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Data exchange and confrontation**National experience, concerns and challenges in the exchange and sharing of economic data****Prepared by the UNECE and Statistics Finland***Summary*

This document presents the results of a survey¹ of statistical offices on the exchange and sharing of economic data. The United Nations Economic Commission for Europe (UNECE) and Statistics Finland carried out the survey in April 2016 to review experience, concerns and challenges in the area. The work was done in view of the recommendations of the meetings of the Group of Experts on National Accounts, organized jointly by UNECE, Eurostat and the Organisation for Economic Co-operation and Development (OECD). The meetings highlighted the importance of advancing data exchange nationally and internationally. Consequently, the Bureau of the Conference of European Statisticians asked Statistics Finland, jointly with UNECE, to prepare an in-depth review² of the topic to make proposals for further work.

The main findings of the survey are presented in Section II, more detailed results and charts are included in Section III and conclusions in Section IV. The survey showed important benefits from data sharing and emerging challenges that should be addressed. Countries also emphasized the role of international organizations as vital to speeding up progress.

¹ The questionnaire is presented in Annex 1.

² In-depth review of the exchange of economic data and data sharing:
www.unece.org/stats/ces/in-depth-reviews/geospatial.html

I. Introduction

1. The survey provided a useful tool for analyzing current experience, concerns and challenges of statistical offices in the exchange and sharing of economic data. As globalization increases the challenges with source data, new data exchange mechanisms are needed, nationally and internationally. Coherent measurement of global production and trade calls for exploring possibilities for international exchange of data on the largest multinational enterprises (MNEs). Data exchange is becoming essential for maintaining the coherence and relevance of economic statistics and for the efficiency of their production.

2. UNECE and Statistics Finland carried out the survey in April 2016 among the member states of the Conference of European Statisticians (CES). The survey gathered information on practices in the field of national and international exchange of economic data. The questionnaire also covered institutional arrangements and collected ideas for international work in the area of data sharing. In total, 48 statistical offices replied to the survey. For some countries there were multiple responses from different institutions producing official statistics. That is, the results are treated at institution-level.

3. The survey covered different types of data sharing, such as the exchange of micro-data, aggregated data and meta-data. Typical examples of micro-data sharing are the reuse of administrative data and the exchange of cross border transactions data. The examples of sharing aggregated data are data confrontation, sharing data for publication purposes and acquiring data for statistical production. Sharing meta-data relates usually to data quality and correct interpretation of the information.

4. This paper uses the following concepts:

- Reuse of data for producing official statistics refers to a situation, when data, collected originally for other purposes, are received from other institutions for producing official statistics, but not shared forward. That is, the national statistical office (NSO) is the end-stop for the data. Reuse of data at national level covers all economic statistics.
- Sharing of data refers to a situation, when the data holder shares aggregated or micro-data forward to other national or international institutions for producing official statistics. This covers also data provided for publication or dissemination purposes solely.
- Exchange of data at international level refers to a situation, when data is exchanged bilaterally or multilaterally. That is, data is shared and received. In this study exchange of data refers to exchange of micro-data and aggregated data. Exchange of micro-data at international level focuses on statistics on cross border activities.
- Data confrontation refers to a situation, when international cross-border data is confronted to solve bilateral asymmetries.
- Bilateral asymmetries refer to a situation when there are two data sets on the same phenomena telling a different story.
- Confidential data means data which allow statistical units to be identified, either directly or indirectly, thereby disclosing individual information. To determine whether a statistical unit is identifiable, account shall be taken of all relevant means that might reasonably be used by a third party to identify the statistical unit. (Source: Regulation (EC) No 223/2009 of European Parliament and the Council on European statistics)
- Profiling is a method of analyzing the legal, operational and accounting structure of an enterprise group at national and world level, in order to establish the statistical

units within that group, their links, and the most efficient structures for the collection of statistical data.³

II. Main findings from the survey

5. The survey covered the following main areas: the current scope of economic data exchange nationally and internationally; organizational aspects of data sharing; benefits and challenges experienced; possible international activities in support of national capacity development and other comments by countries. This section reflects on the main findings by looking at the current scope of national and international data exchange, and also on the exchange of data on multinational enterprises. The section then briefly lists the benefits and difficulties as well as capacity development needs. All these results are further elaborated and illustrated in Section III.

A. National data sharing

6. All offices indicated carrying out some form of data exchange at the national level, the most common one was to receive or share aggregated data with other producers of statistics. This takes place in over 80 per cent of responding offices. For micro-data exchange, almost 80 per cent of offices receive data from other producers of statistics and three out of four offices receive micro-data from administrative sources. The counterparts from which administrative data were received were mainly central banks, ministries, customs offices and tax administrations.

7. Half of the respondents receive micro-data from commercial sources, over half - not only receive, but also provide micro-data to other producers of statistics and over two thirds provide micro-data for other purposes than statistical, typically for research.

B. International exchange of economic data

8. Over 90 per cent of offices engage in international data exchange. Typically, in more than 80 per cent, this international data exchange involved aggregated data, which had been collected directly for official statistics. Some offices are only involved in providing aggregated data for dissemination to international organizations. In fact, only one office in three engages in micro-data exchange.

9. Usually, data exchange takes place in statistics where cross-border transactions are recorded and the exchange aims at minimizing bilateral asymmetries between the same cross-border flows reported by different countries. International data exchange is sometimes facilitated by international organizations and sometimes based on bilateral or multilateral agreements between countries.

10. The increasing trend of micro-data sharing started 40 years ago when the first countries took steps towards the reuse of micro-data at national level. About 50 years ago, all countries were in the down-left corner, whereas currently only three offices remain in this position (see the following graph).

³ Business Registers Recommendation Manual 2010, annex 3.1, paragraph 19.9

Graph 1
Trends in the exchange and reuse of micro-data

		Reuse of micro-data at national level	
		No	Yes
Exchange of micro-data at international level	Yes	0	18
	No	3	27

11. Gradually more statistical offices started reusing existing data and moved to the down-right corner. During the recent years, this was followed by a shift upwards to exchanging micro-data at international level. Major factor here is the SIMSTAT-project that enabled international micro-data sharing between statistical offices. Now 18 offices are in the up-right corner and this figure may increase in the near future.

