustiveness: A Summary of the Methodology Used to Classify Non-Exhaustiveness

1. Introduction

The opening chapter of these "*Guidelines*" provides a summary of the methodology employed for Eurostat's *Tabular Approach to Exhaustiveness (TAE).* This background is necessary before one can introduce numerical results from the application of the *TAE* (**Chapters 2 & 4**) and give practical illustrations of how the standard tables are compiled in practice (**Chapter 3**). Together, Chapters 1 to 4 are intended to give the reader a practical overview of the *TAE*. More detailed information is contained in the Annexes A to E of these *Guidelines*. Where appropriate, references are made to these Annexes.

2. A Brief History - and Acknowledgements

From 1996, Eurostat started to work intensively with the European Union Candidate Countries (CCs) on the improvement of consistency, reliability and exhaustiveness of their NA. Over the eight years to 1st May 2004 when ten of the CCs became EU Member States[1], a significant number of NA projects have been undertaken by the countries with the aim of achieving compliance with ESA95. Exhaustiveness was one of the most important areas to be targeted and two projects have been carried out, the first project in 1998-2000 and the second in 2002-2003. A third Eurostat project is planned for 2006-2007. **Annex A** lists the projects organised by Eurostat for the countries under the European Commission's Phare Multi-Country Programme.

In 1998, Ralf Hein was largely responsible for designing the methodology and standard tables for what came to be called the "Tabular Approach" which the CCs used for the 1st project. Subsequently, Michael Colledge, in collaboration with Ralf Hein, refined the *TAE* and prepared detailed Guidelines for the 2nd project which again was successfully applied by the CCs in 2003.

Over recent years, there has been a growing interest by other countries in the application of Eurostat's *TAE*. This has underlined the need to make the Guidelines more accessible and to add the following features:-

- A convenient summary of the *TAE* methodology and tables;
- Analyses of the numerical results from the application of the *TAE*;
- An illustrated guide to how the exhaustiveness tables are compiled in practice;
- Examples of the sources and methods employed to estimate exhaustiveness adjustments.

In order to satisfy these requirements, new material has been introduced by Richard Clare and Marco Rozanec in Chapters 1 to 4. The previous Guidelines have also been edited and some administrative material has been removed. Otherwise, the methodology and tables employed for the 2nd exhaustiveness project in 2002-2003 have been retained.

The preparation of these *Guidelines* would not have been possible without the contributions of the new Member States. Eurostat would like to pay tribute to the enormous support received from these countries and, in particular, to Vitezslav Ondrus and Nikola Holikova of the Czech Statistical Office who provided much of the material presented in Chapters 2 to 4.

[1] The 10 new Member States are: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic and Slovenia.

3. What is the "Tabular Approach"? (See Annexes D1 and D2 of these *Guidelines*)

The "Tabular Approach" simply derives its name from the tabular framework employed for the two previous exhaustiveness projects, described above.

The "**Standard Tables**" employed are given in **Annex D1** of these *Guidelines*. Guidance for the completion of those tables is given in **Annex D2**.

The Tabular Approach involves the completion of three standard tables. For the output approach, these tables are:-

- Table 1A Elements of non-exhaustiveness: Output Approach
- Table 2A Exhaustiveness adjustments: Output Approach
- Table 3A Summary of adjustments: Output Approach

Similar tables are employed for the expenditure approach:-

- Table 1B Elements of non-exhaustiveness: Expenditure Approach
- Table 2B Exhaustiveness adjustments: Expenditure Approach
- Table 3B Summary of adjustments: Expenditure Approach

No tables were requested by Eurostat for the income approach to GDP. Further information is given in Section 9 below.

Section 2 of **Chapter 3** gives illustrative examples of how Tables 1A, 2A & 3A are compiled.

4. The Purpose of these Standard Tables

The purpose of using a standard set of tables (and procedures) is to ensure that:-

- ✓ the different possible types of non-exhaustiveness are clearly defined and distinguished;
- ✓ all possible types of non-exhaustiveness are investigated in a systematic way;
- ✓ the breakdown of exhaustiveness adjustments is standardised (eg by non-exhaustiveness type, NACE group and by institutional sector);
- ✓ the exhaustiveness adjustments made by the countries are given in absolute figures, but also expressed as percentages of GDP;
- ✓ a similar level of coverage and detail is used by all countries;
- ✓ in general, the results across countries are as comparable as possible.

5. Terminology used (see Annex B of these *Guidelines*)

To fully appreciate the concepts and descriptions used in the *Guidelines,* it is necessary to introduce some terminology. Use is made of various terms, for example, *exhaustiveness and non-exhaustiveness, producers, enterprises, legal persons, entrepreneurs, entrepreneurships, non-market household enterprises, registered or unregistered enterprises, etc*. In recognition of the need to define the terms adopted (particularly where these terms do not feature elsewhere, for example, in ESA95 or SNA93), **Annex B** of the *Guidelines* provides a comprehensive Glossary.

6. Non-Exhaustiveness Types: Output Approach (see Annex C of these *Guidelines*)

Defining the different types of non-exhaustiveness is a key part of the *TAE* methodology. This Chapter now devotes much attention to explaining the types of non-exhaustiveness. **Annex C** provides fuller information.

In order to undertake a comprehensive and systematic assessment of exhaustiveness, it is first necessary to design a way of classifying and sub-dividing all producers according to the potential for non-exhaustiveness. The division employed is based on a standard set of *non-exhaustiveness types.* The types are labelled N1-N7 and illustrated in **Figure I** below.

Because the **output approach** is the most widely employed by countries for GDP estimates, it is logical to classify and distinguish types of non-exhaustiveness by making use of producers' characteristics and the data sources used for the output approach (ie, surveys or administrative collections from enterprises). Note that ***enterprises*** are referred to as ***producers*** to ensure that it is understood that all possible types of enterprise are involved, including non-market household enterprises.

To try to ensure the non-exhaustiveness types are mutually exclusive, producers are divided into categories (see the boxes in Figure I below), using the following characteristics of producers, including the different forms of data collected from producers:

- Is the producer administratively registered or not?
- Is the producer included in the statistical business register or not?
- What is the basic data source: a producer survey/administrative collection/another source?
- Is the producer a legal person/entrepreneurship/or a non-market household producer?
- Does the producer respond to surveys or not?
- Does the producer report correctly or misreport?
- Are all the data required for national accounts collected or not?

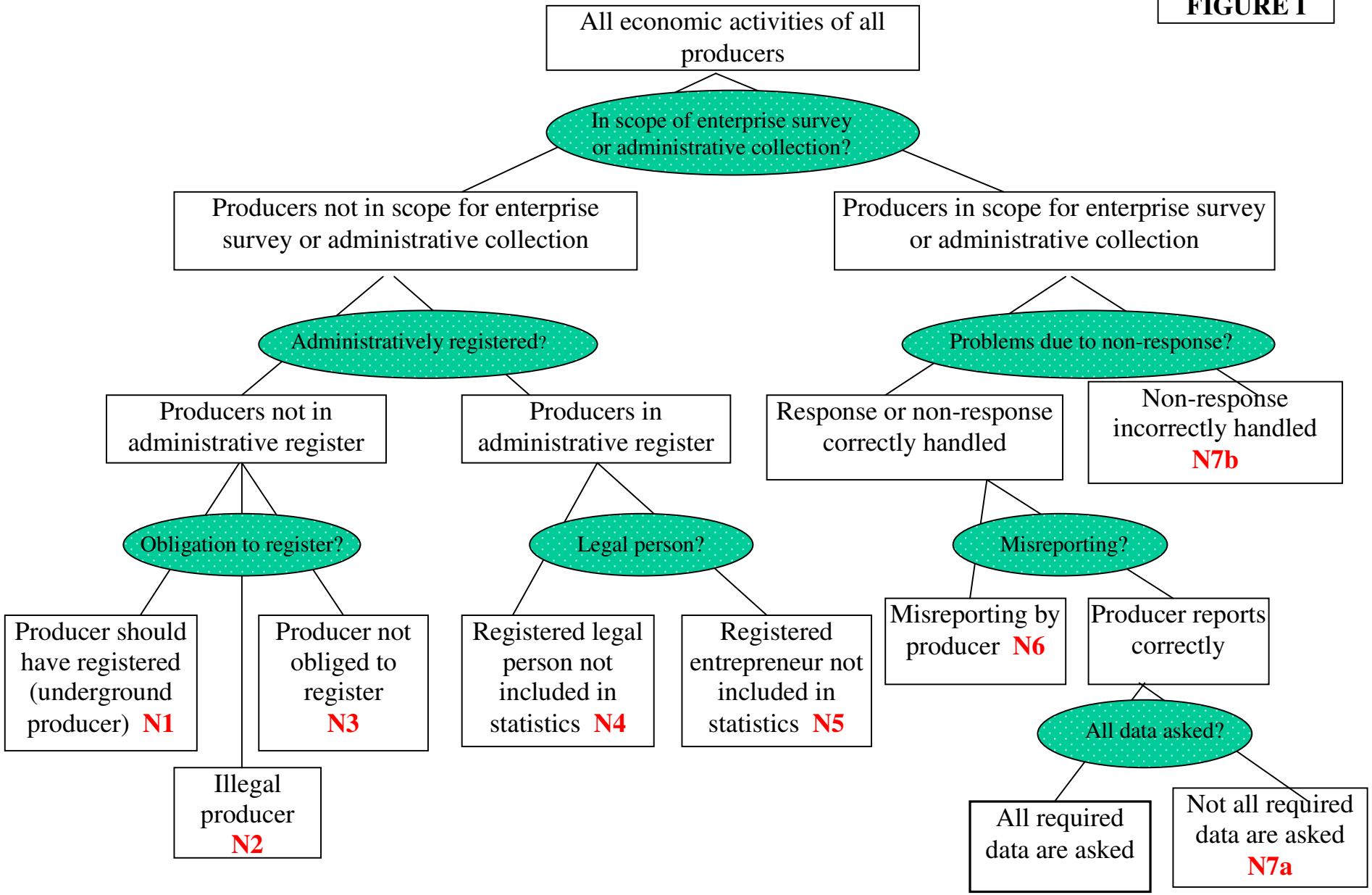
In combination, these characteristics define the different non-exhaustiveness types, N1-N7. Looking at the left-hand side of Figure I, a producer may not be covered by statistical surveys (or by an administrative source) because:

- it fails to register as it is involved in underground (**N1**) or illegal (**N2**) activities; or
- it does not need to register (non-market household producers) (**N3**); or
- it is a legal person but it is not surveyed (**N4**); or
- it is a registered entrepreneurship but it is not surveyed (**N5**).

The right-hand side of Figure I deals with producers that are in scope and are covered by a statistical survey or by administrative data collection. Even though the producer is surveyed, the resulting data may not be adequate because:

- the producer intentionally misreports (**N6**); or
- there are statistical deficiencies in the data (**N7**) - due to the fact that some data are simply not collected (**N7a**), or because some data are not correctly processed (**N7b**).

FIGURE I


All economic activities of all producers
In scope of enterprise survey or administrative collection?
Producers not in scope for enterprise survey or administrative collection
Producers in scope for enterprise survey or administrative collection
Administratively registered?
Problems due to non-response?
Producers not in administrative register
Producers in administrative register
Response or non-response correctly handled
Non-response incorrectly handled N7b
Obligation to register?
Legal person?
Misreporting?
Producer should have registered (underground producer) N1
Illegal producer N2
Producer not obliged to register N3
Registered legal person not included in statistics N4
Registered entrepreneur not included in statistics N5
Misreporting by producer N6
Producer reports correctly
All data asked?
All required data are asked
Not all required data are asked N7a

7. Non-Exhaustiveness Types: Ouput Approach - More Information

Figure I provides a pictorial overview of the seven non-exhaustiveness types (N1 to N7). In particular, Figure I shows how the seven non-exhaustiveness types are derived using the characteristics of producers and data collected from them.

However, Figure I needs to be supplemented with more information about the different non-exhaustiveness types. To this end, **Figure II** below briefly describes each of the seven types in more detail, including some examples of the sort of producer typically associated with each non-exhaustiveness type.

Annex C of these *Guidelines* provides much more detail than can be 'squeezed' into Figure II.

Figure II draws attention to the fact that while, in principle, N1 to N7 are mutually exclusive, in practice, the individual N-types are not always completely 'watertight' and there can sometimes be confusion or a degree of 'overlap' between some non-exhaustiveness types.

For example, there can be an overlap between type N1 (an underground producer that has intentionally not registered) and type N6 (a registered and surveyed producer that deliberately conceals or misreports any underground activity).

Likewise, there can be an overlap between type N2 (producers engaged in illegal activities) and other N-types (producers that are engaged in illegal actvities as well as legal activities). The problem with type N2 does not so much arise from its definition as from its measurement.

The statistical definitions, classifications, registers and other information at the disposal of each national statistical office all have a bearing on its ability to successfully distinguish between the different N-types. The methods used to identify non-exhaustivness and to estimate exhaustiveness adjustments also clearly have an impact on the the success with which individual N-types can be separately estimated.

As an example, a country may have difficulty in distinguishing between types N4 and N5 simply because the available data does not enable non-exhaustiveness type N4 (registered legal persons not included in the statistics) to be cleanly separated from non-exhaustiveness type N5 (registered entrepreneurs not included in the statistics). These two types are very similar in character and, in practice, the distinction between N4 and N5 is not critical. What is important is to ensure that, together, N4 and N5 are completely covered. Figure II below provides only summary bullet point information about these two non-exhaustivness types. Annex C provides considerably more background.

In summary, while the aim of the breakdown into non-exhaustiveness types is to ensure complete, unduplicated coverage, the ultimate goal is to produce accurate GDP estimates. The breakdown is not an end in itself. Thus the allocation of non-exhaustiveness elements to one particular N-type or another is not of critical importance. Having said that, it is important to follow a consistent set of procedures across all countries so that the results are as comparable as possible.

Chapter 2 provides an overview of the *TAE* results obtained from the nine countries for the output approach, for the year 2000.

FIGURE II

Descriptions of the Non-Exhaustiveness Types (N1 to N7)

N1	**Producer should have registered (underground producer)**	➢ Producer fails to register in order to avoid tax & social security obligations. These are often small producers with turnovers which exceed the thresholds above which they should register their income. ➢ Type N1 does not include producers that fail to register because they are engaged in illegal activities. ➢ Type N1 does not include all underground activities, some of which are associated with type N6.
N2	**Illegal producer that fails to register**	➢ N2 covers activities of producers that avoid registration entirely. ➢ N2 excludes illegal activities by registered legal entities or entrepreneurs that report (or misreport) their activities under legal activity codes.
N3	**Producer is not obliged to register**	➢ Producer is not required to register because it has no market output. Typically, these are non-market household producers involved in: (a) production of goods for own consumption or for own fixed capital formation, and (b) construction of and repairs to dwellings. ➢ Producer has some market output but it is below the level at which the producer is expected to register as an entrepreneur.
N4	**Registered legal person is not included in statistics**	➢ The legal person may not be included in the statistics for a variety of reasons. Eg, the business register is out of date or updating procedures are inadequate; the classification data (activity, size or geographic codes) are incorrect; the legal person is excluded from the survey frame because its size is below a certain threshold; etc.
N5	**Registered entrepreneur is not included in statistics**	➢ A registered entrepreneur may not be included in the statistics for many reasons. Eg, the administrative source with lists of registered entrepreneurs may not always pass on complete or up to date lists to the statistical office. ➢ Even if there is a regular flow of accurate and comprehensive information from the administrative source to the statistical office, the registered entrepreneur may not be included in the business register for several reasons (see those given under N4).
N6	**Mis-reporting by the producer**	➢ Mis-reporting invariably means that gross output is under-reported and intermediate consumption is over-reported in order to evade (or reduce) income tax, value added tax or social security contributions. ➢ Mis-reporting often involves: the maintenance of two sets of books; payments of *envelope salaries* which are recorded as intermediate consumption; payments in cash without receipts; and VAT fraud.
N7	**Statistical deficiencies in the data** (For more background, see Annex C of the *Guidelines*.)	➢ In Figure I above, type N7 is sub-divided between **N7a** - data that is incomplete, not collected or not directly collectable, and **N7b** - data that is incorrectly handled, processed or compiled by statisticians. This distinction is useful because it helps one to better understand the huge variety of possible statistical deficiencies. However, in practice, N7a and N7b cannot always be easily separated. ➢ Statistical deficiencies: the following list is not comprehensive but these topics should be investigated for non-exhaustiveness:- • Handling of non-response; • Production for own final use by market producers; • Tips; • Wages & salaries in kind; • Secondary activities. ➢ Clearly, not all statistical deficiencies result in the under-estimation of GDP. (The focus here has been to illustrate those areas which are likely to lead to non-exhaustiveness in the NA.)

8. Non-Exhaustiveness Types: Expenditure Approach (see Chapter 4)

The description of the *TAE* has so far concentrated on the output approach to GDP. This and the next section briefly cover the application of the *TAE* for the expenditure and income approaches.

The breakdown of the N1 to N7 types is suited to estimates compiled by the output approach, based primarily on data about producers (enterprises and entrepreneurs) obtained from surveys and administrative sources. The non-exhaustiveness types are then based on a breakdown of producers.

Types N1-N7 can be applied to analysis by the expenditure approach in so far as the basic data are obtained from producer surveys (ie the same sources as employed for the output approach). With the exception of private household consumption and possibly exports & imports, other expenditure components may well have similar sources to those used for gross output and intermediate consumption. This facilitates consistency in adjustments to the expenditure and output approaches.

Where the data sources for an expenditure component are different, it is not so clear what are to be regarded as basic data and what are regarded as adjustments. Thus, in certain cases, it is recommended that the exhaustiveness adjustments for the expenditure approach be recorded as N7.

For example, in the case of private household consumption, different sources are appropriate for different commodities and it is difficult to define precisely what constitutes non-exhaustiveness. One approach is to identify the principal source and to define the use of any other source as an exhaustiveness adjustment. Another approach is to identify the best source for each commodity and to state that the use of any other source implies that an exhaustiveness adjustment is required.

A practical example of the application of the *TAE* for the expenditure approach is included in **Chapter 4**. This chapter includes the exhaustiveness adjustments made by the Czech Republic for the year 2002.

9. Non-Exhaustiveness Types: Income Approach (see Chapter 4)

As the income approach often makes use of the same data sources as for the output approach, the same types N1-N7 are appropriate. However, as countries seldom compile independent GDP estimates using the income approach, the assessment of non-exhaustiveness for the income approach does not provide much add extra information. Although exhaustiveness adjustments for the income approach were not requested by Eurostat for the 2nd exhaustiveness project, the countries nevertheless allocated their exhaustiveness adjustments to the appropriate income components. **Chapter 4** provides the 2002 results for the Czech Republic.

10. Non-Exhaustiveness Identification and Adjustment Methods (see Annex E)

The non-exhaustiveness types (N1 to N7) were defined and described above. For each of these types, Annex C of the *Guidelines* also provides a list of the methods used for identifying non-exhaustiveness and for developing exhaustiveness adjustments.

Among several others, these methods include the labour input method, commodity flow method, special surveys and the use of fiscal and other audit data. **Annex E** of the *Guidelines* provides a summary of some of the major methods employed.

Section 3 of **Chapter 3** presents a tabular analysis of the different methods that were employed by the nine countries for their 2000 exhaustiveness adjustments. Section 4 of Chapter 3 provides a description of the different sources & methods used by the Czech Statistical Office in estimating each of the non-exhaustiveness types (N1 to N7) for the year 2000.

CHAPTER 2

Exhaustiveness Adjustments: Output Approach: Results for the Year 2000 from the New EU Member States

Chapter 2

Exhaustiveness Adjustments: Output Approach

Results from the New EU Member States

1. Introduction

Chapter 1 gave a summary of the *Tabular Approach to Exhaustiveness (TAE)* methodology. In particular, the different non-exhaustiveness types (N1 to N7) were defined and described and the tables employed for the output and expenditure approaches to GDP were briefly introduced.

This chapter provides an overview of the Tabular Approach results obtained from nine of the ten new Member States[2]. The results presented here focus on the exhaustiveness adjustments for the GDP output approach. The results relate to the year 2000 and were calculated in 2003.

As indicated in Chapter 1, the TAE involves the completion of three "Standard Tables":-

- Table 1A Elements of non-exhaustiveness: Output Approach
- Table 2A Exhaustiveness adjustments: Output Approach
- Table 3A Summary of adjustments: Output Approach

This chapter concentrates on Table 3A because this table gives a summary of the exhaustiveness adjustments. A detailed description of how all three tables are compiled is given in Chapter 3.

