Consolidated supply, use and input-output tables

ec.europa.eu/eurostat/statistics-explained/index.php

Data extracted in April 2020.

In 2019, 31 million persons in the EU were working in firms engaged in exporting activities, meaning 15% of total EU employment.

27% of the air transport services produced in the euro area are exported outside the euro area.

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This article presents the latest available European consolidated supply, use and input-output tables for the period from 2005 to 2019.

The consolidated supply, use and input-output tables are used for macro-analysis of the European Union (EU) and euro area (EA) economies. They give an annual snapshot of overall production and use of products, distinguishing 64 NACE activities and 64 products from the CPA classification. Input-Output Tables are particularly used as a well-

established tool for analytical purposes (economic analysis, social accounting matrices, and environmental accounts). The data are broken down into 10 activities and 10 product groups.

Employment in exporting firms

The total number of people employed by EU firms engaged in exporting activities (directly and indirectly) reached 31 million in 2019, 30 million of whom were in the euro area. This represents 15 % of total EU employment in 2019 and 19 % of euro area employment (see Figure 1).

The figure for employment embodied in exports refers to the number of people employed by firms that are directly engaged in exporting activities (direct effects), including those employed by upstream industries for supplying the necessary inputs to these firms (indirect effects).

The production of exported manufactured products remains the major contributor to employment in the EU, encompassing 19 million people directly and indirectly that represent 56 % of the employment in manufacturing.

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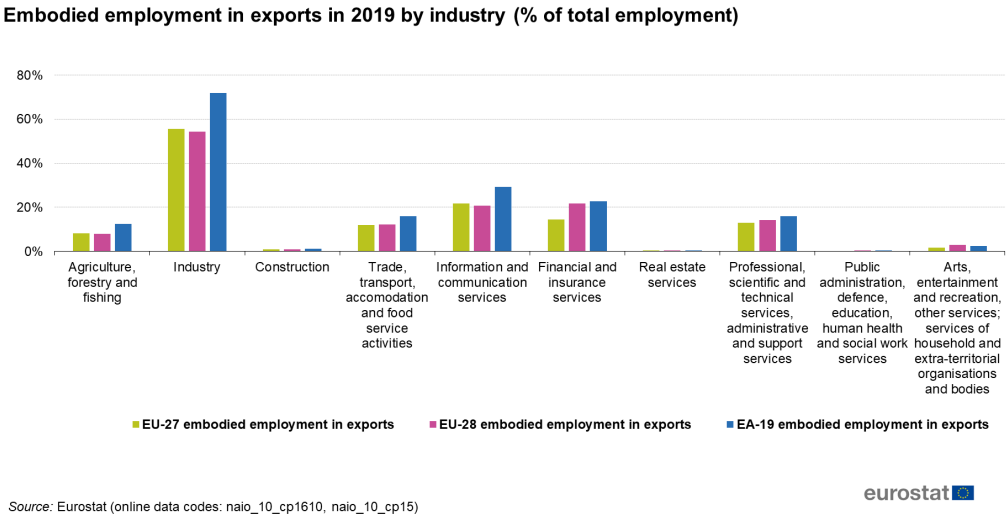
Next in terms of size of employment come wholesale trade, transport, accommodation and food service activities, accounting for 7.3 million employed people, however only representing 12 % of employment in the trade industry. The third major contributors in size are professional, scientific and technical activities, and administrative and support service activities, with 4.5 million people employed but representing 14 % of employment in those service activities.

The Euro area required fewer people for the production of its manufactured exports (around 16.8 million people) but those 16.8 million people represent 72 % of euro area employment in manufacturing. The next industry from which its exports account for the highest employment of persons is trade, transport, accommodation and food service activities with 6.4 million people, representing 16 % of the employment in those services. Information and financial services exports account for 23 % of employment in the services industry in the euro area and for 22 % in the EU (Figure 2).