C. Multinational enterprises and institutional arrangements

12. Globalization has put emphasis on the treatment of MNEs. Exchange of data on MNEs is still relatively rare. Every fourth responding office had examined the activities of MNEs with other countries and every third office within a country with other producers of official statistics. Some countries mentioned that they have benefitted from organizing MNEs' data collection to a specific large and complex enterprises unit (LCU). Similar units are foreseen in a few more countries. The staff working in LCUs is often specially trained. Centralized management of data sharing may also support progress and good practices in data exchange.

13. Institutional prerequisites for data sharing are common in the responding offices. National legislation that regulates data sharing exists in 90 per cent of the countries that responded and a common business identifier is widely used, in more than three out of four countries. The fact that most of the countries have developed legislation that regulates data sharing implies that the protection of confidential data is well addressed in national laws. However, it does not mean that data sharing for statistical purposes would be well regulated or enabled. In some countries data exchange is agreed and defined in statistical work programs. Data sharing agreements between administrative data providers and producers of official statistics are very common.

D. Benefits and difficulties

14. In the survey almost 90 per cent of offices reported the improved consistency as the main benefit of data sharing and over 80 per cent reported better data quality such as accuracy, relevance and timeliness. Efficiency gains and reduced response burden were pointed out in two thirds of the replies. Data sharing may also increase coverage of target population and enable a more detailed analysis and understanding of business activities. The increased collaboration and reuse of data helps to promote common standards and classifications.

15. The main difficulties linked to data sharing include heavy procedures to ensure confidentiality or increased risks (mentioned by two thirds of respondents), limiting legal frameworks (mentioned by 60 per cent) and insufficient technological readiness (in almost half of offices). The possible decrease in respondents' trust is considered as a key risk by 15 per cent of offices. The other major issues that were mentioned include:

- the increased dependency from other national statistical offices or administrative data providers
- problems in linking data in the international data sharing
- lack of resources dedicated to this type of work
- when using administrative data the legal unit is not always the same as the statistical unit for compiling statistics
- quality issues especially coverage and
- timeliness of external data sources and high investment costs

16. According to the respondents no serious risks had materialized due to data exchange. Eleven offices reported that data exchange increased criticism about the quality of data and ten offices reported that data was misinterpreted. Very critical risks relating to the reputation of statistical office or respondents trust were less frequent (two observations each).

E. National capacity and international support

17. The respondents assessed the capacity of the office to carry out data exchange very positively. Only a few critical views were expressed. Staff's ability to analyze data received the highest ranking as 85 per cent of offices assessed the capacity as medium or high. Staff's skills in data mining and linking were not so highly ranked as 75 per cent of responding offices assessed these skills as being at the medium or high level. The offices noted that further training will be needed.

18. In general, the international organizations play a key role in facilitating the sharing of best practices and provision of fora for discussions. Guidance and standardization issues are also important areas for international organizations' contribution. According to the country responses, the international activities that would facilitate data exchange include developing methodologies to ensure confidentiality (65 per cent), sharing technological solutions and tools for data exchange (63 per cent) and developing general guidance for data exchange (56 per cent).

III. Detailed results of the survey on the exchange and sharing of economic data

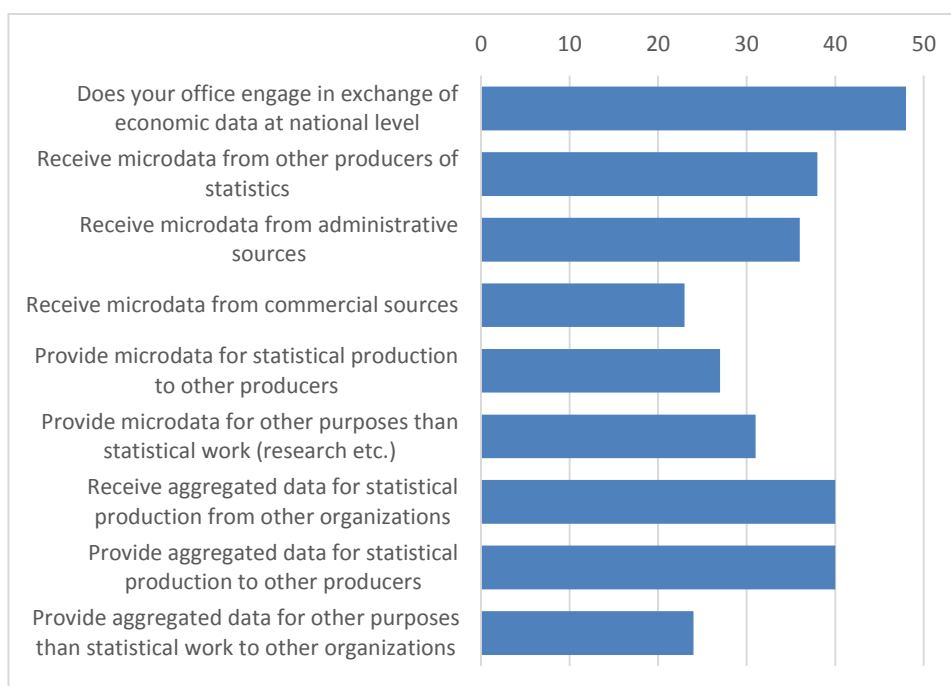
19. The following detailed analysis is based on 48 replies received from offices in response to the survey on the exchange and sharing of economic data. There can be multiple responses from the same country but provided from different institutions/offices.

A. Scope of economic data exchange

20. First, the questionnaire explored (in question 1.1) how offices engage in the exchange of economic data at national level. The following chart illustrates the results.

Chart 1

Does your office engage in exchange of economic data at national level (number out of 48 replies)



21. In summary, almost all statistical offices are engaged in the exchange of economic data nationally. They most often exchange aggregated data (40 out of 48 offices). Almost 80 per cent of the statistical offices receive micro-data from other producers of statistics or from administrative data providers. It is less common that statistical offices provide micro-data to other producers of official statistics, around 60 per cent do so.

22. In addition, offices were asked (Q 1.2) to list the statistics (or datasets) for which they exchange (receive or provide) economic data at national level.

