Implementation of ESA2010 in European countries: comparative analysis to ESA1995

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Eurostat, Statistical Office of the European Union, received since end of 2014 Supply, Use and Input-Output tables from European countries under the new methodology of ESA2010, European adaptation of the SNA 2008. Data is now disseminated on Eurostat website under the new methodology for the year 2010 and following. The user can therefore find two datasets for each country: one according to the previous methodology (SNA 93 or ESA 95 at European level) and another according to the SNA 2008 or ESA 2010 methodology. Comparing the two datasets users may notice differences that will be underline in this paper.

**Keywords**: national accounts, supply and use tables, SNA2008, ESA 2010, methodology, European Union

# Introduction

The methodological changes introduced in ESA 2010 had significant impact on some macroeconomics aggregates: the GDP for the European Union has increased by 2.3% in 2010. The most significant impact has been due to the change in the treatment of research and development and military weapon systems registered now as capital formation. The second most important impact results from statistical improvements which were separated from ESA 2010 affects.

The Supply and Use Tables, as integrated part of the National Accounts, present the production boundary and other macroeconomics data. With the change of methodology two datasets of SUTs are available. The two datasets will be compared to analyse the difference.

However at Eurostat level it is difficult to separate the impact of the methodological changes due to ESA 2010 from other methodological and statistical improvements.

Member States reported under ESA 2010 at the end of 2014 with the transmission of SUTs for the years 2010 and 2011. This paper will describe in section B the different impacts of ESA 2010 implementation[[2]](#footnote-2) for a selected number of countries (seven countries) for the year 2010 (common year for both methodologies). The section C will open the discussion on how to compare the two sets of SUIOTs and propose a more systematic comparison framework for dissemination of the analysis.

The comparison is based on two indicators: the simple relative difference of the two datasets and the WAPE. WAPE stands for Weighted Average Percentage Error. This indicator weights each percentage deviation of the elements of a matrix from the true value by the relative size of the latter in the overall sum of the elements of the true matrix. This indicator considers errors in absolute value in order to avoid potential compensations of deviations due to different signs. The WAPE is calculated on different part of the SUTs.



# Impact of ESA 2010 on gross value added in the SUT

As a major component of GDP[[3]](#footnote-3) gross value added is broken down by industry in the Use Table. The total GVA was revised for 2010 for example by 1.4% in one country and 5.5% in another. Looking at the detailed level of the gross value added broken down by 64 industries, the revision of total GVA is the results of various revisions at the industry level: the revisions' amplitude is quite large, with however, a median revision percentage around 1% for five European countries.

Table 1: Example of percentage revisions of value added at A64 breakdown

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Countries | Total | Min | Average | Median | Max |
| Country 1 | 1.36% | -13.67% | 2.04% | 0.78% | 62.52% |
| Country 2 | 3.07% | -25.05% | 4.38% | 0.96% | 80.68% |
| Country 3 | 3.45% | -93.51% | 6.25% | 1.01% | 155.71% |
| Country 4 | 3.89% | -35.67% | 7.50% | 2.30% | 84.73% |
| Country 5 | 5.48% | -20.97% | 7.35% | 3.92% | 117.56% |

Because one of the changes in the SNA 2008 (ESA 2010) methodology is the capitalisation of research and development activities, the GVA for this industry was expected to show revision from one dataset to another.

Indeed the industry of scientific research and development M72 shows large revisions from 54% to 86% on the seven countries examined.

At the 64 detailed levels of industries some GVA were revised extremely in real estate's activity which correspond not only to the SNA 2008 (ESA 2010) methodology change but as well to methodological improvements or corrections.

Going to a higher level of aggregation, the revisions are in general larger for services activities than for agricultural and manufacturing activities, with a 30% revision of gross value added for electricity, gas, steam and air conditioning supply in one of the seven countries.

Looking at a simple average over the seven countries, we may leave aside the industries S, T and U (which are S Other service activities, T, Activities of households as employers and U Activities of extraterritorial organisations and Bodies) because of some outliers' revision percentages.

But services industries such as M Professional, scientific and technical activities (in which the research and development industry is) register high revision for the GVA, followed by the industry L of real estate activities, the industry I Accommodation and food service activities.

