Selling to Foreign Markets: a Portrait of OECD Exporters

The OECD-Eurostat Trade by Enterprise Characteristics Database

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Unlocking the potential of trade microdata

The OECD-Eurostat Trade by Enterprise Characteristics database (TEC) reveals that 4.5% of US firms sell to foreign markets (Figure 1). On average, a similar share of EU firms exports to other European Union member countries, but only 2.7% of EU firms export outside EU markets. However, Figure 1 also reveals striking differences in the extensive margin of trade\(^1\) across European countries, with firms in Austria, Denmark, Estonia, the Slovak Republic and Slovenia exhibiting a considerably higher propensity to engage in exporting (for both intra and extra-EU flows). A common feature of export dynamics in European countries is that there is a larger share of firms selling to other EU markets than to non-EU markets.

Figure 1. Percentage of exporting enterprises relative to the total number of enterprises

Notes: 2005 data for USA and 2006 data for Luxembourg, Poland and Norway. Germany data are included in EU average for intra-EU exports, but not included in EU average for extra-EU exports, as data is not available. Data on exports is not available for Israel. The total number of enterprises taken as reference for the numerator (number of exporting firms) and denominator (total number of enterprises) is the sub-total of the economy comprising industry sectors and business services, excluding hotels/restaurants and financial sectors (ISIC C to K, excluding H and J). The total number of enterprises is not available for Canada.
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Who are the firms that sell to foreign markets? What are their characteristics? Who is trading with whom? How are firms coping with increased international competition? What is the link between exports, firm dynamics and job creation? What are the policies that best support exports and competitiveness? What is the impact of the economic downturn on the intensive and the extensive margin of trade?¹

These are the sort of questions that are high on the policy agenda and that can only be properly informed by looking at trade microdata. Market winners and losers can be found within the same sector as firms respond to globalisation differently. Only by understanding the characteristics of the firms that are successfully engaged in international trade can policy makers design policies that effectively foster countries' competitiveness.

Recognising the relevance of trade microdata, several OECD countries, including European OECD countries through the leadership of Eurostat, have embarked on the task of disaggregating trade statistics along the characteristics of trading enterprises. These data are generally compiled by merging business registers with information on the international activities of trading enterprises. The results of OECD countries’ experiences in matching trade data with firm characteristics are gathered in the Trade by Enterprise Characteristics database (TEC), which is accessible through the OECD website: http://stats.oecd.org/Index.aspx >> Globalisation >> Trade by Enterprise Characteristics. This issue of the OECD Statistics Brief highlights some of the interesting insights from the TEC database. While the TEC database displays statistics on exports as well as imports, this edition of the Statistics Brief focuses on export activities. The reader is referred to the forthcoming OECD-Eurostat Handbook on Trade Microdata for a more in-depth and thorough description of the database and the methodological issues related to linking trade with enterprise characteristics.

¹ The extensive margin of trade refers to the number of firms trading, products exchanged and destinations, while the intensive margin refers to the value and/or volume traded between partners.

TEC: Linking trade with enterprise characteristics

The TEC database links trade and business statistics at the firm level. By looking into the (different) characteristics of the trading enterprises, it offers a more comprehensive and in-depth picture of international trade activities. This linking exercise contributes to improvements in the quality of the data, as its consistency and accuracy can be scrutinised. Moreover, matching business and trade microdata is also an efficient and cost effective way of exploiting information that national statistical offices already compile.

The TEC database is a joint OECD-Eurostat exercise. The data are available for 23 OECD countries and 4 non-OECD countries. Eurostat gathers data for 19 EU member States (Czech Republic, Denmark, Germany, Estonia, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland and Sweden) and the OECD for Canada, Israel, the United States and Norway. The OECD’s role is to provide data that are standardised across countries to the greatest degree possible. The national statistics offices undertake the data compilation exercise and the methodological guidelines are summarised in Box “The Methodology”.

Trade values are disaggregated according to three enterprise characteristics: size, sector of activity and partner countries. The database displays yearly trade values (imports, exports) and the number of enterprises engaged in international trade in five separate datasets:

» Trade by economic activity and enterprise size class;

» Concentration of trade by economic activity;

» Trade by partner country and economic activity;

» Trade by number of partners and economic activity;
The Methodology

The Eurostat compilation of trade statistics by enterprise characteristics combines data on intra- and extra-EU trade flows by trade operator with structural information from business registers. Trade values (imports and exports for extra-EU trade and arrivals and dispatches for intra-EU trade) of each trading enterprise, by product code and partner country, are merged with enterprise characteristics extracted from business registers. EU member countries undertake this linking exercise and provide Eurostat aggregated results (no data on individual enterprises are transmitted to Eurostat), which makes the data available after ensuring the quality of the data and that confidentiality is protected.