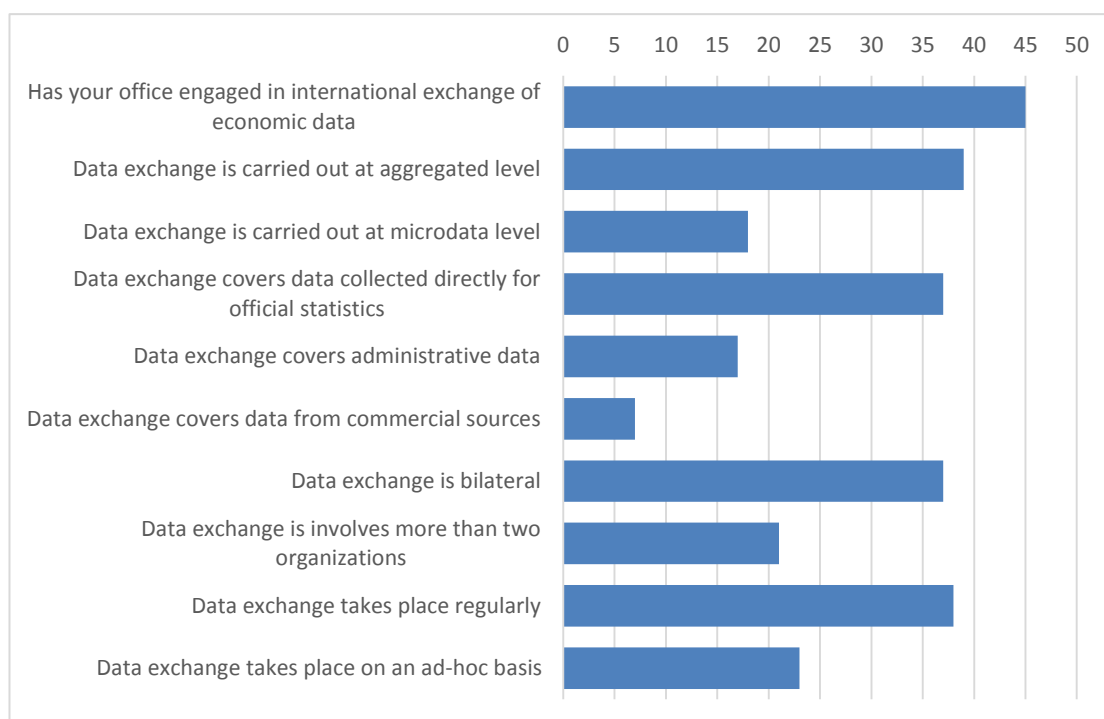
23. The replies revealed that the most commonly used administrative data in official statistics were tax-files received from Taxation Authority (30/48 offices). Other main administrative data providers were Central Banks (28) and Customs Offices (20). Data from Ministry of Finance were mentioned in 17 replies. Micro-data from private data providers were received in 23 offices.

24. Two thirds of respondents provided an estimate of the share of data received from indirect sources (not directly from respondents). The share varied significantly among countries - between 5 and 95 per cent of all data used for statistical production.

25. Further, the questionnaire asked (Q 1.3) whether the office engages in international exchange of economic data.

Chart 2

Has your office engaged in international exchange of economic data? (number out of 48 replies)



26. 45 out of 48 offices are engaged in international exchange of economic data at some level. The exchange covers mainly aggregated data. Slightly more than one third of the offices are engaged in international exchange of micro-data. 80 per cent of the offices regularly carry out international data exchange.

27. Again, the offices were also asked (Q 1.4) to list the statistics for which they exchange economic data at international level.

28. Mainly data that record cross-border transactions were exchanged. These are balance of payments, international trade in goods/services statistics, foreign direct investment (FDI), international investment position, foreign affiliates statistics (FATS) etc. However, transport statistics is also an area that might benefit from data exchange (See cases of Canada, Mexico and the United States in the in-depth review paper).

29. Offices' practices to examine the activities of multinational enterprises were also explored (Q 1.5).

30. The replies highlighted that the treatment of MNEs should be investigated further. More than 40 per cent of the respondents cooperate with other offices to better deal with MNEs. Two thirds of them indicated joint efforts with statistical offices from other countries. A couple of more offices (16/48) indicated having engaged in joint efforts within the country with other producers of statistics.

B. Organizational aspects

31. The existence of a unit in charge of coordinating the exchange of economic data (e.g. the national accounts or the large and complex enterprises unit) was reviewed in Question 2.1.

32. According to the responses, there are coordinated data exchange efforts in place in some offices. Several responses (7/48) indicated the existence of a centralized office for national data sharing (e.g. for receiving administrative data). A bit less than 40 per cent of the offices have decided to centralize data exchange activities in their office.

33. Question 2.2 explored the institutional arrangements (i.e. policies, systems and processes to manage the activity and division of work) for the collection, exchange and processing of statistical data related to global production (e.g. international trade in goods/services statistics, FDI, business statistics, FATS, etc.).

34. Data sharing agreements between administrative data providers and producers of official statistics are very common (see also Q 1.2). Almost all offices mentioned national legal framework as an important institutional prerequisite. In some countries, data exchange is agreed and defined in statistical work programs. Some countries mentioned that they have benefitted from organizing the data collection of MNEs to a specific LCU. Similar units are foreseen in a few more countries. A couple of offices pointed out that compiling all economic statistics in one office improves coherence. It was also highlighted that the role of national accounts is important in improving the overall quality of economic statistics through micro and macro level validations. Some countries have established working groups between administrative data providers and producers of official statistics to ensure good working relations in data exchange. An example of a central Micro-data Release Panel to approve the sharing of each micro-dataset was mentioned as a good practice.

35. At international level, offices from the European Union (EU) countries emphasized the role of EU regulations in enabling and promoting data exchange. Specific data exchange exercises facilitated by Eurostat (e.g. the Single Market Statistics (SIMSTAT), FDI-network) and OECD were also mentioned. Some offices have bilateral or multilateral memoranda of understanding in the area of data exchange between countries.

36. Technical solutions developed to secure transmission of confidential aggregates and micro-data are important as well as having appropriate documentation and specially trained staff.

