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Draft Minutes

1. WELCOME AND ADOPTION OF THE AGENDA

Albrecht Wirthmann, unit F6 Information Society and Tourism statistics, welcomed the participants and opened the meeting. He pointed out that the main items on the agenda of the meeting were the presentation and discussion of the collection of statistics on the Information and Communication technologies sector, the discussion on a possible data collection of ICT investment data. Additional topics are the presentation and discussion of the results of the now-casting project (Improving timeliness of ICT sector statistics), the national project of ICT satellite accounting and the results of the project on ICT impact by data linking.

2. INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) SECTOR DATA COLLECTION

Erkki Laakari gave a presentation of the ICT data collection from different statistical domains at Eurostat. Statistics on the ICT sector are part of the i2010 Benchmarking framework[1], which play a central role in monitoring the i2010 strategy. It is necessary to continue tracking the indicators consistently and the monitoring of the progress of the i2010 strategy requires indicators that are flexible and timely. There is a need to link the ICT sector with the rest of the economy to be able to quantify the effects of ICT usage and investment on the overall economy with the final aim of assessing the impacts of ICT on the economy and the society at large.

The data collection priorities were agreed with DG INFSO as one of the main users of the ICT sector data. The high priority list consists of the following indicators:

ICT sector value added as % of the total economy

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[1] http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm

ICT sector employment as % of the total economy

ICT sector R&D expenditure as % of total expenditure by the business sector

ICT sector R&D personnel as % of total personnel by the business sector

% of the persons employed with ICT specialist and ICT users' skills

Average earnings

Exports and imports, a time series on ICT goods and services (both in absolute terms and as % of total exports/imports and GDP).

In the presentation Erkki Laakari put emphasis on the availability, timeliness and quality of data.

Main findings of the data extraction

Eurostat was not able to compile the EU aggregates for all the years because many of the countries have not delivered the respective data or have flagged their data as confidential. For 2004, 15 countries have provided data on the value added and only 7 countries have the complete dataset from 2000 onwards.

The situation for the employment data were much the same as for value added. Data were available in 2004 for 16 countries.

For the average earnings, data in the ICT total (and comparison with the whole economy) are available only for 2004.

Data on ICT sector R&D expenditure and ICT sector R&D personnel as % of total business sector were not available at the time of extraction due to data processing and extraction problems.

Data on exports and imports of goods are available from 2000 onwards by COMEXT statistics. Eurostat has data on exports and imports of goods both from MS to world including other MS and data on exports and imports from EU27 to and from extra EU (rest of the world).

For the services data, the time series on exports and imports from the EU to the rest of the world is available from 2000 onwards but the data on exports and imports of services from EU27 to and from the rest of the world is only available from 2003 onwards.

Data on % of the persons employed with ICT specialist and ICT user's skills were available from most of the MS from 2000 onwards.

Households' mean consumption expenditure by detailed COICOP level (in PPS) is available from Household Budget Survey for 1988, 1994 and 1999. The survey had been conducted in 2005 but the results were not available at the time of data extraction at the end of 2007. For the time being, the survey data only covers EU 15 and not all of these Member States in 1988.

Discussion

Ireland pointed to a problem in the calculation of the ICT sector aggregate. The national data include reproduction of ICT media whereas the Eurostat ICT aggregate

would exclude this activity. This raises confidentiality issues as the activity is only covered by one enterprise in Ireland. According to IE, the issue is raised by differences in the definition of the aggregate between the OECD and Eurostat.-

DG INFSO stressed the importance of the data for their annual report and was sorry that Eurostat could not provide the data on R&D which is one of the pillars of the benchmarking.

The instability of the time series of ICT sector contribution to GDP from 2000 to 2005 caused problems to DG INFSO because there was decrease in 2003 due to change in the NACE classification.

The Netherlands were questioning the importance of average earnings and number of enterprises in the ICT sector. DG INFSO explained that the variables are recommended for country profiles and for the comparison of earnings between the ICT sector iand other sectors of the national economy.

Conclusions and further actions

Eurostat asked the help of WG members to raise awareness of their colleagues for the future support to the project and to stimulate the collaboration of NSIs.

Unit F-6 will discuss internally with SBS unit to sort out the NACE classification difficulties on confidentiality and contact NSIs bilaterally for actions that needs to be taken to improve data availability.

Unit F-6 will contact Unit F-4 for preparation of R&D data.

3. IMPROVING TIMELINESS OF ICT SECTOR STATISTICS

To improve the timeliness of ICT sector related data from SBS a Now-casting methodology project has been initiated by unit F6. Results from the project were explained in the presentation by the contracting company Agilis S.A.

Now-casting is the estimation of the present rather than the future. The method tries to predict present values of indicators for which up to date data is not available. It uses past data of the indicator to be now-cast and data of related variables, which are available much sooner than data on the indicator of interest.

