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NON-OBSERVED ECONOMY IN NATIONAL ACCOUNTS

Note by the secretariat

The meeting is organised jointly with Eurostat and the Organization for Economic Co-operation and Development

INTRODUCTION

1. In 2005, the UNECE secretariat carried out a survey of national practices in estimating the non-observed economic activities (NOE) in National Accounts.
2. Previous surveys had been conducted in 1991 and 2001/2002. The first 1991 survey covered nine countries and was presented as a collection of articles featuring the contributions from each country. The observations were published in 1993 as an "Inventory of National Practices in Estimating Hidden and Informal Activities for National Accounts."
3. A second survey was conducted in 2001-2002 to which 29 countries responded. The purpose of the survey was to obtain an overview of the methods used in UNECE member countries. In this survey, for the first time, an attempt was made to compare and analyse country

practices and trends, and to standardize the contributions in terms of terminology and presentation in a comprehensive manner.

4. The joint UNECE/Eurostat/OECD Meeting in April 2004 asked the UNECE secretariat to carry out a new survey on NOE, thereby updating the Inventory and increasing its coverage. The paper presents some preliminary results of the survey carried out in 2005.

THE 2005 NOE SURVEY

5. The objective of the third survey was to carry out an inventory of current practices in covering and estimating NOE and to provide a platform for comparison across countries. The survey is larger in scope than the previous survey of 2001/2002 as it also covers some non-ECE members (e.g. OECD countries outside the region). Furthermore, more UNECE member countries replied to the survey than in 2001/2002.

6. Fourty four countries responded to the survey. Japan and New Zealand do not estimate the NOE. Portugal could not participate in the survey because of lack of resources. The 41 countries who provided information about their methods of estimating the NOE are:

- European Union (EU) Members (16)
EU (15): Austria, Belgium, Finland, Germany, Ireland, Italy, the Netherlands, Spain, Sweden and UK;
EU new members: Czech Republic, Estonia, Hungary, Latvia, Lithuania and Poland.
- OECD countries – non-EU (5)
Australia, Canada, Mexico, Norway and United States.
- EU Acceding and Candidate Countries (5)
Acceding countries – Bulgaria and Romania;
Candidate countries – Croatia, The former Yugoslav Republic of Macedonia and Turkey.
- Countries from the Commonwealth of Independent States (11)
Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Ukraine and Uzbekistan
- Other countries (4)
Albania, Brazil, Mongolia and Serbia and Montenegro¹

7. The survey is based on the concepts, definitions and terminology, as recommended in the OECD (2002) Handbook for Measurement of the Non-observed Economy and the Eurostat Projects on Exhaustiveness of National Accounts. The Handbook defines NOE as all productive activities that may not be captured in the basic data sources used for national accounts compilation. Illegal activities, deficiencies in data collection, informal activities that are not registered or recorded, and misreporting of production are examples of reasons associated with measurement difficulties.

8. The countries' contributions are divided into several sections, each of which serve as an

indicator of current practices adopted. These sections are broadly classified as: definitions and concepts used; data sources; estimation methods adopted; coverage of activities (by sector, by activity); and implications and effects on Gross Domestic Product (GDP) estimates.²

9. In processing the countries' contributions, use was made, to the extent possible, of the Tabular Approach to Exhaustiveness (TAE) developed by Eurostat and recommended in the OECD Handbook for Measurement of the Non-observed Economy. The tabular framework stems from Eurostat's Projects on Exhaustiveness of National Accounts. In the Survey, an attempt was also made to standardise the presentation and the terminology in line with the recommendations of the OECD Handbook.

EUROSTAT TABULAR FRAMEWORKS

10. The UNECE survey makes use of the types of non-observed economy identified in the Eurostat tabular framework. Two different frameworks have been used by Eurostat over time for the Pilot Projects on Exhaustiveness (PPE) in 1998 and in 2002. In the NOE 2005 Survey, it was observed that some countries were using the 1998 T1-T8 framework whereas others had switched to the more recent N1-N7 classification.

11. Since both classifications were used in the survey, a description of the two frameworks is presented for clarity and understanding.

12. The main aim of these frameworks was not to provide a definitive classification of types of NOE but to ensure that the approach in measuring the NOE is systematic, all potential NOE areas are covered and no activities are double counted.

13. These frameworks were used mainly in EU candidate countries (where the PPEs were carried out) but also in some other countries (e.g. Austria, Azerbaijan, Serbia and Montenegro and Ukraine). An advantage of this is that when countries use the same framework, comparison of NOE can be made at a more detailed level. It is also easier to ensure the exhaustiveness of methods and to exchange experience in their implementation.

14. It might be interesting to discuss whether the use of a common framework of NOE measurement across countries would be necessary and if yes, which framework should be used.