37. Question 1.3 concerned the national legal framework. Almost all responses (43 out of 48) indicated having a legal framework in place that regulates or sometimes inhibits data sharing or data linking.

38. New mechanisms to facilitate data exchange were explored (Q 1.4). Two thirds of the offices reported that they have recently introduced new cooperation mechanisms, signed agreements or revised legislation to facilitate data exchange.

39. Common business/personal identifiers have a crucial role in enabling data sharing or data linking (Q1.5). In total, 37 out of 48 offices reported that in their country common identifiers are widely used at national level.

40. Question (1.6) collected information about the ways in which different offices try to overcome the lack of common international standards (e.g. business identifiers and possible different classification of units).

41. Within the EU, value added tax (VAT) and Customs identifiers are used as a common standard and they allow matching company data on trade with partner countries. Through Eurostat's coordination the legal entity identifier number (LEID number) also exists as a

unique identification number assigned by the Euro Groups Register (EGR) Identification Service. The role of a common business register was highlighted as an important tool for data exchange and it should include national identifier and its link to e.g. international VAT codes. LEID should be introduced to all business statistics.

42. Eurostat's grant actions toward interoperability of the national statistical registers of EU countries have notably facilitated international data linking. The European System of interoperable Business Registers (ESBRs) and EGRs are promising examples of interoperability between business registers and European profiling to reach common standards in dealing with statistical units.

43. Some offices mentioned that national classifications need to be adapted to the international standards. Correspondence tables are used to link the different classifications. Eurostat and the United Nations Statistics Division in New York (UNSD) provide correspondence tables between different versions of classifications.

44. In some countries data exchange is challenging because of the lack of common identifiers for units. They have developed new approaches to address the lack of unified business identifiers, such as using different probabilistic linking techniques, using name and address to build up a concordance file over time and between the identifiers in different countries.

45. Many responses highlighted the importance of following agreed international guidelines regarding identifiers of statistical units. Countries would benefit from a more active exchange of good practices in dealing with the lack of common identifiers.

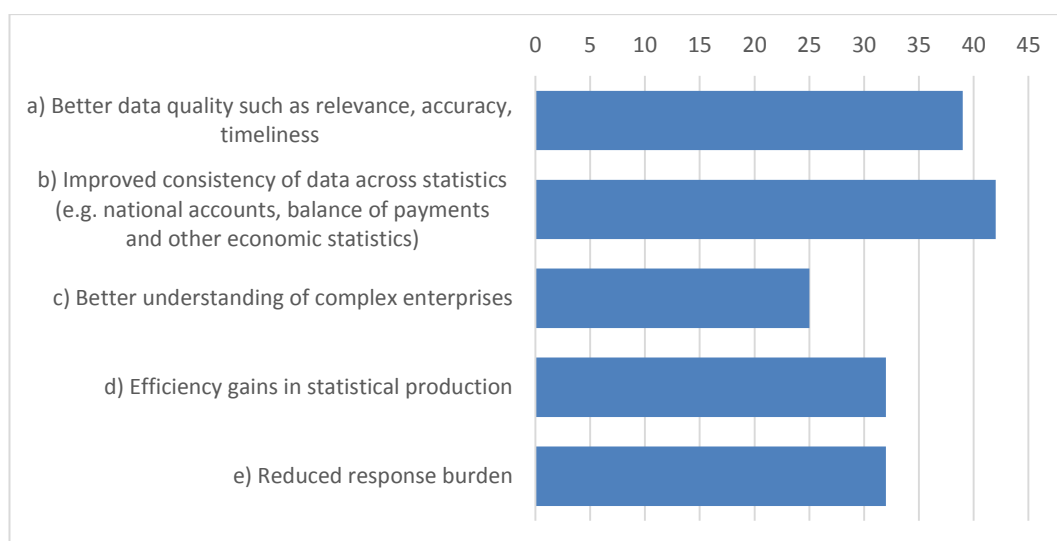
46. It was also stated that some methods and international standards may be too European centric to be of use in other parts of the world. Review and adaptation to different circumstances may be needed.

C. Benefits and challenges

47. The main benefits for offices from (both national and international) data exchange (Q 3.1) are illustrated in the chart below:

Chart 3

Which have been the main benefits for your office from (both national and international) data exchange? (number out of 48 replies)

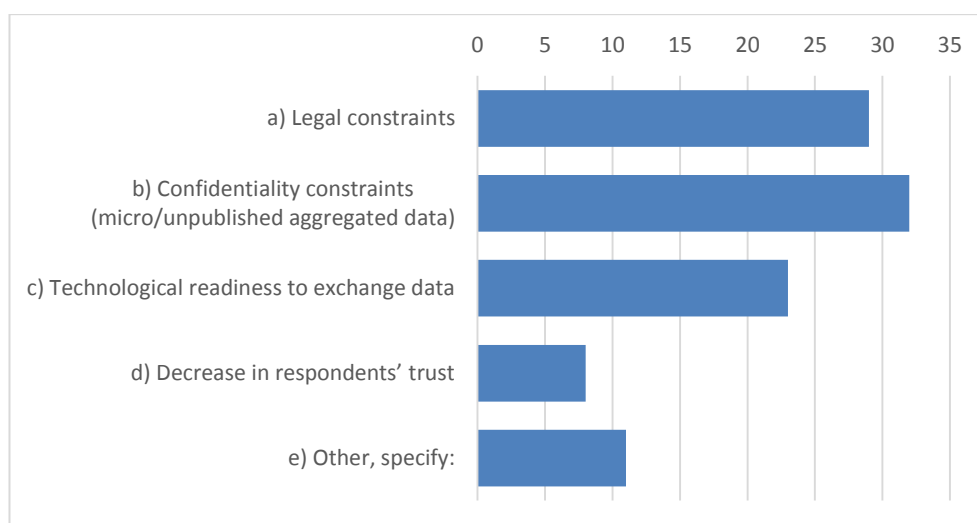


48. Countries listed as main benefits from data sharing the improved consistency (42 out of 48 offices), and better data quality such as accuracy, relevance and timeliness (39). In total, 32 offices mentioned efficiency gains and reduced response burden as the third most common benefit from data exchange. The role of data exchange for better understanding complex enterprises is highlighted in 50 per cent of the replies. With the progress towards establishing of LCUs this role could increase in the future.