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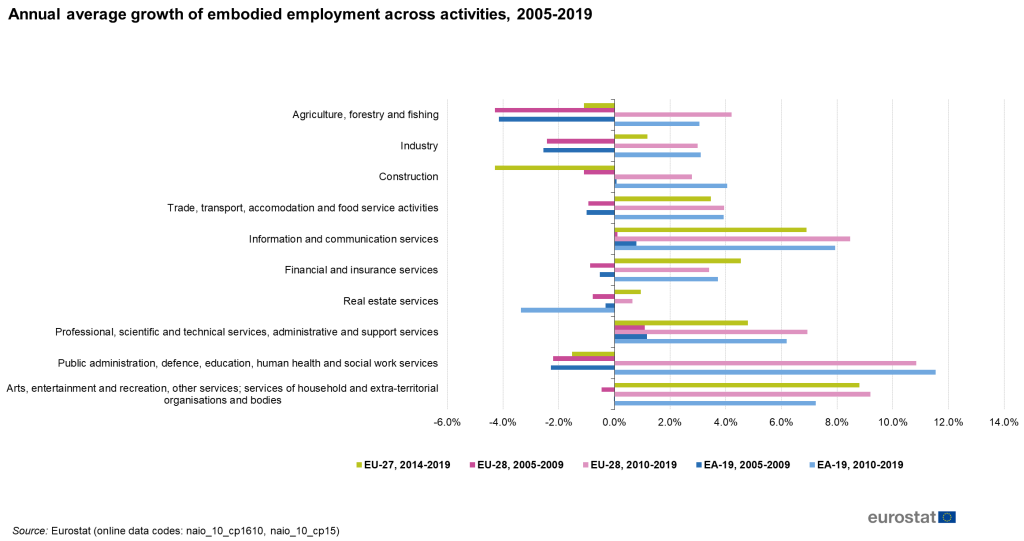
The total number of people employed by firms engaged in exporting activities in the EU and the euro area has grown by an annual average rate of respectively 2.3 % and 2.2 % over the last fourteen years (from 2005 to 2019). However, this development comprises two opposing effects: an annual average decline of 1.7 % from 2005 to 2009, respectively a decline of 1.8 % in euro area, immediately followed by an annual average growth of 3.9 % in both areas from 2010 to 2019 (Figure 3).

Those two opposing effects can be seen in the activities reviewed, except for real estate services where the second sub-period exhibits negative average annual growth for euro area (-3.4 %).



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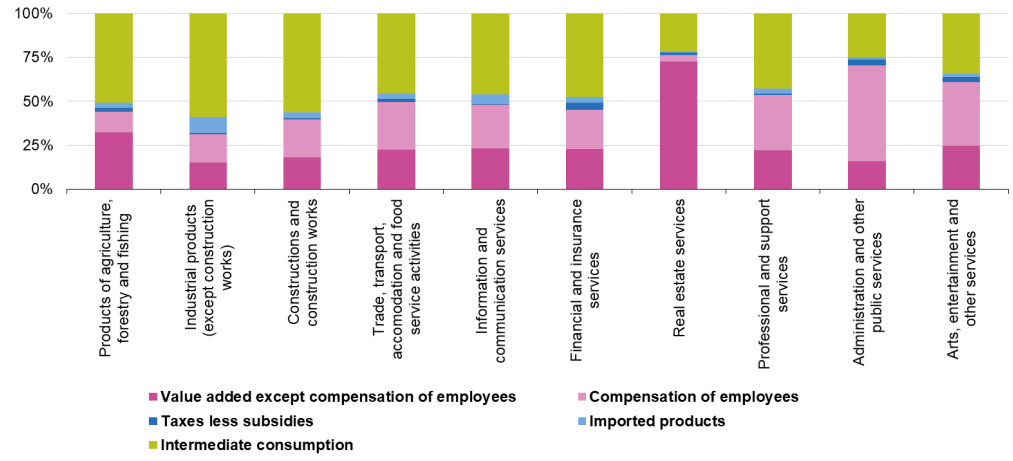
Intermediate consumption is the most costly input in the EU economy

Intermediate consumption represents for agricultural, manufactured products and construction works the most costly input in the EU economy (Figure 4) accounting for 48 % to 55 % of total output in 2019. Labour input contributes between 3 % and 54 % of the EU input costs depending on the products output: below 16 % for agricultural, manufactured products and real estate services but up to 55 % in administration services or 37 % in professional and support services. Imported products represent in the EU manufactured products 13 % of the input costs. Conversely, real estate services are primarily based on the generation of gross value added, representing 75 % of total output in 2019.

The input-output (I-O) tables show the production structures of an economy. The columns in the input-output tables (see naio_10_cp17) represent the cost structure of the industry and the rows show the composition of its revenues. The value added is the difference between output and intermediate consumption.

