

# EU KLEMS Growth and Productivity Accounts

## Release November 2009

### Description of major changes in this release compared with Release March 2008

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#### Introduction

This document describes the major changes in the new release of the EU KLEMS database (November 2009) compared to the latest release (March 2008). The March 2008 release contained data up to 2005. This new release provides updates to 2007 for a limited set of variables. Compared to the March 2008 release it does not contain a breakdown of intermediate inputs and the level of industry-detail is restricted the most detailed level at which growth accounts can be made (32 industries).<sup>1</sup>

The sources used for the update of output and employment data are the National Accounts, either directly from National Statistical offices, EU KLEMS consortium partners or from Eurostat. It should be noted that this data is preliminary, and sometimes did not contain the necessary industry-detail so that sub-industry shares from an earlier year were used. In addition to providing new data for 2006 and 2007, also revisions have been made to earlier years in case the national accounts data on output and employment was revised. This mainly concerned data for the years 2004 and 2005, but sometimes further back in time. This is indicated for each country below.

The investment series cross-classified by asset type and industry have also been updated, and often previous series were revised as well. These are based on non-published data from the National Accounts. For some countries, only total investments by industry were available for 2006 and/or 2007 and asset-type imputations had to be made. If so, this is indicated on a country-by-country basis below. The capital input files contain the new investment and capital stock data underlying the calculation of the capital services.

Below, we discuss on a country-by-country basis the major revisions for the data up to 2005. (Y) refers to data on gross output and value added, (L) to data on employment and (K) to data on capital.

#### Revisions on a country-by-country basis

##### Australia

Tables for this country are not yet available. Expected release date: January 2010.

##### Austria

- (Y) No revisions.
- (L) No revisions.
- (K) Updated investment series for 2006 and 2007 in current prices with investment in Total assets by industry from STAN. The deflator was updated with the growth in the deflator by asset taken from Statistics Austria.

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<sup>1</sup> This data release contains one new variable called CAP\_GFCE, see note at end for explanation.

## **Belgium**

NB This data is based on the National Accounts 2009, before the revision in October 2009. The October 2009 revisions will be included in the next update of EU KLEMS.

- (Y) 2005 data has been revised.
- (L) 2005 data has been revised.
- (K) Data for 2006 from FPB. Minor revisions for earlier years.

## **Canada**

The country files for Canada are part of the March 2008 release. Data for this country is provided up to 2004.

## **Cyprus**

Tables for this country are not yet available. Expected release date: January 2010.

## **Czech Republic**

- (Y) 2005 data has been revised.
- (L) 2005 data has been revised.
- (K) Data for 2006 and 2007 from Statistical Institute. Minor revisions price indices for earlier years.

## **Denmark**

- (Y) 2005 data has been revised.
- (L) 2005 data has been revised.
- (K) Updated investment series for 2006 and 2007 in current prices with investment in Total assets by industry. The deflator was updated with the growth in the deflator by asset. All data is based on published data from Statistik Denmark. There are major revisions in investment data for 2005, and minor revisions in all industries and assets before.

## **Estonia**

- (Y) Data for 2003, 2004 and 2005 has been revised.
- (L) Data for 2003, 2004 and 2005 has been revised.
- (K) Not available.

## **Finland**

- (Y) 2005 data has been revised.
- (L) 2005 data has been revised.
- (K) Source: Statistics Finland. 2005 revised. 1970-1974 revised.

## **France**

- (Y) 2005 data has been revised.
- (L) 2005 data has been revised.
- (K) Source: unpublished data from INSEE. 2005 revised.

## **Germany**

- (Y) 2004 and 2005 data has been revised.
- (L) 2004 and 2005 data has been revised.
- (K) Source: DIW. Major revisions in investment data for 2005, and minor revisions in all industries and assets before.

### **Greece**

- (Y) No revisions.
- (L) No revisions.
- (K) Not available.

### **Hungary**

- (Y) No revisions.
- (L) No revisions.
- (K) Source: unpublished data from Statistics Hungary. Data revisions for current and volume data from 2000 onwards. Minor adjustments to deflators for period before 2000.