15. For countries in the survey that did not classify their activities or used the T1-T8 framework, the NOE adjustments have been classified by the UNECE Secretariat to follow the more recent N1-N7 classification. The allocation of activities to different types of non-exhaustiveness is thus subject to interpretation. Therefore, the UNECE Secretariat will be grateful if countries can communicate any modifications to the proposed allocations presented in Annex 1 at the end of this document.

THE T1-T8 FRAMEWORK

16. The first Eurostat Pilot Project on Exhaustiveness of National Accounts was conducted in 1998 with EU candidate countries at the time. A tabular framework was used to facilitate comparison across countries and to improve exhaustiveness. Eight types of non-exhaustiveness were identified (T1-T8) linking the NOE problem areas with statistical problems encountered by

national accountants.

17. The T1-T8 framework broadly categorises the NOE problem areas as statistical under-coverage, economic underground, illegal production, informal sector that is not illegal or underground and other types of deficiencies. The eight categories fall within this broader framework and are of the following types³:

Statistical undercoverage

T1-Non-Response

18. Undercoverage arises due to non-response to statistical questionnaires or non coverage of active units in administrative files. This may be attributable to the time required to complete questionnaires, belief that information will be used for other than statistical reasons and poorly designed questionnaires.

T2-Out of date registers

19. Undercoverage occurs due to units missing from statistical registers or out of date registers that may contain incorrect information.

T3-Units not registered or not surveyed

20. Undercoverage results from non-coverage because of established thresholds for registration, non-coverage of certain activities, exclusion of newly created units and due to the disappearance of units in the course of the year.

Economic underground

T4-Underreporting of turnover/income

21. Enterprise owners may intentionally under-report gross output or over report intermediate consumption to evade income tax, value added tax or other such taxes or to avoid meeting social security obligations.

T5-Units intentionally not registered

22. Units may not be covered because they are *intentionally* not registered to avoid tax payments or social security obligations. This could apply to both the entire enterprise or parts of it.

Informal sector

T6-Unregistered units

23. Units may not be required to register due to their small-scale in production (typically household units) such as agricultural production for own use in non-agricultural households, non-agricultural production in households for own use, own account construction, occasional and temporary activities and work on service contracts.

Illegal production

T7-Unregistered units

24. Production units do not report or register their illegal activities.

Other

T8-Other types of GDP undercoverage

25. Undercoverage in this residual category can arise due to several reasons but frequently stem from production for own final use, tips, and wages and salaries paid in kind.

THE N1-N7 FRAMEWORK

26. In 2002, the classification in the Eurostat tabular framework was modified and further refined to provide a comprehensive breakdown of categories and to clarify the boundaries between the different types. Under this second project seven types of non-exhaustiveness were identified (N1-N7)⁴ instead of the eight identified in the T1-T8 framework.

27. The main differences between the two classifications are attributable to the way the categories were classified, and the definitions associated with each category such as legal person and producer. Further, the category of non-response (T1) was clubbed under the residual category identifying other deficiencies (N7) in the N1-N7 framework rather than as an independent entity under the T1-T8 framework. All these modifications were made to avoid possible overlap, to make the boundaries between the different types clearer and more precise, and to facilitate identification of the non-exhaustiveness types.

28. The seven types under this new framework can be broadly classified into the four categories of: not registered, not surveyed, misreporting and other deficiencies. The framework makes sure to cover all possible types of producers including non-market household producers.

Not Registered

29. N1-Producer deliberately not registering-Underground

- Producer deliberately fails to register to avoid tax and social security obligations. Most often this refers to small producers with turnovers that exceed threshold levels above which they should register.
- Producers that do not register because they are engaged in illegal activities falls under type N2.
- Type N1 does not include all underground activities, some of which are associated with type N6.

30. N2-Producers deliberately not registering-Illegal

- Producer deliberately fails to register as a legal entity or as entrepreneurship because it is involved in illegal activities.
- Type N2 excludes illegal activities by registered legal entities or entrepreneurs that report (or misreport) their activities under legal activity codes.

31. N3-Producers not required to register

- Producer is not required to register because it has no market output. Typically these are non-market household producers that engage in production of goods for own consumption, for own fixed capital formation and construction of and repairs to dwellings.
- Producer has some market output but which is below the level at which the producer is expected to register as an entrepreneur.

Not Surveyed

32. **N4-Legal persons not surveyed⁵**

- Legal persons not surveyed due to several reasons such as 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. This leads to (systematic) exclusion of the legal person when in principle they should be included.

33. **N5-Registered entrepreneurs not surveyed**

- Registered entrepreneurs may not be surveyed due to a variety of reasons: the statistical office does not conduct a survey of registered entrepreneurs, the registered entrepreneur is not in the list of registered entrepreneurs available to the statistical office or if available is systematically excluded from it; the registered entrepreneur is not in the survey frame because the classification data (activity code, size code, geographic code) are incorrect.