Input coefficients for EU-27, 2019, by product groups



Source: Eurostat (online data code: naio_10_cp15)

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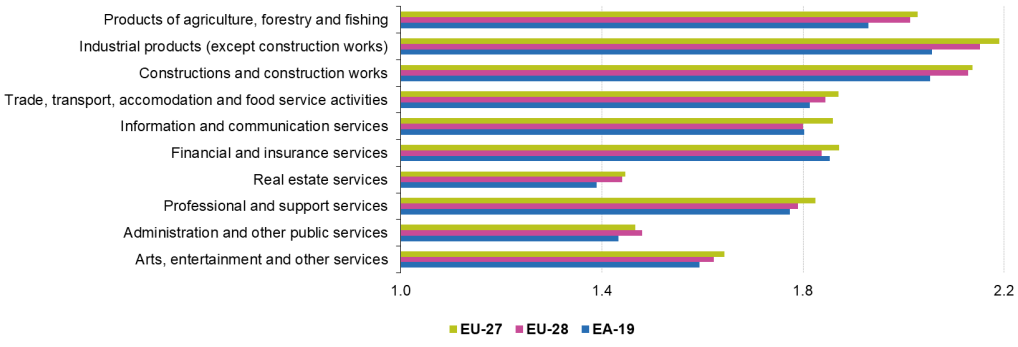
In the EU, 1 additional unit of final demand creates 2.2 units of industrial output

Output multipliers reflect the direct and indirect requirements of domestic production per unit of final demand. One additional unit of final demand for agricultural products would generate around two units of revenue/output in the euro area and in the EU (Figure 5). In the EU, the biggest output multiplier is for industrial products, where one additional unit of final demand would create 2.2 units of output (2.1 in the euro area). Output multipliers are slightly higher in the EU than in the euro area, i.e. the EU economy would produce more than the euro area economy in response to an increase of one unit of final demand.

Output multipliers, 2019, by product groups



Source: Eurostat (online data code: naio_10_cp1700)

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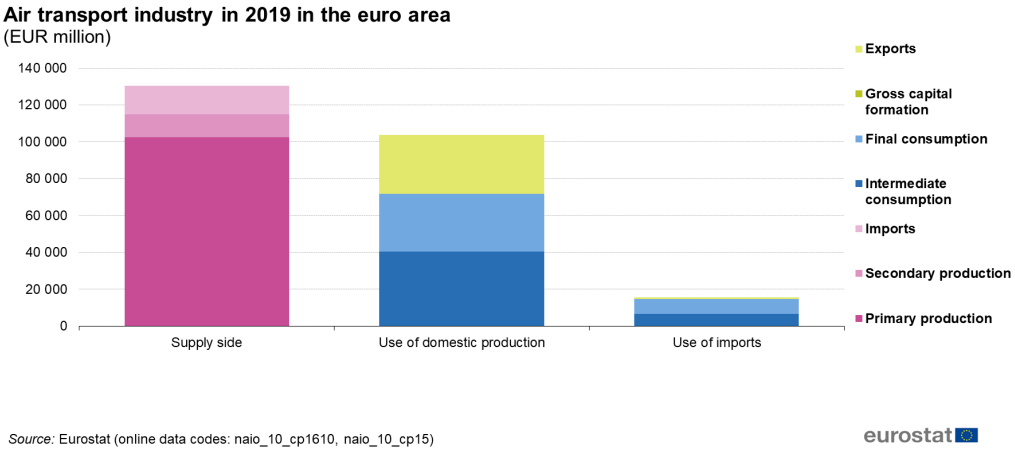
Supply and use of air transport services in the euro area

Around 12 % of air transport services stems from imports and 27 % of production is exported. Air transport services (CPA 51 of the CPA 2008 products classification) are either produced by euro area companies or imported. Of the EUR 130 billion of air transport services produced in 2019 in the euro area, 12 % are imported from outside the euro area. The euro area domestic production of air transport services represents 88 % of the air transport services supply from which 79 % are produced by the euro area air transport industry itself, with the remaining 9 % being the secondary production of other industries.

As regards use, 27 % of air transport services produced in the euro area are exported outside the euro area, 31 % are used in the euro area as an intermediate consumption item in the production of another product/service and 24 % of air transport services are used as final consumption items.

For each product, the sum of the different uses equals the total supply. Both supply and use are recorded in monetary terms, at the current prices of the reference year and in basic prices.



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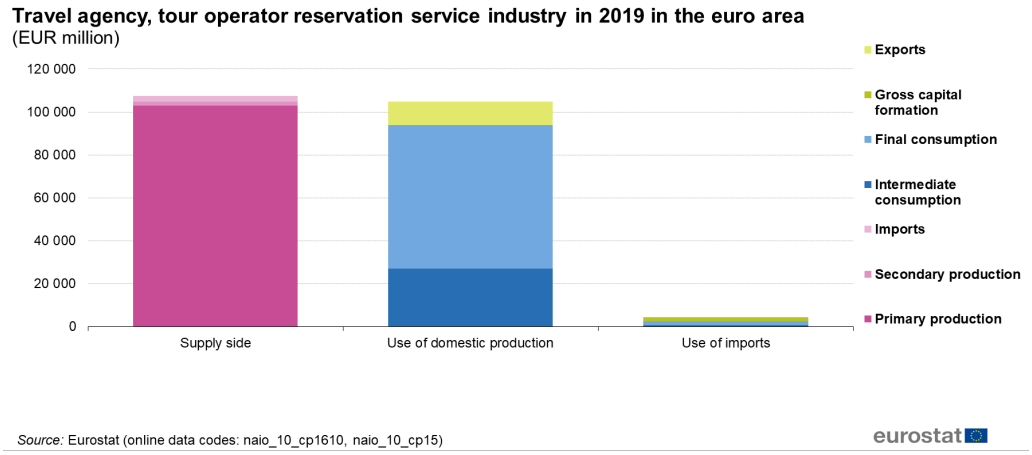
Supply and use of travel agency, tour operator reservation services in the euro area

