# EU KLEMS Growth and Productivity Accounts
# 2016 Release, Statistical Module[1]

## Description of methodology and country notes for Finland

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## 1. General notes for the 2016 release

**Introduction**

This document describes a new set of EU KLEMS Productivity and Growth Accounts with data up to 2014 for 10 major European economies (Austria, Belgium, Germany, Finland, France, Italy, Netherlands, Spain, Sweden, and United Kingdom).

This release is the first of two, which have been carried out with funding from the European Commission, DG for Economic and Financial Affairs. While the current data are limited to 10 major economies, that were also part of previous intermediate updates, the next update in 2017 will include a wider range of economies as well as the Japan and the United States. The 2016 EU KLEMS release follows up on earlier rolling releases in 2012 which showed detailed growth accounts up to 2009-2012 depending on the country.

The 2016 EU KLEMS database keeps the general standard EU KLEMS structure of previous round, where variables are broken down into values, prices, volumes, and additional variables. For more detailed information on the general growth accounting methodology and construction of the database, see O'Mahony and Timmer (2009). One important difference between this release and previous ones, is that the measures of capital services in this version are based on the official stock data from National Statistical Institutes (NSIs) and additional computations to turn them into capital services measures. While this adjustment is somewhat affecting the comparability of the series

across countries, the results in this release are more in line with the official national accounts estimates of underlying variables. Hence we refer to this release as a "statistical module" of EU KLEMS, which are therefore not directly comparable to the "analytical module" as developed before. For the next release in summer 2017, we envisage the publication of both a statistical and an analytical module of the EU KLEMS database.

The 2016 release has a number of features worth noting, which are explained in this document in more detail:

- Concepts and methodologies to calculate the various growth and productivity variables were adjusted to the new European System of National Accounts (ESA 2010).
- The time period coverage is 1995-2014 for most countries and industries.
- The data on output, value added and employment is nearly fully consistent with Eurostat at the corresponding industry levels - if not mentioned otherwise in the country notes below.
- The data on gross fixed capital formation, prices, and capital stocks is consistent with Eurostat at the corresponding industry levels - if not mentioned otherwise in the country notes below.
- The capital asset types were modified and extended according to the ESA 2010 requirements.
- One important deviation from previous EU KLEMS releases is that capital stock figures are mostly obtained from Eurostat, and are thus consistent with national accounts assumptions on the measurement of capital stock - if not mentioned otherwise in the country notes below.
- Capital services, an essential part of EU KLEMS database, are not part of the official System of National Accounts which necessitates assumptions regarding depreciation rates and the calculation of the rates of return. As implicit depreciation rates from official data were often highly volatile, we systematically applied geometric depreciation rates, as in previous EU KLEMS versions. Therefore the measures of capital stock are not fully consistent with our measures of rates of return, rental prices and consequently capital services. We keep a detailed analysis of this data for later revisions.
- For constructing labour services for the period 2008-2014, the micro-data underlying the European Labour Force Survey (LFS) has been used through the National Institute of Economic and Social Research (NIESR). Years prior 2008 have been extrapolated using the trend in labor services from former versions of EU KLEMS.

Table A1 in the appendix lists all variables of the output and capital files, broken down into values, prices, volumes, and additional variables. The content of the basic and capital files will be extended for the 2017 release. Variables will be available to the extent possible as laid out in table A1 in O'Mahony and Timmer (2009) which largely correspond to the set of variables published in the first full release of the EUKLEMS database in March 2008. A novelty of the 2016 release is the provision of three-dimensional growth accounts across countries and industries where possible (see table 1). The 2016 release provides contributions to growth rates of value added and labor productivity, with the latter measured in two ways – value added per hour worked and value added per person employed. The full KLEMS approach, using gross output and all five major input factors (K-L-E-M-S) will also be available with the 2017 release. However, in several cases (depending on country and time period) we will have to reside with the narrower concepts (K-L-E) even in the 2017 release.

