Country: OECD
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Abstract

In the context of globalization, one of the main challenging development areas for external trade statistics is to link them more closely to other statistics. The linkage of trade statistics with business statistics allows to measure, on the one hand, the contribution of real economic sectors to trading, and on the other hand, to complement business data with detailed information on trade, which is traditionally not part of business statistics. This linking enables to analyze the size and effects of international trade on production, employment and enterprises' performance.

Similarly, trade by size of enterprise broken down by sector of activity, by export markets, and by location (e.g. region) not only allows analyzing trade effects on employment and value added, but also to "map" performances. The central issue is to try to classify trade operators according to enterprise characteristics and the feasibility of doing so largely depends on – inter alia – the possibility to develop or use common identifiers between the trade register and the business register. The merging of external trade statistics and structural business statistics is of considerable interest to users in the context of globalisation analysis. Statistics on the trade in goods focus on presenting trade flows between countries with a breakdown of products whilst structural business statistics highlight the structure and economic characteristics of the activities of businesses. By combining these two statistical domains it is possible, on the one hand, to get more information on the structure of traders and on the other hand, to answer questions like which economic sectors contribute most to the volume of external trade and what the contribution of different enterprise size classes to trade is.

The paper presents the current state of play of OECD's global approach in terms of Trade by Enterprise Characteristics. OECD's objective has been to use compatible classifications for the global level (such as ISIC and CPC) to facilitate the participation of as many OECD member countries, OECD accession countries and countries of the OECD Enhanced Engagement Program as possible. The milestones reached as well as the obstacles and limitations encountered are shown, especially in terms of classifications and confidentiality issues. Further future plans on the development of the indicators and the possible extension of the scope (e.g. trade in services) are also mentioned.

Introduction

1. One of the main future development areas for external trade statistics is to link them more closely to other statistics. The linkage of trade statistics with business statistics allows to measure, on the one hand, the contribution of real economic sectors to trading, and on the other hand, to complement business data with detailed information on trade. This enables to analyze the effects of international trade to production, employment and enterprises' performances.

2. Similarly, trade by size of enterprise broken down by sector of activity, by export markets, and by location (*e.g.* region) not only allows analyzing trade effects on employment and value added, but also to "map" performances.

3. The central issue is to try to classify trade operators according to enterprise characteristics and the feasibility of doing so largely depends on – inter alia – the possibility to develop or use common identifiers between the trade register and the business register. The merging of external trade statistics and structural business statistics is of considerable interest to users in the context of globalisation analysis. Statistics on the trade in goods focus on presenting trade flows between countries with a breakdown of products whilst structural business statistics highlight the structure and evaluation of the activities of businesses. By combining these two statistical domains it is possible, on the one hand, to get more information on the structure of traders and on the other hand, to answer questions like which economic sectors contribute most to volume of external trade and what the contribution of different size enterprises to trade is.

4. Under guidance of the Business Economic Statistics and Trade (BEST) Steering Group, a first OECD Linkage Table, which is based on Eurostat's Standardisation Document Rev. 2[1], was sent out to participating Non-EU-OECD member countries in June 2007[2]. The tables are in line with Eurostat's methodology applied, but have been amended in two respects (UN classifications instead of EU classifications and OECD's Geo-Nomenclature instead of Eurostat's Geo-Nomenclature) to enable Non-EU countries to respond.

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1 . European Commission, Eurostat G-3 Standardisation Document rev. 2, Compilation of External Trade by Enterprise Characteristics, Doc. MET No879, Luxembourg 31.5.2006.

2 . See STD/NAES/TASS/ITS(2007)13 *Linkages of Trade and Structural Business Statistics - OECD Progress Report*. Paper presented at the 8th OECD ITS Expert Meeting 17-19 September 2007 (http://www.olis.oecd.org/olis/2007doc.nsf/LinkTo/NT0000412E/$FILE/JT03231691).

Current status quo

5. Up to now, OECD has received data collection tables from Canada, the United States[3] and Norway. In addition to that, Eurostat provided OECD with the respective (published) data tables of several EU member states for reference year 2003[4].

6. The Eurostat tables were – as far as possible – converted to OECD methodology ($US, geo-nomenclature, ISIC instead of NACE) and integrated to OECD's new database on Trade by Enterprise Characteristics.

7. The OECD database on Trade by Enterprise Characteristics (TEC) now features five datasets:

- Dataset 1: TEC by size classes
  Data available for: AUT, BEL, CAN, CZE, DNK, FIN, FRA, HUN, ISL, ITA, LUX, NOR, POL, SVK, SWE, USA, EST, SVN.

