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**Drivers for micro-data access****International collaboration on micro-data access****Note prepared by the Organisation for Economic Co-operation and Development***Summary*

In 2011, the Organisation for Economic Co-operation and Development Committee for Statistics created an Expert Group for International Collaboration on Micro-data Access. This paper presents the motivation behind its creation and the work of the group. While acknowledging the challenges of trans-border access from the perspective of analysts (including researchers in international organisations), the paper highlights the value of research based on micro-data and how it can contribute to improving policy design. The paper introduces examples of studies by the Organisation for Economic Co-operation and Development using micro-data in different economic areas (from productivity to trade and entrepreneurship) with the purpose of illustrating the types of findings and policy insights that international access to micro-data can generate.

## I. Micro-data access: the experience of the Organisation for Economic Co-operation and Development

1. The Organisation for Economic Co-operation and Development (OECD) works closely with members and partner countries, and other international organisations in sharing internationally comparable statistics, creating an information base for analysis and decision making. This mainly involves the compilation of disclosive aggregated data but there is a growing need for analyses based on micro-data, and increasingly therefore the OECD has begun to engage in coordinating the collection of such data. The overriding principle in such initiatives is that, in all instances, the confidentiality of individual responses is preserved. Building on these experiences and responding to the growing policy needs for such data the OECD and many national statistical offices (NSOs) around the world are engaged in efforts to encourage and improve access to micro-data, to allow its increased usage, understanding and relevance.

2. Several NSOs have already developed in-house methods for sharing micro-data with users, either nationally or internationally; these methods include a variety of on-site and remote access systems and practices. Other NSOs are commencing work on developing micro-data access methods. However, often, the complexity of technical and legal issues, a lack of sufficient micro-data expertise, and budget constraints have concurred in limiting the development of micro-data access.

3. In this context, learning from successful experiences that have managed to overcome some of these complexities, via international collaboration, can help to resolve some of the problems faced by those countries embarking on programmes to make micro-data accessible, especially trans-border access. Recognising the benefits of such international collaboration, the OECD Committee for Statistics set up an Expert Group with the purpose of facilitating NSOs “working together on practical steps to advance cross-border access to, and analysis of, micro-data by policy analysts and researchers”. (See Box 1).

### **Box 1. The OECD Expert Group for International Collaboration on Micro-data Access**

In June 2011, the OECD Committee on Statistics (CSTAT) agreed to create an Expert Group for International Collaboration on Micro-data Access. Membership includes 25 countries: Australia, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, France, Greece, Germany, Hungary, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Slovenia, Sweden, Switzerland, Turkey, United Kingdom, United States; and Eurostat.

The mandate of the Expert Group, expiring on 31 December 2013, is to encourage and facilitate cross-border access to official micro-data. This will be achieved by:

- Increasing coordination and communication between institutes and other expert groups to adopt best practices, promote a common understanding and minimise duplication of work in the area of cross-border access to micro-data.
- Establishing procedures for efficient integrated cross-border access to micro-data held by statistical institutes for statistical purposes while respecting confidentiality constraints.
- Conducting practical country experiments with actual data files.
- Advising and making recommendations to Chief Statisticians based on the Group’s work and advice from other expert groups and practitioners on

technical and non-technical issues.
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## A. Main activities of the Organisation for Economic Co-operation and Development Expert Group

4. **Synergies, not duplication of work.** Over the past three years, several projects have been launched, especially at the European level, to assess the feasibility of cross-border access to micro-data and to design procedures and technical solutions to make access possible. The Expert Group reviewed the different activities completed or currently being conducted by other international organisations, consortia and projects to ensure that information is shared, as appropriate, in order to create synergies between the different initiatives and avoid duplication of work (OECD, 2012a). The Expert Group intends to build on the results of these other groups, whenever this is pertinent, and to continue to closely monitor their activities to ensure coherence and co-ordination.