Table 1: Growth accounting approaches of the EU KLEMS release

| EU KLEMS Approaches: Contributions to… | | |
|---|---|---|
| 1) LP2: Value Added / Person Employed | VA/EMP | Minimum approach |
| 2) LP1: Value Added / Hour worked | VA/H_EMP | |
| 3) Value Added and KL Inputs | VA | |
| 4) Gross Output and KLEMS Inputs (2017 release) | GO | Maximum approach |

The remainder of this document details the structure of the 2016 EU KLEMS database and general methods applied to this release to arrive at estimates of total factor productivity in the NACE 2 industry classification and the new European System of National Accounts (ESA 2010). Main differences between the former EU KLEMS releases and this release are briefly highlighted. Additionally, this section covers the methods applied for the calculation of labour services.

**Industry Classification**

European National Statistical Institutes (NSIs) produce data based on the NACE 2 industry classification, which is consistent with the international standardized ISIC Revision 4 industry classification. The industry structure known from the 2012 EU KLEMS release is adopted with the market economy as an addition. We distinguish between 34 industries plus 8 aggregates as shown in table 2. The NACE 2 output and labour data used in this release are based on Eurostat insofar available. The National Accounts (NA) data in the new European System of National Accounts (ESA 2010) is provided for shorter time series than were previously available under ESA 1995. Earlier releases of the EU KLEMS databases provide time series back to 1970 with estimations of Total Factor Productivity (TFP) generally starting in 1980. Back-casts of the time series of output and labour data back to 1970 will be made for the 2017 release of the project through linkages to former EU KLEMS files to the extent possible.

Table 2: EU KLEMS industries

| No | Description | Code |
|---|---|---|
| **34 industry list, based on NACE Rev.2 / ISIC Rev. 4** | | |
| Agg | **TOTAL INDUSTRIES** | TOT |
| Agg | **MARKET ECONOMY** | MARKT |
| 1 | AGRICULTURE, FORESTRY AND FISHING | A |
| 2 | MINING AND QUARRYING | B |
| Agg | **TOTAL MANUFACTURING** | C |
| 3 | Food products, beverages and tobacco | 10-12 |
| 4 | Textiles, wearing apparel, leather and related products | 13-15 |
| 5 | Wood and paper products; printing and reproduction of recorded media | 16-18 |
| 6 | Coke and refined petroleum products | 19 |
| 7 | Chemicals and chemical products | 20-21 |
| 8 | Rubber and plastics products, and other non-metallic mineral products | 22-23 |
| 9 | Basic metals and fabricated metal products, except machinery and equipment | 24-25 |
| 10 | Electrical and optical equipment | 26-27 |
| 11 | Machinery and equipment n.e.c. | 28 |
| 12 | Transport equipment | 29-30 |
| 13 | Other manufacturing; repair and installation of machinery and equipment | 31-33 |
| 14 | ELECTRICITY, GAS AND WATER SUPPLY | D-E |
| 15 | CONSTRUCTION | F |
| Agg | **WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES** | G |
| 16 | Wholesale and retail trade and repair of motor vehicles and motorcycles | 45 |
| 17 | Wholesale trade, except of motor vehicles and motorcycles | 46 |
| 18 | Retail trade, except of motor vehicles and motorcycles | 47 |
| Agg | **TRANSPORTATION AND STORAGE** | H |
| 19 | Transport and storage | 49-52 |
| 20 | Postal and courier activities | 53 |
| 21 | ACCOMMODATION AND FOOD SERVICE ACTIVITIES | I |
| Agg | **INFORMATION AND COMMUNICATION** | J |
| 22 | Publishing, audiovisual and broadcasting activities | 58-60 |
| 23 | Telecommunications | 61 |
| 24 | IT and other information services | 62-63 |
| 25 | FINANCIAL AND INSURANCE ACTIVITIES | K |
| 26 | REAL ESTATE ACTIVITIES | L |
| 27 | PROFESSIONAL, SCIENTIFIC, TECHNICAL, ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES | M-N |
| Agg | **COMMUNITY SOCIAL AND PERSONAL SERVICES** | O-U |
| 28 | Public administration and defence; compulsory social security | O |
| 29 | Education | P |
| 30 | Health and social work | Q |
| Agg | **ARTS, ENTERTAINMENT, RECREATION AND OTHER SERVICE ACTIVITIES** | R-S |
| 31 | Arts, entertainment and recreation | R |
| 32 | Other service activities | S |
| 33 | Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use | T |
| 34 | Activities of extraterritorial organizations and bodies | U |

**Aggregation**

Not all industries and aggregates shown in table 2 are readily available from Eurostat and several aggregates are calculated (table 3). NACE 2 industries are aggregated by simple summation for nominal variables. Tornqvist aggregates are estimated from the corresponding child NACE 2 industries, using the corresponding nominal variable as weights. All growth accounting related variables, namely growth rate of value added volume (VA_Q), growth rate of value added per hour worked (LP1_Q), growth rate of value added per person employed (LP2_Q), their growth contributions, and TFP indexes exclude industries T and U from the aggregates total economy, and O-U because capital stocks and GFCF are usually not available. Some series may not sum exactly to totals due to rounding, but any differences are well within the uncertainty of the estimates.