- Dataset 2: TEC by top enterprises
  Data available for: AUT, CAN, CZE, DNK, FIN, FRA, HUN, ITA, LUX, NOR, POL, SVK, SWE, USA, EST, SVN.

- Dataset 3: TEC by partner zones and countries
  Data available for: AUT, BEL, CAN, CZE, DNK, FIN, FRA, HUN, ITA, LUX, NOR, POL, SVK, SWE, USA, EST, SVN.

- Dataset 4: TEC by number of partner countries
  Data available for: AUT, CAN, CZE, DNK, FIN, FRA, HUN, ITA, LUX, NOR, POL, SVK, SWE, USA, EST, SVN.

- Dataset 5: TEC by commodity groups (CPC)
  Data available for: NOR, USA.

8. The extent of data availability as shown above (7.) varies across countries. Not for all countries all data at all details are available. Confidentiality issues (especially on ISIC 2-digit-level) and differences in categories used between OECD and Eurostat (*e.g.* for size classes) are the main reasons for that. Data for EU countries in many cases refer to extra-trade[5] only.

Data access

9. A theme called "Trade by Enterprise Characteristics" has been added to the OECD data warehouse, OECD.STAT, within the Globalisation cube (see figure 1).

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3 .   Data for exports only.

4 .   "Trade by Enterprise Characteristics - Results of the Standardisation Exercise 2006".

5.   Not taking into account data from the Intrastat system.

Figure 1. Trade by Enterprise Characteristics within OECD.STAT

10. The theme consists of the five data subsets, called I to V ('TEC by size classes' up to 'TEC by commodity groups (CPC)'). While datasets I, III and IV come with two indicators each, one of them referring to 'number of enterprises' and the other one to 'Trade value', datasets II and V deliver value figures ($US) only (see example of figure 2). Some summary analyses on the use of these tables are shown later in this paper.

Figure 2. Concentration of trade (showcase example from dataset II)

		TOTAL: Total			TOTAL: Total	
Indicator	1: Concentration of Trade ($US)					
Flow	Exports ▼					
Reporter Country	Austria ▼					
Year	2003					
Sector ISIC		Total ▲▼	OTH: Other ▲▼	G: Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods ▲▼		CDE: MINING AND QUARRYING,TOTAL MANUFACTURING,ELECTRICITY, GAS AND WATER SUPPLY ▲▼
Top enterprises						
⊟ TOTAL: Total		37 068.32	7 106.87	6 921.9		23 039.55
TOTAL: Total	1: Top5	4 636.12	3 254.38	1 072.93		3 202.58
	2: Top10	6 783.39	4 084.48	1 398.86		4 865.53
	3: Top20	9 680.38	5 081.91	1 854.35		6 862.35
	4: Top50	13 814.62	6 014.57	2 640.51		9 922.38
	5: Top100	17 783.04	6 469.36	3 359.59		12 816.74
	6: Top500	27 844.58	6 970.83	5 253.69		19 859.08
	7: Top1000	31 622.03	7 053.65	5 973.99		21 840.77

11. This new OECD.STAT theme within the Globalisation cube of course offers the usual conveniences that OECD.STAT provides for all datasets (drag & drop-functionality, individual queries, individual user-defined views, standard charts, download formats etc.).

12. The methodologies used can be accessed via the metadata functionalities of OECD.STAT (red "i"), both metadata for the top-level (general methodology for the whole theme; see figure 3a) and detailed level as well (*e.g.* detailed information about matching ratios by country, see figure 3b.).

**Figure 3a. Metadata access:**
Top-level metadata

Figure 3b. Metadata access:
Detailed-level metadata (here: Country metadata for Denmark)