5. The review highlighted the complementarity between the Expert Group's mandate and other existing initiatives, in particular in terms of *geographical scope* (most of the existing initiatives have a European focus, e.g. Data without Boundaries (DwB), ESSnet on Decentralised and Remote Access to Confidential Data (DARA) and ESSnet on Statistical Disclosure Control (SDC) Harmonisation), *general scope* (some projects are focused on specific technical solutions, e.g. DARA; or on very comprehensive objectives such as capacity building in statistics in developing and emerging countries, e.g. Partnership in Statistics for Development in the 21st Century (PARIS21)), or *type of membership* (no official representatives, e.g. Workshop on Data Access).

Table 1

### International projects/groups working in the area of micro-data access or on related areas

<i>Project/Group</i>	<i>Aim</i>
1. Data without Boundaries (DwB)	Enhance transnational access to official micro-data within Europe by promoting co-ordination of existing infrastructures.
2. ESSnet <sup>1</sup> DARA (Decentralised and Remote Access to Confidential Data)	Implement remote access to micro-data sets (community statistics) from safe centres in NSOs in the EU Member States.
3. ESSnet <sup>1</sup> SDC Harmonisation (Common Tools and Harmonised Methodology for Statistical Disclosure Control)	Release harmonised micro-data in multiple European countries.
4. Workshop on Data Access (previously Nuremberg Group)	Promote innovations regarding data access and the management of research facilities, in particular Research Data Centres (RDC).
5. Paris 21 - Partnership in Statistics for Development in the 21st Century	Encourage and assist low income and lower middle income countries to develop an overall vision of the development of their national statistical system.

6. Generic Statistical Information Model (GSIM) and Generic Statistical Business Process Model (GSBPM) - UNECE	Provide a reference framework of internationally agreed definitions, attributes and relationships that describe the pieces of information that are used in the production of official statistics; and a model for the statistical production process.
7. OECD Working Party on Information Security and Privacy (WPISP)	Develop policy options to sustain trust in the Internet Economy (in areas such as critical information infrastructure, digital identity management and e-authentication, privacy law enforcement co-operation, etc.).
8. CESSDA - Council of European Social Science Data Archives	Promote the acquisition, archiving and distribution of data throughout Europe.
9. EUDAT – Collaborative Data Infrastructure	Build a sustainable pan-European infrastructure for scientific data.
10. DASISH - Data Service Infrastructure for the Social Science and Humanities	Provide solutions to common issues relevant for projects in social science and humanities in the European Union, notably as concerns data quality, data archiving, data access and legal and ethics issues
11. OECD Expert Group on Data and Research Infrastructure for Social Sciences	Review developments in international data availability, consider their suitability for comparative research, detail the challenges and make recommendations to respond to these new opportunities.

6. **Clear terminology and metadata standards.** Currently, a standardised glossary of terminology on micro-data does not exist at the international level. There is no single common definition of terms, nor of the basic concepts/terms that are regularly utilised in the context of micro-data work. For example even the term “micro-data” is interpreted at times as a narrower or a broader concept. In light of this lack of clarity, the Expert Group decided to compile a “Glossary of Terms” to be proposed as the international reference terminology in the area of micro-data.

7. In the same spirit, the Expert Group is also preparing recommendations on metadata standards for micro-data access, based on an analysis of the functions and complementarities of the two main existing standards for international data transmission, namely Statistical Data and Metadata Exchange (SDMX) and Data Documentation Initiative (DDI).

8. **Costs of a micro-data service.** In many NSOs, the activity of maintaining a micro-data service is not covered by the internal budget. A few countries have estimated the costs associated with providing access to micro-data. The Expert Group agreed that the question of “who pays the bill” needs to be addressed and decided to collect information to develop a cost recovery model, which also implies documenting the process flow for micro-data exchange. In this context an objective will be to try and highlight the benefits as well as the costs. Illustrating the benefits gained by policy makers through investments in micro-data access could provide increased financing possibilities from Ministries responsible for allocating NSO budgets (see below).

9. **Positive impact of micro-data access.** The Expert Group recognises that the discussion on providing access to micro-data focuses too often on costs and risks, while much less emphasis is put on the benefits. The Group will propose approaches to measure the positive impact of micro-data exchange; as a quantitative measure will be difficult to develop, a qualitative approach is also envisaged, e.g. by means of illustrative case studies at the country level.