Table 3: EU KLEMS aggregates

| Code | Description |
|------|-------------|
| TOT | TOTAL INDUSTRIES |
| MARKT | MARKET ECONOMY |
| *20-21* | *Chemicals and chemical products* |
| *26-27* | *Electrical and optical equipment* |
| *D-E* | *ELECTRICITY, GAS AND WATER SUPPLY* |
| *49-52* | *Transport and storage* |
| O-U | COMMUNITY SOCIAL AND PERSONAL SERVICES |
| R-S | ARTS, ENTERTAINMENT, RECREATION AND OTHER SERVICE ACTIVITIES |

Table 4 summarizes the industry coverage of the market economy and the total economy. The market economy covers total industries minus L, O, P, Q, T, and U for all variables of the output files and capital files. Growth accounting related variables additionally exclude industries T and U from the total economy, because capital stocks and GFCF are usually not available for industries T and U.

Table 4: Definition of the total economy and the market economy

| | Growth accounting variables* | All other variables |
|---|---|---|
| **Total Economy** | All industries **excluding** T and U | All industries **including** T and U |
| **Market Economy** | All industries **excluding** L, O, P, Q, T, and U | All industries **excluding** L, O, P, Q, T, and U |

Note: * LAB_QI, CAP_QI, VA_Q, LP1_Q, LP2_Q, their growth contributions, and TFP indexes

**Output**

Eurostat is rounding chain linked volumes of gross value added volume (2010=100) as well as the percentage change over previous period to only one decimal place for some countries. Volumes of gross value added (VA_QI) are therefore denoted in 2010 prices instead of an index where 2010 is set to 100, to keep the detail needed for the growth accounting exercise and other research tasks. The growth rate of value added volume (VA_Q) in the output files has been calculated based on volumes of gross value added in 2010 prices because Eurostat is also rounding VA_Q to only decimal place and we refrain from decomposing rounded VA growth in the growth accounting exercise. The recalculated growth rates of value added volumes VA_Q may therefore differ slightly from the official VA_Q figures from Eurostat.

**Asset types**

Changes in the asset boundary under ESA 2010 do not only affect important figures throughout the national accounts, they also require a revision to the structure of the non-financial assets classification in EU KLEMS. More assets are included in the definition of Gross Fixed Capital Formation (GFCF) in ESA 2010. In addition to the inclusion of new asset types, existing assets have been redefined, re-organised and re-numbered in the nomenclature.

The main changes of ESA 2010 that are relevant for EU KLEMS can be summarised as follows (Eurostat, 2014):

- Intangible assets were recognized as produced fixed assets (AN.112) and non-produced fixed assets (AN.22) in ESA 95[2]. The produced fixed assets come under the new heading of

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[2] Mineral exploration (AN.1121), computer software (AN.1122), entertainment, literary and artistic originals (AN.1123), and other intangible fixed assets (AN.1129) were recognized as (produced) intangible fixed assets in ESA95. Patented entities (AN.221) were part of non-produced intangible assets in ESA95.

intellectual products in ESA 2010. The asset boundary under ESA 2010 was further expanded by including research and development as intellectual property under the heading of produced assets.

- Computer software has been modified to include databases, where software and databases are treated as two subcomponents.
- Only the acquisition of military structures and equipment that were considered to have a civilian purpose were recorded as capital formation under ESA 95. The boundary of military capital assets has been extended to include military weapons and supporting systems that do not have an equivalent civilian purpose. Weapons systems are classified separately and are recognized as produced assets under machinery and equipment.

Figure 1 shows the new structure of the asset boundary under ESA 2010 and also indicates the current availability in the national accounts section on the Eurostat webpage.