2. Exhaustiveness Adjustments: Illustrative Results for the Czech Republic

Before presenting an overview of the results for the nine new Member States, it is useful to illustrate the summary information contained in Table 3A by making use of the results for a particular country. For this purpose, the exhaustiveness adjustments to gross value added calculated by the Czech Republic are presented below.

The exhaustiveness adjustments in Table 3A are broken down by:-

- non-exhaustiveness type (N1 to N7)
- institutional sector (that is, non-financial corporations, financial corporations, general government, households and non-profit institutions serving households)
- economic activity (NACE Rev.1 sections)

Some absolute figures in Table 3A are also expressed as percentages. For example, the exhaustiveness adjustments are expressed as a percentage of GDP.

[2] Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovak Republic & Slovenia.

Summary of Exhaustiveness Adjustments to Gross Value Added (GVA): GDP Output Approach

Results for the Czech Republic for the year 2000 - in CZK millions

Table 3A Summary of GVA Adjustments: Output Approach									
Value added					For Reference Year 2000				
Sectors/ NACE Groups	Type of non-exhaustiveness adjustment							Total	
	N1	N2	N3	N4	N5	N6	N7	Absolute	% of GDP
1	2	3	4	5	6	7	8	10	11
Non-financial corporations	0	0	0	31,444	0	43286	4750	79,480	3.70
Financial corporations	0	0	0	0	0	0	162	162	0.01
General Government	0	0	0	0	0	0	3304	3,304	0.15
Households	10349	4935	26554	1409	21350	51089	3130	118,816	5.53
NPISH	0	0	0	0	0	0	12	12	0.00
NACE A	594	0	14539	1245	978	5832	287	23,475	1.09
NACE B	0	0	0	8	2	6	3	19	0.00
NACE C	0	0	0	85	21	24	22	152	0.01
NACE D	1535	0	8228	6828	609	12474	1218	30,892	1.44
NACE E	0	0	0	696	18	190	69	973	0.05
NACE F	4451	0	3513	340	632	18105	666	27,707	1.29
NACE G	621	336	0	6510	2622	33227	1404	44,720	2.08
NACE H	0	0	0	637	834	8265	5368	15,104	0.70
NACE I	962	0	0	3169	198	7437	566	12,332	0.57
NACE J	0	0	0	910	43	0	324	1,277	0.06
NACE K	603	0	0	9125	10812	6132	500	27,172	1.26
NACE L	0	0	0	3	54	2	34	93	0.00
NACE M	308	0	0	1159	86	231	0	1,784	0.08
NACE N	257	0	0	1178	295	992	22	2,744	0.13
NACE O	886	4599	0	960	4146	1458	875	12,924	0.60
NACE P	132	0	274	0	0	0	0	406	0.02
Total	10,349	4,935	26,554	32,853	21,350	94,375	11,358	201,774	9.38
Percentage of total adjustment	5.1	2.4	13.2	16.3	10.6	46.8	5.6	100.0	

3. Total exhaustiveness adjustments expressed as a percentage of GDP

Attention is first given to the **overall** adjustments made – covering all non-exhaustiveness types, all economic activities and all institutional sectors. Table 3A above shows that, in total, exhaustiveness adjustments for the Czech Republic added 9.4% to GDP for the year 2000.

The table below shows the 2000 figures for nine new Member States, including the Czech Republic. It should be noted that some country results for 2000 may have since been revised. Further, the exhaustiveness adjustments actually used for published GDP estimates may sometimes differ slightly from those given in the following table.

Total exhaustiveness adjustments in each of the nine new Member States, 2000

	Czech Republic	Estonia	Latvia	Lith-uania	Malta	Hungary	Poland	Slovak Republic	Slovenia	Average %
%	9.4	11.2	15.1	18.9	5.8	11.9	14.7	14.8	6.2	12.0

Over all 9 countries, the (unweighted) average adjustment to GDP is 12%. The total adjustments made by the countries show quite wide variation. This reflects differences between the countries in their legal, administrative & statistical infrastructure[3] plus, of course, differences in the methods used by the countries to estimate their exhaustiveness adjustments.

4. Breakdown by non-exhaustiveness type (N1 to N7)

The relative importance of types N1 to N7 in the Czech Republic can be seen in Table 3A above. The Czech percentages for each non-exhaustiveness type are as follows:-

- Misreporting by producers (N6) accounts for 47% of total adjustments;
- Registered legal persons not included in the statistics (N4) accounts for 16%;
- Producers not obliged to register (N3) accounts for 13%;
- Registered entrepreneurs not included in statistics (N5) accounts for 11%;
- Statistical deficiences in the data (N7) accounts for 6%;
- Deliberate failure to register due to underground activities (N1) accounts for 5%;
- Deliberate failure to register due to illegal activities (N2) accounts for 2%.

The table below shows these Czech results together with the averages over all countries:-

Exhaustiveness adjustments: relative importance (%) of types N1 to N7

Non-exhaustiveness type:	N1	N2	N3	N4	N5	N6	N7	Total
Czech Republic (%)	5.1	2.4	13.2	16.3	10.6	46.8	5.6	100.0
Over all 9 countries (%)	15.5	6.4	7.9	7.5	5.8	48.6	8.2	100.0

[3] The term "*legal, administrative and statistical infrastructure*" relates to business registration obligations, thresholds & procedures and the richness and variety of data sources in each country. In particular, the term embraces: (a) legal/administrative/statistical requirements & practices relating to the registration of businesses; (b) the frequency, timeliness & accuracy of register updating procedures; (c) the comprehensiveness of the coverage of economic activities and sizes of unit; and (d) the variety of data collected from all available sources (including, e.g., data from the fiscal authorities) which is cross-checked & validated for national accounts purposes.

4.1 "Misreporting" (N6) accounts for nearly half of all exhaustiveness adjustments

What is striking is the overwhelming importance of type N6: **misreporting by producers**[4]. In the Czech Republic, N6 accounts for 47% of the total adjustments to GDP. This compares with the average figure of 49% for all nine countries. Even though the relative importance of N6 varies a lot between the countries, misreporting by producers accounts for the largest exhaustiveness adjustment in eight of the nine countries.

4.2 Innovative work on misreporting undertaken by the countries

The importance of exhaustiveness adjustments for "misreporting by producers" in the new Member States reflects the commendable efforts made by the countries to find and exploit suitable fiscal and other audit sources. In the absence of representative, comprehensive or useable annual tax audit data from the fiscal authorities, the countries have demonstrated considerable ingenuity in establishing ways of measuring the degree of misreporting. For this purpose, professional groups and agents with the relevant experience were identified and consulted and questionnaires were specially designed to collect data on the misreporting of income and expenditure.

4.3 Variation between countries in the relative importance of types N1 to N7

In general, the relative importance of each of the non-exhaustiveness types N1 to N7 varies substantially between the countries. There is no standard pattern. As already indicated above, this is not surprising. One would expect differences in the relative importance of N1 to N7 because the legal, administrative and statistical infrastructure varies between the countries.

5. Breakdown of total exhaustiveness adjustments by institutional sector

Exhaustiveness adjustments are dominated by two sectors: households and non-financial corporations. This is the case for the Czech Republic (see Table 3A above). Adjustments are usually larger for households than for non-financial corporations. Exhaustiveness adjustments are very small for the other institutional sectors. This is because data for general government and financial corporations are usually accurate and cover most (if not all) units. Exhaustiveness adjustments are usually needed for non-profit institutions but this sector accounts for only a tiny share of GDP.

The following table shows the Czech percentages together with the 2000 results for seven countries (the sector data for Malta & the Slovak Republic was incomplete).

Exhaustiveness adjustments: relative importance (%) of the various institutional sectors

Breakdown by institutional sector:	Non-financial corporations	Financial corporations	General government	House-holds	Non-profit institutions	Total
Czech Republic (%)	39.4	0.1	1.6	58.9	-	100.0
Seven countries (%)	42.4	0.1	0.5	56.6	0.4	100.0

[4] "Misreporting" (N6) can arise from genuine reporting, transcription and other errors. But misreporting is largely due to the deliberate understatement of gross output (GO) and deliberate overstatement of intermediate expenditure (IC). While exhaustiveness adjustments for GO are positive, those for IC are negative so the relative impact on gross value added (GVA) is much larger than adjustments for other N-types (for which GO and IC are normally both understated).

6. Breakdown of exhaustiveness adjustments by economic activity

Table 3A above shows that in the Czech Republic the largest exhaustiveness adjustment was made to NACE section G (Wholesale & retail trade, repair of motor vehicles, motorcycles and personal & household goods). Across the nine countries, NACE G virtually always attracts the largest exhaustiveness adjustment.

The Czech figures in Table 3A also contain significant adjustments for NACE D (Manufacturing) NACE F (Construction), NACE K (Real estate, renting & business activities), NACE H (Hotels and restaurants), NACE O (Other community, social & personal service activities) and NACE I (Transport, storage & communication). As the following table indicates, these economic activities also feature prominently in all nine countries:

Exhaustiveness adjustments: relative importance (%) of different economic activities

NACE Section:	G	D	F	K	H	O	I	Other	Total
Czech Republic (%)	22.2	15.3	13.7	13.5	7.5	6.4	6.1	15.3	100%
Averages over 9 countries (%)	26.3	12.6	12.8	13.0	7.3	8.4	7.8	11.7	100%

Between the countries, the breakdown of adjustments by economic activity is far from being uniform. However, the Czech results are little different from the averages across all 9 countries.

7. Summary table: exhaustiveness adjustments by type, economic activity & sector

The table below provides an analysis of the adjustments made by the 9 countries. Empty cells are to be expected. For example, types N1 and N3 are associated with households and one would therefore not expect to find adjustments to other institutional sectors for N1 and N3.

Institutional sectors and NACE classification	**Type of non-exhaustiveness**						
	N1	**N2**	**N3**	**N4**	**N5**	**N6**	**N7**
Non-financial corporations		X		X	X	X	X
Financial corporations					X	X	X
General Government					X	X	X
Households	X	X	X	X	X	X	X
NPISH				X	X		X
NACE A	X		X		X	X	X
NACE B	X			X	X	X	X
NACE C	X				X	X	X
NACE D	X	X			X	X	X
NACE E					X	X	X
NACE F	X		X		X	X	X
NACE G	X	X	X	X	X	X	X
NACE H	X		X		X	X	X
NACE I	X	X		X	X	X	X
NACE J	X				X	X	X
NACE K	X	X	X	X	X	X	X
NACE L					X	X	X
NACE M	X			X	X	X	X
NACE N	X			X	X	X	X
NACE O	X	X	X	X	X	X	X
NACE P	X	X	X		X		

CHAPTER 3

Exhaustiveness Adjustments: Output Approach: How the Tables are Compiled and Methods Used

Chapter 3

Exhaustiveness Adjustments: Output Approach

Compilation of the Tables and the Methods Used

1. Introduction

Chapter 2 gave an overview of the exhaustiveness adjustments for the GDP output approach calculated by 9 countries for the year 2000. This chapter deals with the following important practical issues:

- How Tables 1A, 2A & 3A are compiled in practice
- The methods actually used to estimate exhaustiveness adjustments

Illustrations of how Tables 1A to 3A are compiled (Section 2)

The nine countries featured in these Guidelines have carried out the *Tabular Approach to Exhaustiveness (TAE)* on two previous occasions and they are obviously familiar with the compilation process. In order to facilitate the application of the TAE in other countries, **Section 2** of this chapter is devoted to giving numerical illustrations of how Tables 1A, 1B & 1C are compiled.

Methods used to estimate exhaustiveness adjustments (Sections 3 and 4)

For background purposes, **Section 3** of this chapter presents a brief analysis of the different methods that were employed by the nine countries to identify non-exhaustiveness and estimate exhaustiveness adjustments for the year 2000.

In order to see how exhaustiveness adjustments are estimated in practice, it is useful to look at the results in a particular country. For this purpose, **Section 4** provides a description of the different sources and methods used by the Czech Statistical Office (CZSO) in making their exhaustiveness adjustments for each of the non-exhaustiveness types (N1 to N7).

Summaries of the CZSO exhaustiveness adjustments in 2000 and in 2002 (Sections 5 and 6)

In order to get back to the 'big picture', **Section 5** of this chapter presents an overall summary of the CZSO adjustments in 2000 for the non-exhaustiveness types N1 to N7.

In the Czech Republic, the *Tabular Approach to Exhaustiveness (TAE)* has been integrated into the annual CZSO routines for compiling GDP estimates[5]. So, as part of their GDP compilation process, the CZSO produce exhaustiveness adjustments every year. It is interesting to see how exhaustiveness adjustments can change over time. **Section 6** provides a summary of the CZSO exhaustiveness adjustments for the year 2002 - and explains the changes in the CZSO adjustments between 2000 and 2002.

[5] Slovenia has also integrated *TAE* adjustments into its annual GDP compilation routines.

2. Compilation of Tables 1A, 2A and 3A: GDP output approach

Chapter 1 listed the tables employed for the *Tabular Approach to Exhaustiveness (TAE)*:-

Table 1A	Elements of non-exhaustiveness: Output Approach
Table 2A	Exhaustiveness adjustments: Output Approach
Table 3A	Summary of adjustments: Output Approach

This section describes, step by step, how the tables are actually compiled. The compilation process is illustrated using the Czech Republic results for the year 2000.

In practice, the 3 tables cover all non-exhaustiveness types, all economic activities and all institutional sectors. However, in order to show how Tables 1A & 2A are compiled, it is sufficient to confine the illustration to one important and representative economic activity.

In this respect, NACE Section G (wholesale & retail trade, repair of motor vehicles, motorcycles and personal & household goods) is ideal. First, Section G is 'important' because it is the economic activity that attracts the largest share of total exhaustiveness adjustments. Secondly, it is also 'representative' because this economic activity is associated with:

- most types on non-exhaustiveness;
- several institutional sectors;
- a variety of methods for identifying and making adjustments.

2.1 Compilation of Table 1A

Table 1A is illustrated below – showing the completion of this table for NACE section G.

The contents of the columns in Table 1A are as follows:-

- *Column 1* asks for a listing of all possible non-exhaustiveness elements, showing the relevant NA component[6] and a breakdown by institutional sector, NACE group and size of unit. The listing given in Table 1A has been restricted to one NACE section. For illustrative purposes, registered and unregistered units are distinguished but the breakdown by size of units is not shown. In completing Table 1A, the countries nearly always provided a size breakdown (eg large, medium, small units), depending on what was available. Clearly, the organisation of the listing of all possible elements of non-exhaustiveness in Table 1A can be adapted to correspond with what is available in each country.
- *Column 2* is used to identify the relevant non-exhaustiveness type (N1 to N7).
- *Column 3* is used to indicate when an exhaustiveness adjustment is not needed. When this happens, a '**1**' is inserted, as illustrated in Table 1A below.
- *Column 4* asks a country to insert a '**1**' when an exhaustiveness adjustment is needed, but where suitable sources or methodology have not yet been developed.
- *Column 5* describes the method employed to identify and estimate an exhaustiveness adjustment. The names illustrated in Table 1A include the list of methods given in Section 3.
- *Column 6* gives an identification number which links the rows in Table 1A with Table 2A.

[6] Gross Output (GO) and Intermediate Consumption (IC). Gross value added (GVA) is derived later, in Table 3A.

An illustration of Table 1A - restricted to NACE section G

Table 1A. Elements of Non-Exhaustiveness: Output Approach - for Reference Year 2000							
NA components by enterprise sector, NACE group and size			Type of non-exhaustiveness	Adjustment Method			
Detailed breakdown covering all possible elements of non-exhaustiveness			Insert separate lines for types with different adjustment	Not needed	Needed but not developed	Name	Ident number (Table 2A)
1			2	3	4	5	6
	Public non-financial corporations						
GO	All units	**NACE G Trade**	N4			Labour input method	P19
IC	All units	**NACE G Trade**	N4			Labour input method	P43
	National private non-financial corporations						
GO	All units	**NACE G Trade**	N6			Fiscal and other audit data	P75
GO	All units	**NACE G Trade**	N7			Existing survey	P77
GO	All units	**NACE G Trade**	N4			Labour input method	P78
IC	All units	**NACE G Trade**	N6			Fiscal and other audit data	P138
IC	All units	**NACE G Trade**	N4			Labour input method	P140
	Foreign controlled non-financial corporations						
GO	All units	**NACE G Trade**	N7			Existing survey	P192
GO	All units	**NACE G Trade**	N4			Labour input method	P193
IC	All units	NACE G Trade	N4			Labour input method	P216
	Households						
GO	Registered units	NACE G Trade	N4			Labour input method	P382
GO	Registered units	NACE G Trade	N5			Fiscal data	P383
GO	Registered units	NACE G Trade	N.6			Special + existing survey	P384
GO	Registered units	NACE G Trade	N7			Existing surveys	P385
GO	Unregistered units	NACE G Trade	N1			Existing surveys	P424
GO	Unregistered units	NACE G Trade	N2			Administrative data	P425
GO	Unregistered units	NACE G Trade		1			P444
IC	Registered units	NACE G Trade	N4			Labour input method	P472
IC	Registered units	NACE G Trade	N5			Expert judgement	P473
IC	Registered units	NACE G Trade	N6			Special + existing survey	P474
IC	Unregistered units	NACE G Trade	N1			Existing surveys	P505
IC	Unregistered units	NACE G Trade	N2			Administrative data	P506
IC	Unregistered units	NACE G Trade		1			P524

2.2 Compilation of Table 2A

The row order in Tables 1A & 2A is different because Table 2A is arranged by non-exhaustiveness type (N1 to N7). However, the identification number enables one to link the rows in the two tables.

An illustration of Table 2A - restricted to NACE section G

Table 2A. Exhaustiveness Adjustment: Output Approach - for Reference Year 2000, in millions of CZK

Adjustment ident number	Type of non-exhaustive- ness	Adjustment Name	NA Component	NACE code / type of units	Data Sources	Absolute size of adjustment	Relative size	
							% of component	% of GDP
0	OA	1	2	3	4	5	6	7
P424	N1	Employment adjustment due to balance of labour	Gross Output	NACE G - unregistered units	LFS+ SQ[1)]	776	1.09	0.04
P505	N1	Employment adjustment due to balance of labour	Intermediate Consumption	NACE G - unregistered units	LFS + SQ	155	0.22	0.01
P425	N2	Illegal economy	Gross Output	NACE G - unregistered units	Crime statistics	420	0.59	0.02
P506	N2	Illegal economy	Intermediate Consumption	NACE G - unregistered units	Crime statistics	84	0.12	0
P19	N4	Business register updating	Gross Output	NACE G - All units	BR + RTP[2)]	16	0.99	0.00
P193	N4	Business register updating	Gross Output	NACE G - All units	BR + RTP	8,378	11.97	0.39
P78	N4	Business register updating	Gross Output	NACE G - All units	BR + RTP	9,493	7.29	0.44
P382	N4	Business register updating	Gross Output	NACE G - registered units	BR + RTP	2,908	4.08	0.14
P140	N4	Business register updating	Intermediate consumption	NACE G - All units	BR + RTP	6,354	4.88	0.3
P216	N4	Business register updating	Intermediate Consumption	NACE G - All units	BR + RTP	3,540	5.06	0.16
P43	N4	Business register updating	Intermediate Consumption	NACE G - All units	BR + RTP	72	4.47	0.00
P472	N4	Business register updating	Intermediate Consumption	NACE G - registered units	BR + RTP	4,319	6.06	0.2
P383	N5	Enterpreneurs not included	Gross Output	NACE G - registered units	Income tax returns	3,278	4.60	0.15
P473	N5	Enterpreneurs not included	Intermediate Consumption	NACE G - registered units	Income tax returns	656	0.92	0.03
P384	N6	Deliberate misreporting	Gross Output	NACE G - registered units	SSM+SQ[3)]	13,535	19.00	0.63
P75	N6	Deliberate misreporting	Gross Output	NACE G - All units	Survey of tax advisers	12,663	10.38	0.63
P138	N6	Deliberate misreporting	Intermediate Consumption	NACE G - All units	Survey of tax advisers	-3,995	3.19	0.19
P474	N6	Deliberate misreporting	Intermediate Consumption	NACE G - registered units	SSM+SQ	-3,034	4.26	0.14
P192	N7	Wages and salaries in kind	Gross Output	NACE G - All units	Household surveys	403	0.27	0.02
P77	N7	Wages and salaries in kind	Gross Output	NACE G - All units	Household surveys	443	0.34	0.02
P385	N7	Wages and salaries in kind	Gross Output	NACE G - registered units	LCS + SQ[4)]	558	0.39	0.01

[1)] Labour force survey + statistical questionnaire
[2)] Business register + Register of tax payers
[3)] Special survey on misreporting + statistical questionnaire
[4)] Labour cost survey + statistical questionnaire

The contents of the columns in Table 2A are as follows:-

- *Column 0* provides the link between the rows in Tables 1A and 2A. [*Column 0A* has been added simply to show the non-exhaustiveness type. For convenience, the rows of Table 2A are arranged in order of the non-exhaustiveness types, N1 to N7.]