Usually, a model-based approach is followed for the now-casting, which builds a model of the indicator's evolution in time and of its correlation with related variables; the model is fitted to available data and an estimate (now-cast) for the current value of the indicator is derived.

The aim of the project was to propose and implement a model-based methodology for now-casting a number of key indicators for the ICT sector.

Part of the work involved the examination of the approach's accuracy and its comparison with much simpler now-casting methods. The aim of the comparison was to see whether potentially improved accuracy offered by the model-based approach would justify its extra complexity.

The "naïve" methods are the following:

- Carry forward last year's value; per NACE class, country and indicator combination.

- Carry forward last year's share of value added at factor cost of the ICT sector and of persons employed in total economy, apply them to the current year's national total value added at factor cost and total employment; per NACE class and country combination.

- Extrapolation on basis of the available values from the last five years; per NACE class, country and indicator combination.

- Use of a simple linear model with only one predictor, i.e the predictor showing the highest correlation (in absolute value) with the ICT indicator of interest; the chosen predictor may vary per NACE class, country and indicator combination.

The methods were applied and now-casts were derived at NACE 2-digit level (NACE classes) and results were aggregated to sector aggregates.

The model-based approach is a procedure for now-casting ICT indicators with the use of linear models which have Short-term statistics (STS) indicators as predictors.

All variables were converted into growth rates to remove the effect of different countries' size. Countries with similar coefficients for a given predictor were clustered together. Clustering means that a new model is estimated with the constraint that countries in the same cluster will have the same regression coefficient. It is applied to compensate for inconsistent patterns and poor data availability. The approach is automated and dynamic so the model is re-estimated when new data comes in. In the model-based method data for all countries are analyzed together.

The "carry forward last year's value" method is the simplest approach. The now-cast value of each ICT indicator per NACE class and country combination is the indicator's value for the same combination in the year before. It assumes that the ICT sector will remain at exactly the same level as last year, which is a clearly unrealistic assumption. In the context of the project the method served only as a benchmark for the model-based approach

The "carry forward last year's share" method was applied to "value added at factor cost" and to "number of persons employed". The now-casting method computes these shares per NACE class and per country combination in the year before and applies them to the current year's total value added and total number of persons employed. Therefore, the assumption is that the ICT sector changes in the same direction and rate as the total national economy.

The Extrapolation method treats each combination of ICT indicator, NACE class and country separately. The available data for each combination of indicator, NACE class and country form a time series. The method only considers values of the series in the last five years, so that the recent movements of the series are taken into account. If there are data for at least two of the last five years a simple linear model with time as predictor is estimated as follows.

- If the slope of the fitted line is positive the now-cast value for the current year is the fitted value of the estimated model.

- If the slope of the fitted line is negative the linear model for now-casting is not applied because it can produce a negative now-cast. Instead, a linear model with the logarithm of the ICT indicator as dependent variable is calculated. The fitted value for the current year is exponentiated and the result is the now-cast.

The Simple linear model method takes into account the group of potential predictors. It computes, separately per NACE class, country and ICT indicator, the correlation coefficient between the indicator and each potential predictor. It then estimates a simple linear model selecting the predictor with the highest correlation coefficient in absolute terms and takes as now-cast the fitted value of the model for the current year.

The assessment of the accuracy of now-casts is based on a simulation experiment. 2005 data were treated as missing and 2005 data were now-casted using data up to 2004 as input. The experiment was repeated for 2004, with data up to 2003. The now-cast values and true values were used to calculate relative differences per NACE class and ICT-subsector at 'EU' level and the differences were examined.

The main findings of the Now-casting methodology are that the performance of the model-based method is very variable across economic activities and indicators. The model-based method is very much dependent on the amount of available data, i.e. the length of the time series, and the pattern of data availability. The method does not achieve the accuracy requirements set by Eurostat. There are simpler methods that perform better. However, the model-based approach could be reconsidered in a few years' time when more data and of more uniform availability become available, as the accuracy of the now-cast values increases with a more complete set of data.

Discussion

The WG discussed the timeliness issue and the effects of applying a mix of different methods and the effects of the NACE rev2 adoption. For the time being there is not enough evidence to recommend a specific method to produce results for specific indicators.

The JRC reported that the same methodology was adopted for the estimation of R&D expenditure data with even worse result and there the conclusion was to use information from company level statistics and to apply principal component analysis.

One way to explore the possible reasons for the bad estimation and to improve it would be to look at the differences in the classifications that are used in indicators and explaining variables.

A possible explanation for the bad correlation might be tat the STS statistics are based on Kind of Activity Units and in the SBS statistics the units are classified according to their main activity as enterprises.

Ireland suggested that the MS should provide timely estimates directly with the help of information from companies in the same way as this is done with the wholesale and retail trade statistics.

DG INFSO mentioned that the current monthly IPI indexes cover most of the ICT sector companies and asked why the information would not correlate with the annual SBS information.

Sweden supported the use of already existing STS statistics data for the sake of avoiding extra data deliveries.