Figure 1: Availability of gross fixed capital formation by assets, based on ESA 2010



Note: green=available from Eurostat, yellow= not available.
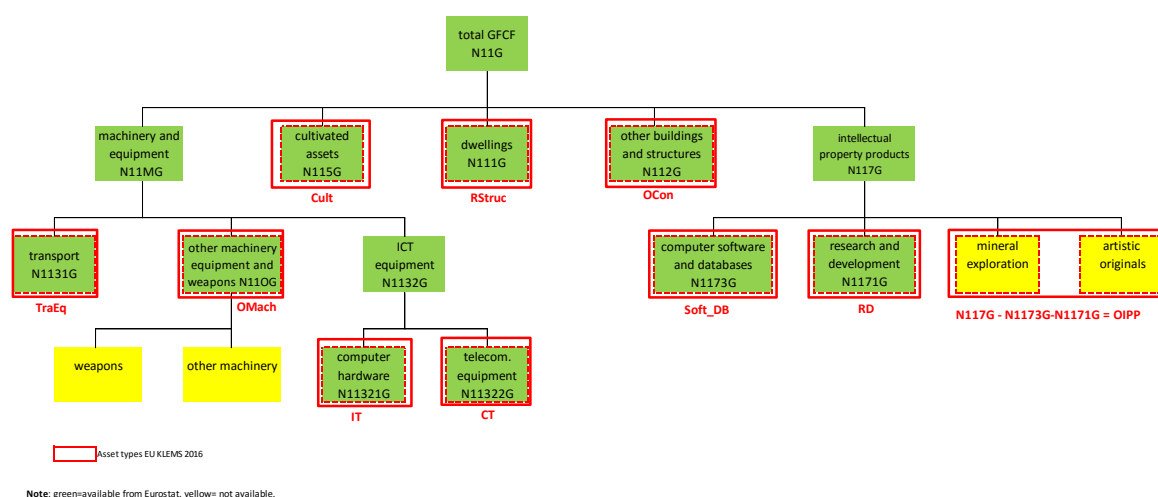
For the purpose of the 2016 EU KLEMS release, we break total capital into ten asset types and label them as follows:

Table 5: EU KLEMS asset types, based on ESA 2010.

| Code | NA Asset Name | EU KLEMS Asset Name | Short |
|---|---|---|---|
| N111G | Dwellings | Residential structures | RStruc |
| N112G | Other buildings and structures | Total non-residential investment | OCon |
| N1131G | Transport equipment | Transport equipment | TraEq |
| N11321G | Computer hardware | Computing equipment | IT |
| N11322G | Telecommunications equipment | Communications equipment | CT |
| N11OG | Other machinery and equipment and weapons systems | Other machinery and equipment and weapon systems | OMach |
| N115G | Cultivated biological resources | Cultivated assets | Cult |
| N117G - N1173G-N1171G | Intellectual property products | Other Intellectual Property Products | OIPP |
| N1171G | Research and development | Research and development | RD |
| N1173G | Computer software and databases | Computer software and databases | Soft_DB |

The new structure of asset types has also implications for the well-known standard grouping of asset types in EU KLEMS into non-ICT and ICT. In previous versions, ICT capital was classified in three

categories, namely computing equipment (IT), communication equipment (CT) and software. The changes in the current EU KLEMS update are as follows:

- Computer hardware which is equal to computing equipment (IT) and telecommunications equipment (CT) together equal ICT equipment and the series are comparable to what has been available under ESA 95.
- Computer software now includes databases and is therefore not entirely comparable to what was measured as software in the previous EU KLEMS datasets.
- In addition, computer software and databases are a subcomponent of intellectual property products, besides research and development and other IPP (OIPP) consisting of mineral exploration, and artistic originals (formerly known as other assets). Other IPP is not readily available from Eurostat and has therefore been calculated by deducting computer software and databases N1173G and research and development N1171G from intellectual property products N117G.
- Investment in cultivated assets accounts for only a minor share in total GFCF as they almost exclusively occurred in section A (agriculture, forestry and fishing). These were part of 'other assets' in former EU KLEMS and are treated as separate asset type in the 2016 release to keep as much detail as possible.

**Investment series and capital services**

Gross fixed capital formation by industry and asset type is mainly obtained from Eurostat for the EU KLEMS 2016 release. Data from NSIs are used to fill in gaps if any. In most cases, there are no revised ESA 2010 estimates available from Eurostat or NSIs before 1995 which explains why all growth accounting related variables are not available earlier for most countries.