Some results

13. Figure 4 shows the influence (in terms of value) of the top exporting enterprises of a country on the value of total exports (=100%). Though the situation varies by countries, the chart shows that for 9 out of 16 countries, the top 100 enterprises covered at least 50% of the total exports of the respective country. Naturally, this is more likely for smaller economies with fewer enterprises than for larger economies with a higher number of traders. It's however quite striking that for a large world economy such as the United States, the top 5 traders accounted for almost 10% of the total US export value of 2003.
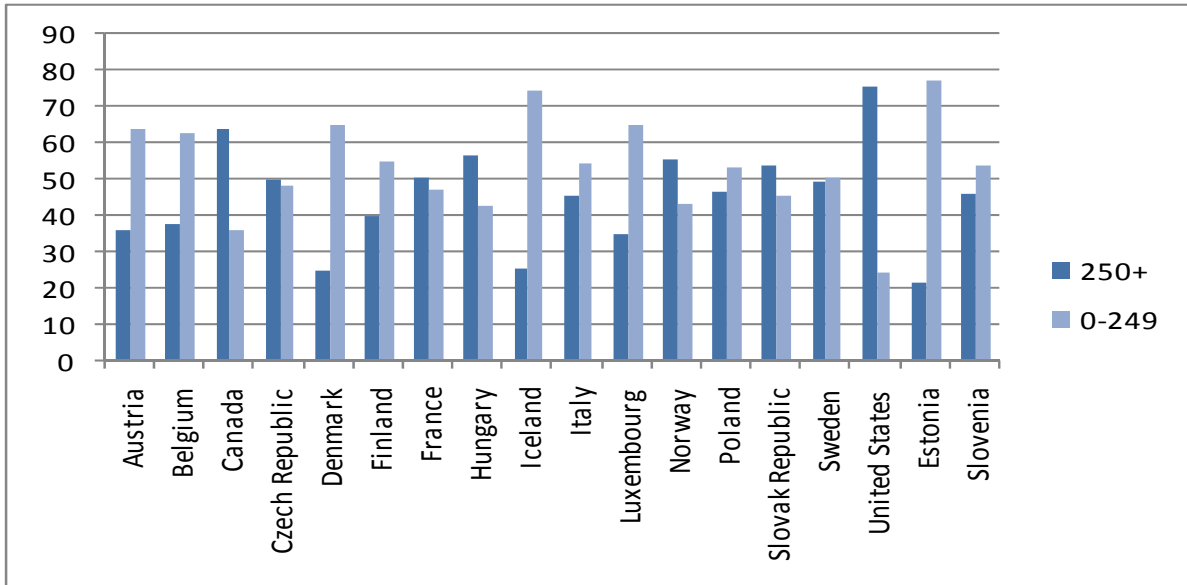