Misreporting

34. **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.
- Misreporting involves maintenance of two sets of books, payments of envelope salaries which are recorded as intermediate consumption; payments in cash without receipts, and VAT fraud.

Other

35. **N7-Other statistical deficiencies**

- Type N7 is subdivided into N7a-data that is incomplete, not collected or not directly collectable and N7b-data that is incorrectly handled, processed or compiled by statisticians.
- The following areas should be investigated for non-exhaustiveness: handling of non-response; production for own final use by market producers; tips; wages and salaries in kind and secondary activities.

MAIN DATA SOURCES AND ESTIMATION METHODS AS IDENTIFIED IN THE UNECE 2005 SURVEY

36. Countries used a variety of data sources for the estimation of non-observed activities. Several sources were quite common amongst countries, such as taxation and administration data, agricultural census, business statistics, household surveys, demographic data/population census, labour force survey/labour statistics, police records, and foreign trade statistics. Some sources were specific and used only in one or a few countries, such as special surveys to capture a particular activity (e.g. smuggling activities such as tobacco).

37. The estimation techniques adopted spanned the three main methods: production approach, expenditure approach and income approach. Often countries produced two estimates by employing two of the three approaches, mostly the production method followed by the expenditure approach.

38. Some countries also used the labour input method where labour supply and demand data are compared to estimate inconsistencies in recorded labour. Data on labour supply are obtained

from the population census and labour force survey while business statistics are used for labour demand. Estimates of output per unit of labour input and value added of labour are obtained and then applied to the data. This integration of labour supply with labour demand serves to account for output by unregistered and hidden labour.

39. In addition, some countries used the “expert method” usually in conjunction with one of the approaches described above. This method relies on the estimates of experts to assess the share of NOE in different activities using available data sources. However, this method is highly subjective.

ANALYSIS OF NOE 2005 SURVEY

Adjustments to NOE

40. Reports from all countries indicate that the adjustments for non-observed activities are largely concentrated in the informal sector followed by the hidden economy. Within these two sets of activities the most common sectors were:

- construction - informal activities/ clandestine production in construction, own account construction;
- agriculture (including forestry, fishing and hunting)-own account production for sale and for final use, hidden employment, unrecorded output from agricultural plots;
- trade-household informal activities, wholesale and retail trade;
- health care and education-payment for services;
- transport-movement of goods and passengers; and
- housing-income from renting rooms and dwellings and imputed rent.

41. Adjustments across the seven types (NI-N7) reveal that misreporting (N6) and other statistical deficiencies (N7) are nearly universally present (see Annex). In the CIS countries, adjustments were made in almost all categories with an exception for illegal activities. For new EU member countries, in addition to misreporting (N6) and other deficiencies (N7), underground activity (N1) was also common. Estimates for illegal production was also frequently carried out though these are by and large not published officially. In OECD countries (both EU and non-EU), misreporting and other statistical deficiencies dominated adjustments made.

ILLEGAL ACTIVITIES

42. Illegal activities deserve special mention due to the difficulties surrounding their estimation. Given the nature of activities (i.e. those that are forbidden by law), the twin problems of too few data sources and unreliable data assume importance leading to practical difficulties in their measurement. Commonly used data sources, which help to quantify illegal activities, are police records, crime statistics, information from health centres (drug consumption), and experts' estimates. For these reasons few countries produce estimates for illegal activities.

43. In the 2005 NOE Survey, 13 countries reported on producing estimates for illegal activities. These are: Bulgaria, Canada, Croatia, Czech Republic, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Mexico, Poland, Sweden and Ukraine. However, many of these countries do not include adjustments in official GDP figures (Bulgaria, Canada, Latvia, Lithuania, Mexico, Poland, Sweden and Ukraine). Amongst illegal activities, prostitution, trade in drugs and narcotics, production and sale of counterfeit goods, sale of stolen goods and smuggling are the areas that are commonly investigated.

IMPACT ON GDP

44. The size of the adjustments for the non-observed economy varies widely by group of countries (see Annex). In CIS countries it ranges from 17% (Kyrgyzstan) to 31.6% (Moldova), whereas in the new EU member countries the same is between 4.6% (Czech Republic) to 18.9% (Lithuania). Amongst the OECD countries (both EU and non-EU), the adjustments for NOE estimates range from 1% (Netherlands) to 15.7% (Poland) of GDP though several countries lie in the less than 5% range.

45. In general, adjustments made using the expenditure approach are lower than those made using the production approach/income method indicating better coverage of activities in the data sources used to capture expenditure. For example in Poland the contribution of NOE to GDP using the output method was 15.7% whereas it was 7.8% with the expenditure method; in Latvia the respective figures were 13.6% (production method) and 8.28% (expenditure method), and in Norway 2.4% (production method) and 1.0% (expenditure method).