The defence services are part of the activity O, and therefore, the high change in gross value added for this industry may be linked to the capitalisation of military weapon systems.

The overall average revision in manufacturing for those seven countries is however of the same amplitude with 5.6% which is driven by two upwards revisions of 13%.

Table 2: average GVA revision by industry[[4]](#footnote-4) (Section level) over seven European countries

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A  | B | C | D | E | F | G | H | I | J |
| 5.3% | 0.8% | 5.6% | 1.3% | 2.8% | -0.2% | 2.9% | 0.7% | 5.1% | 3.0% |
| K | **L** | **M** | **N** | **O** | **P** | **Q** | **R** | **S** | **TU** |
| 0.3% | 5.5% | 9.2% | 1.2% | 6.1% | 3.3% | 1.2% | 0.5% | 12.8% | 58.1% |

The WAPE is compiled for GVA on the 64 breakdown industry details and corroborates the changes in gross value added for services such as real estate activities, research and development activities and financial services.

# Impact on intermediate consumption

While the revision on total gross value added was positive for all countries, the revision for the total intermediate consumption is negative for six of the seven countries analysed. The amplitude (maximum revision – minimum revision) of revisions is usually smaller for intermediate consumption than for gross value added.

Table 3: Percentage revisions for intermediate consumption at A64 breakdown

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Countries | Total GVA | Total IC | Min | Average | Max |
| Country 1 | 1.36% | -1.3% | -20.35% | -1.81% | 10.26% |
| Country 2 | 3.07% | -1.9% | -59.95% | -2.03% | 20.37% |
| Country 3 | 3.45% | -1.1% | -69.1% | 0.7% | \*\*\* |
| Country 4 | 3.89% | 0.1% | -36.55% | 5.56% | 134.48% |
| Country 5 | 5.48% | -0.5% | -20.59% | 1.23% | 89.20% |

The industries for which the revisions are the highest may not be the ones expected with the methodological changes: financial and insurance services (K) and R&D industries are the most impacted by the revision. The WAPE compilation for the intermediate consumption part by industry however corroborates that those industries are the most impacted by the revision. At the same time the construction industry (F) shows a high WAPE for all countries except one, as well as the energy industry (electricity, gas, steam and air conditioning supply D).

Manufacturing products appears as impacting the structure of the intermediate consumption. Because of the goods sent abroad for processing are now recorded “net” in ESA 2010 and that flows are classified as services (as a processing fee), the intermediate consumption of such product decreases. The value of goods sent abroad to be processed are no longer included in the intermediate consumption. The value recorded is now the processing fee only. The industry structure in the processing country has changed. Table 4 highlights products such as textiles (C13-15), metal products (C25), computers and electronic products (C26), electrical equipment (C27), for which, the intermediate consumption value has considerably decreased.

Table 4: Rank of WAPE for intermediate consumption, selection of largest industries at A64 level

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Industry | Country 1 | Country 2 | Country 3 | Country 4 | Country 5 | Country 6 | Country 7 |
| B | 46 | 31 | 59 | 19 | 5 | 7 | 5 |
| C13T15 | 6 | 3 | 46 | 5 | 16 | 38 | 51 |
| C19 | 36 | 20 | 19 | 21 | 4 | 24 | 10 |
| C20 | 29 | 23 | 13 | 17 | 8 | 6 | 11 |
| C25 | 3 | 9 | 29 | 8 | 17 | 30 | 15 |
| C26 | 8 | 5 | 26 | 4 | 34 | 31 | 9 |
| C27 | 4 | 7 | 28 | 3 | 35 | 28 | 42 |
| C28 | 16 | 11 | 38 | 6 | 33 | 18 | 40 |
| C30 | 19 | 40 | 3 | 18 | 40 | 42 | 38 |
| D35 | 2 | 1 | 21 | 33 | 2 | 21 | 3 |
| E37T39 | 26 | 28 | 14 | 41 | 6 | 35 | 34 |
| F | 5 | 4 | 4 | 28 | 1 | 3 | 1 |
| K64 | 1 | 2 | 8 | 32 | 10 | 1 | 2 |
| K65 | 7 | 14 | 12 | 58 | 44 | 29 | 26 |
| K66 | 9 | 15 | 44 | 55 | 11 | 4 | 46 |
| L68B | 12 | 6 | 1 | 20 | 26 | 12 | 22 |
| M69\_70 | 21 | 27 | 5 | 24 | 3 | 2 | 4 |
| M72 | 60 | 21 | 1 | 1 | 19 | 5 | 44 |
| N77 | 38 | 49 | 13 | 2 | 21 | 19 | 23 |

# Impact on final consumption and investment

The revisions to household final con­sumption expenditure are small: in terms of ratios of final consumption over GDP, the difference is less than 2% in absolute terms across the seven countries. Those very small revisions were quite regularly distributed among the 64 products of the Use Table: no major product outlier was detected.