### **Ireland**

- (Y) 2003-2005 data has been revised.
- (L) No revisions.
- (K) Data stems from CSO. Major revisions for 2005 and for various services sectors over the whole period, in particular in industries L, M and N. Growth accounts are now available from 1988 onwards. Capital Accounts are available for the first time and their construction is described in more detail below.

### **Italy**

- (Y) 2004 and 2005 data has been revised.
- (L) 2004 and 2005 data has been revised.
- (K) Source: ISTAT. The data are consistent with gross fixed capital formation released by ISTAT on April 16, 2008. The data for the years 2006 and 2007 are preliminary and non-official estimates. Major revisions in investment data for 2004 and 2005 and minor revisions for earlier period, especially in finance and business services. New data on owner-occupied dwellings is included.

### **Japan**

The Japanese data has been thoroughly revised for all variables and not only for the latest years, but also for earlier periods. The main changes are as follows:

- (Y) Gross Output mainly before 1981 and for 2005, plus industries LtQ over the whole period. Intermediate inputs have been revised over the whole period and mistakes in 2003 are corrected. The same holds for Value Added.
- (L) The number of workers is not revised, but there are major changes in hours worked per worker from 1981 onwards. Changes in labour composition mainly from 2003 onwards.
- (K) Current investment series revised over whole period, in particular non-ICT assets in industries 50, J and L. Some price deflators have been made industry-specific. For more information on this database, see the discussion of this database on <http://www.rieti.go.jp/en/database/JIP2009/index.html>

### **Lithuania**

- (Y) Data for 2004 and 2005 has been revised.
- (L) Data for 2004 and 2005 has been revised.
- (K) Not available.

### **Luxembourg**

- (Y) 2003, 2004 and 2005 data has been revised.
- (L) 2003, 2004 and 2005 data has been revised.
- (K) Not available.

### **Latvia**

- (Y) No revisions.
- (L) No revisions.
- (K) Not available.

### **Malta**

Tables for this country are not yet available. Expected release date: January 2010.

### **Netherlands**

- (Y) 2005 data has been revised.
- (L) 2005 data has been revised.
- (K) Additional data for 2006 and 2007 from Statistics Netherlands (SN). Major revision for industry 23 for the whole period.

### **Poland**

- (Y) 2005 data has been revised. Data for Intermediate Inputs in industry P has been set to zero for the entire period.
- (L) 2005 data has been revised.
- (K) Not available.

### **Portugal**

- (Y) 2005 data has been revised. Data for Intermediate Inputs in industry P prior to 1995 has been set to zero.
- (L) 2005 data has been revised.
- (K) Not available.

### **Slovak Republic**

- (Y) 2005 data has been revised.
- (L) 2005 data has been revised.
- (K) Not available.

### **Slovenia**

- (Y) No changes.
- (L) No changes.
- (K) Source: 2006 data from NSI through WIIW. Major revisions for all industries in other years, in particular before 2001.

### **South Korea**

- (Y) Revisions for the whole period for many lower-level industries. Mainly in the breakdown of current values of GO and VA in higher-level industry aggregates.
- (L) Major revisions in many industries, especially before 1991, including reallocation of agriculture to other industries.
- (K) Not available.

## **Spain**

- (Y) No changes.
- (L) No changes.
- (K) Source: IVIE. Revisions since 2000, mainly upward for ICT investments and downwards for non-ICT.

## **Sweden**

- (Y) No changes.
- (L) No changes.
- (K) Update to 2006 and 2007 based on total investment by industry from OECD STAN database 2008. For 2007 less industry detail: only total manufacturing and LtQ was available. Throughout the period, major revisions for the ICT investment deflator in industry 29. Investments unallocated to industries were ignored in the previous version but have now been allocated to L, M and N in equal proportions.

## **United Kingdom**

- (Y) 2004 and 2005 data has been revised.
- (L) 2004 and 2005 data has been revised.
- (K) Source: ONS. Some adjustments have been made Major revisions in investment data for 2004 and 2005 and minor revisions for earlier period.