- *Column 1* shows the adjustment name (eg employment adjustment, register updating)

- *Column 2* indicates whether gross output or intermediate consumption is to be adjusted.

- *Column 3* shows the relevant NACE section and type of unit which is involved.

- *Column 4* identifies the data sources used to estimate the exhaustiveness adjustment.

- *Column 5* gives the absolute size of the exhaustiveness adjustment.

- *Column 6* expresses the column 5 adjustment as a percentage of the NA component.

- *Column 7* expresses the column 5 adjustment as a percentage of GDP.

2.3 Summary of the information obtained from Tables 1A and 2A

Before looking at the final table, Table 3A, it is worthwhile giving a summary of the estimated exhaustiveness adjustments for NACE section G which have been obtained from the illustrative data in Tables 1A & 2A. The following table gives a summary of the total exhaustiveness adjustments, broken down by types N1 to N7. It also brings together the total adjustments for gross output and intermediate expenditure, from which gross value added is derived.

Summary of exhaustiveness adjustments obtained from Tables 1A & 2A – for NACE section G

NACE Section G	Type of non-exhaustiveness							Total exhaustiveness
	N1	N2	N3	N4	N5	N6	N7	adjustments
GO	776	420	0	20,795	3,278	26,198	1,404	52,871
IC	155	84	0	14,285	656	-7,029	0	8,151
GVA	**621**	**336**	**0**	**6,510**	**2,622**	**33,227**	**1,404**	**44,720**

This table highlights the relative importance of exhaustiveness adjustments for misreporting (N6). In particular, the increase in GO combined with a reduction in IC has a dramatic impact on GVA. Other non-exhaustiveness types (N1 to N5 and N7) require adjustments which normally result in positive exhaustiveness adjustments to IC as well as GO. Consequently, the impact on GVA is proportionately less significant than is the case with adjustments for misreporting.

2.4 Compilation of Table 3A

Table 3A is illustrated below and represents the Czech results for 2000. Exhaustiveness adjustments are broken down by: non-exhaustiveness type (N1 to N7), by institutional sector and by economic activity. This table was also presented in chapter 2.

Table 3A summarises the more detailed data contained in Table 2A. In particular, the analysis of exhaustiveness adjustments in Table 3A focuses exclusively on gross value added (GVA). However, Table 3A can also readily be compiled in terms of GO and IC.

Illustration of Table 3A: Results for the Czech Republic for the year 2000 (in millions of CZK)

Summary of Exhaustiveness Adjustments to Gross Value Added (GVA): GDP Output Approach

Table 3A Summary of GVA Adjustments: Output Approach									
Value added					For Reference Year 2000				
Sectors/ NACE Groups	Type of non-exhaustiveness adjustment							Total	
	N1	N2	N3	N4	N5	N6	N7	Absolute	% of GDP
1	2	3	4	5	6	7	8	10	11
Non-financial corporations	0	0	0	31,444	0	43286	4750	79,480	3.70
Financial corporations	0	0	0	0	0	0	162	162	0.01
General Government	0	0	0	0	0	0	3304	3,304	0.15
Households	10349	4935	26554	1409	21350	51089	3130	118,816	5.53
NPISH	0	0	0	0	0	0	12	12	0.00
NACE A	594	0	14539	1245	978	5832	287	23,475	1.09
NACE B	0	0	0	8	2	6	3	19	0.00
NACE C	0	0	0	85	21	24	22	152	0.01
NACE D	1535	0	8228	6828	609	12474	1218	30,892	1.44
NACE E	0	0	0	696	18	190	69	973	0.05
NACE F	4451	0	3513	340	632	18105	666	27,707	1.29
NACE G	621	336	0	6510	2622	33227	1404	44,720	2.08
NACE H	0	0	0	637	834	8265	5368	15,104	0.70
NACE I	962	0	0	3169	198	7437	566	12,332	0.57
NACE J	0	0	0	910	43	0	324	1,277	0.06
NACE K	603	0	0	9125	10812	6132	500	27,172	1.26
NACE L	0	0	0	3	54	2	34	93	0.00
NACE M	308	0	0	1159	86	231	0	1,784	0.08
NACE N	257	0	0	1178	295	992	22	2,744	0.13
NACE O	886	4599	0	960	4146	1458	875	12,924	0.60
NACE P	132	0	274	0	0	0	0	406	0.02
Total	10,349	4,935	26,554	32,853	21,350	94,375	11,358	201,774	9.38
Percentage of total adjustment	5.1	2.4	13.2	16.3	10.6	46.8	5.6	100.0	

3. Methods used to estimate exhaustiveness adjustments

Annex E of the Guidelines provides a description of a variety of methods which are available for identifying non-exhaustiveness and developing exhaustiveness adjustments. This section presents the results of the different methods actually employed by the nine countries for the reference year 2000. The table below gives an analysis of the methods used for each non-exhaustiveness type:-

Methods employed to identify and estimate exhaustiveness adjustments

Method used	Type of non-exhaustiveness						
	N1	N2	N3	N4	N5	N6	N7
Labour input method	X		X	X	X	X	
Commodity flow method	X		X				
Supply-use method	X					X	
Expert judgement		X	X	X	X	X	X
Quantity price method		X	X				X
Margin approach		X	X				X
Administrative data			X				
Fiscal and other audit data					X	X	X
Theoretical vs actual VAT						X	
Special or existing survey	X		X	X		X	X
Demand-based method	X						

Use was made of the wide range of methods listed above. For any given non-exhaustiveness type, countries often employed a combination of methods (or data sources). The labour input method is the most widely used for non-exhaustiveness types N1, N4 and N5. But some countries also employed the labour input method for types N3 and N6. In the absence of suitable data, special surveys were often undertaken. For types N2 and N7, frequent use was made of quantity x price methods, data on margins and experts' opinions/estimates.

4. Illustration of the methods used in one country: GDP output approach

This section describes the different sources and methods used by the Czech Statistical Office (CZSO) in calculating exhaustiveness adjustments for the non-exhaustiveness types (N1 to N7). The figures discussed are consistent with those given above in Table 3A.

4.1 Non-exhaustiveness type N1: Producers deliberately not registering – underground activity

Type N1 is associated with small producers who intentionally avoid registration in order not to lose social benefits (for example, because they are registered as unemployed) and/or in order to avoid paying taxes and social security contributions. Non-registered small businesses are especially numerous in certain areas: craftwork, maintenance & repair and building activities. The high number of non-registered units is related to the level of unemployment, out-of-date legislation and relatively low efficiency in the regulation of small businesses. Type N1 producers see no advantages in being registered and they do not feel compelled to 'play by the rules' because the risk of being caught and punished is perceived to be negligible.

The CZSO estimate in 2000 (CZK 10349 million) was based on an estimate of the number of producers deliberately not registering (comparing Labour Force Survey data with other sources), together with estimates of intermediate consumption and value added per worker. In 2000, the non-exhaustiveness type N1 accounted for approximately 0.5% of GDP.

4.2 Non-exhaustive type N2: Producers deliberately not registering – illegal activities

CZSO made estimates for 4 types of illegal activities: (i) prostitution, (ii) sales of stolen goods, (iii) production & consumption of drugs and (iv) smuggling. For (i) & (ii), there are long time series, so only these 2 activities (totalling CZK 4935 million) were included in the published GDP estimate. These two illegal activities accounted for about 0.2% of GDP.

Prostitution

Research was based on 3 sources: (a) Ministry of Interior analyses; (b) telephone inquiries for home-based prostitution; (c) published data on "facts, estimates and prostitution trends in the CZ". From these sources, it was estimated that, over the year, there were 6300 prostitutes earning an average of CZK 2500 per day, giving a total annual figure from prostitution of CZK 5749 millions. Expert estimates suggest that 35 % of customers are Czech citizens, the remaining 65% being foreigners. So, CZK 2012 millions was recorded in the national accounts as household final consumption and CZK 3737 millions was recorded as export services.

Prostitution has its own costs (purchases of clothes, cosmetics, taxis, etc). This intermediate consumption (IC) was taken to be 20 % of gross earnings, or CZK 1150 million. So, in 2000, prostitution was estimated to be 5749 – 1150 = CZK 4599 million.

Sales of stolen goods

Thefts of goods from dwellings, shops, trucks and cars is common. Most goods are stolen for resale via middlemen. The act of theft itself is not a productive activity, but the middleman's *margin* on resale is counted. It is assumed that financial flows concerning the re-sale of stolen goods are already partly picked up in the national accounts. It can also be assumed that some middlemen sell stolen goods 'legally'. Using crime statistics for thefts of passenger cars, the middleman's *margin* was estimated to be CZK 336 million (roughly 10% of the value of stolen cars). Sales of other goods were not calculated because it is assumed that a large proportion of sales of stolen goods already pass through legal business activities. This is 'assisted' by current legislation: when a person buys stolen goods, that person becomes the new owner of the goods.

Drug consumption

On the **demand side**, the basic equation is: $C = N \times Q_a \times P_{st,}$

where:
- C = value of final consumption
- N = number of consumers
- Q_a = average quantity consumed
- P_{st} = street prices

The value of drug consumption, C is equal to the number of consumers multiplied by the average quantity consumed, valued at street prices.

Data sources employed:
The number of drug consumers (N): CZSO use the estimate of the prevalence of problem drug users (namely the multiplicative method based on the number of drug-addicted persons undergoing treatment combining with the capture-recapture method).

Average quantity consumed (Q_a): after long-term monitoring in the Environmental Health Office, the CZSO determines the average quantity consumed per year.

Street prices: this indicator was obtained from police statistics and reports.

On the **supply side**, the basic equation is:

$$C = I \times P_{st} \times \left(\frac{pu_i}{pu_{st}} \right)$$

where: C = value of final consumption
I = imports destined for the Czech Republic
P_{st} = street prices
pu_i = import purity
pu_{st} = street purity

The value of drug final consumption (C), is equal to imports destined for the Czech Republic, valued at street prices, and multiplied by a term to take drug purities into account.

The quantity of imports destined for the Czech Republic (I), can be calculated as follows:

$$I = S \times \left(\frac{1}{sr} - 1 \right) \times a$$

where: S = quantity seized by the police
sr = seizure rate
a = rate destined for the Czech Republic

The imports destined for the Czech Republic equal the quantity seized by the police multiplied by a term (to take the quantity of non-seized drugs into account), multiplied by the rate destined for the Czech Republic.

Data sources:
Seized quantities are obtained from the General Directorate of Customs and from police statistics and reports. The latter source also provides data on street prices, the rate of drugs destined for the Czech Republic, the seizure rate and import purities and street purities.

Sales of smuggled goods

The illegal imports of goods for resale is a widespread phenomenon today. This is especially true for tobacco products, alcoholic beverages, automotive fuel, clothing, footwear, second-hand (frequently stolen) cars, etc., where the purchase price is significantly below the price of a comparable and legally traded product.

Sales of smuggled goods were not estimated explicitly, though crime statistics do provide figures on smuggling and the loss of customs duty. The CZSO assume that these sales are part of the sales of small retailers (stall-holders, in particular), for which CZSO already have estimates of concealed incomes. A further reason for not quoting the CZSO estimates of sales of smuggled goods is that crime statistics understate the true position as they are based on the evidence emanating only from recorded offences.

4.3 Non-exhaustiveness type N3: Producers not required to register

Under type N3, the CZSO made exhaustiveness adjustments for the *informal sector*, *individual housing construction* and *output of agricultural products for own final use*. These are described below. In total, the N3 exhaustiveness adjustment to gross value added was CZK 26554 million, or about 1¼ % of GDP. A summary table is given at the end of section 4.3.

Informal sector

Under type N1, CZSO identified non-registered business activities. And under type N5, part of secondary gainful employment and contracts of services were identified. So, for the informal sector, this left only: (a) occasional and below-threshold production activities in agriculture (i.e. legal activities which households do not report in tax returns because the income provided by the activities does not reach the specified level), and (b) household personnel services.

With regard to (a), CZSO estimated small non-reported revenues from sales of agricultural products (CZK 616 million) to be at the same level as reported sales. Likewise, intermediate consumption (CZK 123 million) was estimated with reference to similar reported activities. Value added was therefore estimated to be CZK 493 million.

With regard to (b), the estimate of production of household services (see table below) is based on the number of persons from Labour Force Survey data, (expressed in full time equivalents), multiplied by CZK 10 000 (the approx. average net monthly wage in CZ) for 12 months a year.

Estimate of the production of household services, for the year 2000

Number of persons	2 400
Number of persons (in full-time equivalents)	2 280
Income per month	10 000 CZK
Number of months worked	12
Total production = 2280 × 10000 × 12	274 million CZK

Individual housing construction

Construction of dwellings by households is mainly based on annual statistics of completed constructions. Four types of builders feature in the report, natural persons being classified under Code 1. '*Individual housing construction*' is included and covers construction of family houses and extensions to family houses for the individual needs of the builder. It does not include construction of dwellings for sale. From survey data, CZSO know the total investment cost, i.e. the cost of undertaking the construction including installed technology (e.g. heating). By regulation, certain types of work e.g. gas and power distribution that have to be carried out by specialised companies. Likewise, sanitary installation, roof construction, water distribution & connections, etc are also carried out by specialised companies. Using expert estimates, CZSO deduct 50-55% of the costs of work done by specialised companies from the total investment cost for building a family house by natural persons, the remainder being the estimate of *individual housing construction*.

A second data source - the Household Budget Survey (HBS) - is used to evaluate *intermediate consumption* for individual housing construction and the volume of reconstructions that are not included in the surveys by the planning and building control authorities. In the HBS, a special group of expenditures related to construction of family houses is measured. These expenditures (which are not included in final household consumption) concern goods and services purchased for construction or reconstruction of a house or dwelling.

To this estimated intermediate consumption, CZSO further add own work of builder-households. CZSO estimate the consumption using the ratio of wages (15%) and of operating surplus (15%) to intermediate consumption for smaller construction companies. The difference between the total output (calculated in this way) and individual housing construction is then taken to be the value of reconstructions made individually.

For 2000, the exhaustiveness adjustment for individual housing construction was estimated to be CZK 3513 million.

Output of agricultural products for own final use

Output of agricultural products for own final use is derived from Household Budget Survey (HBS) data, Farm Accountancy Data Network (FADN) statistics, forestry statistics data and from expert guesses. Output is estimated according to households' own consumption of agricultural goods, which is separately measured in the HBS. Intermediate consumption relating to own-account output of agricultural products was estimated by experts in 1995 and extrapolated for later years.

The HBS has a long tradition in the CZSO and is the chief source of information on income, expenditure and consumption of households (it also provides data on household characteristics and the use of consumer durables). One section of the HBS deals with items related to the output of agricultural products for own final use. (Approx. 90% of respondents indicate such activity.)

FADN data comes from the Research Institute of Agricultural Economics which runs and processes the FADN. This survey was undertaken in March 2000 and included 1204 agricultural enterprises. The data related to agricultural households and the structure of agricultural products.

The source of forestry statistics is the "Report on Forestry in the Czech Republic" published by the Ministry of Agriculture. This report furnishes data about forest products gathered by households. Berry plants and mushrooms are collected by most households. The proportion gathered for own consumption was estimated by experts, the remainder being destined for the market. The calculations and results are given in the following table:

Output by households of gathered forest products, 2000 *in millions of CZK*

Forest products gathered by households	Total Output	Estimates by experts of the proportion (%) destined for own consumption	Output for own final consumption by households	Output Destined for the market
Mushrooms	2007	80	1606	402
Blueberries	985	50	492	492
Raspberries	219	95	208	11
Brambleberries	146	95	139	7
Cowberries	109	90	98	11
Elder-berries	184	10	18	166
Total	3650		2561	1089

In the table above, the CZK 2561 million estimate of own consumption by households of gathered forest products is carried forward to the following table which presents a summary of output for own final use of agricultural products included in the national accounts for the year 2000. Because data taken from the HBS covers all households, data in the HBS column have been reduced by the amounts in the FADN column.

Output for own final use of agricultural products, 2000 *in millions of CZK*

Products	**Total**	HBS	FADN	Forest products
Pig meat	2280	2280		
Beef, other meat, edible offal	581	578	3	
Rabbits	2617	2617		
Pig meat smoked, butcher goods	722	722		
Meat tins	144	144		
Poultry	957	957		
Lard and bacon	337	337		
Eggs	1800	1198	602	
Milk	279		279	
Potatoes	1303	515	788	
Fresh vegetables	2624	1694	930	
Fresh fruit of the temperate zone	4776	4630	146	
Other food and drink	2539	1607	932	
Grapes	468	202	266	
Spirits and other alcoholic drinks	552	552		
Forest products (see table immediately above)	2561			2561
Total	24540	18033	3946	2561

Output for own final use of all agricultural products (including forest products) therefore totalled CZK 24540 million in 2000. Intermediate consumption was estimated to be CZK 3355 million, so value added was CZK 21185 million.

The following table provides a summary of all items covered by the non-exhaustiveness type N3. For the year 2000, the total exhaustiveness adjustment for type N3 was CZK 26554 million, or approximately 1¼ % of GDP.

Summary table showing all individual items covered by type N3 *in millions of CZK*

Non-exhaustiveness type, N3	**Gross Output**	**Intermediate Consumption**	**Value Added**
Items covered under type N3:			
Legal but below-threshold agricultural production	616	123	493
Production of household services	274	0	274
Individual housing construction	23 896	20 383	3 513
Output of agricultural products for own final use	24 540	3 355	21185
Forest products gathered and sold as market output	1089	-	1089
Total	50 415	23 861	26 554

4.4 Non-exhaustiveness type N4: Legal units not surveyed

The timely updating of the statistical registers is of critical importance. The Czech Business register (BR) is regularly updated using information provided by several organizations that are responsible for registration of different types of businesses. The Czech Statistical Office (CZSO) also uses the social security register (updating the BR in respect of the number of employees) and, since 1999, the database of VAT payers. For the first time in 2002 - and this has special significance for the N4 estimates in the year 2000 - CZSO additionally used detailed information provided by the Ministry of Finance from the register of income tax (including corporation tax) payers.

Before continuing the story, as background, it is worth giving the definition of an active legal unit used by CZSO for the purpose of updating their BR:-

***Definition of an active legal unit**: a legal unit is taken to be an **economically active** unit if, for a certain period, it pays employers' social contributions or pays VAT, income or profit tax on income from a business.*

For the year 2000, after the special 2002 updating of the BR using the income tax payers database, the number of active legal units was increased by 82217 units. Because the business register serves as the basis for grossing up to the population of units, a new grossing-up exercise was carried out for 2000. The resulting adjustment for non-exhaustiveness type N4 was CZK 32853 million, or roughly 1.5% of GDP. Over 95% of this exhaustiveness adjustment was allocated to non-financial corporations.

Hence, the updating of the BR using data for the first time from the register of income tax payers resulted in a very substantial N4 exhaustiveness adjustment for the year 2000. However, in 2001 and subsequent years, further adjustments for N4 are unlikely because the income tax payers register is now an integral part of the process used to update the BR. This is a good illustration of how the relative importance of individual exhaustiveness adjustments can change over time and also vary between countries. Section 6 compares the 2002 results with those for 2000.

4.5 Non-exhaustiveness type N5: Registered entrepreneurs not surveyed

For N5, the CZSO makes an exhaustiveness adjustment for certain categories of natural persons who are not registered in the BR, but can be found in other registers (for example, the register of tax payers).

Based on the State Statistical Service Act, the coverage of the statistical business register (BR) is virtually complete. There are no general limitations in the register with regard to the size of the unit or type of economic activity undertaken. The BR covers all legal persons and also covers all natural persons who have a status of 'entrepreneur'. However, the definition of 'entrepreneur' excludes certain categories of natural persons. These are: sculptors, painters, writers, journalists, professional sportsmen and a few other categories. As these categories of natural persons are not registered in the BR, they are obviously not surveyed and exhaustiveness adjustments need to be made by making use of information in other registers – in particular, the registers for health and social insurance payers and the register of taxpayers.

Unfortunately, comparisons between the BR and the registers of health and social insurance payers are not successful in identifying all the natural persons in the missing categories listed above. This is because natural persons are not required to register for social insurance if their incomes consist of authors' royalties or incomes from rent. In the case of health insurance, a natural person need not register if his/her income consists only of rental income.