49. The main challenges or obstacles for offices in (both national and international) data exchange were considered (Q 3.2) as follows:

Chart 4

Which have been the main difficulties or obstacles for your office in (both national and international) data exchange? (number out of 48 replies)



50. The main challenges for data sharing were confidentiality (32 out of 48 offices), legal constraints (29) and technological readiness (23). The risk of decreasing respondents' trust is considered as a main restriction by 8 offices. Other obstacles were also specified by 11 offices, such as:

- the increased dependency from other national statistical offices or administrative data providers;
- problems in linking data in international data sharing;
- lack of resources dedicated to this type of work;
- when using administrative data, the legal unit is not always the same as the statistical unit for compiling statistics;
- quality issues, especially coverage, timeliness and high investment costs.

51. Responses to Question 3.3 indicated some successful cases of exchanging economic data, key challenges experienced and lessons learned, and key results that were achieved. They are presented in more detail below.

1. Successful cases of exchanging economic data

52. At the international level, many offices mentioned data provision to international organizations (United Nations, Eurostat, the International Monetary Fund) as examples of successful data exchange. At the national level, use of customs data for international trade

in goods statistics (ITGS) production and use of data from tax authorities were most often cited as successful actions.

53. Exchange of international merchandise trade data between the member states of an economic region (e.g. EU, Eurasian Economic Union, North America) has been very fruitful. At the EU-level, SIMSTAT and the FDI-network were highlighted several times.

54. Developing communication nationally between statistics producers, administrative data providers and respondents were also considered effective. A key area for closer collaboration would be to develop common data collection and data sharing (in some cases in anonymized form) initiatives between the statistical office, Central Bank and Customs Office. A couple of examples also showed that closer collaboration and data exchange between foreign trade and/or balance of payments statisticians from the Central Bank and/or Customs Office and the statistical office have been very fruitful.

55. The respondents also paid special attention to technical aspects of data exchange and sharing. The most successful cases are those where data are received via web service and are automatically processed and used for the intended purposes.

56. The provision of aggregated or anonymized data to researchers/economists with methodological guidance and technical and professional support were also found useful. Many research articles get good visibility in the media and give prominence to the NSO.

2. Key challenges experienced and lessons learned

57. The responses clearly underlined the importance of having a common numerical identifier for statistical units. It is crucial for data exchange and linking. When common identifier is missing, it is difficult to match companies e.g. by name. The significance of harmonized use of classifications was also stressed. In addition, sound legal framework contributes greatly to regular data exchange, to improvement of data quality and to ensuring smooth data supply and exhaustiveness of data.

58. The responses revealed difficulties in ensuring comparable consolidation of different business units to the enterprise level. They also underlined the usefulness of having a third source (e.g., commercial databases) to help reconcile cases where two agencies have different estimates for the same entity.

59. Data exchange requires good coordination within the National Statistical System, creating cooperation agreements with other producers of statistics and data providers and understanding institutions' different objectives. Many replies highlighted the significance of providing high-quality meta-data. The different scope, definitions, timeliness and quality of administrative data are the key challenges for data exchange with administrative data providers. It is important to have staff members who know well the administrative sources and good documentation.

60. Despite all efforts made in data exchange, there are still significant asymmetries in the data between countries. The lack of common tools and methods was mentioned as one of the main reasons.

3. Key results achieved

61. One of the key results of improved cooperation is the better international comparability of data. Reduced burden for all parties as a result of more effective data exchange and reuse is another important achievement. Much less surveying is needed when the once collected data (e.g. administrative records) are reused for different statistical purposes.

62. It was also mentioned, that the international exercises that were conducted have reduced asymmetries significantly. Offices have noted improvements in data quality such as relevance, accuracy, timeliness.

63. Some statistical offices observed that data exchange lead to increased geographic and industrial detail of statistics without imposing additional burden on survey respondents.

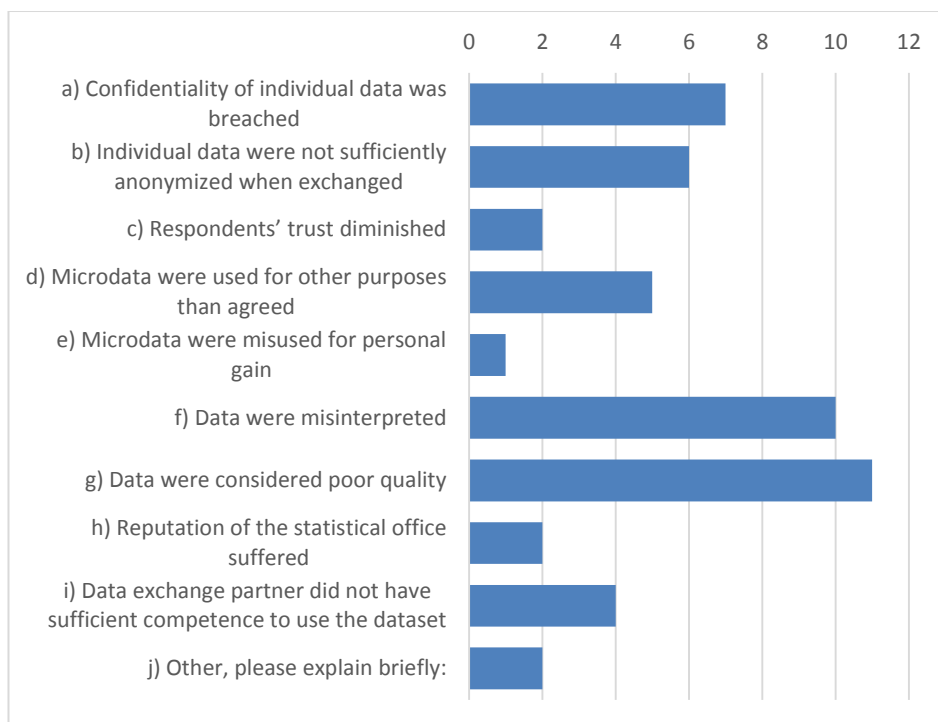
64. Furthermore, data exchange and sharing has facilitated integration of different business statistics as well as national accounts data.