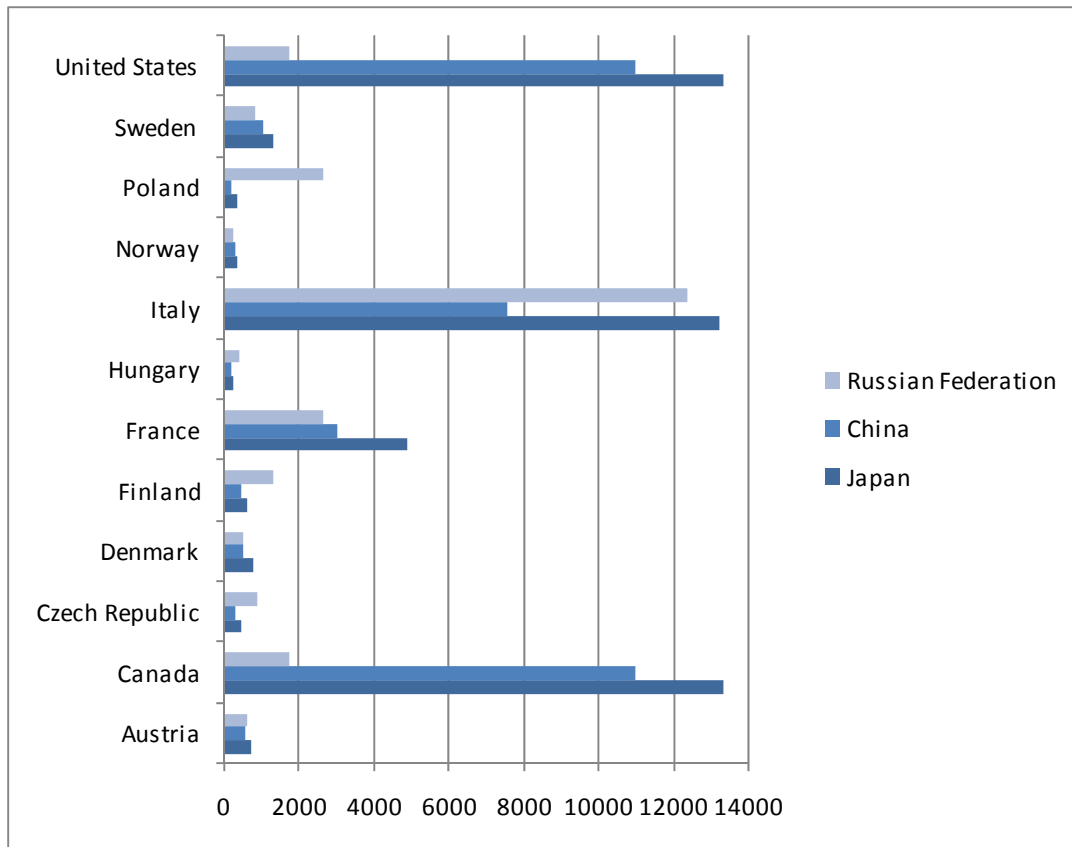**Figure 4. Concentration of Trade: share (%) of export value by top enterprises (2003)**
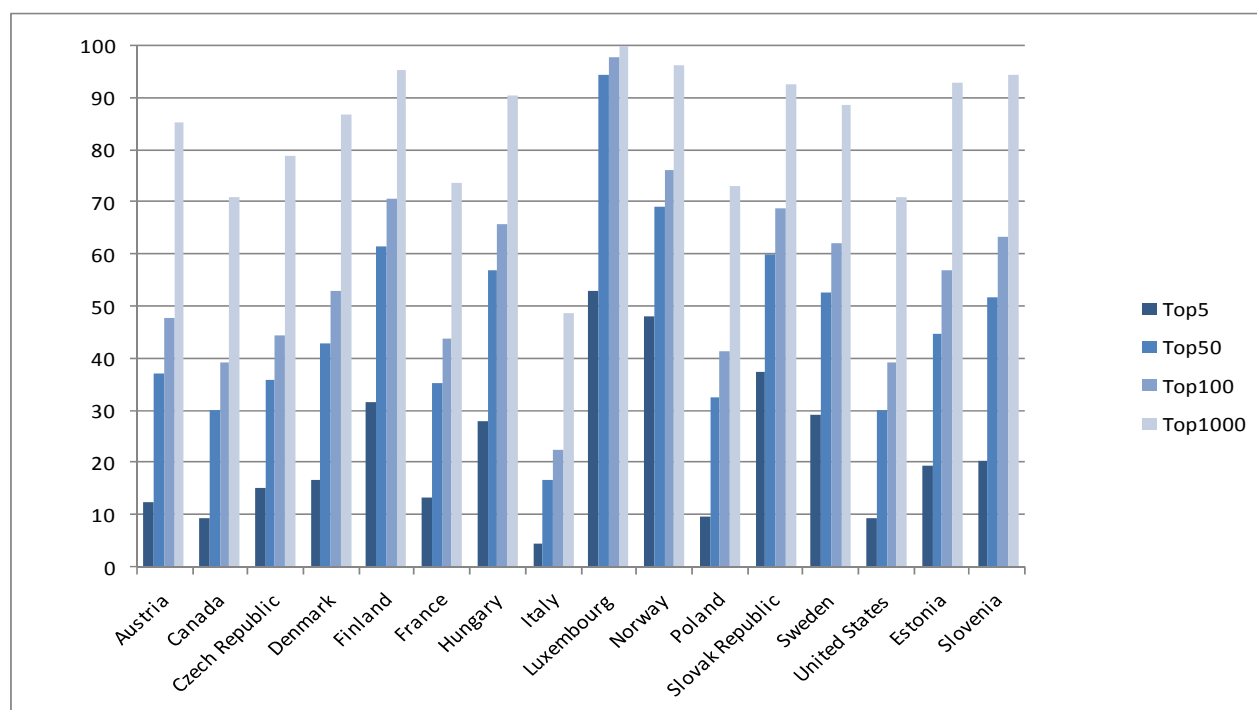
14. The role of enterprises with less than 250 employees and the role of larger enterprises for the total exports of a country is presented in figure 5. While there's a marked dominance of enterprises with 250 employees and more in the total exports of the US and Canada (76% and 84% respectively), the situation looks different for countries such as Iceland, Estonia and Denmark where it's quite the opposite case – which is also due to the different economical structures of the countries concerned.