Consequently, to calculate an adjustment for non-exhaustiveness type N5, CZSO make use of incomes reported in tax returns, in particular, author's royalties, incomes of artists and sportsmen, rental incomes, income from gardens and from a number of other activities. Intermediate consumption is estimated using reported expenditure for similar activities. The following table shows that the exhaustiveness adjustment for N5 was CZK 21350 million, or 1% of GDP.

Registered entrepreneurs not surveyed, 2000 *in millions of CZK*

Income Tax Act (§… reference in Act)	Gross output	Intermediate consumption	Value added
§ 7 (authors' royalties, artists & sportsmens' incomes)	4561		
§ 9 (income from renting)	21503		
§ 10 (incomes from gardens, etc)	616		
Total	26680	5330	21350

It should be noted that this estimate of CZK 21350 millions does not cover:-

- Below-threshold production activities for which there is no requirement to submit tax returns (see type N3)
- Deliberately concealed activities (see types N1 & N2)
- Adjustments for mis-reporting of gross output and intermediate consumption (see type N6).

4.6 Non-exhaustiveness type N6: Producers which deliberately misreport

Mis-reporting is a widespread phenomenon, the intention being to reduce tax payments and social security contributions. It involves the understatement of gross output and overstatement of intermediate consumption. Together, this results in much lower value added. Mis-reporting occurs most in reporting units where the incidence of 'control' by the authorities is rather low and the proprietor or management are interested in the "savings" achieved.

In the absence of structured, representative and useable data for individual years from the fiscal authorities, the CZSO undertook a special survey in 1999, the results of which were used in the national accounts for the years 1997 to 2000. (A further survey was undertaken later, in 2003.)

Because mis-reporting by businesses is a serious offence, the investigative work was organised in a way that ensured the anonymity of the respondents. The CZSO approached experts who were asked to provide estimates of mis-reporting, based on their experience with clients. The respondents mostly included accountants, tax and financial advisors and auditors.

Answers were provided using questionnaires which requested that the cases described should be classified by NACE and size categories (numbers of employees). The reasons for and degree of mis-reporting were requested. Estimates of mis-reporting were requested for the following book items (and sub-items): concealed sales/revenues; overstated material costs; overstated costs of services; concealed wages & salaries.

The following table gives a summary of the results for the year 2000:-

Estimates of mis-reporting, 2000 *millions of CZK*

Figures over all NACE Sections	Under-statement of gross output	Overstatement of intermediate consumption on:		Understatement of gross value added	Concealed wages & salaries	Understatement of operating surplus/ mixed income	Share of total gross value added
		Materials	Services				% of GDP
Column:	1	2	3	4 = (1 + 2 + 3)	5	6 = (4 – 5)	7
Totals	61 468	13 718	19 189	94 375	7 981	86 394	4.4 %

The exhaustiveness adjustment in 2000 for type N6 was CZK 94375 million, or 4.4 % of GDP.

As previously stated, this adjustment for N6 is by far the largest exhaustiveness adjustment and accounts for nearly half (47%) of all exhaustiveness adjustments.

Nor does the importance of mis-reporting change over time. It remains the single most important reason for exhaustiveness adjustments which the new Member States have incorporated in their published GDP estimates.

4.7 Non-exhaustiveness type N7: Other statistical deficiencies

In total, the exhaustiveness adjustment in 2000 for type N7 was CZK 11358 million, or approximately 0.5 % of GDP. This covered: (i) wages & salaries in kind, and (ii) tips & gratuities.

It should be stressed that the CZK 11358 million represented an exhaustiveness adjustment and not the total CZSO estimate of income in kind and tips. In 2000, the final estimate of income in kind and tips was CZK 32405 million.

The following is a brief summary for the sources and methods used for these two items.

Wages and salaries in kind

The CZSO distinguish and quantify 11 types of income in kind:

a) Wages & salaries in kind (taxable)
b) Meal vouchers
c) Contributions from social funds
d) Per diem for business trips
e) Expenditures on clothing of regular members of the armed forces
f) Other social expenditure (covered from costs)
g) Housing contribution
h) Goods at a reduction and provided free of charge
i) Remitted interest
j) Company cars used for personal needs
k) Board and lodging provided free of charge or at reduced prices

For the quantification of the individual types of wages and salaries in kind, the CZSO use three main data sources: (1) financial and statistical questionnaires of costs and revenues linked with the economic activity of institutional units of all residential sectors; (2) the statistical survey of total labour costs; (3) estimates by experts for some items. The first two sources provide reasonably robust initial estimates for most items of income in kind. The third source provides estimates for company cars for private use (j) and for board and lodging provided free of charge or at reduced prices (k). These two experts' estimates are effectively exhaustiveness adjustments.

(1) Financial and statistical questionnaires of costs and revenues: this data source is used to quantify the following NA items:

- (a) Wages and salaries in kind as a part of taxable wages and salaries.
- (c) Statutory social cost and other social costs - tax liable employer contributions to employees e.g. on the running costs of sport, recreation and leisure time facilities, on boarding & lodging, and on recreation, culture and sport.
- (d) Per diem on business trips - meals and drinks are estimated as part of a survey of travelling costs which gives a split between wages & salaries in kind and intermediate consumption. The split varies as between small and larger enterprises.

(*2) Labour costs survey (LCS)* – this source covers most items of income in kind:

- (a) Wages & salaries in kind.
- (b) Meal vouchers provided by employers to employees or contributions of employers to operating costs of canteens.
- (c) Contributions from social funds – finance paid from social funds (created e.g. in banks, insurance companies) or cultural and social needs funds (created e.g. in budgetary organizations).
- (e) Expenditures on clothing of non-civil sections of the Ministry of Defence, the Ministry of the Interior and the Ministry of Justice.
- (f) Other social expenditure covered from costs of institutional units - including expenditures on labour force regeneration.
- (g) Housing contributions of the employer to assist employees and their families with the purchase of housing or housing equipment.
- (h) Discount on the company's goods sold to employees at a reduced price or free of charge.
- (i) Contributions in the form of remitted interest and reductions in the price of company shares.

(3) Items estimated by experts:

- (j) Company cars used for personal needs - estimates were made on the basis of the number of cars used for personal needs as established by the LCS; the calculation assumed the monthly depreciation of cars of 1 % of the input price and that the cars were used for 12 months a year.
- (k) Board and lodging provided free of charge - the estimate was based on the assumption that consumption per employee amounted to CZK 50 (estimated average price of a meal in company canteen) for a period of 100 days, the number of employees being obtained from the LCS.

Tips & gratuities

The CZSO estimates assume tips & gratuities are concentrated in the following areas:

- Restaurants and bars
- Hairdressing and other beauty treatment
- Physical well-being activities
- Taxi services.

CZSO obtained a final estimate of the aggregate amount of tips after comparing two methods of calculation.

The first method is based on the final consumption expenditures of households and foreign visitors structured according to COICOP. The share of expenditure accounted for by tips in different areas correspond to local practices and depends on the quality of service. Based on expert opinions, the share varies from 3% to 10%.

The second method is based on the numbers of persons carrying out the activities listed above, the amount of tips per day and the average number of working days per year. CZSO used two sources for working persons – data from Labour Force Survey and the average numbers of working persons according to the main data sources used for compiling national accounts (data at the level of NACE three-digit activity).

CZSO assume tips are found only in non-financial corporations and households. The total amount of tips was split between production and incomes using numbers of employees in these two institutional sectors.

5. Summary of the CZSO Exhaustiveness Adjustments for 2000 – Output approach

Section 4 provides a description of the methods employed by CZSO to estimate exhaustiveness adjustments for each of the non-exhaustiveness types, N1 to N7. It is easy to lose sight of the 'big picture' when discussing individual non-exhaustiveness types, so the following table presents a summary of the CZSO exhaustiveness adjustments:-

CZSO exhaustiveness adjustments by type, 2000 *millions of CZK*

Component	Type of non-exhaustiveness adjustment								
	N1	N2	N3	N4	N5	N6	N7	Absolute totals	*% of GDP*
Gross output	12 941	6 169	50 415	86 144	26 680	64 377	11 358	258 084	-
Intermediate consumption	2 592	1 234	23 861	53 291	5 330	-29 998	0	56 310	-
Gross value added (GVA)	10 349	4 935	26 554	32 853	21 350	94 375	11 358	201 774	*9.38*
% of total GVA adjustment	*5.1*	*2.4*	*13.2*	*16.3*	*10.6*	*46.8*	*5.6*	*100.0*	-
GVA adjustments as % of GDP	*0.48*	*0.23*	*1.23*	*1.53*	*0.99*	*4.39*	*0.53*	*9.38*	-

The **total** exhaustiveness adjustment to GVA represented 9.4% of GDP in 2000. (The average adjustment over the nine new Member States was 12% of GDP.)

By far the largest CZSO exhaustiveness adjustment is for **mis-reporting** (N6) and accounted for nearly 47% of the total adjustment to GVA. (This compares with the average of 49% over the nine countries.)

6. Summary of the CZSO Exhaustiveness Adjustments for 2002 – Output approach

As already mentioned at the beginning of this chapter, in the Czech Republic (and in Slovenia) the *Tabular Approach to Exhaustiveness* represents an integral part of the annual process of compiling GDP estimates.

It is interesting to see the changes, if any, over time. The table below provides the same summary of the exhaustiveness adjustments for 2002 as the table above for 2000. It should be noted that the 2002 estimates are provisional.

CZSO exhaustiveness adjustments by type, 2002 *millions of CZK*

Component	Type of non-exhaustiveness adjustment								
	N1	N2	N3	N4	N5	N6	N7	Absolute totals	*% of GDP*
Gross output	15 745	5 033	50 788	0	16 826	69 799	8 596	166 787	-
Intermediate consumption	3 152	1 007	25 001	0	3 355	-28 988	0	3 527	-
Gross value added (GVA)	12 593	4 026	25 787	0	13 471	98 787	8 596	163 260	*6.76*
% of total GVA adjustment	*7.7*	*2.5*	*15.8*	*0.0*	*8.2*	*60.5*	*5.3*	*100.0*	-
GVA adjustments as % of GDP	*0.52*	*0.17*	*1.07*	*0.00*	*0.56*	*4.09*	*0.36*	*6.76*	-

For the year 2002, the overall CZSO exhaustiveness adjustment represents 6.8% of GDP. The corresponding figure for 2000 was 9.4%.

While there are small differences in the relative importance of the adjustments for all the N types, the main reason for the reduction from 9.4% to 6.8% is the absence in 2002 of an adjustment for type N4 (legal units not surveyed). In 2000, the adjustment for N4 was over 1.5%.

The explanation for this change was given in section 4.4. For the year 2000, the updating of the business register (BR) made use of data from a new source - the register of income tax (including corporation tax) payers. This special exhaustiveness exercise resulted in the very significant N4 adjustment in 2000, adding 1.5% to GDP. For subsequent years, because the income tax payers register became an integral part of the regular BR updating process, further exhaustiveness adjustments for N4 have proved unnecessary.

The next chapter presents the 2002 exhaustiveness adjustments in the Czech Republic for the output, income and expenditure approaches to GDP.

CHAPTER 4

Exhaustiveness Adjustment: Output, Income and Expenditure Approaches: Results from the Czech Republic for 2002

Chapter 4

Exhaustiveness Adjustments: Output, Income and Expenditure Approaches

Results from the Czech Republic for the Year 2002

1. Introduction

The *Tabular Approach to Exhaustiveness (TAE)* results in previous chapters have concentrated on the GDP output approach. In particular, Chapter 2 presented summary analyses of the exhaustiveness adjustments for 2000 in the nine countries. Chapter 3 focused on the 2000 results for one country, the Czech Republic.

This chapter presents *TAE* results for all three GDP approaches. The results for the output, income and expenditure approaches are those provided by the Czech Statistical Office (CZSO).

Because the CZSO has integrated the *TAE* into its annual GDP compilation routines, it is possible to present the CZSO exhaustiveness adjustments for the year 2002 - though it should stressed that the results are not yet final.

2. Exhaustiveness Adjustments: CZSO Results for 2002 : Output Approach

The following table has already been presented in Section 6 of Chapter 3. For the year 2002, the overall CZSO exhaustiveness adjustment represents 6.8% of GDP. Some 60% of the total exhaustiveness adjustment was accounted by misreporting (non-exhaustiveness type N6).

CZSO exhaustiveness adjustments by type, 2002, output approach, millions of CZK

Component	Type of non-exhaustiveness adjustment								
	N1	N2	N3	N4	N5	N6	N7	Absolute totals	*% of GDP*
Gross output	15 745	5 033	50 788	0	16 826	69 799	8 596	166 787	-
Intermediate consumption	3 152	1 007	25 001	0	3 355	-28 988	0	3 527	-
Gross value added (GVA)	12 593	4 026	25 787	0	13 471	98 787	8 596	163 260	*6.76*
% of total GVA adjustment	*7.7*	*2.5*	*15.8*	*0.0*	*8.2*	*60.5*	*5.3*	*100.0*	-
GVA adjustments as % of GDP	*0.52*	*0.17*	*1.07*	*0.00*	*0.56*	*4.09*	*0.36*	*6.76*	-

A description of the sources and methods employed by the CZSO to estimate types N1 to N6 was provided in Chapter 3 in connection with the 2000 *TAE* results. Similar sources and methods were used by the CZSO in both 2000 and 2002.

3. Exhaustiveness Adjustments: CZSO Results for 2002: Income Approach

The table below is a summary of the Czech exhaustiveness adjustments for the income approach.

CZSO exhaustiveness adjustments by type, 2002, income approach, millions of CZK

Income component	Type of non-exhaustiveness adjustment							Absolute Totals	*% of GDP*
	N1	N2	N3	N4	N5	N6	N7		
Wages and salaries	0	0	272	0	0	8 355	8 339	16 966	0,66
Employers' social contributions	0	0	0	0	0	0	0	0	-
Taxes on products	0	0	0	0	0	0	0	0	-
Other taxes on production	0	0	0	0	0	0	0	0	-
Subsidies on products (-)	0	0	0	0	0	0	0	0	-
Other subsidies on production (-)	0	0	0	0	0	0	0	0	-
Consumption of fixed capital	0	0	0	0	0	0	0	0	-
Net operating surplus	0	0	0	0	0	40 996	-66	40 930	1,60
Mixed income	12 593	4 026	25 515	0	14 151	55 313	-2	111 596	4,36
Total adjustments for each N-type	12 593	4 026	25 787	0	14 151	104 664	8 271	169 492	6,62
% of overall adjustment	*7.4*	*2.4*	*15.2*	-	*8.3*	*61.8*	*4.9*	*100.0*	-
Adjustments as a % of GDP	*0,49*	*0,16*	*1,01*	-	*0,55*	*4,09*	*0,32*	*6,62*	-

The **overall** CZSO exhaustiveness adjustment represents 6.6% of GDP, close to that for the output approach (6.8%). This is not surprising given that the income approach to GDP uses similar data sources and non-response estimation procedures as the output approach.

4. Exhaustiveness Adjustments: CZSO Results for 2002: Expenditure Approach

The table below is a summary of the exhaustiveness adjustments for the expenditure approach.

CZSO exhaustiveness adjustments by type, 2002, expenditure approach, millions of CZK

Expenditure Component	Type of non-exhaustiveness adjustment							Absolute totals	*% of GDP*
	N1	N2	N3	N4	N5	N6	N7		
Final consumption expenditure	0	1840	20536	0	0	11736	70712	104824	*4.34*
Gross capital formation	0	0	46291	0	0	0	0	46291	*1.92*
Exports of goods and services	0	3737	0	0	0	0	5070	8807	*0.36*
Imports of goods and services	0	0	0	0	0	0	1012	1012	*0.04*
Total adjustment for each N-type	0	5577	66827	0	0	11736	74770	158910	*6.58*
% of overall adjustment	-	*3.5*	*42.0*	-	-	*7.4*	*47.1*	*100.0*	
Adjustments as a % of GDP	*0.00*	*0.23*	*2.77*	-	*0.00*	*0.49*	*3.10*	*6.58*	

The **overall** CZSO exhaustiveness adjustment represents 6.6% of GDP, virtually identical to that for the income approach (6.6%) and similar to the adjustment for the output approach (6.8%).

Eurostat's Tabular Approach to Exhaustiveness

Annexes A to E

ANNEX A

NATIONAL ACCOUNTS PROJECTS FUNDED BY THE PHARE MULTI-COUNTRY COUNTRY PROGRAMME

14-Mar-05

MULTI-COUNTRY PROJECTS** organised by Eurostat unit C1	BG	CZ	CY	EE	HU	LV	LT	MT	PL	RO	SK	SI
*** Projects for non-Phare countries (Cyprus and Malta) are also included.*												
Projects started in 1996/97 (funded by Phare 1996)												
(relatively small projects used for fact finding)												
1. Estimation methods at constant prices	x	x	x	x	x	x	x		x	x	x	x
2. General government and NPISH	x	x	x	x	x	x	x		x	x	x	x
3. Private household consumption	x	x	x	x	x	x	x		x	x	x	x
4. Banking and insurance, FISIM	x	x	x	x	x	x	x		x	x	x	x
5. Exhaustiveness of the National Accounts	x	x	x	x	x	x	x		x	x	x	x
6. Use of registers for National Accounts purposes	x	x	x	x	x	x	x		x	x	x	x
7. Dwelling services	x	x	x	x	x	x	x		x	x	x	x
Projects in 1998/1999 (Phare 1997)												
1. Pilot project on the exhaustiveness of the NA in the Candidate Countries	x	x	x	x	x	x	x		x	x	x	x
2. Private household consumption	x	x	x	x	x	x	x		x	x	x	x
3. Estimation methods at constant prices	x	x	x	x	x	x	x		x	x	x	x
4. General government and non-profit institutions	x	x	x	x	x	x	x		x	x	x	x
5. Banking and insurance; FISIM	x	x	x	x	x	x	x		x	x	x	x
6. Estimates for shuttle trade and tourist expenditure: a feasibility study	x	x		x		x	x		x	x	x	x
7. Development of NA database and data transmission using GESMES	x	x	x	x	x	x	x		x	x	x	x
8. Changes in inventories and holding gains	x	x	x	x	x	x	x		x	x	x	x
9. Dwelling services (Task Force)		x		x							x	x
10. Input-Output tables	x	x	x	x	x	x	x		x	x	x	x
11. Calculation of the capital stock and the consumption of fixed capital		x	x	x	x	x	x		x		x	x
Projects in 2000 (Phare 98)												
1. TF on tourist expenditure and shuttle trade									x			
2. Development of NA database and data transmission using GESMES	x	x	x	x	x	x	x		x	x	x	x

	BG	CZ	CY	EE	HU	LV	LT	MT	PL	RO	SK	SI
Projects in 2001/2002 (Phare 99)												
1. Task Force (TF) on the use of HBS for estimating HFC	x	x		x		x	x			x	x	x
2. TF on the user cost method for estimating dwelling services		x			x				x			x
3. TA for banks and insurance	x	x		x			x			x	x	x
4. Handbook produced on border surveys, tourist expenditure & shuttle trade												
5. IOT (4 countries)				x		x	x					x
6. Description and expert reports	x	x	x	x	x	x	x		x	x	x	x
Projects in 2002/2003 (Phare 2000)												
1. Private Household Consumption	x	x	x	x	x	x	x	x	x		x	x
2. Constant Prices	x	x	x	x	x	x	x	x	x	x	x	x
3. Dwellings	x	x		x	x	x	x	x	x	x	x	x
4. Input-output tables (6 countries)		x	x		x			x	x		x	
5. Capital stock and capital consumption		x	x	x	x	x	x	x	x		x	
6. Gross capital formation	x	x		x		x	x	x		x	x	
7. Exhaustiveness (*not completed by every country*)	x	x	x	x	x	x	x	x	x	x	x	x
Projects in 2003/2004 (Phare 2001)												
1. IOT/SUT (4 countries)	x						x	x		x		
Projects in 2004/2005 (Phare 2002) - will be completed in July 2005												
1. Constant price estimates	x	x	x	x	x	x	x	x	x	x	x	x
2. GNI inventories - *part 1 (writing chapters 3-5 + chapters 10 & 11)*	x	x	x	x	x	x	x	x	x	x	x	x
3. GDP-GNI transition *(including writing of chapter 8 of the GNI inventory)*	x	x	x	x	x	x	x	x	x	x	x	x
4. Data collection projects (small country-specific projects)		x					x		x	x	x	
Projects in 2005/2006 (Phare 2003) - starting in 2005												
1. Constant price estimates - Inventory	x	x	x	x	x	x	x	x	x	x	x	x
2. GNI inventories - *part 2 (writing chapters 1, 2, 6, 7 & 9.)*	x	x	x	x	x	x	x	x	x	x	x	x
3. Gross Capital Formation/Capital Stock	x	x	x	x		x	x	x	x	x	x	x
4. Input-Output Tables	x	x	x	x		x	x	x	x	x		x
5. Sector Accounts	x	x	x	x	x	x	x	x	x	x	x	x
Projects in 2006/2007 ("Transition Facility" 2004) - planned to start in 2006												
Under the heading "GNI inventories":-		x	x	x	x	x	x	x	x		x	x
1. Updating of Exhaustiveness estimates using the Tabular Approach												
2. Improvements in estimates of the GDP-GNI Transition												
3. Incorporation of Process Tables in the GNI Inventory												

BG: Bulgaria; CZ: Czech Republic; CY: Cyprus; EE: Estonia; HU: Hungary
LV: Latvia; LT: Lithuania; MT: Malta; PL: Poland; RO: Romania
SK: Slovak Republic; SI: Slovenia

Eurostat's Tabular Approach to Exhaustiveness

Guidelines Annex B: Glossary

Introductory Remarks

To assist those reading these Guidelines to have a common understanding of the technical terms used, this Glossary has been prepared. Definitions have been drawn from several sources, including ESA95, SNA93 and the NOE Handbook. However, certain terms used for the Tabular Approach to Exhaustiveness do not feature, for example, in ESA95 or SNA93, so this Glossary includes additional definitions, as indicated in the following paragraphs:-

- Given that the main goal is *exhaustiveness,* the problems faced in achieving exhaustiveness may be broken down into *types of potential non-exhaustiveness* for which *exhaustiveness adjustments* have to be made. Thus the term *non-exhaustiveness* is used extensively.
- *Non-exhaustiveness for which adjustments are not included in the national accounts published estimates* is an important concept.
- The 1993 SNA defines an *enterprise* as an institutional unit, i.e., corporation, government unit, non-profit institution or household, in its capacity as a producer of goods and services. This is a very broad definition, including, in particular, non-market household producers and is sometimes a source of confusion. Thus, to avoid any possible misunderstandings where non-market household producers are included (or are being specifically referred to), the alternative general term *producer* is used in place of *enterprise.*
- With regard to data collection from enterprises using an enterprise survey based on a business register, there is often an important practical distinction between: (i) those enterprises that are legal persons; (ii) those that are operating without separate legal personality under the ownership and control of one or more entrepreneurs; and (iii) those that have essentially no market output. Those in (i) are likely to be more easily identifiable and available to the business register and are referred to as *enterprises (legal persons)*. Those in (ii) are referred to as *entrepreneurships*. Those in (iii) are referred to as *non-market household enterprises*.
- From the perspective of potential non-exhaustiveness, one of the most significant distinctions is between enterprises that are registered and those that are not. *Registered enterprises* are legal persons or entrepreneurships for which the entrepreneur has registered business activity. *Unregistered enterprises* are those that are not registered, either because they are not required to do so by law, or because they have deliberately chosen not to register as they are engaged in underground or illegal activities.