Less than 3 % of travel agency services stems from imports and 8 % of production is exported. Travel agency services (CPA 79 of the CPA 2008 products classification) are either produced by euro area companies or imported. Of the EUR 108 billion of travel agency services produced in 2019 in the euro area, less than 3 % are imported from outside the euro area. The euro area domestic production of travel agency services represents 97 % of the travel agency services supply from which 96 % are produced by the euro area travel agency industry itself, with the remaining 1 % being the secondary production of other industries.

As regards use, 8 % of travel agency services produced in the euro area are exported outside the euro area, 21 % are used in the euro area as an intermediate consumption

item in the production of another product/service and 51 % of travel agency services are used as final consumption items.

For each product, the sum of the different uses equals the total supply. Both supply and use are recorded in monetary terms, at the current prices of the reference year and in basic prices.



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The air transport and travel agency industries and their impact on EU economy

Looking at the 10 main sectors of activities, the sector of industry generates the biggest output multiplier on the EU economy in 2019. For an additional EUR 1 spent in the manufacturing sector, the cumulative revenues would be increased by EUR 2.19 (EUR 2.05 in the euro area). An additional EUR 1 spent on air transport services production would generate revenue of EUR 2.1 in EU (respectively 2.03 in euro area). An additional EUR 1 spent on travel agency services production would generate revenue of EUR 2.24 (same figure for euro area).

The output multiplier for an industry is expressed as the ratio of direct and indirect output changes to the direct output change due to a unit increase in final demand. If there is an increase in final demand for a particular product, we can assume that there will be an increase in the output of that product, as producers respond to meet the increased demand; this is the direct effect. As producers increase their output, there will also be an increase in demand on their suppliers and so on down the supply chain; this is the indirect effect. The result of the direct and indirect effects will be an increase in the level of household income throughout the economy due to increased employment. A proportion of this increased income will be re-spent on final goods and services — this is the induced effect.

The construction sector follows the industry sector closely with an output multiplier of 2.14 (2.07 for the euro area), while the real estate services sector has the smallest output multiplier — 1.45 (1.38 for the EA).

Data sources

On the basis of the European I-O tables, a standard input-output technique was used to calculate the results of the Leontief quantity model applied to employment. First, a domestic input coefficient matrix (A) was calculated for each homogeneous branch of activity, showing direct input requirements for the production of one unit of output. Then the Leontief inverse matrix (the inverse of I — A, being I, the identity matrix) was computed to obtain the matrix of output multipliers. Next, the inverse matrix was post-multiplied by a column vector of exports to calculate the total output embodied in those exports. Finally, output coefficients of employment pre-multiplied the former results to obtain the figure for employment embodied in exports.

The figure for employment embodied in exports is measured by number of persons employed by firms directly engaged in export activities (direct effects), including those employed by upstream industries for the supply of the necessary inputs (indirect effects).

Eurostat compiles supply and use tables for the EU, the euro area. All statistics relating to national accounts are now developed in the methodological framework European System of Accounts 2010.

Context

The data are collected under the European System of National and Regional Accounts (ESA 2010) transmission programme. EU Member States transmit supply and use tables (SUTs) to Eurostat annually and input-output tables (IOTs) every five years, up to 36 months after the end of the reference period.

The SUTs give detailed information on production processes, interdependencies in production, the use of goods and services, and income generated in production. They form the basis for symmetrical IOTs, which are produced by applying certain assumptions to the relationship between outputs and inputs and are used by policy-makers for input-output analysis.

European tables for the years 2010 to 2016 are based on a consolidation of available national supply and use tables. The data for only a few Member States is missing and has been estimated for the purpose of the European tables. The European tables for 2017 to 2019 are the result of projection methods based on the 2016 European consolidated tables and macroeconomic data for 2017 to 2019. Environmentally extended IOTs, an extension in Eurostat, represent another powerful analytical instrument to inform policy.

Eurostat has compiled consolidated European tables for the EU and the EA in ESA 2010 from reference year 2010 onwards.

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