15. Figure 6 shows the number of traders – of ISIC sectors C to E - that exported to the Russian Federation, China or Japan in 2003. For almost all of the so called "western countries" shown, the most frequent export partner within the three countries was Japan. It's quite the opposite for the former Warsaw-Pact-countries and Finland whose most popular export partner (in terms of number of exporters) was the Russian Federation.

**Figure 5. Share (%) of total export value by number of employees, 2003**

Legend:
- 250+
- 0-249

Countries (left to right): Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Hungary, Iceland, Italy, Luxembourg, Norway, Poland, Slovak Republic, Sweden, United States, Estonia, Slovenia

Figure 6. Number of enterprises that exported to Russia, China and Japan
ISIC sectors C-E, 2003

Legend:
- Russian Federation
- China
- Japan

Countries (top to bottom): United States, Sweden, Poland, Norway, Italy, Hungary, France, Finland, Denmark, Czech Republic, Canada, Austria

16. The US exports of basic chemicals (CPC 34) by (selected) sectors of the exporting enterprises are presented in figure 7. Clearly, manufacturers of chemicals and chemical products (ISIC 24) were the main exporters of this type of products (60% of total export value in 2003). But also manufacturers of other non-metallic products (ISIC 26) and sale, maintenance and repair of motor vehicles/cycles, retail sale of fuel (ISIC 50) played a role with shares of 11 % respectively 9%.

**Figure 7. Top exporters (ISIC) of basic chemicals (CPC 34),
USA, 2003, in % of total exports of CPC 34**
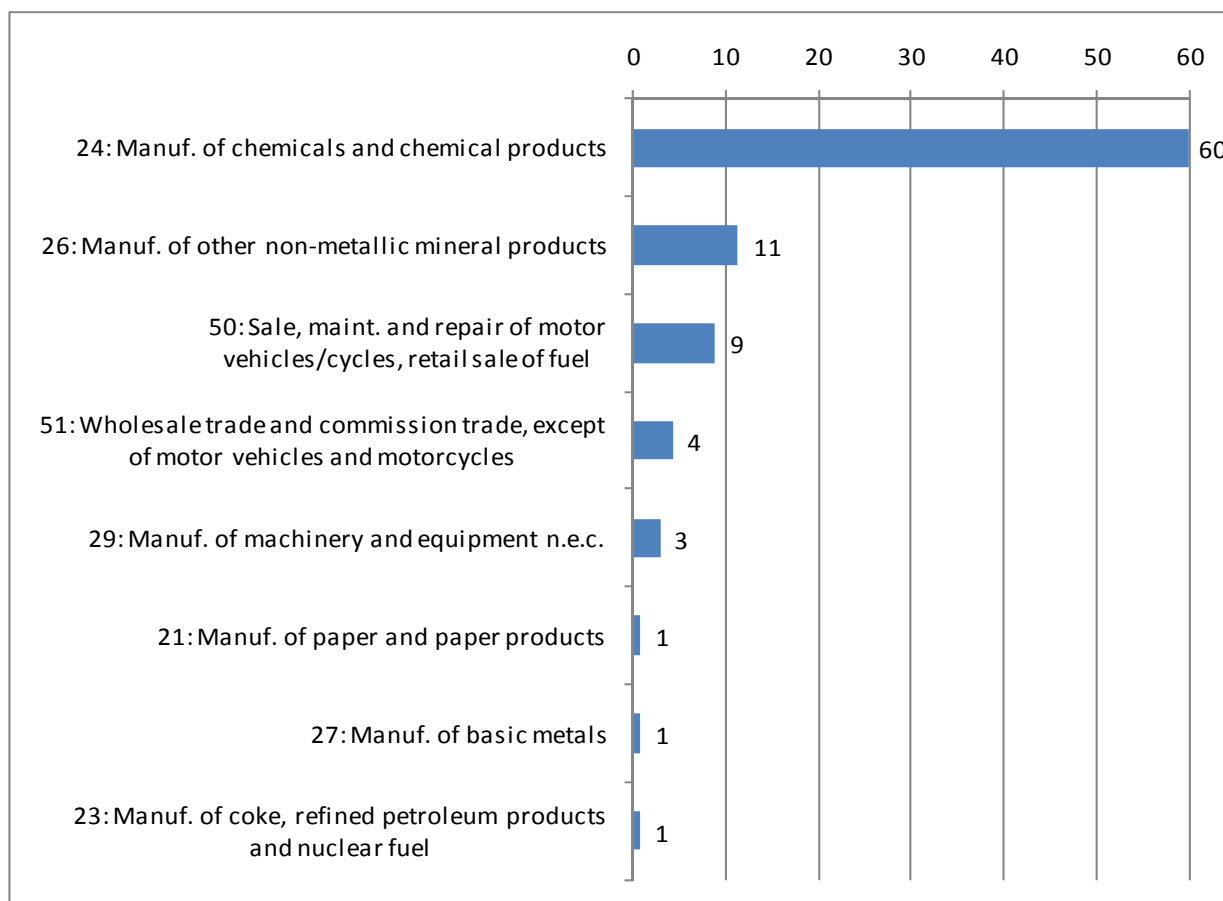
17. Figures 8a to 8d show how many traders (of ISIC sections C to E) had trade relations with how many countries in 2003 and the trade value spreading according to number of partner countries. For both flows, imports and exports, it's evident that there's a huge contrast between number of enterprises and trade value. While for all countries shown most enterprises traded with one partner country only (31% to 51% of all enterprises for imports and 33% to 70% for exports), the by far largest trade values were clearly realised by enterprises that traded with 14 and more partner countries (43 to 87% of total value for imports and 43 to 96% for exports).