Given the use of the labour input method, the definitions of labour related terms are included in some detail.

Glossary

Activity classification (See NACE Rev. 1.1 and ISIC Rev. 3.1)	The main purpose of an *activity classification* is to classify productive economic activities, the aim being to provide a set of activity categories that can be utilised when dissecting statistics according to such activities. NACE Rev. 1.1 is the classification of economic activities developed by the European Union and is the European counterpart to ISIC Rev.3 which is the classification of economic activities drawn up by the United Nations and recommended for use throughout the world.
Administrative data collection	The set of activities involved in the collection, processing storage and dissemination of statistical data from one or more *administrative sources*. The equivalent of a *survey* but with the source of data being administrative records rather direct contact with respondents. (NOE Handbook)
Administrative data	The set of units and data derived from an *administrative source*. (NOE Handbook)
Administrative source	The organisational unit responsible for implementing an administrative regulation (or group of regulations), for which the corresponding register of units and the transactions are viewed as a source of statistical data. (NOE Handbook)
Basic data collection programme	The *basic data collection programme* is the data collection infrastructure and survey procedures that are in place within a *national statistical system* to collect, process and disseminate basic statistical data. (NOE Handbook)
Basic price	The *basic price* is the price receivable by the producers from the purchaser for a unit of a good or service produced as output minus any tax payable on that unit as a consequence of its production or sale (i.e. taxes on products), plus any subsidy receivable on that unit as a consequence of its production or sale (i.e. subsidies on products). It excludes any transport charges invoiced separately by the producer. It includes any transport margins charged by the producer on the same invoice, even when they are included as a separate item on the invoice. (ESA 3.48)
Basic statistical data	Data collected on a regular basis by *survey* from respondents, or from *administrative sources*, by *survey statisticians* in the *national statistical system* are edited, imputed and aggregated to become the *basic statistical data* that are published as *official statistics* and/or used in compilation of the national accounts. (NOE Handbook)
Classification	A *classification* is a set of discrete, exhaustive and mutually exclusive observations which can be assigned to one or more variables to be measured in the collation and/or presentation of data. The terms “classification” and “nomenclature” are often used interchangeably, despite the definition of a “nomenclature” being narrower than that of a “classification”. The structure of classification can be either hierarchical or flat. (*United Nations Glossary of Classification Terms*. Prepared by the Expert Group on International Economic and Social Classifications. Available at: www.un.org/Depts/unsd/class/glossary_short.htm)
Census	A *census* is a survey conducted on the full set of observation objects belonging to a given population or universe. (*Terminology on Statistical Metadata*, Conference of European Statisticians Statistical Standards and Studies, No. 53, UNECE, Geneva 2000)

Coverage	*Coverag*e refers to the population from which observations for a particular topic can be drawn. An understanding of coverage is required to faciltate the comparison of data. The rules and conventions of coverage are largely determined by concept definitions, scope rules, information requirements and, in the case of statistical collections and classifications, collection and counting units and the collection methodology. (*United Nations Glossary of Classification Terms*. Prepared by the Expert Group on International Economic and Social Classifications. Available at: www.un.org/Depts/unsd/class/glossary_short.htm)
Data collection	*Data collection* is used in a broad sense to mean the whole survey or administrative data collection process, including design, collection, editing, imputation, aggregation and dissemination. (NOE Handbook)
Double entry	For a unit or sector, national accounting is based on the principle of double entry. Each transaction must be recorded twice, once as a resource (or a change in liabilities) and once as a use (or a change in assets). (ESA 1.50)
Economic activity	An economic *activity* is a process, i.e., the combination of actions, that result in economic production
Economic activity classification	See *Activity classification*
Economic production	See *Production*
Employed persons	The *employe*d comprise all persons above a specified age who during a specified brief period, either one week or one day, were in the following categories: (a) paid employment: - at work: persons who during the reference period performed some work for a wage or salary, in cash or in kind; - with a job but not at work: persons who, having already worked in their present job, were temporarily not at work during the reference period and had a formal attachment to their job. This formal attachment should be determined in the light of national circumstances, according to one or more of the following criteria: the continued receipt of wage or salary; an assurance of return to work following the end of the contingency, or an agreement as to the date of return; the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligations to accept other jobs; (b) self-employment - at work; persons who during the reference period performed some work for profit or family gain, in cash or in kind; - with an enterprise but not at work: persons with an enterprise, which may be a business enterprise, a farm or a service undertaking, who were temporarily not at work during the reference period for any specific reason. For operational purposes the notion of "some work" may be interpreted as work for at least one hour. (International Labour Organisation Resolution Concerning Statistics of the Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 9)
Employees	*Employees* are defined as all persons who, by agreement, work for another resident institutional unit and receive a remuneration (recorded as D.1 compensation of employees). (ESA 11.12)

Employer	*Employers* are self-employed persons with paid employees. (SNA 7.25) *Employers* are those workers who, working on their own account or with one or a few partners, hold the type of job defined as a *self-employed job*, and in this capacity, on a continuous basis (including the reference period) have engaged one or more persons to work for them in their business as *employees. (*International Labour Organisation Resolution Concerning the International Classification of Status in Employment Adopted by the 15th International Conference of Labour Statisticians, January 1993, para. 9)
Employment	Persons in *employmen*t comprise all persons above a specified age who during a specified brief period, either one week or one day, were in paid employment or self employment. (International Labour Organisation Resolution Concerning Statistics of the Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 9)
Enterprise	An *enterprise* is an institutional unit in its capacity as a producer of goods and services; an enterprise may be a corporation, a quasi-corporation, a non-profit institution, or an unincorporated enterprise. (SNA 5.17 [see also SNA 5.1]) An enterprise may be a *legal person* or an *enterpreneurship* or *non-market household producer*. It may be *registered* or *unregistered* (Tabular Approach to Exhaustiveness).
Entrepreneur	An *entrepreneur* is a natural person with business activity (Tabular Approach to Exhaustiveness)
Entrepreneurship	An *entrepreneurshi*p is synonymous with a *household unincorporated market enterprise*. It is an enterprise that is operating without separate legal personality under the ownership and control of one or more *entrepreneurs*. (Tabular Approach to Exhaustiveness)
European System of Accounts (ESA) (See SNA)	The European System of National and Regional Accounts (1995 ESA, or simply: ESA) is an internationally compatible accounting framework for a systematic and detailed description of a total economy (that is a region, country or group of countries), its components and its relations with other total economies. The 1995 ESA is fully consistent with the revised world-wide guidelines on national accounting, the System of National Accounts (1993 SNA, or simply: SNA). (ESA 1.01)
Establishment (See Local KAU and Statistical units)	An *establishment* is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single (non-ancillary) productive activity is carried out or in which the principal productive activity accounts for most of the value added. (SNA 5.21, 6.80) (ESA 2.106)
Exhaustive(ness)	GDP estimates are said to be *exhaustive* when they include all productive activities within the 1993 SNA production boundary, i.e., there are no *non-measured* productive activities. *Exhaustiveness* is the state of being exhaustive. (NOE Handbook)
Exhaustiveness adjustment	An *exhaustiveness adjustment* is an adjustment made prior to or during the course of compiling the national accounts to compensate for *non-observed activities* in the *basic data* (Tabular Approach to Exhaustiveness).
Full coverage survey	See *Census*
Full-time equivalent employment	Full-time equivalent employment, which equals the number of full-time equivalent jobs, is defined as total hours worked divided by the average annual number of hours worked in full-time jobs within the economic territory. (ESA 11.32)

Gross domestic product	*Gross domestic product* at market prices is the final result of the production activity of resident producer units. It can be defined (see ESA 8.89) in three ways: a) GDP is the sum of gross value added of the various institutional sectors or the various industries plus taxes and less subsidies on products (which are not allocated to sectors and industries). It is also the balancing item in the total economy production account; b) GDP is the sum of final uses of goods and services by resident institutional units (actual final consumption and gross capital formation), plus exports and minus imports of goods and services; c) GDP is the sum of uses in the total economy generation of income account (compensation of employees, taxes on production and imports less subsidies, gross operating surplus and mixed income of the total economy).
Gross fixed capital formation	*Gross fixed capital formation* consists of resident producers' acquisitions, less disposals, of fixed assets during a given period plus certain additions to the value of non-produced assets realised by the productive activity of producer or institutional units. Fixed assets are tangible or intangible assets produced as outputs from processes of production that are themselves used repeatedly, or continuously, in processes of production for more than one year. (ESA 3.102)
Gross value added	*Gross value added* is the value of output less the value of intermediate consumption; it is a measure of the contribution to GDP made by an individual producer, industry or sector.. (SNA 1.6 [2.172, 6.4, 6.222]) *Gross value added at basic prices* is output valued at basic prices less intermediate consumption valued at purchasers' prices. (SNA 6.226, 15.37 [6.231]) *Gross value added at producers' prices* is output valued at producers' prices less intermediate consumption valued at purchasers' prices. (SNA 6.227, 15.37)
Households	*Households* as consumers may be defined as small groups of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food. (ESA 2.75)
Household production for own use	*Household production for own use* comprises those activities that are carried out by household unincorporated enterprises that are not involved in market production. By definition, such enterprises are excluded from the informal sector. (NOE Handbook)
Household unincorporated market enterprise	*Household unincorporated market enterprises* are created for the purpose of producing goods or services for sale or barter on the market; they can be engaged in virtually any kind of productive activity and they include unincorporated partnerships but the liability of the partners for the debts of the businesses must be unlimited for the partnerships to be treated as unincorporated enterprises. (SNA 4.144 and 4.145) (ESA 3.30)
Illegal production	*Illegal production* comprises: - the production of goods or services whose sale, distribution or possession is forbidden by law; and - production activities which are usually legal but which become illegal when carried out by unauthorised producers, e.g. unlicensed medical practicioners (SNA 6.30); There may be no clear borderline between the underground economy and illegal production. For example, production which does not comply with certain safety, health or other standards could be defined as illegal. (SNA 6.35) The scope of illegal production in individual countries depends upon the laws in place. For example, prostitution is legal in some countries but illegal in others. (NOE Handbook)

Indirect compilation method	An *indirect compilation method* is one in which a national accounts' *data item* is obtained indirectly, often through the use of indicators, rather than from direct observation through *survey* or *administrative source*. (NOE Handbook)
Informal sector	The *informal sector* is broadly characterised as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organisation, with little or no division between labour and capital as factors of production and on a small scale. Labour relations – where they exist – are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees. This broad definition is operationalised for statistical purposes and the informal sector defined as comprising those household unincorporated enterprises with market production that are: -informal own account enterprises (optionally, all, or those that are not registered under specific forms of national legislation); -enterprises of informal employers (optionally all those with less than a specified level of employment and/or not registered and/or employees not registered. (International Labour Organisation Resolution Concerning Statistics of Employment in the Informal Sector Adopted by the 15th International Conference of Labour Statisticians, January 1993, paras. 5, 8 and 9.)
Institutional sectors	Institutional units are grouped together to form *institutional sectors*, on the basis of their principal functions, behaviour, and objectives. (SNA 2.20) (ESA 2.17) The resident institutional units that make up the total economy are grouped into five mutually exclusive institutional sectors: *non-financial corporations; financial corporations; general government; non-profit institutions serving households;* and *households*. (SNA 4.6) (ESA 1.28)
Institutional unit	The *institutional unit* is an elementary economic decision-making centre characterised by uniformity of behaviour and decision-making autonomy in the exercise of its principal function. (ESA 2.12 [1.28]) An *institutional unit* is an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities. (SNA 4.2 [1.13, 2.19, 3.13])
International standard industrial classification (See NACE Rev. 1.1)	*ISIC* is the United Nations International Standard Industrial Classification of All Economic Activities. This classification is the international standard for the classification of productive economic activities. The main purpose is to provide a standard set of economic activities so that entities can be classified according to the activity they carry out. The third revision of ISIC is used in the 1993 SNA. (*International Standard Industrial Classification of all Economic Activities*, Rev. 3, United Nations, New York, 1990, Statistical Papers Series M, No. 4 Rev. 3)
Kind-of-activity unit (See Statistical units)	A *kind-of-activity unit* (KAU) is an enterprise, or a part of an enterprise, which engages in only one kind of (non-ancillary) productive activity or in which the principal productive activity accounts for most of the value added. (SNA 5.19) (ESA 2.106)
Labour force (or Total labour force)	The *labour force* comprises all persons who fulfil the requirements for inclusion among the *employed* or the *unemployed* during a short reference period. (International Labour Organization Resolution Concerning Statistics of the Economically Active Population, Employment, Unemployment and Underemployment adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 8)
Lack of exhaustiveness	*Lack of exhaustiveness* is the same as *non-exhaustiveness* (Tabular Approach to Exhaustiveness).

Legal entity	*Legal entities* are types of institutional units which are created for purposes of production, mainly corporations and non-profit institutions (NPIs), or government units, including social security funds; they are capable of owning goods and assets, incurring liabilities and engaging in economic activities and transactions with other units in their own right. (SNA 1.13 [4.5])
Legal person	A *legal person* is a *legal entity.* Governments are legal persons. The important distinction is between enterprises that are legal persons and those that are not. (Tabular Approach to Exhaustiveness).
Local government	The sub-sector *local government* includes those types of public administration whose competence extends to only a local part of the economic territory, apart from local agencies of social security funds. (ESA 2.73) *Local government* units are institutional units whose fiscal, legislative and executive authority extends over the smallest geographical areas distinguished for administrative and political purposes. (SNA 4.128)
Local kind of activity unit (local KAU) (See Statistical units)	A *local unit* is an enterprise, or a part of an enterprise, which engages in productive activity at or from one location. (SNA 5.20) (ESA 2.106) The *local kind-of activity unit* (local KAU) is the part of a KAU which corresponds to a local unit. According to the European System of Accounts (ESA), the local KAU is called the 'establishment' in the SNA and ISIC Rev. 3. (ESA 2.106, footnote 15)
Local unit (See Statistical units)	The concept of the *local unit* covers all economic activities carried out by an enterprise at or from one location. (ISIC Rev. 3, para 99) (NACE Rev. 1.1) The definition has only one dimension in that it does not refer to the kind of activity that is carried out. Location may be interpreted according to the purpose, narrowly, such as specific address, or more broadly, such as within province, state, country, etc. (*United Nations Glossary of Classification Terms*. Prepared by the Expert Group on International Economic and Social Classifications. Available at: www.un.org/Depts/unsd/class/glossary_short.htm)
Methodology	A *methodology* is a structured approach to solve a problem. (*Terminology on Statistical Metadata*, Conference of European Statisticians Statistical Standards and Studies, No. 53, UNECE, Geneva 2000)
NACE Rev. 1.1 (See ISIC Rev. 3.1)	NACE Rev. 1.1 is the European Union classification of economic activities corresponding to ISIC Rev.3.1. Though more disaggregated than ISIC Rev.3.1, NACE Rev.1.1 is totally in line with it and can thus be regarded as its European counterpart.
National statistical office	The *national statistical office (NSO)* is the leading statistical agency within a *national statistical system*. (NOE Handbook)
National statistical system	The *national statistical system (NSS)* is the ensemble of statistical organisations and units within a country that jointly collect, process and disseminate statistics on behalf of the national government. (NOE Handbook)
Non-exhaustiveness	*Non-exhaustiveness* is the state of not being exhaustive, i.e., the published estimate of GDP is too low because of the failure to make appropriate *exhaustiveness adjustments* (Tabular Approach to Exhaustiveness).