65. The questionnaire surveyed (Q 3.4) risks of data sharing that were experienced by countries (see the chart below).

66. It seems that not many risks with data sharing have realized. Eleven offices reported that data was considered poor quality and ten reported that data were misinterpreted. Other risks seemed less common. The most critical risks have to do with possible confidentiality breaches, which were reported by seven offices.

Chart 5

Have any risks of data sharing realized in your country in practice? (number out of 48 replies)



D. International activities and national capacity

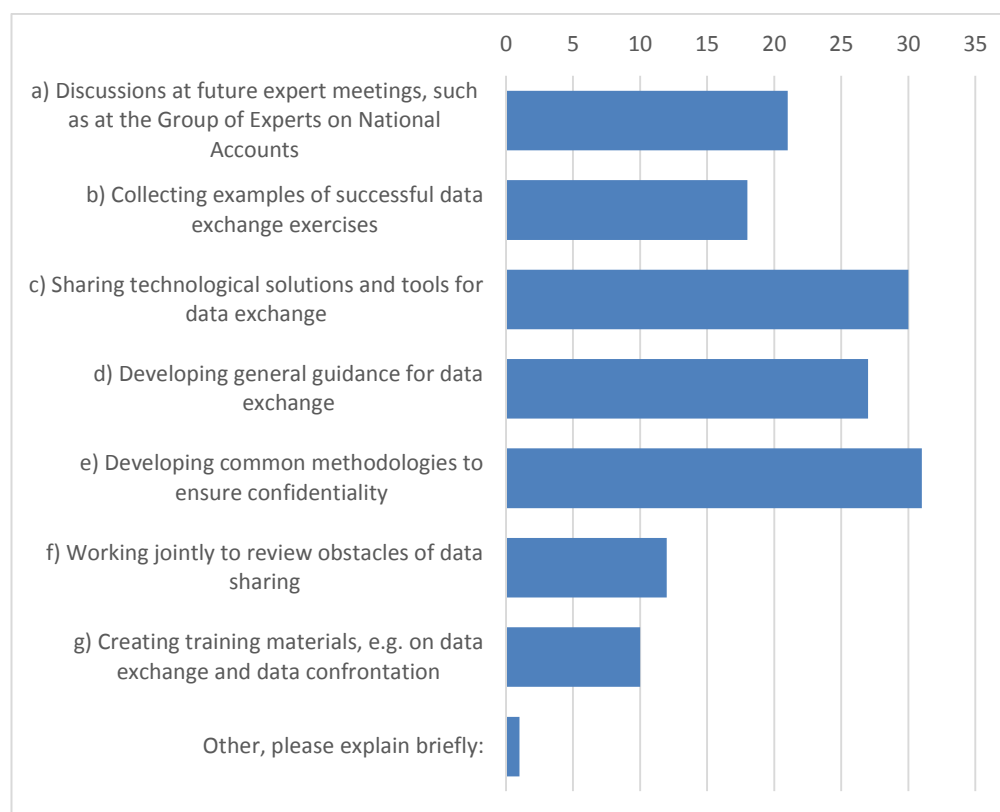
67. Offices were also asked (Q 4.1) what kind of international activities would best facilitate progress in the exchange of economic data (see the chart below). They were requested to indicate the three most important activities.

68. In general, the role of international organizations was seen as a facilitator of the sharing of best practices and fora for discussions. Countries need international guidance on defining legislation and agreements that facilitate data exchange without compromising data confidentiality and further standardization of data exchange rules and procedures. The following international activities would best facilitate data exchange: developing

methodologies to ensure confidentiality (31 out of 48 offices indicated it as top priority), sharing technological solutions and tools for data exchange (30) and developing general guidance for data exchange (27).

Chart 6

What kind of international activities would best facilitate progress in the exchange of economic data? (number out of 48 replies)

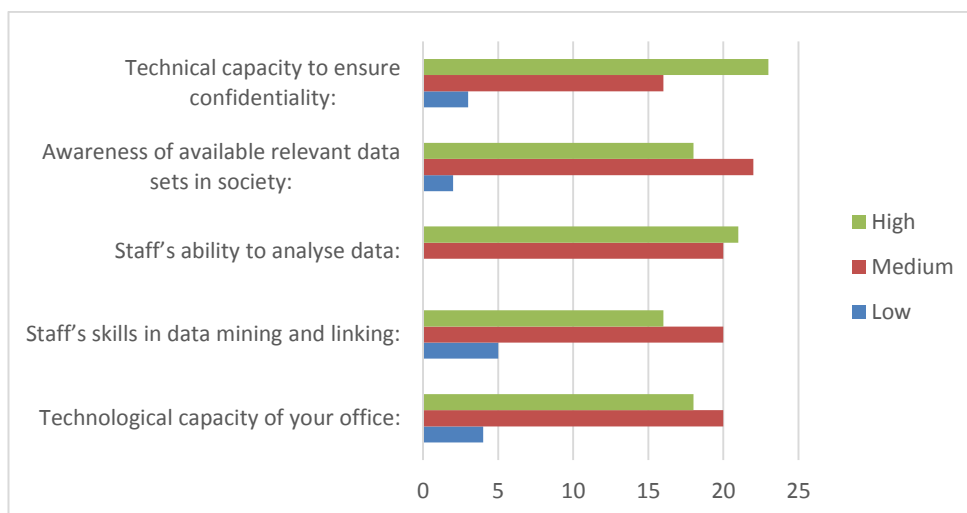


69. Respondents were also requested (Q 4.2) to assess their capacity in carrying out data exchange.

70. Staff's ability to analyse data and the office's technical capacity to ensure confidentiality were evaluated as "high" most often. Other broad categories were assessed at a medium level. However, the responses varied quite a lot (see Chart 4.2). Even some very developed offices assessed their technical capacity and staff's skills in data mining and linking as being on low level.

Chart 7

**How would you assess the capacity of your office in carrying out data exchange?
(number out of 48 replies)**



71. In question 4.3 respondents evaluated what kind of practical solutions for data exchange should be developed in the near future, and how to achieve improvements.