Figure 8a. Number of enterprises according to number of partner countries (Imports)
ISIC C-E (Mining and quarrying, total manufacturing, electricity, gas and water supply), % of total, 2003
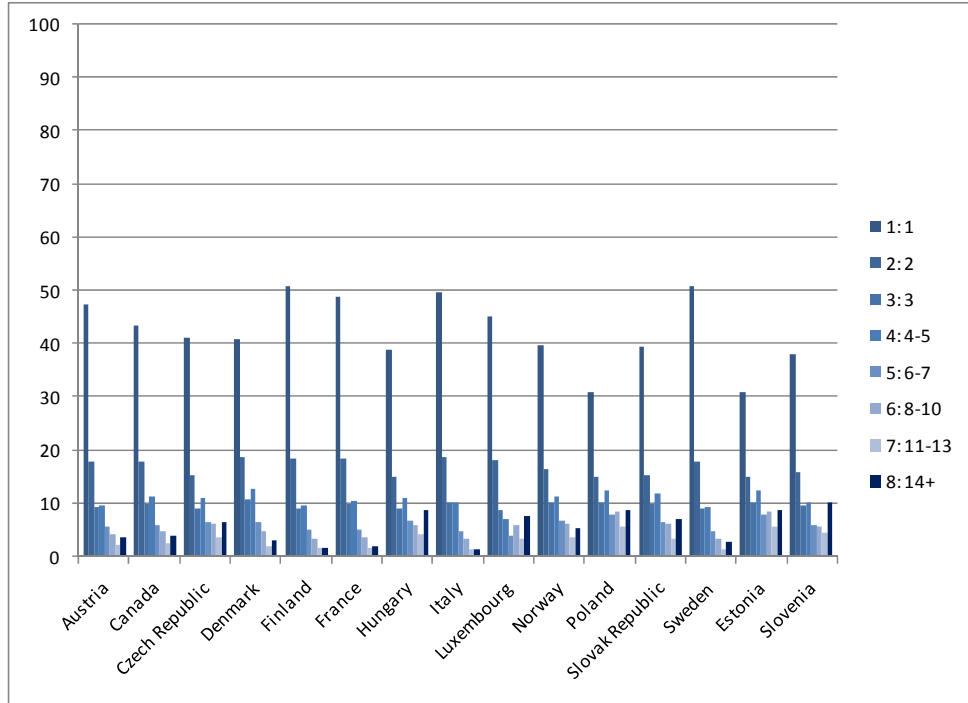
N.B.: Data for EU countries refer to extra trade only.