Non-financial corporation	The sector *non-financial corporations* (S.11) consists of institutional units whose distributive and financial transactions are distinct from those of their owners and which are market producers (see paragraphs ESA 3.31., 3.32. and 3.37.), whose principal activity is the production of goods and non-financial services. (ESA 2.21) *Non-financial corporations* are corporations whose principal activity is the production of market goods or non-financial services. (SNA 4.68 [2.20])
Non-market producer	A *non-market producer* is an *unincorporated household non-market enterprise* with no market production or such small market production that the enterprise does not have to be *registered*. (Tabular Approach to Exhaustiveness).
Non-observed activity	An activity within the 1993 SNA (or 1995 ESA) production boundary that is not observed, i.e., not directly measured in the basic data from which the national accounts are compiled. (NOE Handbook)
Non-observed economy	The groups of activities most likely to be non-observed are those that are *underground, illegal, informal, undeclared* or *undertaken by households for their own final use.* Activities may also be missed because of *deficiencies in the basic statistical data collection programme*.
Non-measured activity	A *non-measured activity* is an activity within the 1993 SNA (or 1995 ESA) production boundary that is not included in GDP estimates. (NOE Handbook)
Non-measured economy	The *non-measured economy* is the group of activities within the 1993 SNA (or 1995 ESA) production boundary that are non-measured. (NOE Handbook)
Non-profit institution	*Non-profit institutions (NPIs)* are legal or social entities created for the purpose of producing goods and services whose status does not permit them to be a source of income, profit or other financial gain for the units that establish, control or finance them. (SNA 4.54 [4.18, 4.161])(ESA 2.87)
Non-profit institutions serving households	The sector *non-profit institutions serving households* (NPISHs) (S.15) consists of non-profit institutions which are separate legal entities, which serve households and which are private other non-market producers (see paragraph 3.32.). Their principal resources, apart from those derived from occasional sales, are derived from voluntary contributions in cash or in kind from households in their capacity as consumers, from payments made by general governments and from property income. (ESA 2.87-2.88) *Non-profit institutions serving households (NPISHs)* consist of NPIs which are not predominantly financed and controlled by government and which provide goods or services to households free or at prices that are not economically significant. (SNA 4.64 and 4.65 [2.20])
Output	*Output* consists of those goods or services that are produced within an establishment that become available for use outside that establishment, plus any goods and services produced for own final use. (SNA 6.38) (ESA 3.14-3.16)
Output produced for own final use	*Output produced for own final use* consists of goods or services that are retained for their own final use by the owners of the enterprises in which they are produced. (SNA 6.46) (ESA 3.21 and 3.25)
Own-account producer	*Own-account producers* consist of establishments engaged in gross fixed capital formation for the enterprises of which they form part, or unincorporated enterprises owned by households all or most of whose output is intended for final consumption or gross fixed capital formation by those households. (SNA 6.52)

Own-account worker	*Own-account workers* are self-employed persons without paid employees. (SNA 7.25) *Own-account workers* are those workers who, working on their own account or with one or more partners, hold the type of job defined as a *self-employed job*, and have not engaged on a continuous basis any *employees* to work for them during the reference period. It should be noted that during the reference period the members of this group may have engaged *employees*, provided that this is on a non-continuous basis. The partners may or may not be members of the same family or household. (International Labour Organisation Resolution Concerning the International Classification of Status in Employment Adopted by the 15th International Conference of Labour Statisticians, January 1993, para. 10)
Partnership	*Partnerships* are separate legal entities which behave like corporations but whose members enjoy limited liability; in effect, the partners are at the same time both shareholders and managers. (SNA 4.46)
Part-time employee	*Part-time employees* are persons whose usual hours of work are less than the normal working hours established for full-time jobs. This definition encompasses all forms of part-time work (half-day work, work for one, two or three days a week, etc.). This number may be established at the national, regional, industrial or unit level. The number of part-time employees is calculated by reference to the number of hours worked per week for which they are paid. The number of hours is considered in relation to the length of what is considered to be a full-time working week in the Member State or the sector of the unit or the unit itself. (Definitions of Structural Business Statistics Regulation, Commission Regulation (EC) No. 2700/98 of 17 December 1998)
Population	*Population* is the total membership or population or "universe" of a defined class of people, objects or events. There are two types of population, viz, target population and survey population. A target population is the population outlined in the survey objects about which information is to be sought and a survey population is the population from which information can be obtained in the survey. The target population is also known as the scope of the survey and the survey population is also known as the coverage of the survey. For administrative records the corresponding populations are: the "target" population as defined by the relevant legislation and regulations, and the actual "client population". (*United Nations Glossary of Classification Terms*. Prepared by the Expert Group on International Economic and Social Classifications. Available at: www.un.org/Depts/unsd/class/glossary_short.htm)
Potential non-exhaustiveness	*Potential non-exhaustiveness* is any element of non-exhaustiveness that can occur and that will result in under estimation of GDP unless an adjustment is made. (Tabular Approach to Exhaustiveness)
Principal activity	The *principal activity* of a local KAU (or producer unit) is the activity whose value added exceeds that of any other activity carried out within the same unit. The classification of the principal activity is determined by reference to NACE rev. 1, first at the highest level of the classification and then at more detailed levels. (ESA 3.10) (SNA 15.16)
Producer	A *producer* is any institutional unit or part unit engaged in production. In the Tabular Approach to Exhaustiveness it is used as a synonym for *enterprise* in circumstances where the latter might be misunderstood to exclude non-market household producers.
Producer's price	The producer's price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the purchaser; it excludes any transport charges invoiced separately by the producer (SNA 6.205, 15.28 [3.82])

Production	*Production* is an activity, carried out under the control and responsibility of an institutional unit that uses inputs of labour, capital and goods and services to produce goods and services. (ESA 3.07-3.09)
Production boundary	The *production boundary* includes (a) the production of all individual or collective goods or services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods or services used up in the process of producing such goods or services; (b) the own-account production of all goods that are retained by their producers for their own final consumption or gross capital formation; (c) the own-account production of housing services by owner-occupiers and of domestic and personal services produced by employing paid domestic staff. (SNA 6.18 [1.20 and 1.22]) (ESA 1.13, 3.07-3.09)
Product	*Products*, also called "goods and services", are the result of production; they are exchanged and used for various purposes: as inputs in the production of other goods and services, as final consumption or for investment. (SNA 2.49) *Products* are all goods and services that are created within the production boundary. (ESA 3.01)
Public corporation	*Public corporations* are resident corporations and quasi-corporations that are subject to control by government units, with control over a corporation being defined as the ability to determine general corporate policy by choosing appropriate directors, if necessary. (SNA 4.72 and 4.84) (ESA 2.28)
Purchaser's price	The *purchaser's price* is the amount paid by the purchaser, excluding any deductible VAT or similar deductible tax, in order to take delivery of a unit of a good or service at the time and place required by the purchaser; the purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place. (SNA 6.215, 15.28 [2.73, 3.83]) (ESA 1.54, 3.06)
Quasi-corporation	*Quasi-corporations* are unincorporated enterprises that function as if they were corporations, and which have complete sets of accounts, including balance sheets. (SNA 4.49)(ESA 2.13f)
Questionnaire	A *questionnaire* is an identifiable instrument containing questions for gathering data from respondents. (*Terminology on Statistical Metadata*, Conference of European Statisticians Statistical Standards and Studies, No. 53, UNECE, Geneva 2000)
Registered enterprise	A *registered enterprise* is an enterprise that is a legal person or a registered entrepreneurship. (Tabular Approach to Exhaustiveness)
Registered entrepreneurship	A *registered entrepreneurship* is an *entrepreneurship* for which the entrepreneur has registered business activity, typically with the taxation authorities and/or regional or local administration. (Tabular Approach to Exhaustiveness)
Reporting unit	A *reporting unit* is a unit that supplies the data for a given survey instance. (*Terminology on Statistical Metadata*, Conference of European Statisticians Statistical Standards and Studies, No. 53, UNECE, Geneva 2000)
Respondent	*Respondents* are businesses, authorities, individual persons, etc, from whom data and associated information are collected for use in compiling statistics. (NOE Handbook)
Sample	A *sample* is a subset of a frame where elements are selected based on a randomised process with a known probability of selection. (*Terminology on Statistical Metadata*, Conference of European Statisticians Statistical Standards and Studies, No. 53, UNECE, Geneva 2000)

<table>
<tr><td>Sample survey</td><td>A sample survey is a survey which is carried out using a sampling method, i.e., in which a portion only, and not the whole population is surveyed. (A Dictionary of Statistical Terms, 5th Edition, F.H.C. Marriott, prepared for the International Statistical Institute, Longman Scientific and Technical, 1990)</td></tr>
<tr><td>Sector</td><td>Institutional units are grouped together to form institutional sectors, on the basis of their principal functions, behaviour, and objectives. (SNA 2.20) (ESA 2.17)</td></tr>
<tr><td>Self-employed worker</td><td>Self-employed workers are persons who are the sole owners, or joint owners, of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations. Contributing family workers, too, are considered self-employed workers. (SNA 7.24) (ESA 11.15-11.16)</td></tr>
<tr><td>Self-employment job</td><td>Self-employment jobs are those jobs where the remuneration is directly dependent upon the profits (or the potential for profits) derived from the goods or services produced (where own consumption is considered to be part of profits). The imcumbants make the operational decisions affecting the enterprise, or delegate such decisions while retaining responsibility for the welfare of the enterprise. In this context “enterprise” includes one-person operations. (International Labour Organisation Resolution Concerning the International Classification of Status in Employment Adopted by the 15th International Conference of Labour Statisticians, January 1993, para. 7)</td></tr>
<tr><td>Services</td><td>Services are outputs produced to order and which cannot be traded separately from their production; ownership rights cannot be established over services and by the time their production is completed they must have been provided to the consumers; however, as an exception to this rule there is a group of industries, generally classified as service industries, some of whose outputs have characteristics of goods, i.e., those concerned with the provision, storage, communication and dissemination of information, advice and entertainment in the broadest sense of those terms; the products of these industries, where ownership rights can be established, may be classified either as goods or services depending on the medium by which these outputs are supplied.
The service sector covers both market and non-market services. (SNA 6.8 [6.13])</td></tr>
<tr><td>Statistical unit</td><td>There are a number of standard statistical units which are defined in ISIC Rev. 3 and in NACE Rev. 1.1. For the purposes of these Guidelines, only the following different types of statistical units are defined in this Glossary: enterprise; institutional unit; kind-of-activity unit (KAU); local unit; local kind-of activity unit (local KAU) and establishment. The relationship between these different statistical units is illustrated in the table below:
<table>
<tr><td></td><td>One or more locations</td><td>A single location</td></tr>
<tr><td>One or more activities</td><td>Enterprise; Institutional unit</td><td>Local unit</td></tr>
<tr><td>One single activity</td><td>Kind-of-activity unit (KAU)</td><td>Local KAU = Establishment</td></tr>
</table></td></tr>
<tr><td>State government</td><td>The state government sub-sector consists of state governments which are separate institutional units exercising some of the functions of government at a level below that of central government and above that of the governmental institutional units existing at local level, except for the administration of social security funds. (ESA 2.72)
(SNA 4.124)</td></tr>
<tr><td>Statistical data</td><td>Statistical data are data from a survey or administrative source used to produce statistics and/or the data comprising such statistics. (NOE Handbook)</td></tr>
<tr><td>Statistical data collection</td><td>Statistical data collection is the operation of statistical data processing aimed at gathering of statistical data and producing the input object data of a statistical survey. (Terminology on Statistical Metadata, Conference of European Statisticians Statistical Standards and Studies, No. 53, UNECE, Geneva 2000)</td></tr>
</table>

Statistical metadata	*Statistical metadata* are metadata describing statistical data. (*Terminology on Statistical Metadata*, Conference of European Statisticians Statistical Standards and Studies, No. 53, UNECE, Geneva 2000)
Survey	A *survey* is an investigation about the characteristics of a given population by means of collecting data from a sample of that population and estimating their characteristics through the systematic use of statistical methodology. (*Terminology on Statistical Metadata*, Conference of European Statisticians Statistical Standards and Studies, No. 53, UNECE, Geneva 2000) If every unit of the population is included in the sample, the survey may be referred to as a *full coverage survey* or *census*. Thus the term "survey" includes census as a special case. (NOE Handbook)
System of National Accounts (SNA) (See ESA)	The *System of National Accounts* (*SNA*) consists of a coherent, consistent and integrated set of macroeconomic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules. (SNA 1.1)
Total economy	The *total economy* consists of all the institutional units which are resident in the economic territory of a country. (SNA 2.22) (ESA 1.30)
Underground economy	Producers engaged in *underground production* are described as belonging to the *underground economy*. (SNA 6.34)
Underground production	*Underground production* consists of activities that are productive in an economic sense and quite legal (provided certain standards or regulations are complied with), but that are deliberately concealed from public authorities for the following kinds of reasons: (a) to avoid the payment of income, value added or other taxes; (b) to avoid payment of social security contributions; (c) to avoid having to meet certain legal standards such as minimum wags, maximum hours, safety or health standards, etc.; (d) to avoid complying with certain administrative procedures, such as completing statistical quetionnaires or other administrative forms. (SNA 6.34)
Unemployed	The *unemployed* comprise all persons above a specified age who during the reference period were: - without work, that is, were not in *paid employment* or *self employment* during the reference period; - currently available for work, that is, were available for *paid employment* or *self-employment* during the reference period; and - seeking work, that is, had taken specific steps in a specified recent period to seek *paid employment* or *self-employment*. The specific steps may include registration at a public or private employment exchange; application to employers; checking at worksites, farms, factory gates, market or other assembly places; placing or answering newspaper advertisements; seeking assistance of friends or relatives; looking for land, building, machinery or equipment to establish own enterprise; arranging for financial resources; applying for permits and licences, etc. (International Labour Organisation Resolution Concerning Statistics of the Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 10)

Unincorporated enterprise	An *unincorporated enterprise* is a producer unit which is not incorporated as a legal entity separate from the owner (household, government or foreign resident); the fixed and other assets used in unincorporated enterprises do not belong to the enterprises but to their owners, the enterprises as such cannot engage in transactions with other economic units nor can they enter into contractual relationships with other units nor incur liabilities on their own behalf; in addition, their owners are personally liable, without limit, for any debts or obligations incurred in the course of production. (SNA 4.140 and 4.141)
Unregistered enterprise	An unregistered enterprise is an *enterprise* that is not a *legal person* nor a *registered entrepreneurship. (Tabular Approach to Exhaustiveness)*

Eurostat's Tabular Approach to Exhaustiveness

Guidelines Annex C: Non-Exhaustiveness Types[7]

1. Introduction

At the core of comprehensive and systematic assessment of exhaustiveness is the division of all productive activities according to their potential for non-exhaustiveness. For ease of analysis and interpretation, the division is based on a standard set of *non-exhaustiveness types.* The types are labelled N1-N7.

The starting point is to look at non-exhaustiveness from the perspective of the compilation by the output approach for which most data are obtained from surveys or administrative collections of enterprises. In this context ***enterprises*** are referred to as ***producers*** to ensure that it is understood that all possible types of enterprise are involved, including non-market household enterprises.

In order to ensure the types are mutually exclusive, the logic underlying their formulation is to divide productive activities according to their potential for being non-observed, using readily observable characteristics of producers, each characteristic being divided into a mutually exclusive, exhaustive set of categories. The characteristics used are:

- Is the producer administratively registered or unregistered?
- Is the producer included in the statistical business register or not?
- What is the basic data source: a producer survey/administrative collection /another source?
- Is the producer a legal person/ entrepreneurship/ non-market household producer?
- Does the producer respond to surveys or not?
- Does the producer report correctly or misreport?
- Are all the data required for the national accounts collected or not?

In combination, these characteristics underpin the definitions of types N1-N7 and provide a comprehensive breakdown of potential non-exhaustiveness. The derivation of types N1-N7 and their relationships are illustrated in **Figure I** below.

[7] Annex C of these *Guidelines* was originally written as a set of instructions to the nine countries undertaking the Tabular Approach to Exhaustiveness (*TAE*) in 2002-2003. The text of Annex C has not been significantly changed since 2002, so the character of the text is still somewhat 'instructive' in character.

FIGURE I

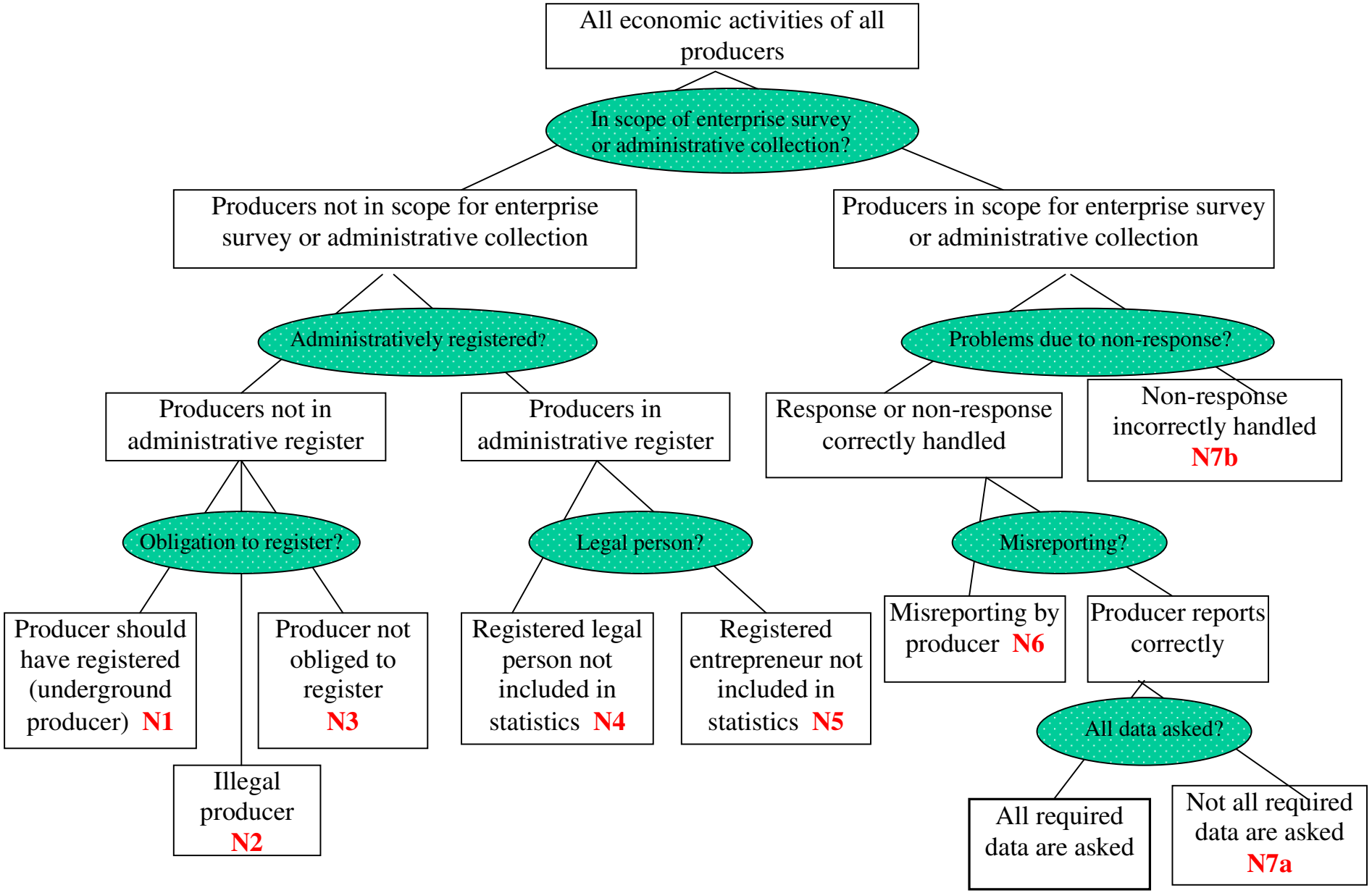

All economic activities of all producers
In scope of enterprise survey or administrative collection?
Producers not in scope for enterprise survey or administrative collection
Producers in scope for enterprise survey or administrative collection
Administratively registered?
Problems due to non-response?
Producers not in administrative register
Producers in administrative register
Response or non-response correctly handled
Non-response incorrectly handled N7b
Obligation to register?
Legal person?
Misreporting?
Producer should have registered (underground producer) N1
Illegal producer N2
Producer not obliged to register N3
Registered legal person not included in statistics N4
Registered entrepreneur not included in statistics N5
Misreporting by producer N6
Producer reports correctly
All data asked?
All required data are asked
Not all required data are asked N7a

Figure I first considers whether or not a producer is subject to survey or administrative collection. A producer may not be subject to survey or administrative collection because:

- it deliberately fails to register, because it is involved in underground (**N1**) or illegal (**N2**) activities; or
- it does not need to register (non-market household producers) (**N3**); or
- it is a legal person but not surveyed (**N4**); or
- it is a registered entrepreneurship but not surveyed (**N5**).

If the producer is subject to survey then the data obtained may not be exhaustive because:

- the producer deliberately misreports (**N6**);
- or the required data are not collected or properly processed (statistical deficiency) (**N7**).

Types N1 to N7 are geared to the situation where data are obtained from surveys of producers. Thus their main application is in analysis of exhaustiveness in the context of GDP compilation by the production approach. They can also be applied to analysis by the income and expenditure approaches, but this more easily done if these data are obtained from producer surveys.

The primary reason for defining a set of non-exhaustiveness types is as a diagnostic tool – the types facilitate the process of ensuring that every possible type of non-exhaustiveness is considered. In addition, they facilitate cross-country comparisons of adjustments and adjustment methods. Thus it is useful to associate types and adjustment methods, as is done in the following sections. However, some adjustments, in particular those arising from application of the labour input method, cannot always be uniquely associated with a single non-exhaustiveness type.

2. Non-Exhaustiveness Types: Output Approach

N1. Producers Deliberately Not Registering –Underground

- *Producer deliberately fails to register as legal entity or as entrepreneurship in order to avoid tax and social security obligations*

The non-exhaustiveness types are based on a division of producers into mutually exclusive groups. Thus, type N1 refers to the production of those producers that are not registered because they are involved in underground activities. Type N1 does not include all underground activities, some of which are associated with type N6.

Typically type N1 involves small producers that have turnovers exceeding the thresholds above which they should register business income to the taxation authorities.

Type N1 does not include producers that deliberately fail to register because they are involved in illegal activities (type N2).

Identification and adjustment methods used for type N1

Labour input method.
Other supply-based methods, e.g. using household budget survey.
Demand-based methods.
Commodity flow methods.

N2. Producers Deliberately Not Registering – Illegal [8]

- *Producer deliberately fails to register as a legal entity or as entrepreneurship because it is involved in illegal activities*

Producers engaged in illegal activities may avoid registration entirely, or they may register as legal entities or entrepreneurs and report their activities under different (legal) activity codes. N2 refers to the activities of those producers that avoid registration entirely. It excludes activities that are reported (including underreported) under legal activity codes. Thus N2 does not include all illegal production. Specifically, illegal activities may be undertaken by:

a) producers that are unregistered because they perform illegal activities – type N2;

b) producers that are not required to register, typically those producing goods and services for own consumption – type N3;

c) producers that are registered and who do not report the activities – type N6; and

d) producers that are registered and report the activities under the guise of legal activities - such activities do not contribute to any of the non-exhaustiveness types as they are reported and hence included in GDP estimates, even though they may be misclassified by industry.