The main difference of this release compared to former EU KLEMS releases concerns capital stocks. EU KLEMS time series of capital stocks prior to this 2016 release were calculated based on an analytical module applying the standard PIM with assumed geometric depreciation rates. Initial capital stocks were estimated based on capital stocks to value added ratios from the output and capital input files, in a country dependent initial year, usually 1970. The current release deviates from this previous practice and follows a statistical module where capital stocks by industry and asset type are taken directly from Eurostat to ensure that most official data are applied. The PIM is also the preferred method of the national statistical offices from those countries that are covered in the 2016 release, with Belgium being an exemption from the standard practice.

Volumes of investment and capital stocks in the current version are denoted in 2010 prices instead of an index where 2010 is set to 100, since 2010 investment and stocks are zero in some cases.

ICT investment in the previous versions of EU KLEMS were deflated using hedonic price deflators, based us U.S. constant quality price changes. However, in the current version, we rely on official ICT prices, which are assumed to reflect quality adjusted price declines. Recent evidence, however, suggests that the official deflators underestimate the true price decline in even in the United States (Byrne and Corrado, 2016). Alternative price measures developed by Byrne and Corrado (2016) have been used in the Conference Board Total Economy Database (TED), but for the aggregate economy only.

Capital compensation (CAP) is derived using the standard EU KLEMS approach where CAP equals value added minus labour compensation (LAB). LAB is calculated by applying the ratio of hours

worked by total persons engaged to hours worked by employees to compensation; assuming the self-employed receive the same hourly wages as employees.

Capital services, an essential part of EU KLEMS database, are not part of the official System of National Accounts. Measurement of capital services requires data on capital stock and rental prices[3], which necessitates assumptions regarding depreciation rates and the calculation of the rates of return. Capital services (CAP_QI) are calculated based on geometric depreciation rates by asset and industry largely obtained from previous EU KLEMS versions. Depreciation rates for computing equipment, communications equipment, software and databases, transport equipment, other machinery, total non-residential investment, other IPP (formerly known as other assets) are taken from former EU KLEMS releases. The depreciation rate for cultivated assets stems from Montinari et al. (2016) and the depreciation rate for research and development is taken from the SPINTAN project. However, as our capital stock estimates are taken from official data, this assumption create some internal inconsistencies – the depreciation rates assumed by the NSA's could be different from the depreciation rates we use in our calculations and therefore, the measures of capital stock are not fully consistent with our measures of rates of return, rental prices and consequently capital services.

To address this issue, we tried using the implicit depreciation rates from official data. As the NSIs mostly apply the standard PIM, we also calculated implicit depreciation rates based on investment series and capital stocks in volumes. While those implicit depreciation rates are generally close to the standard EU KLEMS depreciation rates, they often fluctuate substantially from one year or industry to another and sometimes even turn negative. Hence we decided to use extended standard EU KLEMS depreciation rates for all countries to calculate capital services.

**Labour service**
In order to construct the labour service indices we draw on a number of micro-data sources. Information on the employment structure of the workforce is derived from the European Labour Force Survey (EULFS). We extracted total numbers of people employed for each of the EU-28 countries on an industry basis (19 industries, in the NACE Rev. 2 Classification). We do this on an annual basis; by computing the averages of total people employed from the EULFS quarterly files, currently available up to 2014 (the averages are weighted up using population weights).

In addition to the country and economic activity dimensions, we split the number of people employed according to a number of demographic characteristics. We distinguish a total of eighteen demographic groups within each country, industry and year cell. We consider two gender categories (male, female), three age categories (15-29 years; 30-49 years; 50 years and higher) and three educational qualifications levels (high, medium and low[4]). A potential drawback of using such a detailed split is the insufficient information on employment in some of the categories. This is likely to be more problematic for smaller industries in smaller countries, where there was no data or the sample sizes were low. In these cases, we assess the plausibility of the estimates by applying interpolation techniques using growth in employment in other relevant groups. Obviously the lack of information can affect the accuracy of some of the estimates. A similar methodology to the one

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[3] We constrain the rental price to be non-negative, setting it to zero in rare case where it is negative.
[4] High qualification comprise those with a university degree and above (ISCED 5 and 6); Medium qualification comprise those with upper secondary and post-secondary non-tertiary education (ISCED 3 and 4); Low qualification comprise those with lower secondary (compulsory education) and below (ISCED<3).

described above was used to extract information on average (actual) hours worked, but in this case only the educational attainment split was considered.