Business registers are largely harmonised among EU Member States and, like trade statistics, are comprehensive databases, covering all firms. This makes the microdata linking a conceptually clear exercise.

The statistical unit is the enterprise, which is defined by the Council Regulation (EEC N. 696/93) as the smallest combination of legal units that constitutes an organisational unit producing goods or services and that benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. Trade data are typically collected and registered by the declaring unit (identified by VAT code in intra-EU trade and by customs identification code in extra-EU trade) and must be connected to characteristics available in the business register for the enterprise concerned.

For intra-EU trade, countries are exempt from providing information when trade falls below the Intrastat exemption threshold. Although these traders account for a very limited share of total trade values, their non-inclusion would lead to an underestimation of the number of enterprises engaged in international trade. For these cases, Eurostat uses VAT data to estimate both the number of traders and trade values, which significantly improves the international comparability of the data.

Until the reference year of 2008, EU Member States were asked to compile these data on a voluntary basis. New Intrastat and Extrastat Regulations, which were adopted in March and May 2009, respectively, introduced articles on the annual collection of international trade statistics by enterprise characteristics. According to the Regulations, the compilation of these statistics are mandatory from the reference year 2009 for intra-EU trade and from reference year 2010 for extra-EU trade onwards. The Regulations establish the deadline to transmit data to Eurostat as 18 months after the reference year.

The OECD sends out a questionnaire to its non-EU member countries requesting data along Eurostat’s methodological guidelines, in order to guarantee the international comparability of the data. Trade values of EU member countries are converted into US dollars using average annual exchange rates calculated by the IMF. The OECD applies a correspondence to the CPA (Classification of Products by Activity) data released by Eurostat and the values displayed in TEC follow the CPC product classification. Enterprises’ sector of activity follow the ISIC Rev. 3.1. classification and are displayed at the 2 digit level. Finally, the total number of enterprises that are economically active in each economy in the sectors covered by TEC is added to the database. This information is retrieved from the OECD Structural and Demographic Business Statistics Database (SDBS).
Trade by commodity and sector of activity.

Yearly data range between 2003 and 2008 but coverage varies by country.

**Large firms have a higher propensity to export and account for most of trade values**

**Larger firms exhibit much higher propensities to export...**

Figure 2 depicts the number of exporting firms as a share of the total number of enterprises according to different size classes (the extensive margin of trade). It shows a striking consistency across countries: export propensity increases with firm size. The percentage of firms engaged in exporting activities is considerably higher for larger firms (the ones with 250 or more employees), typically above 50% with the exception of Estonia. In Denmark, nearly all large firms sell to international markets. In contrast, the percentage of small firms (those with 50 or less employees) exporting is always below 25% for all countries in the database. There are however cross-country differences in the propensity to export between large and medium-sized (those with 50 to 249 employees) firms: the gap is only of 8 percentage points in Italy, while it rises to 55 percentage points in Denmark.

Figure 2 also sheds light on the lower participation in export activities exhibited in Figure 1: it is the high number of non-exporting, small-sized enterprises that leads to the very low average export propensities at the country level.

**... and account for the bulk of export flows.**

In Figure 3, export values are disaggregated by the size class of the exporting firm. In the majority of countries, more than 50% of total exports are accounted for by large firms, with values being particularly high for the United States (75%), Hungary (73%) and Finland (72%). Once again, Estonian firms stand out, as large firms are responsible for only 19% of total exports, while medium-sized firms account for 43% of the country’s exports.
The top exporters are responsible for a sizeable share of exports in some sectors.

The top 50 exporting firms account for between 30% (United States) and 58% (Canada) of total exports (Figure 4). Even more remarkable, the top 1000 exporting firms are responsible for nearly all Canadian exports (90%). The top 1000 exporters represent 70% of total US exports and, on average, 72% of EU external trade. Intra-EU exports are less concentrated though, with the top 1000 exporters accounting for, on average, 64% of the sales between EU member countries. Exports are highly concentrated around top exporters in both the industry and trade and repair sectors.