In short, the Tabular Approach to Exhaustiveness does not neatly classify all illegal activities within a single type. It splits them up into groups. This causes a problem if, as is typically the case, estimates of illegal activities are compiled not from surveys or administrative sources describing enterprises, but rather from estimates of the total production and/or consumption of a particular commodity, drugs, prostitution, etc. In this case the main challenge is to ensure that the resulting estimates are incorporated in GDP totals in a way that they do not duplicate activities that have already been included within the basic data from which the GDP estimates are compiled (see case d above) or within one of the other non-exhaustiveness estimates (cases b and c). The general approach suggested for each type of illegal activity treated separately, is the following:-

- Compile the estimate of all illegal activities of that particular type;
- Compile an estimate of the illegal activities of that type that are likely to be have reported under the guise of legal activities;
- Subtract the second estimate from the first and record the result under type N2.

This may not be a conceptually pure approach, but it can be consistently done across all countries and it will result in complete estimates of GDP without double counting.

The approach is best illustrated by an example:-

Example: Prostitution

Obtain an estimate of total productive activity involving prostitution based on data from police/ health authorities regarding numbers of prostitutes and clients and average payments for services.
Obtain an estimate of prostitution activities that are reported by registered enterprises as legal activities, e.g., in massage parlours, and hence already included in GDP estimates.
Deduct the second estimate from the first and record the result as type N2.

[8] Supplementary information on illegal activities is given in section 5 of this Annex.

Identification and adjustment methods for type N2

As already stated above, the fact that N2 does not include all illegal production must be taken into account in compiling appropriate adjustments. Typically, an estimate of illegal production is obtained by observing inputs and/or uses and using an average price by quantity approach, for example, the number of drug addicts multiplied by their average consumption. The adjustment required for illegal production estimated in this way must be reduced by the production that is already included within the legal economy, being reported under different activity codes.

N3. Producers Not Required to Register

- *Producer is not required to register because it has no market output;*
- *Producer has market output but on such a small scale that it is below the level at which it is expected to register as an entrepreneur*

Non-market household producers may be involved in:

- ❖ production of goods for own final consumption and for own fixed capital formation;
- ❖ construction of dwellings, extensions to dwellings, and capital repairs of dwellings.

N3 also includes unincorporated household enterprises that have very small-scale market output.

Production associated with paid domestic services should also be included in N3 when data for them are not included in the basic statistics available to the national accounts.

In the case of agricultural production where total output is obtained using commodity by price methods, there is no need to include an N3 adjustment for the agricultural output of households if such output is already included in the total. The separation of economic accounts for agriculture from the rest of the economy is quite common practice. On the other hand, non-agricultural productive activities of households should be included, together with productive activities of other households, including secondary activities, in types N3 or N7, as appropriate:

- ❖ in N3 for household producers that are not registered;
- ❖ in N7 for household producers that are registered and included within a producer survey or administrative collection, but for which data on secondary activities are not obtained. An example might be a registered farmer who, during the winter, is engaged in snow removal activities that were not subject to data collection.

Identification and adjustment methods used for type N3

Household income and expenditure surveys.
Time use surveys.
Building permits.
Commodity flow methods.

N4. Legal Persons Not Surveyed

a) the legal person is of a type that is systematically excluded from the business register;

b) the legal person should in principle be included in the business register but is not actually included;

c) the legal person is in the business register but not subject to survey because classification data (activity code, size code, geographic code) are incorrect;

d) a part of the legal person is not subject to survey because profiling data concerning producing units into which the legal person is divided (e.g., local units) are incorrect;

e) the legal person is in the business register with correct classification and profiling data but excluded from the survey frame.

A producer can be a legal person and thus registered with an administrative source accessible by the statistical office and yet, for some reason, not included in the business register maintained by the statistical office. All such producers should be covered by means of a survey or administrative collection conducted without use of the register. Otherwise, adjustments should be made.

A producer that is a legal person and in scope for the statistical register may not feature because:

- it was too recently registered to be included; or
- there was a deficiency in the register-updating procedures.

The producer classification data may be incorrect because:

- the classification data were incorrectly registered
- changes in classification data have not been registered or otherwise detected;
- the classification data have been too recently changed to be included; or
- there is some other deficiency in the register recording or updating procedures.

A legal person may be excluded from the survey frame because its size is below the threshold for the survey, or due to an error in the construction of the survey frame. The circumstances in which incorrect activity or size codes of producers result in systematic undercoverage is where the statistical office collects data from a *suite* of surveys, each of which covers a particular set of activities and/or sizes, and where data for any producers that have been misclassified in one survey are not transferred to the particular survey where they belong.

Identification and adjustment methods used for type N4

Register data quality surveys and investigations, that is:

- measurements of the birth rates of new producers and estimates of the time interval before producers are placed on the register;
- measurement of register misclassification rates for activity and size codes;
- comparison of the register population with other statistical and administrative sources.

Adjustments based on other sources or expert estimates for producers excluded from surveys as a result of size thresholds.

N5. Registered Entrepreneurs Not Surveyed

a) the statistical office does not conduct a survey of registered entrepreneurs;

b) the registered entrepreneur is not in the list of registered entrepreneurs available to the statistical office;

c) the registered entrepreneur is in a list of registered entrepreneurs available to the statistical office but is systematically excluded from any survey of entrepreneurs;

d) the entrepreneur is in principle in scope for a survey of enterpreneurs but in practice is excluded from the survey frame because the classification data (activity code, size code, geographic code) are incorrect;

An entrepreneur may be registered with an administrative source that is not accessible by the statistical office, or is accessible but, for some reason, not included in the statistical business register or other list of producers maintained by the statistical office.

A list of registered entrepreneurs may be maintained by the statistical office as part of the business register or as a separate list. EU Regulations require all such producers to be in the business register. However, some countries may not successfully include all such units in their business register because such producers go in and out of business and change activity very fast and thus the administrative lists from which they can be obtained may often be out of date.

Registered entrepreneurs may be covered by means of a producer survey or administrative collection conducted with or without use of the register. In so far as they are not covered, adjustments must be made.

A registered entrepreneur may not be included in the business register because:

- ❖ entrepreneurs of that particular type are systematically excluded:
- ❖ the entrepreneur was too recently registered to be included; or
- ❖ there was a deficiency in the register-updating procedures.

The entrepreneur classification data may be incorrect because:

- ❖ the classification data were incorrectly registered
- ❖ changes in classification data have not been registered or otherwise detected;
- ❖ the classification data have been too recently changed to be included;
- ❖ other deficiency in register recording or updating procedures.

Identification and adjustment methods used for type N5

Data quality surveys and investigations of registered entrepreneurs, that is:

- measurements of the birth rates of new entrepreneurs and estimates of the time interval before entrepreneurs are placed on the list;
- measurement of misclassification rates for activity and size codes;
- comparison of the registered population with other statistical & administrative sources.

Adjustments based on other sources or expert estimates for entrepreneurs excluded from surveys.

N6. Producers Deliberately Misreporting

- *Gross output is under-reported and/or intermediate consumption is over-stated, in order to evade income tax, value added tax (VAT) or other taxes, or social security contributions.*

For the countries that previously participated in the Tabular Approach to Exhaustiveness, adjustments for mis-reporting have by far been the largest. For example, for the 9 countries[9] that undertook calculations for the year 2000, adjustments for mis-reporting were the largest in 8 of the 9 countries – and, on average, accounted for virtually 50% of all exhaustiveness adjustments. Over the 9 countries, adjustments for mis-reporting added some 6% to GDP.

Why is mis-reporting so important? The nature of mis-reporting is to understate gross output but overstate intermediate expenditure. While exhaustiveness adjustments for gross output are positive, those for intermediate consumption are negative so the relative impact on gross value added is much larger than the adjustments for other N-types[10].

Mechanisms associated with mis-reporting include:

- maintenance of two sets of books;
- payments of *envelope salaries,* which are recorded as intermediate consumption;
- skimming;
- without bill settlements; and
- non-payment of VAT.

Identification and adjustment methods used for N6

Comparison of wages & salaries per capita with norms by sector, public and private, industry and size groups.
Comparison of intermediate consumption/gross output ratios with norms by sector, public and private, industry and size groups.
Comparison of theoretical VAT with actual VAT for appropriate groups of producers.
Comparison of theoretical income tax with actual tax for appropriate groups of producers.
Use of tax audit data – from the fiscal authorities.
Conducting and using the results of special surveys – providing the basis for norms.
Expert judgement/ Delphi method, based on opinions of accountants, auditors, etc.

[9] Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovak Republic & Slovenia.

[10] For other N types, gross output and intermediate consumption are normally both understated, so that exhaustiveness adjustments are positive. The adjustments to intermediate consumption therefore partly offset the adjustments to gross output.

N7. Other Statistical Deficiencies

As a minimum, data sources and compilation methods in the following areas should be investigated for possible non-exhaustiveness:

- *handling of non-response;*
- *production for own final use by market producers;*
- *tips;*
- *wages and salaries in kind;*
- *secondary activities.*

The treatment of these items in the basic data should be described. If they are appropriately handled in the basic data then no adjustments are required; otherwise adjustments are needed.

There is a huge variety of other possible types of error in data collection and compilation (from poor questionnaire design through to the compilation methods themselves) that could result in non-exhaustiveness, but could equally easily result in the over-estimation of GDP. Examples are:

- *valuation of exhaustiveness adjustments;*
- *estimates of taxes and subsidies on products;*
- *reliability of quantity-price methods and product balances.*

However, errors that do not *systematically* lead to non-exhaustiveness should be the subject of a general quality programme rather than being included here.

Handling of non-response

In referring to non-response, the presumption is that data have been obtained by one or more surveys of producers or from administrative sources containing producer data. It is common practice for survey statisticians to make adjustments for non-response in the data that they publish and that serve as an input to the national accounts. Thus, whilst it is important to verify that such adjustments are made, the economic activities to which they correspond are not 'non-observed'. They are similar to activities of producers that are in the survey frame and covered by the survey weighting (grossing up) procedures, even though not in the sample survey. Thus, adjustments for non-response made by survey statisticians should **not** be included.

The activities that should be covered here are those for which appropriate non-response adjustments have **not** been made by the survey statisticians and thus need to be made by national accountants. The most common example of this is when all producers that are non-respondents to the survey are assigned zero data values. This implies that the producers have no output. Another case where a non-response adjustment needs to be made in compiling the accounts is when there is reason to believe that non-respondents are significantly different from respondents and this has not been taken into account in producing the basic statistics.

The more correct approach is to impute data for each such producer on a case by case basis, based on the actual or most probable reason for the non-response (e.g., refusal, out of business, cannot locate, etc). Imputation may be based on data for the previous year, data from similar units (industries, size groups), or industry by size group averages. Non-respondents about which there is no information can be accounted for by re-weighting the survey sample to reflect the probability that an appropriate proportion of them are active.

Production for own final use by market producers

Special note should be taken of:-

- production of agricultural or other products in the household sector for own final use (this concerns farmers and entrepreneurs);
- dwellings, extensions to dwellings, capital repairs of dwellings produced by households;
- own account construction including capital repairs in agriculture;
- own account construction including capital repairs in other industries;
- machinery and equipment produced for own capital formation, own account capital repairs.

The corresponding tax, bookkeeping and reporting rules should be checked against ESA95 rules for each type of producer. In some cases, expert estimates may be necessary.

Tips

The basic data required to include tips are often not available. Thus, all activities where tips usually appear should be identified, e.g., in relation to hotels and restaurants, repair services, personal services, hospitals and other health services, banks, insurance companies. Possible data sources and estimation methods are:-

- the use of household budget survey data;
- special surveys and expert estimates;
- comparison of wages and salaries / mixed income ratios in these industry groups with the same ratios in other industry groups;
- rules for the taxation of tips.

Wages and salaries in kind

There are two distinct types of income in kind:-

a. Goods and services produced by the employer, for example:
   - main production, e.g. coal or free train or railway tickets;
   - secondary production including the provision of sports, recreation or holiday facilities for employees and their families, free or cheap crèches for the children of employees.

b. Goods and services purchased or financed by the employer, including:
   - meals and drinks, including those when travelling on business;
   - housing or accommodation services;
   - uniforms or other forms of special clothing which employees choose to wear frequently outside the workplace as well as at work;
   - the private use of business cars;
   - the provision of sports, recreation or holiday facilities for employees and their families;
   - free or cheap crèches for the children of employees.

Several data sources are used for calculating income in kind, including:

- Tax data (the fiscal authorities sometimes publish data on income in kind)
- The Community Labour Cost Survey (LCS)
- Household Income and Expenditure Surveys
- Financial statements
- Special surveys and expert estimates.

In practice, the two most widely used data sources are tax data and the LCS. In the case of data from the fiscal authorities, the tax rules and treatment need to be studied because some types of income in kind may be exempt from tax (or thresholds apply below which the income is exempt). Specific valuation rules are applied for taxing the use of company cars for private purposes.

The LCS is an important source because items of income in kind are separately requested in the LCS and employers provide annual estimates for all employees in the sampled unit. Each country has the opportunity to introduce detailed questions about income in kind in its own LCS.

Secondary activities

The coverage of all kind of secondary activities (sales of secondary products and of goods for resale, production for own GFCF and own final consumption) should be considered.

Valuation of exhaustiveness adjustments

For VAT fraud without purchaser's agreement, a market price including VAT is assumed (see the Commission Decision on VAT fraud), whereas for other non-exhaustiveness types different prices from those associated with observed transactions may appear. Nevertheless, it can be expected that the prices include an element, which can be at least be partly related to the size of VAT and other taxes on products. This means, for example, that adjustments valued at basic prices would result in underestimates of GDP. Thus, it is essential to consider and document the valuation principles used for the GDP adjustments.

Taxes and subsidies on products

Another valuation problem with possible impact on the level of GDP may appear when using data on gross output from producers valued at basic prices and data on taxes and subsidies on products from the budget. Thus, a description of the sources used, and how compliance with ESA95 rules is achieved, should be provided.

Reliability of quantity-price methods and product balances

Industries for which additional completeness and reliability problems can be expected should be examined using product balances. Where quantity-price methods are applied (for example, in agriculture and construction, and sometimes in electricity, gas and water supply), the coverage of quantities and prices should be checked.

3. Summary: Brief Descriptions of the Non-Exhaustiveness Types (N1 to N7)

As an *aide memoire*, Figure II below provides a brief description of each of the 7 types.

FIGURE II

Brief descriptions of each of the non-exhaustiveness types (N1 to N7)

N1	**Producer should have registered (underground producer)**	➢ Producer fails to register in order to avoid tax & social security obligations. These are often small producers with turnovers which exceed the thresholds above which they should register their income. ➢ Producers that fail to register because they are involved in illegal activities fall under N2, rather than N1. ➢ Type N1 does not include all underground activities, some of which are associated with type N6.
N2	**Illegal producer that fails to register**	➢ N2 covers activities of producers that avoid registration entirely. ➢ N2 excludes illegal activities by registered legal entities or entrepreneurs that report (or misreport) their activities under legal activity codes.
N3	**Producer is not obliged to register**	➢ Producer is not required to register because it has no market output. Typically, these are non-market household producers involved in: (a) production of goods for own consumption or for own fixed capital formation, and (b) construction of and repairs to dwellings. ➢ Producer has some market output but it is below the level at which the producer is expected to register as an entrepreneur.
N4	**Registered legal person is not included in statistics**	➢ The legal person may not be included in the statistics for a variety of reasons. Eg, the business register is out of date or updating procedures are inadequate; the classification data (activity, size or geographic codes) are incorrect; the legal person is excluded from the survey frame because its size is below a certain threshold; etc.
N5	**Registered entrepreneur is not included in statistics**	➢ A registered entrepreneur may not be included in the statistics for many reasons. Eg, the administrative source with lists of registered entrepreneurs may not always pass on complete or up to date lists to the statistical office. ➢ Even if there is a regular flow of accurate and comprehensive information from the administrative source to the statistical office, the registered entrepreneur may not be included in the business register for several reasons (see those given under N4).
N6	**Mis-reporting by the producer**	➢ Mis-reporting invariably means that gross output is under-reported and intermediate consumption is over-reported in order to evade (or reduce) income tax, value added tax or social security contributions. ➢ Mis-reporting often involves: the maintenance of two sets of books; payments of *envelope salaries* which are recorded as intermediate consumption; payments in cash without receipts; and VAT fraud.
N7	**Statistical deficiencies in the data**	➢ In Figure I above, type N7 is sub-divided between **N7a** - data that is incomplete, not collected or not directly collectable, and **N7b** - data that is incorrectly handled, processed or compiled by statisticians. This distinction is useful because it helps one to better understand the huge variety of possible statistical deficiencies. However, in practice, N7a and N7b cannot always be easily separated. ➢ Statistical deficiencies: the following list is not comprehensive but these topics should be investigated for non-exhaustiveness:- • Handling of non-response; • Production for own final use by market producers; • Tips; • Wages & salaries in kind; • Secondary activities. ➢ Clearly, not all statistical deficiencies result in the under-estimation of GDP. The focus has been to illustrate those areas which are likely to lead to non-exhaustiveness in the NA.

4. Non-Exhaustiveness Types: Income Approach

As compilation by the income approach depends essentially on the same data sources as for the output approach, the same types N1-N7 are appropriate. However, as very few countries compile independent estimates of GDP by the income approach, assessment of non-exhaustiveness for the income approach does not provide much additional information and was not requested by Eurostat for the Tabular Approach to Exhaustiveness (*TAE*) project undertaken in 2003. Nevertheless, the countries applied the *TAE* for the income approach to GDP. An example of the results obtained by the Czech Republic for the year 2002 is given in Chapter 4 of these *Guidelines.*

5. Non-Exhaustiveness Types: Expenditure Approach

Types N1-N7 can be applied to analysis by the expenditure approach but only in so far as the basic data are obtained from producer surveys. For other data, it is not so clear what are to be regarded as basic data and what are regarded as adjustments.

In particular, in the case of private household consumption, different sources are appropriate for different commodities and it is difficult to define precisely what constitutes non-exhaustiveness. One approach is to identify the principal source and to define the use of any other source as an exhaustiveness adjustment. Another approach is to identify the best source for each commodity and to state that the use of any other source implies that an exhaustiveness adjustment is required.