Figure 8b. Trade value according to number of partner countries (Imports)
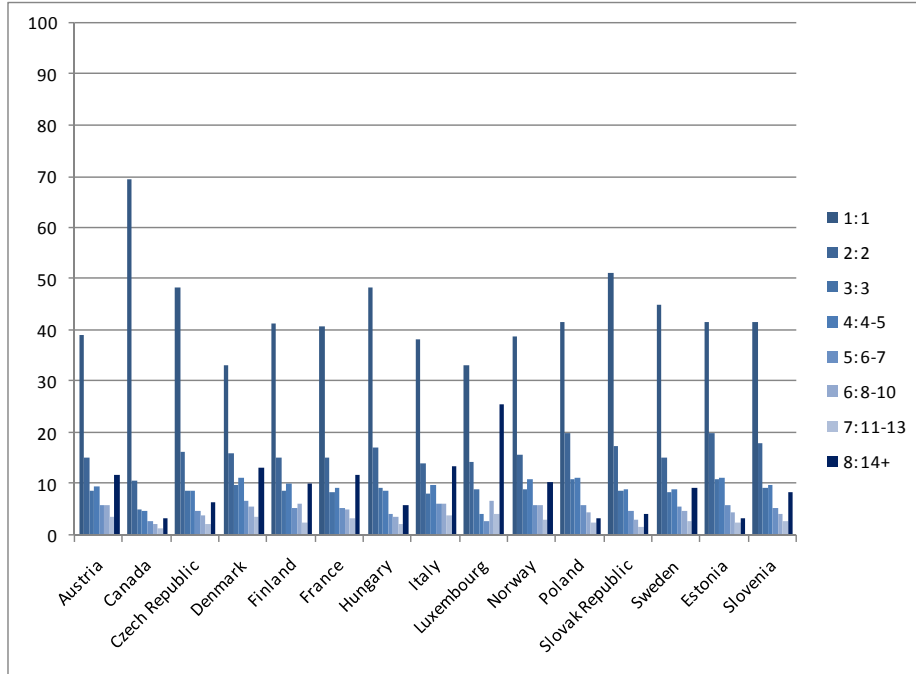ISIC C-E (Mining and quarrying, total manufacturing, electricity, gas and water supply), % of total, 2003
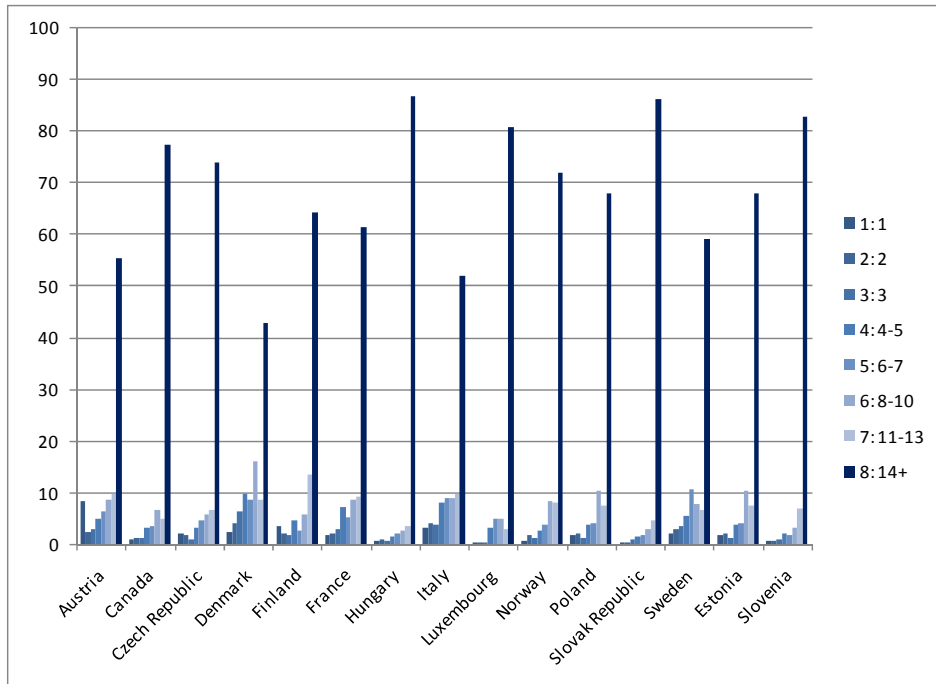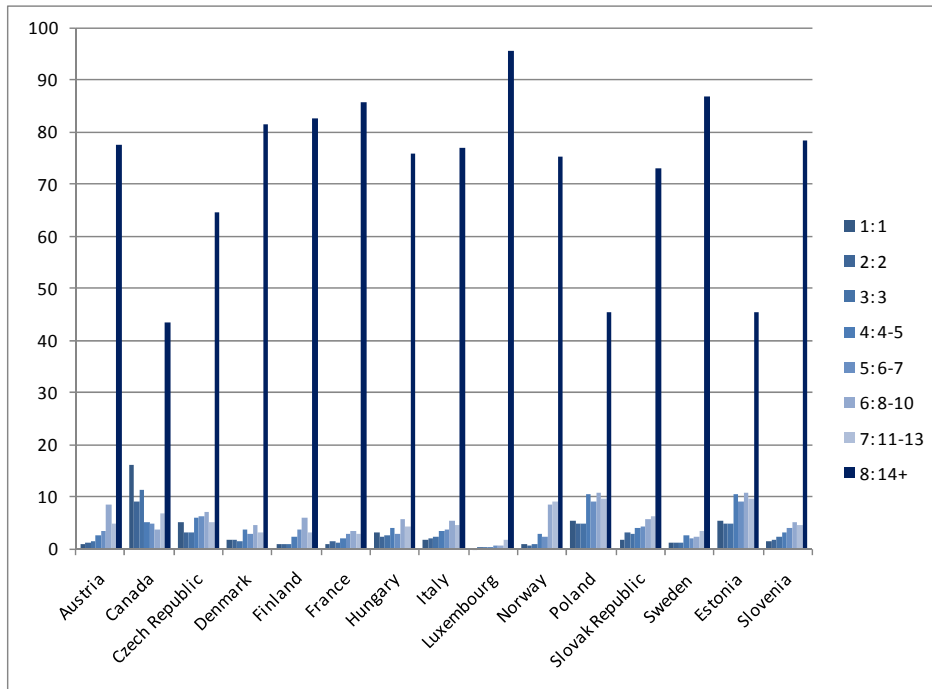