Considering the final consumption from the NPISHs and the General government, the ratio of consumption over GDP is circa 1% lower on average with the ESA 2010 methodology. Manufactured goods represent the product for which the absolute difference is measured as the biggest across all countries.

Table 5: Absolute difference of ratios between ESA 95 and ESA 2010

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Country 1 | Country 2 | Country 3 | Country 4 | Country 5 | Country 6 | Country 7 |
| HFC/GDP | -0.9% | -1.6% | -1.5% | -1.9% | 0.2% | -0.8% | -0.1% |
| FC/GDP | -1.3% | -2.2% | -2.3% | -3.0% | -0.5% | -1.0% | -1.1% |
| Manufactured products | -0.3% | -0.8% | -1.1% | -1.3% | -0.4% | -0.3% | -0.6% |

The impact on investment was assumed to be the most visible. Indeed the main change in ESA 2010 affects the products of R&D services recognised now as capital assets.

Across the seven countries, the ratio of Gross Capital Formation over GDP shows a consistent aver­age upward revision in absolute terms from 0.5% to 2.6%. Focusing on products, the research and development services contributed the most from 1.0% upward revision in one country to 2.5% in another country.

# Impact on trade

One change in SNA 2008 / ESA 2010 methodology is the treatment of goods sent abroad for processing: the values of goods sent abroad for processing will no longer impact on gross exports and gross im­ports figures because ESA 2010, in the light of globalisation, uses a change in ownership approach and is no more based on physical movements. ESA 2010 just records an export processing service. This will reduce the level of exports and imports, but will not affect the overall current account balance.

In practice, exports were revised downwards due to two methodological changes introduced by ESA2010 in all seven countries but the ratio of exports over GDP remains similar.

The products most affected by the revision are the manufactured products and trade products. This underlines the cross effect of the goods send abroad for processing and the merchanting. The revised treatment of merchanting impacts the breakdowns of exports in terms of products and series. The merchanting margins are registered under the product of wholesale trade and therefore the CPA G is impacted by the change of methodology.

Table 6: Absolute difference of ratios between ESA 95 and ESA 2010 for exports

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Country | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Total | -2.4% | -3.4% | -0.4% | 0.6% | -1.4% | -2.4% | -1.4% |
| CPA\_C | -0.8% | -3.0% | -0.2% | -0.5% | -1.1% | -1.2% | -0.3% |
| CPA\_G | -1.3% | -0.8% | 0.1% | -0.3% | 0.0% | -1.2% | -0.3% |
| CPA\_C13T15 textiles | -0.4% | -1.1% | -0.2% | -0.1% | -0.6% | -0.4% | -0.3% |
| CPA\_C16 wood | 0.0% | -5.1% | 0.0% | 0.0% | 0.0% | -0.6% | 0.0% |
| CPA\_C19 petroleum products | 0.6% | 2.5% | -0.5% | 0.1% | 0.0% | 0.0% | -0.1% |
| CPA\_C20 Chemicals | 0.0% | 8.5% | -0.5% | -0.1% | -0.2% | 0.4% | -0.7% |
| CPA\_C21 Basic pharmaceuticals | 0.0% | 2.9% | -0.1% | -0.1% | 0.0% | 1.0% | -0.5% |
| CPA\_C24 Basic metals | 0.0% | 4.1% | -0.4% | -0.1% | -0.2% | -1.5% | -0.3% |
| CPA\_C26 Computer, electronics | -0.2% | -4.0% | -0.1% | -0.1% | 0.9% | -5.6% | -0.4% |
| CPA\_C27 electrical equipment | -0.5% | -2.8% | -0.1% | 0.0% | 0.6% | -3.4% | -0.3% |
| CPA\_C28 machinery equipment | 0.0% | 1.0% | -0.2% | -0.1% | 1.3% | -4.0% | -0.5% |
| CPA\_C29 motor vehicles | 0.0% | 2.6% | -0.1% | 0.0% | 0.0% | -9.6% | -0.5% |

On the imports side, the ratio of imports over GDP decreases with similar amplitude as the export ratio. But the trade balance remains stable.