The second key information required in the calculation of labour services is wages. These are mainly drawn from the Structure of Earning Survey (SES), which contains information on wage structure for the EU countries in three years: 2002, 2006 and 2010. We extracted average gross hourly wages for an equivalent breakdown to the employment figures. Information is available for all EU countries in the current set of countries. Unpublished data were acquired for the Austrian SES for 2002 and 2006. With regards to the industry coverage, the SES does not cover the agriculture, forestry and fishing and mining and quarrying industries. Information from the SILC (Survey of Income and Living Conditions) survey was used to update to 2014 and for countries/industries not covered by SES or national sources. Given the much smaller sample size in SILC, the updates were based on growth rates for only three broad industry groups, production industries, market services and non-market services.

Both ingredients for labor services (hours worked and wages) are calculated for the period 2008 to 2014 as described above. We applied the growth rate of labour service from EU KLEMS 2012 for the period prior to 2009. Labor quality is not calculated directly but falls out as the difference between the changes in labor services less the changes in hours worked.

## 2. Country specific notes: Finland

Data extracted from Eurostat: 19 December 2016

**Synopsis of the main points**
- Official output and labour data in NACE 2 from Eurostat are released for 1980-2014.
- Official capital data in NACE 2 from Eurostat are released for 1980-2014.
- Investment data have been revised over the entire period for all traditional EU KLEMS assets and new ESA 2010 assets.
- New LFS and SES data for the years 2008-2014 are taken into account to compute labour services.
- Growth accounting estimates are released for 1985-2014.
- Revisions of TFP are mostly due to the use of official stocks.
- The data in this version is not fully consistent with earlier analytical versions of EU KLEMS, as the current statistical module uses official capital stock published by Eurostat for constructing capital services.

**Capital**
Following the practice of former EU KLEMS releases, total economy asset deflators have been used to calculate investment volumes for all asset types given the large gaps in deflators from Eurostat and the arising problems for the growth accounts. Real gross fixed capital formation has been recalculated to take the total economy deflators into account.

## References

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**Appendix**

Table A1: Variables of the EU KLEMS 2016 release.

| Basic File | |
|---|---|
| *Values* | |
| VA | Gross value added at current basic prices (in millions of national currency) |
| GO | Gross Output at current basic prices (in millions of national currency) |
| II | Intermediate inputs at current purchasers prices (in millions of national currency) |
| COMP | Compensation of employees (in millions of national currency) |
| EMP | Number of persons engaged (thousands) |
| EMPE | Number of employees (thousands) |
| H_EMP | Total hours worked by persons engaged (thousands) |
| H_EMPE | Total hours worked by employees (thousands) |
| *Prices* | |
| VA_P | Gross value added, price indices, 2010 = 100 |
| GO_P* | Gross output, price indices, 2010 = 100 |
| II_P* | Intermediate inputs, price indices, 2010 = 100 |
| *Volumes* | |
| VA_QI | Gross value added, volume (2010 prices) |
| GO_QI* | Gross output, volume (2010 prices) |
| II_QI* | Intermediate inputs, volume (2010 prices) |
| LP_I | Gross value added per hour worked, volume indices, 2010 = 100 |
| *Growth accounting* | |
| LAB | Labour compensation (in millions of national currency) |
| CAP | Capital compensation (in millions of national currency) |
| LAB_QI | Labour services, volume indices, 2010 = 100 |
| CAP_QI | Capital services, volume indices, 2010 = 100 |
| *Contributions to value added growth* | |
| VA_Q | Growth rate of value added volume (% per year) |
| VAConH | Contribution of hours worked to value added growth (percentage points) |
| VAConLC | Contribution of labour composition change to value added growth (percentage points) |
| VAConKIT | Contribution of ICT capital services to value added growth (percentage points) |
| VAConKNIT | Contribution of non-ICT capital services to value added growth (percentage points) |
| VAConTFP | Contribution of TFP to value added growth (percentage points) |
| TFPva_I | TFP (value added based) growth, 2010 = 100 |
| *Contributions to value added per hour worked growth* | |
| LP1_Q | Growth rate of value added per hour worked (% per year) |
| LP1ConLC | Contribution of labour composition change to value added per hour worked growth (percentage points) |
| LP1ConKIT | Contribution of ICT capital services to value added per hour worked (percentage points) |
| LP1ConKNIT | Contribution of non-ICT capital services to value added per hour worked (percentage points) |
| LP1ConTFP | Contribution of TFP to value added per hour worked growth (percentage points) |
| TFPlp1_I | TFP ( value added per hour worked based) growth, 2010=100 |
| *Contributions to value added per person employed growth* | |
| LP2_Q | Growth rate of value added per person employed (% per year) |
| LP2ConLC | Contribution of labour composition change to value added per person employed growth (percentage points) |
| LP2ConKIT | Contribution of ICT capital services to value added per person employed (percentage points) |
| LP2ConKNIT | Contribution of non-ICT capital services to value added per person employed (percentage points) |
| LP2ConTFP | Contribution of TFP to value added per person employed growth (percentage points) |
| TFPlp2_I | TFP ( value added per person employed based) growth, 2010=100 |