Exports are concentrated in a small number of partner countries.

Table 1 displays the distribution of exporters and export values according to the number of partner countries. The vast majority of Canadian exporters only have one single partner country (the United States). On average, EU exporters are also dependent on a single trading country when they sell outside the EU, while the geographical diversification is much higher for intra-EU trade. Export values are less concentrated, with the bulk of exports being distributed among 14 or more partner countries, although Canadian exports are slightly more concentrated, due to its trade relations with the US.

Ways to improve the statistics on Trade by Enterprise Characteristics

In order to better inform policy makers, it is essential to develop analytical tools that offer a comprehensive picture of the subject under study. It is also crucial to learn from other countries’ experiences. The challenge is then to develop data that are comparable across countries. This section offers some guidelines on how to increase the standardisation of the data and improve international comparability and also on how to develop the analytical content of the TEC database.

Aggregated data

The database accessible to the public displays aggregated data, as trade values and firm level information are grouped into cells containing

![Figure 3. Large firms account for most of export values 2007 or latest available year](image)

Notes: 2005 data for USA and 2006 data for Poland. Total exports (intra- plus extra-EU) for EU countries. The value for Slovenia size class 250+ is not shown as it is confidential (and merged with values in the “unspecified” category). EU average does not include Germany, as extra-EU export value is not available, nor Slovenia.
counts or values along class sizes. The lack of information on the entire distribution of the data necessarily limits the analytical possibilities of the database. For instance, points of the distribution such as the median firm cannot be investigated and only the variance between size classes can be retrieved.

Looking into the micro units which generate the aggregate data allows recovering the information lost in the aggregation exercise, as well as investigating some interesting dimensions of international trade such as the dynamics of the extensive margin of trade and the determinants of survival in export markets (why are firms engaged in international trade in one period of time but not in the next), which is an important issue for many OECD countries.

**Enterprise and business groups**

In the TEC database, the statistical unit is the enterprise. Therefore, it is only possible to decompose trade flows by the sector of activity of the trading enterprise. For example, Table 2 shows that import shares of the trade and repair sector amount to around 40% of total imports for Canada, the US and the EU on average, while export shares represent around 20% of total export flows for the US and the EU countries on average, and nearly 9% for Canada.

However, TEC does not allow identification of the type of goods traded by firms in the Trade and Repair sector. This is a relevant shortcoming for the study of the current features of international trade such as the rise in trade in intermediate goods. It would be useful, for instance, to provide information on whether a wholesaler and/or retailer is part of a larger business group along with information on the group’s main producing activities. This would not only provide a more accurate analysis of country and sector competitiveness but would also allow investigating whether being part of a group matters for export performance. Ideally, the ownership status of the firm should also be provided, as this information would shed light on whether being part of a business group

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Figures 4. Top exporting firms account for large shares of exports
2007 or latest available year

- **Total economy**
  - Canada
  - EU Extra-EU
  - EU Intra-EU
  - USA

- **Industry sector**
  - Canada
  - EU Extra-EU
  - EU Intra-EU
  - USA

- **Trade and repair sector**
  - Canada
  - EU Extra-EU
  - EU Intra-EU
  - USA

Notes: 2005 data for USA. EU Extra-EU average does not include Germany nor Poland. EU Intra-EU does not include Poland as data is not available.
and/or being foreign owned affects firms’ export performance, survival and growth.

**Comparability issues**

The TEC database also has some limitations that hinder international comparability. Trade and enterprise values for EU OECD countries are broken down into intra- and extra-EU flows. Although it is possible to aggregate trade values and compute total trade values, data expressed in terms of the number of enterprises cannot be summed up because of possible double-counting (the same enterprise can be a trader in both intra- and extra- EU trade).

Intra-EU trade flows are also not comparable from year to year as the partner countries that fall in the intra- versus extra-EU category groups change as EU membership evolves over time. Sectoral data have to be analysed with caution as not all countries provide the same disaggregation yet. Confidentiality issues also prevent comparisons at the 2 digit level, as data have been suppressed for particular countries in sectors with few trading enterprises.