10. **Process flows for secure and successful access to micro-data.** While there are technical challenges for NSOs seeking to set up a way to provide cross-border access to micro-data, many concerns around international access can be resolved with careful planning and implementation of procedures and process flow design. Process flows vary according to the aims of the access programme, the requirements of users and the different access models (e.g. safe centres, remote execution, remote access, public use files, scientific use files). These process flow systems (including well-defined and executed procedures and processes, a management information system, data repository and technical controls of access permissions and data) ensure that access is controlled and efficiently managed. The Expert Group is working on mapping process flow systems, and on standardised access procedures and templates for applicants.

11. **Breach of confidentiality and applicability of penal sanctions.** One of the main concerns about cross-border access to, or exchange of, micro-data is the ability of a country to exercise its criminal jurisdiction over a researcher/user in a different country, should that researcher/user breach a duty of confidentiality of the data being accessed. In preparing its recommendations, the Expert Group reviewed national statistical laws criminalising the breach of statistical confidentiality. Some preliminary conclusions have already emerged; specifically:

(a) NSOs and other statistical agencies should not overly rely on penal sanctions as a means of protecting confidential statistical data, in particular in trans-national exchanges of micro-data, because an application of those sanctions is very difficult in practice;

(b) Access to micro-data should be carried out in a manner that effectively protects the data from misuse and also prevents breach of confidentiality based on normal legal use of a computer system;

(c) Administrative sanctions are recommended for researchers or their institutions for breach of confidentiality, because they are easier to implement.

12. The Expert Group also considered other legal issues, such as provisions on Intellectual Property Products (IPRs); the specific status of analysts in international organisations, i.e. whether they are considered “researchers” or not; and the importance of practices adopted in NSOs concerning data diffusion (in fact, these often introduce additional complications compared to what is demanded by legal requirements).

13. **Establishing a “circle of trust”.** Mutual trust among the concerned parties would certainly contribute to facilitating trans-border access to micro-data. In light of that, the Expert Group is considering the opportunity of, and the conditions for, establishing a group/membership of trust for data access. An agreement on the rules (e.g. confidentiality rules, security requirements, competence and legal aspects) for joining the “circle of trust” would be needed as well as a common understanding on which parties are expected to have access to the inner or outer circle. According to the level of confidentiality of the data, different layers of trust could be envisaged in the “circle of trust”, whereas the inner circle is the most sensitive and secure, e.g. from confidential micro-data in the inner circle to less confidential in the outer circle, with only public-use files available outside the circle.

14. **Programme of work.** The Expert Group established a programme of work to be completed by the end of 2013. The list of outputs includes *reports* (e.g. report on competing standards of metadata for micro-data; measures/examples of the positive impact; dissemination of public-use files), *tools* (e.g. Glossary of Terms on micro-data access; standardised template for the submission of access requests), and *final recommendations*.

15. It has to be mentioned that the Expert Group does not address in its work technical issues related to statistical disclosure control (SDC) techniques. This is a highly specialised domain, which is at the centre of the activities of dedicated initiatives (e.g. the ESSnet<sup>1</sup> SDC Harmonisation and the UNESCO Chair in Data privacy).

Recommendations
On Glossary of Terms on Micro-data Access.
On adoption of Metadata standards that will support the access and exchange of micro-data.
For process flow and cost recovery models.
For access procedures and templates.
For sanctions (including non-penal) for breach of confidentiality and market sensitive information.
For the development of the concept of a circle of trust.
For the future development of Public Use Files and Open Data.
For fitting access to micro-data into the vision of the HLG (High-Level Group for the Modernisation of Statistical Production and Services).
On methodology for measuring the positive impact of micro-data access.

## II. Using micro-data in the work of the Organisation for Economic Co-operation and Development: challenges and benefits

16. In the past decade, a number of important international comparative studies based on business and household micro-data have been conducted by OECD analysts in different policy areas. While the OECD researchers have faced considerable organisational and technical challenges to set up projects relying on the access of micro-data in multiple countries, the result has been very beneficial in each case, for the original findings produced by the studies and the new policy insights that they entailed. Moreover, these studies have allowed questions to be addressed that could not be investigated through the analysis of aggregate statistics, thus contributing to expanding the knowledge frontier in key domains of economic analysis.

