**TRADE DATABASES**

**Trade by NACE Rev. 2 activity and enterprise size class [ EXT\_TEC01]**

Characteristics:

* Includes stock flows: Imports and Export
* Different partners: Intra-EU, Extra-EU, All countries of the world
* No aggregated data for EU27
* Data for all the EU27 countries
* Not all the codes in the database are disaggregated at a level that will allow to distribute them into the ecosystems
* No values for certain EU27 countries for 2012 and 2013. For example, for 2013 DE, DK, EE, ES, IT values are missing (see Trade['EXP']['INT\_EU']['TOTAL']-year-2013.xlsx).
* Includes a NACE category call ‘OTH’ that includes ('I','P', 'Q86', 'Q87\_Q88', 'R90-R92', 'R93', 'S94', 'S95', 'S96', 'T','U')

Therefore:

* Because there is no EU27 aggregate the only way to obtain the aggregated value is by adding country data. This implies more error than in the proposed methodology. A missing value (for example, for confidentiality) from one country in a certain NACE code will introduce an error on the estimation of the EU27 aggregated that it is calculated for that NACE code as an aggregation of the country values.
* The lack of disaggregation in many NACE codes requires to use a criteria to disaggregate the original NACEs in the database into a more granular level required by the Ecosystems procedure of calculation. In this regard we cannot use for example well known measures such as Value Added because they are not related to trade. However, there is a detailed version of this database *Trade by NACE Rev. 2 activity sector (optional table) [EXT\_TEC09]*

**Other databases**

The following databases present a very aggregated measure in terms of NACE

* Concentration of trade by NACE Rev. 2 activity [EXT\_TEC02]
* Trade by partner country and NACE Rev. 2 activity [EXT\_TEC03]
* Trade by number of partner countries and NACE Rev. 2 activity [EXT\_TEC04]

Eg. [TOTAL] Total - all NACE activities , [A\_F\_H-U] All NACE activities (except industry; wholesale and retail trade; repair of motor vehicles and motorcycles) , [B-E] Industry (except construction), [G] Wholesale and retail trade; repair of motor vehicles and motorcycles, [UNK] Unknown NACE activity

The following databases present same NACE codes as [EXT\_TEC01]

* Trade by commodity and NACE Rev. 2 activity [EXT\_TEC05]
* Trade by type of trader [ EXT\_TEC06]
* Trade by type of ownership (optional table) [EXT\_TEC07]
* Trade by exports intensity (optional table) [EXT\_TEC08]

The following databases present no NACE codes:

* Trade by partner country and enterprise size class (optional table) [EXT\_TEC10]

**Trade by NACE Rev. 2 activity sector (optional table) [EXT\_TEC09]**

Characteristics:

* Includes stock flows: Imports and Export
* Different partners: Intra-EU, Extra-EU, All countries of the world
* No aggregated data for EU27
* Data for less than 18 countries of the EU27 countries. EU27 countries missing all the years are 'BG', 'CY', 'DK', 'EE', 'EL', 'FI', 'HU', 'IE', 'SE'. Countries have been incorporated to these databases from 2 countries in 2012 to 18 countries in 2020.
* Disaggregated codes to cover all the ecosystem weights

Therefore:

* It can be used to disaggregate the aggregated NACE codes in Trade by NACE Rev. 2 activity and enterprise size class [EXT\_TEC01]
* As only 18 (or less) countries are present then we are assuming that the EU\_27 countries distribution of trade values are the same as the 18 (or less) countries in the database. Thus, years closer to 2020 are more representative of the actual distribution of trade, but it is an approximation of the EU27 value using only an aggregated measure of a few country values.

Additional problems:

* Country data in the detailed database [EXT\_TEC09] has missing data (e.g. confidential) for several countries. Then, the aggregated value of the countries for a particular aggregation of NACE, for example H, is not equal to the aggregated value of the countries for its components, in the example, H49+….+ H53. Thus, the ratios are calculated with the aggregated components, otherwise the sum of the resulting rations will not be equals to 1.

If no data was missing H = H49+H50+H51+H52+H53.

Then ratioH49 =H49/H,…. ratioH53=H53/H

As data is missing H <> H49+H50+H51+H52+H53.

Then ratioH49=H49/(H49+H50+H51+H52+H53),…,

ratioH53=H53/ (H49+H50+H51+H52+H53)

e.g. I+ P+ Q86+ Q87+ Q88+ R90+ R91+ R92+ R93+ S94+ S95+ S96+ T+ U in the database [EXT\_TEC09 ] is not equals to OTH in the database [EXT\_TEC01]. For the year 2020 Austria (AT) Q87 and Q88 are missing (confidential).

Then the ratios have also some error on them.

* These differences happen also at a country level.

E.g. H aggregated for a Austria AT is not H49+H50+H51+H52+H53 for 2020 because H50 and H53 are missing.

Conclusions:

* It is possible to calculate values for ecosystems with the existing data. However the disaggregation relies on the assumption that EU27 trade distribution is alike the trade distribution for the countries that are included in the [EXT\_TEC09 ] database, which is not very realistic. However, the aggregation of new countries to these database till the 18 present now improves the approximation. If the detailed information is completed (in the [EXT\_TEC09 ] database) for the missing EU countries ('BG', 'CY', 'DK', 'EE', 'EL', 'FI', 'HU', 'IE', 'SE'), the information will improve significantly, besides the commented problems related to the lack of a EU27 total value.
* These example can be customized by selecting the stockflow, partner, size,… quite easily at the beginning of the script:
  + imports instead of exports
  + extra-EU or World instead of Intra-EU
  + big or SMEs instead of Total
* From these metrics other metrics, such as, Trade Balance or Exports over GDP, could be calculated