Table 7: Ratio and revision percentage

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Country | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Ratio imports over GDP ESA 95 | 68.5% | 74.9% | 62.9% | 26.5% | 27.6% | 78.7% | 32.3% |
| Ratio imports over GDP ESA 2010 | 66.2% | 71.8% | 62.7% | 26.7% | 26.2% | 76.6% | 31.1% |
| Total absolute revision  | -2.3% | -3.1% | -0.3% | 0.2% | -1.4% | -2.1% | -1.3% |
| Total absolute revision of trade balance ratio  | 0.1% | 0.2% | 0.1% | -0.4% | 0.0% | 0.3% | 0.2% |

# Impact on the income components of GDP

The income approach of GDP is the approach according to which GDP is measured as the total of all incomes earned in the process of producing goods and services plus taxes on production and imports less subsidies. These incomes are broken down by type, i.e. compensation of employment and operating surplus/mixed income.

Compensation of employees, gross operating surplus and other net taxes on production are the components of the gross value added.

Table 8: Revision percentage for value added components-total economy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Countries | Compensation of Employees | Gross Operating Surplus | Other net taxes on production | Value Added |
| 1 | 0.00% | 2.94% | 0.00% | 1.36% |
| 2 | -0.06% | 8.43% | -17.10% | 4.75% |
| 3 | 0.73% | 8.58% | -6.20% | 3.45% |
| 4 | -2.44% | 10.34% | -4.19% | 3.89% |
| 5 | 1.89% | 11.35% | 1.65% | 5.48% |

Compensation of employees represent across countries around half of the gross value added in both methodologies. Its revision has been very small compared to the revisions accounting by the gross operating surplus and the other net taxes on production.

At the detail of the A64 breakdown, the small revision of compensation of employees is the result of large upwards and downwards revisions in four countries.

Some outliers come from the activities of households of employers where the compensation of employees varied highly from ESA 95 to ESA 2010.

In one country 16 activities present a revision of more than 10% in absolute terms and seven over 18% in absolute terms. For example the industry of C17 Paper manufacture was revised by -69%, L68A Imputed rentals by -34%, K65 Insurance industry by -37%, M72 Research and development industry by +18%, C33 Repair by +19% and C18 Printing an reproduction industry by +69%.

Gross Operating Surplus has been revised upwards significantly in every country. This is mainly due to the revised treatment of research and development and military weapons systems into capital expenditure. As they are now recorded in GFCF, their value was deducted from intermediate consumption increasing the GVA or increasing output and GVA and distributed back into the economy via operating surplus for producers.

Zooming on the scientific research and development industry, the revision of the Gross Operating Surplus was extremely large for all countries with increases of 3 digits in percentage.

# Impact on input and output coefficients

Measuring goods for processing by the processing fee instead of by the full value of the processed goods changes the nature of input-output coefficients[[5]](#footnote-5). The coefficients will no longer represent the technological structures of an industrial process but an economic process in the sense that changes in coefficients may result not from changes in technology but from changes in the proportion of product processed on own account and processed on behalf of another unit[[6]](#footnote-6). On the other hand the new accounting system homogenised the treatment of domestic and imported inputs[[7]](#footnote-7). It is especially relevant nowadays because of the highly sliced Global Value Chains.

The WAPE indicator compiled on the input coefficients (matrix A) gives a ranking of products impacted by the change of methodology.

Focusing on the first five largest value of WAPE, some products are repeatedly pointed out across countries to have a structure change in the input-output tables because of the implementation of the new methodology: Textiles products C13-15, Motor vehicles C29, Electricity and gas D35, construction works F, wholesale trade G46.