<sup>1</sup> The term ESSnet refers to a network of several ESS organisations working together to share expertise and save costs in solving common problems. The European Statistical System (ESS) is a partnership between Eurostat, and the National Statistical Institutes and other national authorities, responsible in each Member State for the development, production and dissemination of European statistics (Regulation No 223/2009 on European statistics). ESS covers the 27 EU member states and the four EFTA member states: Iceland, Liechtenstein, Norway and Switzerland. See Eurostat, [http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-RA-12-017/EN/KS-RA-12-017-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-12-017/EN/KS-RA-12-017-EN.PDF)

17. An important dimension of the OECD studies based on micro-data is that they have involved the development and testing of new indicators (for instance, on innovation modes reflecting the level of novelty of enterprises' innovations and the degree of creative in-house activity). The new indicators computed for the purpose of specific studies, however, have not subsequently been integrated in regular data collections; this limits the possibility of building on the findings and insights of previous studies. The OECD considers that these initiatives should instead be mainstreamed into the production of statistics by statistical offices: studies based on micro-data should be seen as proof of concept approaches that lead to new indicators to be then produced as part of official datasets, for the benefit of the wider research community.

18. The following three points provide examples of specific OECD cross-country studies exploiting micro-data. It is worth noting that they explore diverse topics. Also, the first two studies rely on a network of volunteering countries where aggregated business data from administrative confidential data sources, such as business register and tax records data were/are collected; for the third study, the OECD analysts had direct access to micro-data on income and living conditions for a large group of countries.

19. **Productivity.** Indicators based on purely aggregate data cannot capture the heterogeneity in productivity performance across firms within a country. Over the past 15 years, research based on micro-data has widely documented the existence of productivity differentials across firms and establishments. It has also examined the factors behind productivity growth (from technology use to human capital, from entry and exit and resource reallocation across firms to regulation). Micro-data are useful to investigate relevant policy questions concerning international competitiveness of firms, such as whether export activities induce increases in productivity because of exposure to foreign markets as well as the role of multinationals. The OECD is currently working to construct a new harmonized micro-aggregated database on enterprise dynamics and productivity, which follows on earlier efforts by the organisation to provide comparable micro-aggregated data for analysis of employment and productivity dynamics (OECD, 2003). Importantly, this strand of work helps clarifying how different policy and institutional settings in both product and labour markets affect productivity.

20. **Innovation.** Innovation is recognised as a key factor of economic growth. An OECD study based on the analysis of micro-data from innovation surveys across 20 countries has generated important insights on how the process of innovation takes place at the level of the individual firms (OECD, 2009). The study addressed important issues for policy makers who seek to promote innovation, such as which characteristics of companies affect their propensity to innovate, which types of firms invest more innovation, what is the impact of patenting on innovative behaviour, and what are the different innovation strategies that enterprises adopt and whether these differ across countries. A relevant aspect is that the micro-data analysis led to the identification of some limitations of innovation surveys and provided feedback for improving them.

21. **Gender wage gaps.** The use of micro-data is key to OECD work on earnings distribution. Importantly, this stream of work monitors the extent of the gender pay gap in OECD countries over time. It has revealed, in particular, that in recent years the pay gap has closed at a slower pace in many countries, and that much of the wage penalty is explained by women working shorter hours in lower-paid occupations than men. The OECD researchers have analysed the determinants of earnings differences, from personal and demographic characteristics of women and men at work, to career choices to geographical mobility and occupational segregation. The findings are critical to understand how institutional factors and policy can play a role in closing the gender pay gap (OECD, 2012b).

### III. Issues for consideration

22. Delegates may wish to discuss:

- (a) The existence of other international initiatives in the area on trans-border access to micro-data, not identified by the work of the OECD;
- (b) The level of complementarities and synergies among different international initiatives;
- (c) Whether relevant elements are still missing from the debate, or are not adequately treated;
- (d) Their respective experience with providing trans-border access to business micro-data;
- (e) Mainstreaming the development of new indicators based on micro-data into the data production of statistical offices.

### IV. References

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