Both the OECD and Eurostat are working to improve the quality of the data and their international comparability. Firstly, the compilation of the number of trading enterprises and trade values according to the number of partner countries will be harmonised in the next updating round in the Fall of 2011. Secondly, the OECD will engage with volunteer countries and search for ways to limit the amount of unmatched data and also to provide information on the number of EU enterprises for total EU trade. Thirdly, the OECD is exploring together with its member countries ways to improve comparability issues.

<table>
<thead>
<tr>
<th>Number of enterprises according to the number of partner countries</th>
<th>Canada</th>
<th>EU extra-EU</th>
<th>EU-Intra-EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 partner country</td>
<td>68%</td>
<td>54%</td>
<td>17%</td>
</tr>
<tr>
<td>2 partner countries</td>
<td>11%</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>3-5 partner countries</td>
<td>11%</td>
<td>16%</td>
<td>22%</td>
</tr>
<tr>
<td>6-9 partner countries</td>
<td>5%</td>
<td>7%</td>
<td>19%</td>
</tr>
<tr>
<td>10-14 partner countries</td>
<td>1%</td>
<td>4%</td>
<td>15%</td>
</tr>
<tr>
<td>14+</td>
<td>4%</td>
<td>5%</td>
<td>16%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Export values according to number of partner countries</th>
<th>1 partner country</th>
<th>2 partner countries</th>
<th>3-5 partner countries</th>
<th>6-9 partner countries</th>
<th>10-14 partner countries</th>
<th>14+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>68%</td>
<td>11%</td>
<td>11%</td>
<td>5%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>EU extra-EU</td>
<td>54%</td>
<td>15%</td>
<td>16%</td>
<td>7%</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>EU-Intra-EU</td>
<td>17%</td>
<td>10%</td>
<td>22%</td>
<td>19%</td>
<td>15%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Table 1. Exports are concentrated in a number of partner countries

2007 or latest available year

<table>
<thead>
<tr>
<th>Number of enterprises according to the number of partner countries</th>
<th>Canada</th>
<th>EU extra-EU</th>
<th>EU-Intra-EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 partner country</td>
<td>25%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>2 partner countries</td>
<td>8%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>3-5 partner countries</td>
<td>15%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>6-9 partner countries</td>
<td>10%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>10-14 partner countries</td>
<td>3%</td>
<td>8%</td>
<td>15%</td>
</tr>
<tr>
<td>14+</td>
<td>39%</td>
<td>72%</td>
<td>64%</td>
</tr>
</tbody>
</table>

Notes: EU Extra-EU does not include Germany. Data is not available for the US.

<table>
<thead>
<tr>
<th>% of Total exports</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Trade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>1.0%</td>
<td>59.2%</td>
<td>8.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>United States</td>
<td>0.7%</td>
<td>65.0%</td>
<td>22.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>EU average</td>
<td>0.4%</td>
<td>71.6%</td>
<td>17.3%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 2. External trade in agriculture, industry and trade and repair sectors

% of total trade (2007 or latest available year)

<table>
<thead>
<tr>
<th>% of Total imports</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Trade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>0.3%</td>
<td>42.8%</td>
<td>35.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>United States</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Israel</td>
<td>0.3%</td>
<td>49.3%</td>
<td>41.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>EU average</td>
<td>0.2%</td>
<td>46.2%</td>
<td>40.8%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Notes: 2005 data for USA and 2006 data for Poland. Total trade (intra- plus extra-EU) for EU countries. EU average does not include Germany, Luxembourg and Italy as data is not available. The sectoral coverage is the total economy.
access to microdata for analytical purposes while conforming to confidentiality laws.

Clearly, standardisation efforts should be pursued and work needs to continue in order to improve the soundness of these data. Linking business and trade statistics opens numerous analytical possibilities, which are essential for good economic policy making. The potential of the database to unfold our understanding of globalisation issues can also be harnessed by bringing in new countries and including more firm-level characteristics.

National statistical offices and administrations are just beginning to unlock the potential of trade microdata. The main challenge, from a methodological point of view, has already been achieved: to link trade data with business registers. The OECD and its member countries, in partnership with Eurostat, are envisaging a number of projects that will move this agenda forward.

Further reading

» Eurostat (2007), External Trade by Enterprise Characteristics, Luxembourg

» OECD (forthcoming), The OECD-Eurostat Handbook on Trade Microdata, Paris


» The Eurostat website on international trade by enterprise characteristics http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/International_trade_by_enterprise_characteristics