An example of the results obtained by the Czech Republic for the year 2002 is given in Chapter 4 of these *Guidelines.*

Eurostat`s Tabular Approach to Exhaustiveness

Guidelines: Annex D1

The Standard Tables

The **"Tabular Approach"** involves the completion of six tables. These are attached:-

- Table 1A Elements of non-exhaustiveness: Output Approach
- Table 1B Elements of non-exhaustiveness: Expenditure Approach

- Table 2A Exhaustiveness adjustments: Output Approach
- Table 2B Exhaustiveness adjustments: Expenditure Approach

- Table 3A Summary of adjustments: Output Approach
- Table 3B Summary of adjustments: Expenditure Approach

Guidelines for the completion of Standard Tables is given in **Annex D2.**

Candidate Country Exhaustiveness Project, 2002					
Table 1A. Elements of Non-Exhaustiveness: Output Approach - for Reference Year XXXX					
NA components by enterprise sector, NACE group and size	**Type of non-exhaustiveness**	**Adjustment Method**			
Detailed breakdown covering all possible elements of non-exhaustiveness	**Insert separate lines for types with different adjustment methods**	**Not needed**	**Needed but not developed**	**Name**	**Ident number (Table 2A)**
1	2	3	4	5	6
Public non-financial corporations					
NACE A					
Large units					
Medium-size units					
Small units					
NACE B					
Large units					
Medium-size units					
Small units					
(continued for NACE groups C-P)					
Private non-financial corporations					
NACE A					
Large units					
Medium-size units					
Small units					
NACE B					
Large units					
Medium-size units					
Small units					
(continued for NACE groups C-P)					
Financial corporations					
General Government					
Central and local government units					
Extra-budgetary funds					
NPISH					
Households					
NACE A					
Registered units					
Unregistered units					
Market production					
Production for own use					
- farmers					
- non-agricultural households					
NACE B					
Registered units					
Unregistered units					
Market production					
Production for own use					
(continued for NACE groups C-P)					
Illegal activities					
Production of and trade in drugs					
Smuggling - tobacco					
Prostitution					
Other					

Eurostat's Tabular Approach to Exhaustiveness					
Table 1B. Elements of Non-Exhaustiveness: Expenditure Approach - for Reference Year XXXX					
NA components	**Type of non-exhaustiveness**	**Adjustment Method**			
Detailed breakdown covering all possible elements	**Insert separate lines for types with different adjustment methods**	**Not needed**	**Needed but not developed**	**Name**	**Ident number (Table 2B)**
1	**2**	**3**	**4**	**5**	**6**
Household final consumption expenditure					
Purchases of goods and services					
breakdown at COICOP 1- 2- digit level					
Production for own final use					
Agricultural goods					
Other goods					
Production of unincorporated units					
Other HFC components					
Final consumption of general government					
Final consumption of NPISH					
Gross fixed capital formation					
with same breakdown as for Table 1A					
Changes in inventories					
with same breakdown as for Table 1A					
Exports and imports					
Export and import of goods					
Export and import of services					
Purchases of non-residents					
Purchases of residents abroad					
Shuttle trade					

Eurostat's Tabular Approach to Exhaustiveness

Table 2A. Exhaustiveness Adjustments: Output Approach - for Reference Year YYYY in Currency Units ZZ

Adjustment ident number	Adjustment Name	NA Component	NACE code / type of units	Data Sources	Absolute size	Relative size	
						% of component	% of GDP
0	1	2	3	4	5	6	7

Eurostat's Tabular Approach to Exhaustiveness

Table 2B. Exhaustiveness Adjustments: Expenditure Approach - for Reference Year YYYY in Currency Units ZZ

Adjustment ident number	Adjustment Name	NA Component	COICOP code/ NACE code/ type of units	Data Sources	Absolute size	Relative size	
						% of component	% of GDP
0	1	2	3	4	5	6	7

Eurostat's Tabular Approach to Exhaustiveness

Table 3A Summary of GVA Adjustments: Output Approach

For Reference Year YYYY in Currency Units ZZ

Sectors/ NACE Groups	Type of non-exhaustiveness adjustment							Total		Total as in published
	N1	N2	N3	N4	N5	N6	N7	Absolute	% of GDP	Absolute
1	2	3	4	5	6	7	8	10	11	12
Non-financial corporations										
Financial corporations										
General Government										
NPISH										
Households										
NACE A										
NACE B										
NACE C										
NACE D										
NACE E										
NACE F										
NACE G										
NACE H										
NACE I										
NACE J										
NACE K										
NACE L										
NACE M										
NACE N										
NACE O										
NACE P										
Total										

Eurostat's Tabular Approach to Exhaustiveness

Table 3B Summary of GVA Adjustments: Expenditure Approach

For Reference Year YYYY in Currency Units ZZ

Components	Type of non-exhaustiveness adjustment							Total		Total as included in published GDP	
	N1	N2	N3	N4	N5	N6	N7	Absolute	% of GDP	Absolute	% of GDP
1	2	3	4	5	6	7	8	10	11	12	13
Household final consumption expenditure											
Purchases of goods and services											
Production for own final use											
Other HFC components											
Final consumption of general government											
Final consumption of NPISH											
Gross fixed capital formation											
Changes in inventories											
Exports and imports											
Total											

Eurostat's Tabular Approach to Exhaustiveness

Guidelines: Annex D2

Completion of the Standard Tables

1. Introduction

The objective of this document is to provide guidance for the completion of the standard tables which feature in **Annex D1**. The aim of using a standard set of tables is to ensure that:-

- all types of non-exhaustiveness are investigated in a systematic way;
- a similar level of coverage and detail is used by all countries; and
- the results are as comparable as possible across countries

The countries should complete the following tables:

- Table 1A Elements of non-exhaustiveness: *Output Approach*
- Table 1B Elements of non-exhaustiveness: *Expenditure Approach*
- Table 2A Exhaustiveness adjustments: *Output Approach*
- Table 2B Exhaustiveness adjustments: *Expenditure Approach*
- Table 3A Summary of adjustments: *Output Approach*
- Table 3B Summary of adjustments: *Expenditure Approach*

Chapter 3 of these Guidelines provides worked examples of how to compile Tables 1A and 2A. Table 3A is simply a summary of the more detailed information already contained in Table 2A. The reader may find it helpful to look at the illustrations of Tables 1A and 2A when reading the following guidelines.

The guidelines in this Annex should be adapted as needed to the country specific situation. This may produce some changes in the breakdowns by type of enterprise (sector, industry group, and size) and by components of expenditure, etc. However, the overall level of detail should be as similar as possible to that shown in the tables.

Table 1A: Elements of Non-Exhaustiveness: Output Approach (see Chapter 3)

Table 1A provides an overview of all possible elements of non-exhaustiveness that exist in the country in compiling GDP by the output approach.

Column 1, National Accounts Components / Types of units

A detailed breakdown of production units should be given. It should be designed to ensure that all possible types of non-exhaustiveness are considered for each category of enterprise (producing unit) in the rows.

The size groups should be chosen according to the data available.

The actual grouping of industries within the institutional sectors should be made according to the data available.

A separate row should be completed for each exhaustiveness type with a different adjustment method.

At least one row should be completed for each particular industry by size group combination. If there are no non-exhaustiveness elements for that combination this is indicated by a null entry in Column 2 and a "1" in Column 3, indicating no adjustment is required.

Illegal activities are shown separately at the end of the table. There are four categories listed. The "other" row can be expanded if adjustments are required or developed for additional types of illegal activities.

Column 2 Type of Non-Exhaustiveness

For each national accounts component/enterprise combination specified in Column 1, each relevant type of potential non-exhaustiveness (N1-N7) should be indicated in Column 2.

A separate row should completed for each non-exhaustiveness type for which there is a different adjustment method. If, for a particular component/enterprise combination, there is no possibility of non-exhaustiveness, then just one row should be completed with a null entry in Column 2 and a "1" in Column 3.

A separate row should be created for each different national accounts component. As a minimum, gross output (GO) and intermediate consumption (IC) should be analysed separately.

The reasons for non-exhaustiveness should be indicated along with the type in Column 2, for example, over-reporting of IC in public corporations, under-reporting of GO in unincorporated units, non-coverage of financial intermediaries in the business register, income in kind for private use of business cars.

It is not always easy to allocate a particular element of non-exhaustiveness to a type. However, from the practical point of view, it is considered to be more important to ensure complete coverage of all possible elements of non-exhaustiveness than to allocate them precisely.

Columns 3-6: Adjustment Procedure

A "1" should be inserted in Column 3 if no adjustment is needed. A "1" should be inserted in Column 4 if an adjustment is needed but has not yet been developed. If there is an adjustment:

- the name of the adjustment method should be inserted in Column 5 (*for example: labour input method, tax audit information, use of standard IC/GO ratios for private enterprise, etc*)
- the adjustment identification number (as used in Table 2A) should be inserted in Column 6.

Table 2A: Exhaustiveness Adjustments: Output Approach (see Chapter 3)

Column 0: Adjustment Identification Number

This provides a cross-reference to Table 1A. The identification number (*eg P424*) should begin with the letter P (for production, referring to the output approach), as distinct from the letter E used for expenditure approach adjustments.

Column 1: Adjustment Name

Each distinct adjustment for a NA component/enterprise combination should be described in a separate row. Possible adjustment names include: *employment adjustment due to balance of labour; business register updating; illegal economy; adjustment to income in kind, etc.*

Balancing items should be shown in a separate row.

Column 2: NA Component

The NA component *(eg, gross output, intermediate consumption, income in kind)* for which the adjustment is made should be precisely specified. This means, eg in the case of gross output, it is important to look at sales of main and secondary production, goods for resale, production for own capital formation and production for own final consumption.

Column 3: NACE code / type of units

The NACE code and type of units for which the adjustment is made should be listed (*eg NACE Section G – registered units*). The description should correspond to the breakdown applied in Table 1A. The adjustment identification number provides the link between Tables 1A and 2A.

Column 4: Data Source(s)

The data source(s) used for the adjustment (type, year, level of detail, classification, compliance with ESA95 definitions) should be indicated. *For example: 2000 LCS - income in kind.*

Column 5: Absolute Size of the Adjustment

The value of the adjustment should be given in absolute terms, in the currency units specified in the title of the table.

Columns 6 and 7: Relative Size of the Adjustment

The value of the adjustment should be given as a percentage of the NA component (column 6) and as percentage of the final GDP estimate (column 7).

Table 3A: Summary of Exhaustiveness Adjustments

The breakdown should be by institutional sector and by NACE activity group.

Only the adjustments to gross value added need be shown. But, of course, Table 3A can also be used to summarise the exhaustiveness adjustments to gross output and intermediate consumption.

Tables 1B, 2B & 3B: Expenditure Approach

Tables 1B, 2B, and 3B should be completed in a similar fashion to Tables 1A, 2A, and 3A.

Eurostat's Tabular Approach to Exhaustiveness

Guidelines: Annex E

Non-Exhaustiveness Identification and Exhaustiveness Adjustment Methods

Introduction

Annex C defined and described the Non-Exhaustiveness Types (N1 to N7). For each of these non-exhaustiveness types, Annex C also provided a list of the methods used for identifying non-exhaustiveness and for developing exhaustiveness adjustments (eg Labour input method, Commodity flow methods, Special surveys, Use of fiscal data). **Annex E** provides a summary of some of the major methods employed.

Section 3 of **Chapter 3** presents a tabular analysis of the different methods that were employed by nine of the ten new EU Member States to identify non-exhaustiveness and estimate exhaustiveness adjustments for the year 2000. In addition, section 4 of Chapter 3 provides a description of the sources and methods employed by the Czech Statistical Office in making its exhaustiveness adjustments for the year 2000.

Labour Input Method

The labour input method is the principal global verification method for compilation by the output approach. Application of the method as a check is required by the 1994 Commission Decision on Exhaustiveness. The method is described in Section 4.2 of the NOE Handbook (in the context of data confrontation and global assessment) and in Section 5.4 (in the context of adjustment). More details are provided by Hayes (1996), Hayes and Lozano (1998) and Calzaroni (2000).

The elements of the method are as follows:-

- *Estimate the labour input underlying GDP estimates.* This means deriving the labour input that is present (explicitly or implicitly) in the data sources used to derive GDP estimates. If the data are derived from enterprise surveys, then the labour input to the production covered by these surveys must be estimated.
- *Estimate the labour input based on household survey data.* Typically these data are obtained from a labour force survey, supplemented by census data, if available.
- *Standardise the labour input estimates.* Convert the enterprise-based (use) and household-based (supply) estimates of labour input to the same units of labour input, such as hours worked or full-time equivalent employment units, so that they can be meaningfully compared.
- *Compare the two sets of estimates*. Analyse any discrepancies taking into account the reliability of the different sources. A surplus of labour input derived from the household source over that from the enterprise source is an indication of non-observed production. It provides a lower bound as some labour input could be missing from both sources. No difference or a surplus of the enterprise-based labour input over the household-based input suggests that the household data are not providing extra coverage.

The compilation of reliable adjustments requires detailed labour force data, including an employment breakdown by industry and size group of employer, the capacity to calculate full time equivalents, and output and value added per capita ratios by industry and size group. Such data are not currently available in all countries, which limits application of the method. However, given the focus on LFS programmes, the availability of data is improving.

Other Reconciliation Methods

Data confrontation and reconciliation are at the core of national accounts compilation. Confrontation and reconciliation methods are part of the general national accounts toolbox and not particular to the quest for exhaustiveness. The reason they might be given particular emphasis in Eurostat's Tabular Approach to Exhaustiveness is that non-observed activities are precisely the sorts of activities that give rise to imbalances in the basic data, and conversely, data imbalances provide evidence of non-observed activities.

A broad range of data comparisons can be considered, including:-

- comparison of *theoretical VAT* (i.e., VAT corresponding to transactions according to the national accounts) with *actual VAT* (i.e., VAT collected by taxation authorities). In making the comparison, account has to be taken of the types of units, the thresholds for VAT obligation, industry classification, etc. As a measure of non-exhaustiveness, the comparison is not usually particularly informative because the theoretical VAT figure is generally larger than actual VAT, indicating that the national accountants are more successful in estimating transactions incurring VAT than the taxation authorities are in collecting it.
- comparison of *theoretical income tax* (income available to households according to the national accounts) with *actual income tax* (tax collected by taxation authorities).

Comparisons with Norms

Comparisons with norms are a valuable tool in detecting and correcting for potential non-exhaustiveness. In particular, norms relating to the ratio of intermediate consumption to gross output by activity are useful in checking for misreporting. For example, as described by Calzaroni (2000), the Italian Approach involves the adjustment of the outputs of entrepreneurs that fall below the norms for employees in small enterprises with the same activity.

Commodity Flow Methods

The commodity flow method involves balancing total supplies and total uses of individual products. It is used to estimate the output of a commodity by balancing the supply and use of that commodity, using the following equation:-

> output = the sum of all intermediate consumption, final consumption, changes (positive or negative) in inventories, gross fixed capital formation, acquisition less disposals of valuables, and exports minus imports.

This method is effective if a product is primarily used for one or a limited number of uses, and if accurate data on these uses are available. As output prices (basic or producers' prices) differ from the prices paid by purchasers, allowances should be made for the price differences when output of a product is derived using the commodity flow method. The method may be useful for analysing the prices paid by final purchasers of a particular good, and the prices received by the producers, as well as for assessing the accuracy of distribution margins.

A specific application of a commodity flow method is to derive the output of retail trade from the supply of commodities. Often data on supply of commodities are compiled at a detailed level (usually separately for agricultural products, domestic manufacturing products, and imported goods). Information on shares of the product flows passing through retail trade, and on margin rates, are obtained from benchmark surveys, spot checks, and interviews. These data can then be combined with the data on supply of commodities to estimate the output of retail trade.

Special Surveys

Supplementary, special purpose surveys conducted by the national statistical office are another tool for assessing the exhaustiveness of the national accounts. They can take a variety of forms - surveys of expenditure, income, labour, time use, and opinion. They can be designed to target any of the exhaustiveness problem areas. However, especially for surveys focussed on sensitive subjects the results must be interpreted very carefully. For example, in surveys relating to hidden production, it is likely that the non-response is selective because people who are involved in tax evasion are more likely to refuse to co-operate than people who are not.

Surveys of expenditure on goods and services from underground production

Expenditure on underground production is a less sensitive topic than underground income. In the latter case the respondent is being asked to report on fraud whereas expenditure on underground production is usually not forbidden nor prosecutable. Indeed, the purchaser may well not know whether a seller is operating underground or not.

Kazemier and Van Eck (1992) provides an example of a survey on expenditure on underground production. The survey was on the subject of home maintenance and home repair and included questions on both underground labour and underground expenditure, i.e., expenditure on building materials without paying value added tax.

Surveys of labour input to underground production

In surveying the input of labour to underground production, there are two alternative approaches, namely surveying the *demand* and surveying the *supply*. Questions on demand are less sensitive than those on supply and can thus be expected to yield larger numbers.

Experience suggests that, in an anonymous interview, many people are willing to admit part or all of their underground (but not illegal) production activities. However, surveying supply is prone to item non-response and incorrect response and so needs careful design. Kazemier and Van Eck (1992) show how a sequence of questions, that gradually lead to the key questions on underground activities, gives the best results.

Surveys of time use

Time use surveys are generally used to measure the time spent on activities like household work, do-it-yourself, neighbour help and voluntary work. However, they can also be used to identify non-exhaustiveness. In particular, they can provide insight into the size and structure of household production for own use. Goldschmidt-Clermont and Pagnossin-Aligisakis (1995) give an example.

Special care must be taken in the classification of the relevant activities. For a number of activities, additional questions are necessary. For example, it must be possible to distinguish between time spent on working as an employee in an enterprise and time spent as an own account worker. If respondents acknowledge that time is spent working on own account, they should be asked some additional questions to classify their work by branch and obtain an estimate of the turnover and the amount of income earned. If the latter information cannot be obtained, questions on the living conditions and the wealth of the responding household, which can be part of the block containing general questions to classify the household, may provide an indication of the profits earned.

Similar information can be collected in a regular labour force survey. However, the advantage of the time use approach is that the questionnaires require respondents to account fully for their time. This improves the reliability of the results if everything else (geographic coverage, sample size, response rates, etc.) is equal.

Surveys of the informal sector and household production for own use

Surveys specifically designed to measure the informal sector or household production for own use can shed light on the extent of non-exhaustiveness in these problem areas. As with surveys of time use, they have to be carefully designed so that the results they provide can be blended with the results of other surveys in the sense that there is no overlap between them, or, if there is overlap, it is known. These surveys are discussed in the NOE Handbook Chapters 10 and 11.

Qualitative surveys

Qualitative surveys of enterprises and of households can also provide information about non-observed activities. They have a number of advantages relative to quantitative surveys. They are quicker and easy to answer. They can be easily changed or supplemented to deal with new circumstances. They can also address questions regarding the causes as well as prevalence of non-observed activities. They can be addressed to very senior staff in surveys of large enterprises but are equally effective with very small enterprises. They can be designed to be less threatening than quantitative surveys by using questions referring to an industry or population group rather than the particular respondent. For example, in place of asking a business respondent whether they accept "under the table" payments, the question can be phrased along the lines “What proportion of payments do you think are made in cash in your industry?”

Whilst qualitative surveys do not often lead directly to quantitative values that can be directly incorporated into national accounts estimates, they can provide impressions of the size of specific types of NOE activities. For example, approximate ratios of observed to concealed production can be obtained for each of the various branches of industry. They can also provide guidance in assigning priorities for subsequent more precise quantitative assessment.

The Russian Federation Centre for Economic Analysis (2000) describes opinion surveys of businesses in retail, construction and manufacturing conducted on an experimental basis in the Russian Federation. In a study of the underground economy as viewed by households, the Hungarian Central Statistical Office (1998) included some qualitative questions aimed at collecting citizens' views. Further details are provided in Chapter 8 of the NOE Handbook.

Use of Fiscal Data

As previously noted, income tax and VAT files are important sources of data for confrontation or compilation, although there are often problems in obtaining access to these data at individual record level.

Tax audit data also have a part to play. Quantitative surveys of tax evasion are unlikely to yield reliable results because of the delicate nature of the subject, even if anonymity is guaranteed. Tax audits by their very nature are more compelling than surveys. Enterprises are obliged to provide their complete accounts, not simply information derived from them. However, because they are designed for tax auditing not statistical purposes, tax audit samples have limitations for estimating non-exhaustiveness. These limitations typically include the following.

- the definitions used may not be consistent with ESA95/SNA93;
- the audits do not detect all undeclared income, only what the auditors can find based on their examination of the accounts;
- the audits are usually clustered in certain activity sectors and/or geographic areas; and
- the audits are rarely selected on a probability basis.

Nevertheless, in the absence of better sources, tax audit samples can provide useful information on some types of non-observed activities, in particular those associated with under-reporting. For example, according to Calzaroni and Madelin (2000) adjustment coefficients for output and value added are calculated by the Institut national de la statistique et des études économiques (INSEE) in France using data from tax audits conducted by the French taxation authorities. The taxation authorities send the audit data without enterprise identification details to INSEE. The adjustment procedures vary according to the tax system applicable to the enterprise. The data are stratified by legal form, sector of activity, and size of enterprise. The statements of position before and after the audit and the reason for changes are examined. Only upward adjustments resulting from the concealment or omission of receipts are considered. Based on these data, adjustment coefficients are computed separately for corporate enterprises and unincorporated enterprises by sector.

In many countries, the output estimates for certain professional business services such as accounting and legal services, and for personal services such as private health practitioners' services, are made on the basis of average income per practitioner obtained from tax records, from market studies, or though consultations with a few practitioners.

Output Approach - Industry Specific Adjustment Methods

Section 5.3 of the NOE Handbook provides descriptions of adjustment methods in specific industries.

Expenditure Approach Adjustment Methods

Section 5.6 of the NOE Handbook provides descriptions of adjustment methods for the components of GDP compiled by the expenditure approach.

Upper Bound Estimation Methods

Section 4.3 of the NOE Handbook describes upper bound estimation methods, the essence of which is to derive an upper limit to the extent of non-observed activities. Such methods are particularly useful in dealing with suggestions that the national accounts figures are vastly understated. The NOE Handbook cites two particular examples:

- Broesterhuizen (1985) describes upper bound estimation (referred to in the paper as "sensitivity analysis") for underground production in the Netherlands using the production approach; and
- In Statistics Canada (1994) Gervais describes the procedures used by Statistics Canada in estimating an upper bound for the underground economy in Canada in 1992. In the second part of the paper, Gervais works systematically through all the components of GDP compiled by the expenditure approach.

Expert Judgement

When there are no data sources, as a last resort, identification and adjustment can be based on expert judgement. Even in this case, however, the means by which adjustments were made should be documented, i.e., how many and what types of experts were consulted and how their views were summarised.

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