72. Technical specifications for data exchange were regularly mentioned. The exchange of information should happen online and through a protocol defined by statistical agencies. Data exchange should be facilitated by introducing commonly developed and agreed modern tools. The implementation of the Statistical Data and Metadata Exchange (SDMX) and other relevant data exchange standards is extremely important. Clear standard rules (content, format, meta-data) would be needed for all participants in the data exchange process. Data exchange using the SDMX system should be further developed in order to cover more statistical domains. The solution chosen in the SIMSTAT project could be used more widely.

73. There is similarly a need to improve the legal framework, infrastructure and provide relevant training. New legislation should allow increased data exchange. Statistical offices would benefit from international recommendations on the organization of data exchange.

74. In addition, common standards for data security need to be agreed. Effective and secure data exchange requires consistent accreditation processes that all countries can sign up to. We need to ensure the use of most efficient statistical disclosure control (SDC) methods in the area of business statistics, and develop common procedures for that. In order to exchange data, methodological and practical guidance to ensure confidentiality should be developed.

75. Greatest utility in bilateral comparisons would result from better meta-data about national systems, from having common international identifiers for legal units/enterprises in every data source and using common definitions and agreed types of statistical units.

76. Offices would benefit from having a unit in charge of central management of data exchange. These units would provide a link for working together internationally to facilitate data exchange while ensuring confidentiality.

77. It would be beneficial to include data reconciliation or international data integration workshops back-to-back to regular international meetings, (for example, the UNECE Expert group on National Accounts or OECD Working Party on Trade in Goods and Services) to allow major trading countries to reconcile trade and investment flows. This

would have a dual benefit. It would improve the overall quality of each country's statistics while at the same time facilitating the integration of the data into multijurisdictional data products such as regional supply and use tables. Organizing other meetings via videoconferences in order to exchange data and methodologies, ensuring the consistency of data and their international comparability and developing general guidance for data exchange could also be useful.

78. Within the EU, micro-data exchange in certain areas could be enabled by EU legislation. Similarly, establishing the sets of economic data that could be commonly exchanged at international level (international organizations should jointly require a unique questionnaire) could be considered.

79. Question 4.4 explored the key priorities for international work that might support the exchange of economic data. The following priorities were listed:

- Sharing technological solutions and tools (including legal agreements) for data exchange and related training;
- Development of a standard system for exchange of external trade data;
- Creation of mechanisms and infrastructure supporting the exchange of information such as data transfer protocols, generic agreements guaranteeing the confidentiality of data providers, and the facilitation of face-to-face meetings or teleconferencing meetings;
- Legal basis for micro-data exchange introducing an appropriate balance between data sharing and confidentiality;
- Further advancing the adoption of Legal Entity Identifiers (LEIs).

80. Respondents also assessed the role of international organizations in the cooperation and coordination of data exchange, the related tools and methodologies (Q 4.5).

81. International organizations should coordinate all aspects of data exchange e.g. methodological, legal and technical. The role of international organizations is especially important in promoting best practices and initiatives related to data exchange and sharing and its benefits to regional and global developments and trends. In addition, the international organization should work to develop harmonized tools and methodologies to achieve better data consistency and coherence through data sharing.

82. Further, international organizations should create conditions for joint work of national statistical offices, organize platforms for the exchange of views, analyse and synthesize information about trends in data exchange, make recommendations on country practices and share the results achieved by statistical offices.

83. International organizations should facilitate 'data reconciliation' meetings where experts from countries are brought together to undertake actual reconciliation work on of, for example, trade flows and investment flows.

84. International organizations should play a key role in developing the legal framework for data exchange. Promoting data sharing on the political level is also very important.

85. Finally, offices also recognized international organizations role in financing the development of appropriate tools for data exchange.

E. Other issues

86. At the end of the questionnaire respondents had the opportunity to mention other relevant issues.

87. They highlighted that respondents' confidence is at the heart of NSO's ability to compile robust, high quality and trusted official economic indicators. Any loss of engagement or trust among the relatively small number of large enterprises dominating the economy would be detrimental to the ability of statistical offices to compile key economic indicators.

88. The data laboratories giving researchers access to micro-data, at the same time taking care of the confidentiality of respondents, should be further developed.

89. It was also stated that the biggest obstacle to data exchange is the culture of risk aversion. Instead, we need to develop modern tools that enable data exchange and disable confidentiality breaches to the highest extent possible.

IV. Conclusions

90. The survey provided rich information on the current practices and challenges of statistical offices in the exchange of economic data. It provided clear priorities for further work. The survey showed that there are important benefits from data sharing and emerging challenges that should be addressed. In the survey, countries saw the role of international organizations as vital to speeding up progress. International organizations should act as facilitators for sharing best practices in data exchange and providing the necessary fora for discussion. Guidance and standardization of current practices is also needed.

91. Reuse of administrative data has a long history and the first attempts to use administrative data sources date back about 40 years. Currently, all respondents (48) that participated in the CES survey are engaged in national data sharing. Many respondents (43) indicated that data sharing is regulated by law.

92. Data sharing or reuse of existing data for statistical purposes at the national level may happen between the national statistical office and administrative bodies (such as tax administration, ministries, customs and central bank) or from private data holders to the national statistical office. Data sharing at the national level is already a mainstream activity. Yet, countries are at different levels of development in terms of the share of reused data in statistical databases, which varies from 5 to 95 per cent of all data.

93. There are clear benefits from data reuse, such as efficiency gains (reduced costs and response burden), improved accuracy (coverage and precision) and access to more exhaustive information. National statistical offices need guidance on the organization of data exchange (including technical solutions) and possibilities to exchange information on the most beneficial cases of data reuse and exchange.

94. The use of secondary data sources includes risks and challenges, such as increased dependency on data providers, issues with the timeliness of source data, insufficient coherence with statistical concepts and classification systems and possible challenges with the quality of data.

95. Using data accumulated within the national administration for the production of official statistics is very common. Still there are possibilities to expand data sharing and to increase the reuse of data in order to improve the quality and introduce efficiencies, for instance among different producers of official statistics. A more novel phenomenon is the acquisition of data from private data holders for the production of official statistics. The legislation does not necessarily grant access to these data.