CONCLUSIONS FROM THE SURVEY

46. It is difficult to say with certainty about the trends within and across countries. It is equally difficult to make comparisons due to the different approaches adopted often varying not only between countries but also across time within countries.

47. Although some countries recorded an increase in the size of NOE in GDP estimates, by and large there is a declining trend observed. Moreover, an increase in the size of NOE may also indicate improved coverage of the estimates and/or improvement of the data sources. Within the non-observed economy, most of the adjustments are dominated by the informal sector typically operated by small (household) units followed by the underground economy. Furthermore, countries are trying to be as exhaustive as possible in their estimates evidenced by better data collection and improved estimation methods.

48. The analysis of the results of the survey is continuing. When finalised, they will be published in a new, updated version of the publication, "Non-observed economy in national accounts: Survey of national practices", 2005.

¹ The contribution covers only Serbia.

² In the cases where country replies did not follow this structure, the secretariat aligned the contributions without altering the content of the report.

³ OECD, 2002, *Measuring the Non-observed Economy: A Handbook*, Paris.

⁴ Eurostat, 2005, *Eurostat's Tabular Approach to Exhaustiveness: Guidelines*.

⁵ A legal person is a legal entity. Governments are legal persons. The important distinction is between producers that are legal persons and those that are not.

ANNEX

Table 1. Adjustments for NOE Activities (Eurostat Tabular Framework)

	Year	Size%	N1	N2	N3	N4	N5	N6	N7
EU Members									
EU(15)									
Austria	2001	7.9	X			X		X	X
Belgium	2002	3-4	X					X	X
Finland	Not stated	Not stated	X					X	
Germany	Not stated	Not stated	-	-	-	-	-	-	-
Ireland	1998	4.0				X		X	X
Italy	2003	14.8				X	X	X	
Netherlands	1995	1.0						X	X
Spain	2000	11.2	X		X			X	X
Sweden	2000	1.3						X	X
United Kingdom	Not stated	Not stated	-	-	-	-	-	-	-
EU (new members)									
Czech Republic	2000	6.6	X	X	X	X	X	X	X
Estonia	2002	9.6	X	X			X	X	X
Hungary	2000	11.9	X	X	X			X	X
Latvia	2000	13.6	X	X		X		X	X
Lithuania	2002	18.9	X	X				X	X
Poland	2002	15.7	X	X	X		X	X	X
OECD members – non-EU									
Australia	2000-01	1.3						X	X
Canada	Not stated	Not stated		X			X	X	X
Mexico	2003	12.1	-	-	-	-	-	-	-
Norway	1995	2.4			X		X	X	X
USA	1997	0.8						X	
EU Acceding and Candidate Countries									
Acceding Countries									
Bulgaria	2001	10.2	X			X	X	X	X
Romania	2002	17.7	X					X	
Candidate Countries									
Croatia	2002	11.2						X	X
The former Yugoslav Republic of Macedonia	2003	16.3	X		X			X	
Turkey	2004	1.7						X	
CIS Countries									
Armenia	2003	28.9			X			X	
Azerbaijan	2003	20.7	X			X		X	X
Belarus	2003	10.7	X		X	X	X	X	X
Georgia	2004	28.3				X		X	X
Kazakhstan	2003	21.6	X	X	X	X	X	X	X
Kyrgyzstan	2003	17.0	X		X	X	X	X	X
Moldova	2001	31.6			X		X	X	X
Russian Fed.	2003	24.3	X		X	X	X	X	X
Tajikistan	Not stated	25.0						X	X
Ukraine	2003	17.2	X	X	X	X	X	X	X
Uzbekistan	Not stated	29-30	X		X			X	X

	Year	Size%	N1	N2	N3	N4	N5	N6	N7
<i>Other Countries</i>									
Albania	2003	30.8	X					X	X
Brazil	2003	12.8	-	-	-	-	-	-	-
Mongolia	Not stated	Not stated				X		X	
Serbia and Montenegro*	2003	16.1	X		X	X	X	X	

Notes to Annex :

- Czech Republic: The figure of 4.6% is produced by the income method. An alternate figure of 6.62% is obtained using the expenditure approach.
 - Italy: The figure of 14.8% refers to the lower bound estimate whereas there is an upper bound estimate of 16.7%.
 - Latvia: The figure of 13.6% is obtained using the output approach, whereas 8.28% is the estimate from the expenditure approach.
 - Mongolia: Two estimates of 13% and 30% were produced for Mongolia and were based on two different studies.
 - Norway: The figure of 2.4% is arrived at using the production approach. An alternate estimate of 1% is obtained using the expenditure approach.
 - Poland: The estimate of 15.7% is produced using output approach. An alternate estimate of 7.8% is made for 2002 using the expenditure approach.
- * Serbia and Montenegro: information refers to Serbia only.

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