## **USA-NAICS**

- (Y) 2004 and 2005 data has been revised, minor revisions in earlier years.
- (L) Major revisions in 2004 and 2005. Labour composition until 2005 based on USA-sic March 2008 release, updated to 2006 and 2007 based on Current Population Survey.
- (K) 2005 revised

## **New variable CAP\_GFCF**

This release contains a new variable CAP\_GFCF that indicates the compensation over all asset types, after adjustments have been made for negative rental prices. This variable could originally be found in the capital-input files, but is now also included in the standard output file. Our approach to capital measurement does not allow for negative rental prices, and in such cases they are set to 0. Because of this, capital compensation summed over all assets will be bigger than capital compensation derived as value added minus labour compensation. By providing the CAP\_GFCF variable users now can see the difference and replicate the weights used for ICT- and non-ICT capital growth that are used in the calculation of MFP.

## **Labour composition for 2006 and 2007**

Estimates for changes in labour composition are not available from the National Accounts. In the March 2008 release, this data was derived from a variety of detailed sources that differ by country, and often relied on detailed tabulations of national micro-level data. For this update we did not have the resources to revisit the same sources and were forced to take a short cut. For this update, we relied on data derived from the Eurostat Labour Force Surveys. Therefore we restricted the number of labour categories to three, namely low-skilled (ISCED 1+2), medium-skilled (ISCED 3+4) and high-skilled (ISCED 5+6: Graduates and postgraduates). Educational attainment is by far the most important determinant of labour composition. Numbers of employees in these skill categories are available for 10 broad (1-digit) sectors. Due to classification differences, these LFS numbers are not directly comparable to the numbers given in the March 2008 release. Therefore we used growth rates of each skill type (by industry) for 2005-2007 derived from the Eurostat LFS to calculate the change in labour

composition for 2006 and 2007 in the standard Tornqvist aggregation. The weights are derived by assuming that relative wages by industry and skill-type in 2006 and 2007 are the same as in 2005. In this way growth in labour composition can be derived which is used to update the LAB\_QPH variable, and which allows us to do growth accounting taking into account changes in labour composition. Numbers for the 18 detailed labour categories as in the March 2008 release are thus not available and for that reason we do not provide labour input files in this release. In the next release we will revisit this issue and try to provide more detailed series again.

### **Labour and capital compensation**

Labour compensation is estimated by multiplying hours worked by all workers with the average wage of employees ( $LAB=H\_EMP/H\_EMPE*COMP$ ). The November 2009 release has been constructed at the 32-industry level. The calculation of labour compensation is also done at this level and hence might differ somewhat from the March 2008 data as this database was constructed from applying this assumption at the 72-industry level. As a consequence not only CAP and LAB might be different, it can also affect the growth rate of capital services, as the price of capital depends on CAP as well. Differences are rather small though in most cases.

### **Construction of capital services for Ireland**

- Main sources and methods for GFCF:
  - Unpublished CSO data for 9 asset types and 26 industries from 1970 onwards. This data is backdated to 1950 using growth rates of GFCF volumes by 10 broad sectors from *National Income and Expenditure* 2003, linked to earlier national income volumes, implicitly using same growth rates for all assets in an industry. Separate series on dwellings and roads from 1950 onwards are also available. These have been allocated to industries 70 and L respectively.
  - In this dataset there is only data by asset type for market and non-market services separately in this database and industry breakdown is made based on additional unpublished nominal GFCF data into broad services sectors (5 market and 3 non-market services). A further breakdown into 11 market services is based on ESRI *Services Inquiry* (SI). Investment from SI have been scaled by value added from the National Accounts to derive the investment shares by detailed industry (for industry 70 data on value added excluding imputed rents was used). Implicitly, we assume same growth rates for all assets in an industry. This is done based on current investment. We assume that weights for constant are the same, or alternatively, that the deflator for a particular asset is the same for all industries. SI data is available for 1995-2006. Earlier years' weights assumed to be equal to 1995 weights. 2007 weights same as for 2006.
- Initial capital stock is for 1950 and based on unpublished data from CSO.
- Comments
  - ICT investment data is only available from 1977 onwards. Investments before are zero. Therefore, capital service growth rates in the 1970s should be interpreted with care.
  - A breakdown of industries 23 and 36t37 based on average value added weight in period 1995-2004 (8 vs. 92%)