N.B.: Data for EU countries refer to extra trade only.

Figure 8c. Number of enterprises according to number of partner countries (Exports)
ISIC C-E (Mining and quarrying, total manufacturing, electricity, gas and water supply), % of total, 2003

N.B.: Data for EU countries refer to extra trade only.

Figure 8d. Trade value according to number of partner countries (Exports)
ISIC C-E (Mining and quarrying, total manufacturing, electricity, gas and water supply), % of total, 2003

N.B.: Data for EU countries refer to extra trade only.

Limitations and obstacles encountered

18. The more detailed the tables became, the more the degree of confidentiality increased. This concerns in particular cross-tabulations by ISIC 2-digit-levels and by CPC (2-digit-levels). That's one of the reasons why Eurostat decided to revise the activity breakdown with the Standardisation Exercise 2007 (2-digit levels of the NACE will be requested only for sections D and G). This will clearly be of impact for the next OECD data compilation of Trade by Enterprise Characteristics because, up to now, OECD used the Eurostats results for all EU OECD member countries.

19. The matching rates (of traders/enterprises in the trade and business registers) varied between countries – if available at all. Thus, the degree of representativity is not the same for all countries. Some countries were not in position to indicate the number of total traders of the country.

20. Eurostat collects data according to the CPA product classification, while the OECD approach uses the CPC classification for commodities. As Eurostat's table are only available at 2-digit-level of the CPA, it was not possible to convert the respective tables to CPC, thus OECD doesn't provide CPC-based results of the TEC datasets for the EU OECD member countries. To get these data, a direct involvement of the respective NSO would be necessary (thus a sort of "double-burden" for the countries concerned).

21. The North-American NAICS classification is not 100% compatible with ISIC classification (in terms of correspondence tables). Thus, some allocations had to be decided individually by the NSOs.

22. Changes in the TEC methodology between reference years are of influence to the capability to set up coherent time series for all indicators, e.g. different size classes used for 2003 and 2005 (breakdown for size-classes: 7 size-classes instead of 8). Also, e.g. the US Census Bureau was not in position to deliver data according to the size classes ""0-9 employees" and "unknown", thus had to combine these.

23. The current TEC datasets take into account only merchandise trade activities. The extension of the datasets to trade in services would be highly desirable but fails for the time being due to missing trade-in-services data on the enterprise level.

The road ahead

24. OECD will send out the current database sheets to the respective member countries for final verification/approval before publishing the TEC database.

25. OECD will continue the close co-operation with Eurostat in this concern. Eurostat's Standardisation Exercise 2008 (Reference year 2005) will be the starting point for the next data collection on OECD-level (non-EU-OECD member countries). The concrete details will be elaborated upon the next B.E.S.T.[6] steering group meeting in 2009.

26. Non-EU-OECD member countries that are not yet participating in the data collection are very much invited to join the data collection, especially OECD Asia and Oceania. OECD Accession Countries and countries of the Enhanced Engagement Program of the OECD are welcome to join as well.

27. OECD has, thus, made quite significant progress in this policy-relevant area, enabling a world-wide view on trade by enterprise characteristics. It is OECDs intention to further fine-tune the database with respect to possible additional indicators and to enlarge the availability of countries. Unlike Eurostat, OECD cannot encourage countries to join in through financial incentives. It is, nevertheless, hoped that several countries will join in on a voluntary basis. OECD expresses its gratitude to participating Non-EU countries and to Eurostat for the excellent co-operation.

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6.   B.E.S.T. = Business Economic Statistics and Trade Steering Group.