Table 9: Ranking of most changing (WAPE)input coefficients by products

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Product | Country 1 | 2 | 3 | 4 | 5 | Product | Country 1 | 2 | 3 | 4 | 5 |
| CPA\_C10T12 | 12 | 19 | 4 | 20 | 13 | **CPA\_F** | 5 | 4 | 2 | 15 | 1 |
| CPA\_C13T15 | 3 | 10 | 45 | 5 | 6 | **CPA\_G46** | 9 | 6 | 3 | 13 | 4 |
| CPA\_C19 | 54 | 26 | 21 | 28 | 7 | **CPA\_G47** | 29 | 62 | 12 | 21 | 9 |
| CPA\_C20 | 41 | 36 | 11 | 24 | 5 | **CPA\_H49** | 13 | 14 | 15 | 18 | 3 |
| CPA\_C25 | 8 | 5 | 25 | 23 | 17 | **CPA\_J62\_63** | 27 | 48 | 36 | 6 | 19 |
| CPA\_C26 | 6 | 7 | 27 | 4 | 39 | **CPA\_L68B** | 7 | 2 | 1 | 14 | 20 |
| CPA\_C27 | 1 | 9 | 31 | 2 | 42 | **CPA\_M69\_70** | 30 | 37 | 6 | 12 | 18 |
| CPA\_C29 | 23 | 1 | 8 | 1 | 29 | **CPA\_M72** | 18 | 51 | 33 | 9 | 43 |
| CPA\_C30 | 44 | 25 | 5 | 42 | 33 | **CPA\_N77** | 11 | 54 | 28 | 3 | 47 |
| CPA\_D35 | 2 | 3 | 24 | 11 | 2 | **CPA\_O84** | 4 | 11 | 7 | 10 | 10 |

The output multipliers (Leontief inverse matrix) are impacted as well. Research and development services are one of the largest impacted (considering WAPE) across countries. Real estate's services are also quite often one the most impacted. For the Manufacturing products, Textiles products (C13-15), Basic pharmaceuticals (C21), Basic metals (C24), Electrical equipment (C27), Energy products (D and E) are in the top list of products for which the output multipliers will be changed.

Looking at the industries, the same industries impacted for the input coefficients are the same with an impact on the output multipliers: Real estate's activities K64, Research and development activities M72, Wholesale trade G46, electricity and gas industry D35.

Table 10: Ranking of most changing (WAPE) for output coefficients by products

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Product | Country 1 | 2 | 3 | 4 | 5 | Product | Country 1 | 2 | 3 | 4 | 5 |
| C13T15 | 4 | 10 | 31 | 2 | 42 | **E36** | 28 | 3 | 16 | 60 | 14 |
| C21 | 44 | 14 | 2 | 6 | 17 | **H51** | 53 | 6 | 9 | 3 | 7 |
| C26 | 26 | 12 | 4 | 35 | 27 | **J59\_60** | 9 | 54 | 19 | 4 | 5 |
| C27 | 3 | 18 | 14 | 11 | 59 | **J62\_63** | 7 | 45 | 36 | 8 | 33 |
| D35 | 13 | 21 | 59 | 37 | 3 | **K64** | 2 | 25 | 48 | 5 | 52 |

# Changes in methodology and data sources beyond ESA 2010 implementation

Together with the changes introduced by the methodological update of ESA 2010, the Member States also took the opportunity to re-benchmark their National Accounts, review their data sources and introduce new or improved ones. For example, new sources such as a wage declaration database or the VAT database compiled by the tax authorities, new statistics compiled by partners organisations, revised registers are used in some countries[[8]](#footnote-8).

The data on hours worked illustrate this phenomena. Comparison between ESA 95 and ESA 2010 of employment data (hours worked) shows there have been revisions quite large for some countries.

Table 11: Percentage revision for hours worked by industries (A64 breakdown level)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Country | All NACE activities | min | median | max |
| Country 1 | -0.3% | -12.8%\* | 0.0% | 1.0% |
| Country 2 | -0.8% | -5.5% | -0.6% | 51.6%\*\* |
| Country 3 | 1.2% | -32.9% | 1.1% | 97.5%\*\*\* |
| Country 4 | 0.7% | -18.1% | -3.6% | 53.3% |
| Country 5 | 0.0% | 0.0% | 0.0% | 0.0% |

\* Here the Telecommunications industry registers a decrease of -13% of level of hours worked.

\*\* Legal activities M69-70 records a revision of 51% for the hours worked.