96. According to the CES survey, international organizations should facilitate sharing of best practices in data exchange and provide possibilities for discussion and advancement of

practices internationally. Guidance and standardization of current practices is needed to move forward. The international activities that would facilitate data exchange include:

- Developing methodologies to ensure confidentiality,
- Sharing technological solutions and tools for data exchange, and
- Developing general guidance for data exchange.

Annex 1

Exchange and sharing of economic data – Questionnaire

1. Scope of economic data exchange

1.1. Does your office engage in exchange of economic data at national level (receiving data collected by other institutions / providing data to other institutions)? Yes No

If yes, what is the role of your office? Please select all options that apply.

- a) Receive micro-data for statistical production from other organizations:
 - From other producers of statistics
 - From administrative sources
 - From commercial sources
- b) Provide micro-data for statistical production to other producers
- c) Provide micro-data for other purposes than statistical work (research etc.)
- d) Receive aggregated data for statistical production from other organizations
- e) Provide aggregated data for statistical production to other producers
- f) Provide aggregated data for other purposes than statistical work to other organizations
- g) Other, please explain briefly:

1.2. Please list here the statistics (or datasets) for which you exchange (receive or provide) economic data at national level (you may also list the institutions with whom you exchange data):

Please provide an estimate of the share of data received from indirect sources (not from

xx %

respondents):

1.3. Has your office engaged in international exchange of economic data? Yes No

If yes, please select options that apply:

- a) Data exchange is carried out at:
 - aggregated level
 - micro-data level
- b) Data exchange covers:
 - data collected directly for official statistics
 - administrative data
 - data from commercial sources
- c) Data exchange is:
 - bilateral
 - involves more than two organizations

- d) Data exchange takes place: regularly
on an ad-hoc basis

1.4. Please list here the statistics for which you exchange economic data at international level, provide also frequency of data exchange and key results achieved:

1.5. Does your office examine the activities of multinational enterprises together with:

Statistical offices of other countries? Yes No

Other producers of statistics within your country? Yes No

If yes, please provide examples of such data exchange, frequency and key results achieved.

2. Organizational aspects

2.1. Does your office have a unit in charge of coordinating the exchange of economic data (e.g. the national accounts or the large and complex enterprises unit)? Yes No, it is distributed to various units

Please explain briefly how the work is organized within your office and why.

2.2. What are the institutional arrangements (i.e. policies, systems and processes to manage the activity and division of work) for the collection, exchange and processing of statistical data related to global production (e.g. international trade in goods/services statistics, FDI, business statistics, FATS, etc.)

2.3. Is there a national legal framework in place that regulates (or inhibits) data sharing or data linking?

Yes No

Please explain briefly the benefits and limits from the legal framework. How are confidentiality aspects addressed?

2.4. Have you recently introduced new cooperation mechanisms, signed agreements or revised legislation to facilitate data exchange? Yes No

If yes, please explain briefly.

2.5. Is there a common business/personal identifier widely in use enabling data sharing or data linking at national level? Yes No

- 2.6. Please explain briefly how your office tries to overcome the lack of common standards between countries (e.g. business identifiers and possible different classification of units):

3. Benefits and challenges

- 3.1. Which have been the main benefits for your office from (both national and international) data exchange? Please select all options that apply.

- a) Better data quality such as relevance, accuracy, timeliness
- b) Improved consistency of data across statistics (e.g. national accounts, balance of payments and other economic statistics)
- c) Better understanding of complex enterprises
- d) Efficiency gains in statistical production
- e) Reduced response burden
- f) Other, specify:

Please explain briefly the benefits that you indicated above.

- 3.2. Which have been the main difficulties or obstacles for your office in (both national and international) data exchange? Please select all options that apply.

- a) Legal constraints
- b) Confidentiality constraints (micro/unpublished aggregated data)
- c) Technological readiness to exchange data
- d) Decrease in respondents' trust
- e) Other, specify:

Please explain briefly the difficulties and obstacles that you indicated above.

- 3.3. Please provide an example of the most successful case of exchanging economic data in your office.

- a) Brief description of the project:
- b) Key challenges experienced/Lessons learned:
- c) Key results achieved:

- 3.4. Have any risks of data sharing realized in your country in practice? Please select all options that apply.

- a) Confidentiality of individual data was breached
- b) Individual data were not sufficiently anonymized when exchanged
- c) Respondents' trust diminished
- d) Micro-data were used for other purposes than agreed

- e) Micro-data were misused for personal gain
- f) Data were misinterpreted
- g) Data were considered poor quality
- h) Reputation of the statistical office suffered
- i) Data exchange partner did not have sufficient competence to use the dataset
- j) Other, please explain briefly:

4. International activities and national capacity

4.1. What kind of international activities would best facilitate progress in the exchange of economic data? Please select three options.

- a) Discussions at future expert meetings, such as at the Group of Experts on National Accounts
- b) Collecting examples of successful data exchange exercises
- c) Sharing technological solutions and tools for data exchange
- d) Developing general guidance for data exchange
- e) Developing common methodologies to ensure confidentiality
- f) Working jointly to review obstacles of data sharing
- g) Creating training materials, e.g. on data exchange and data confrontation
- h) Other, please explain briefly:

4.2. How would you assess the capacity of your office in carrying out data exchange? Please select all that apply.

- a) Technological capacity of your office: high medium low
- b) Staff's skills in data mining and linking: high medium low
- c) Staff's ability to analyse data: high medium low
- d) Awareness of available relevant data sets in society: high medium low
- e) Technical capacity to ensure confidentiality: high medium low

4.3. What kind of practical solutions should be developed in the near future for data exchange, and how to achieve improvements?

4.4. What is the key priority for international work that might support the exchange of economic data at your office?

4.5. What should be the role of international organizations in cooperation and coordination of data exchange, the related tools and methodologies?

5. **Other issues**

5.1. Here you may bring up any other issues, measures taken or national experience relating to the exchange of economic data:

5.2. Do you allow the information provided in this questionnaire to be used in the review paper and shared with other national statistical offices? Yes No Only in an aggregated or anonymized form