**Capital Input File**

***Nominal gross fixed capital formation, in millions of national currency***

| | |
|---|---|
| *I_IT* | Computing equipment |
| *I_CT* | Communications equipment |
| *I_Soft_DB* | Computer software and databases |
| *I_TraEq* | Transport Equipment |
| *I_OMach* | Other Machinery and Equipment |
| *I_OCon* | Total Non-residential investment |
| *I_RStruc* | Residential structures |
| *I_Cult* | Cultivated assets |
| *I_RD* | Research and development |
| *I_OIPP* | Other IPP assets |
| *I_GFCF* | All assets |

***Real gross fixed capital formation volume (2010 prices)***

| | |
|---|---|
| *Iq_IT* | Computing equipment |
| *Iq_CT* | Communications equipment |
| *Iq_Soft_DB* | Computer software and databases |
| *Iq_TraEq* | Transport Equipment |
| *Iq_OMach* | Other Machinery and Equipment |
| *Iq_OCon* | Total Non-residential investment |
| *Iq_RStruc* | Residential structures |
| *Iq_Cult* | Cultivated assets |
| *Iq_RD* | Research and development |
| *Iq_OIPP* | Other IPP assets |
| *Iq_GFCF* | All assets |

***Gross fixed capital formation price index (2010=100.0)***

| | |
|---|---|
| *Ip_IT* | Computing equipment |
| *Ip_CT* | Communications equipment |
| *Ip_Soft_DB* | Computer software and databases |
| *Ip_TraEq* | Transport Equipment |
| *Ip_OMach* | Other Machinery and Equipment |
| *Ip_OCon* | Total Non-residential investment |
| *Ip_RStruc* | Residential structures |
| *Ip_Cult* | Cultivated assets |
| *Ip_RD* | Research and development |
| *Ip_OIPP* | Other IPP assets |
| *Ip_GFCF* | All assets |

***Nominal capital stock, in millions of national currency***

| | |
|---|---|
| *K_IT* | Computing equipment |
| *K_CT* | Communications equipment |
| *K_Soft_DB* | Computer software and databases |
| *K_TraEq* | Transport Equipment |
| *K_OMach* | Other Machinery and Equipment |
| *K_OCon* | Total Non-residential investment |
| *K_RStruc* | Residential structures |
| *K_Cult* | Cultivated assets |
| *K_RD* | Research and development |
| *K_OIPP* | Other IPP assets |
| *K_GFCF* | All assets |

***Real fixed capital stock (2010 prices)***

| | |
|---|---|
| *Kq_IT* | Computing equipment |
| *Kq_CT* | Communications equipment |
| *Kq_Soft_DB* | Computer software and databases |
| *Kq_TraEq* | Transport Equipment |
| *Kq_OMach* | Other Machinery and Equipment |
| *Kq_OCon* | Total Non-residential investment |
| *Kq_RStruc* | Residential structures |
| *Kq_Cult* | Cultivated assets |
| *Kq_RD* | Research and development |
| *Kq_OIPP* | Other IPP assets |
| *Kq_GFCF* | All assets |

***Additional variables***

| | |
|---|---|
| *Deprate* | EU KLEMS Geometric depreciation rates |

**Note**: *Only Finland, Netherlands, and Sweden.