\*\*\*Research and development activity with a doubling of the hours worked value for 2010.

# Comparison framework

Eurostat will generalise the compilation of such comparison indicators and disseminate a summary of the changes' impacts in Supply, Use and Input-Output Tables. The comparison would serve as metadata to the new dataset in ESA 2010 disseminated on Eurostat website in the form of a document and article to be published with the European consolidated tables disseminated in fall 2015. The comparison would benefit from comments at national level.

The advantage of the SUIOTs framework is to have the detailed breakdown to 64 products and industries. Other tables in the European National Accounts transmission program would give information on the same detailed industry level but the SUIOTs would complement it with information on the products level.

## What to compare?

Eurostat's proposal is to compare at the 64 breakdown level:

* The gross value added giving some statistical indicators (average, moments) of the distribution of the revision changes, the WAPE to highlight changes at industry level;
* The intermediate consumption with indicators such as average, moments of the distribution of the revision, WAPE at product and industry level;
* The final consumption and investment by products with the revision changes in the consumption and investment ratios;
* The trade components (exports and imports) by products; the intra/extra EU split may give an additional clue regarding the internal market relevance of processing trade;
* The components of the gross value added by industry;
* The input coefficients.

## How to compare?

The comparison will consist of the compilation of revision percentages one side and on the WAPE compilation on the other side, stressing on the products and industries with the largest revisions.

The data for comparison will be the two datasets for the year 2010.

## Dissemination

The channels of dissemination will be Eurostat website as well as proposal in a journal publication. Countries will be free to add some narrative to the national fiche that will address the difference between the two datasets. Indeed the implementation of ESA2010 can not be dissociate from other data improvements such as Gross National Income revisions, redefinition of activities (e.g. operational leasing and financial leasing, real estates and imputed rentals…), the non-observed economy, the transfer of activity from trader to producer in relation to the change of ownership concept or the statistical unit choice: using KAU or enterprise will result in not the same allocation of NACE industry for example for the production of product X.

Isolating ESA 2010 impacts on data from all changes cannot not be done in a systematic way and exhaustively on the whole National Accounts domain.

The dissemination of such analysis would be useful for users.

1. The views expressed in this paper belong to the author and should not be attributed to the European Commission, Eurostat or its services. [↑](#footnote-ref-1)
2. Note that the analysis is based in country submissions under both systems. Some countries have introduced in the submission under ESA 2010 not only the revisions due to the new system of accounting but also review of estimations and other improvements. Which part of the differences is due to the new accounting systems and which part to country reviews/improvements is difficult to distinguish. [↑](#footnote-ref-2)
3. GDP is measured in the production approach as the sum of the gross values added by all activities which produce goods and services, plus taxes less subsidies on products. [↑](#footnote-ref-3)
4. **A** Agriculture, forestry and fishing, **B** Mining and quarrying, **C** Manufacturing, **D** Electricity, gas, steam and air conditioning supply **E** Water supply, sewerage, waste management and remediation activities, **F** Construction, **G W**holesale and retail trade; repair of motor vehicles and motorcycles, **I** Accommodation and food service activities, **H** Transportation and storage **J** Information and communication, **K** Financial and insurance activities, **L** Real estate activities, **M** Professional, scientific and technical activities, **N** Administrative and support service activities, **O** Public administration and defence; compulsory social security, **P** Education, **Q** Human health and social work activities, **R** Arts, entertainment and recreation. [↑](#footnote-ref-4)
5. They have been here calculated on product by product Input-Output Tables. [↑](#footnote-ref-5)
6. See paper "Compilation of the Supply and use input-output tables according to the ESA 2010 for Estonia" presented by Iljen Dedegkeva at the 22nd IIOA conference in Lisbon in 2014. [↑](#footnote-ref-6)
7. Under ESA 95, a product sent to a different firm for processing and returned back without change in ownership was differently treated if sent domestically (processing fee) than internationally (export/import). Under ESA 2010, both options are considered equally (processing fee). [↑](#footnote-ref-7)
8. See for example the Czech Republic case in [IIOA newsletter, issue 29, February 2015](http://www.iioa.org/news_and_links/newsletters/Newsletter29Feb15-Final.pdf). [↑](#footnote-ref-8)