UK supported the idea to be considered but at the same time was warning to replace a bad estimate with another bad estimate.

NL asked about the timetable for producing the estimates. DG INFSO answered that as soon as the countries are able to do so but at latest at the time of preparing the annual report in October. The estimates should be in real terms because this is essential for compiling the ICT contribution to the growth.

Ireland mentioned that STS would be the only possibility to get information considering the given timetable and that in different countries there is ongoing work to develop a services production index. Maybe, we should explore the possibility of compiling a production index of the ICT sector.

DG ENTR mentioned their monthly ICT activity index, which is based on production turnover information.

Conclusions and further actions

Eurostat will asses the usefulness of the ICT Activity Index in comparison with the results of the work done by the contractor.

Unit F-6 will contact STS statistics and discuss about the possibilities of producing short-term ICT estimates.

Eurostat will consider installing a Task Force to solve the methodological and practical issues related to better estimation of ICT.

4.   ICT AND NATIONAL ACCOUNTS

Mr Ulrich Greiner from German Statistical Office gave a presentation on the experiences of building up a satellite account on ICT. A goods and services (product) approach for ICT in National Accounts was presented and some of the main conclusions can be drawn:

It is a simple, inexpensive way to collect ICT data in the NA/IOT framework.

It requires detailed input-output tables at the product dimension.

It requires additional estimating for an extended set of ICT/IOT data, but without leaving the system of NA/IOT

It is not compatible to an industry approach (EU-KLEMS)

It yields data which can be held up to date by extrapolations beyond the most recent IOT.

Suggestions of what (members of) the WG ISS could possibly do next if the product approach for ICT in NA is to be picked up:

Check conditions back in the NSIs for the product approach of ICT (adequate IOT, willingness of the NA division to take part).

Review and rearrange the OECD list of ICT products according to the needs of Eurostat / WGISS and with respect to new classifications (from the reporting year 2008 on)

Consider which "physical"data are adequate to be appended to ICT/NA for a genuine ICT satellite account of NA.

Discussion

The members of the WG welcomed the presentation and in the discussion it was pointed out that the National accounts are the only coherent system to analyse the impacts of the ICT to the whole economy

We would have to look which indicators can be extracted from NA and what policy questions can be answered with these indicators.

Conclusions and further actions

The possibility using parts of the existing data from NA was discussed and Eurostat will launch a questionnaire to NA in NSIs to find out whether it would be possible to extract some of the most important variables from National Accounts.

Eurostat intends to prepare a discussion document with an ex-ante evaluation of that topic.

5. PROJECT: ICT IMPACT ASSESSMENT BY LINKING DATA FROM DIFFERENT SOURCES

Mark Pollard introduced the item. He reminded that the data linking project was set up to assess the ICT impact by using enterprise data already existing from different surveys. In the background lie the e-Europe and i2010 policy indicators and related policy needs and will to see validity of existing indicators and possible improvements. 12 countries finally participated in two phases (8+4) and Tony Clayton (ONS) was the leader of the project and academic support was provided by the consultant of the project, Eric Bartelsman (Free University of Amsterdam). The basic data came from the ICT usage of enterprises surveys, Structural Business Statistics and Business Registers. The core analysis was based on these basic data. For some countries there were add-ons, like the instance innovation surveys, around which some sub-themes were set up.

The first phase was to assemble the data and construct the metadata. The consultant wrote programmes (in SAS and STATA) for treatment of the data and after running the code, the participants delivered the results to the consultant.

Limits to surveys were presented taking as an example the difficulty to measure ICT investment. From the firm data it was possible to aggregate comparable intermediate macro indicators. Some conclusions from the analysis were presented. Micro based macro indicators can use data at both firm and industry level, build comparisons across countries and allow for structural differences between countries. 13 countries have produced outputs despite very different systems. However, an initial investment in metadata and systems, control of confidentiality within each NSI and agreement on confidentiality controls for merged data was required. The project produced lots of data which needs simplifying.

Nina Djahangiri told about the experience of a participating country. She assessed the metadata review as and input variables for the code requiring some work, but being worth the investment. Some variables were not available in the basic data, but most of the analyses could nevertheless be carried out. Third version of the code worked well. In addition to the core code, AT participated in the business integration sub-group. Co-operation with universities would be recommended, if possible. She assessed the process as not too difficult and invited other countries to carry out the system.

DG INFSO expressed support to the project and interest in the results. Coefficients coming from the equations and industry-specific results would be of special interest. It would be desirable to have a broader variety of variables tested. Repeating the exercise with new and updated variables was suggested.

The chairman reminded of the existence of also non-ICT enablers of productivity. He referred to data problems and the fact that the SBS data is available years later than the ICT usage data. Data confidentiality problems are pertinent. The final report is under preparation and once delivered, decisions will be taken concerning possible

continuation. Eurostat will in a written procedure determine with the participating countries what can be published and whether they would be willing to continue in some form the exercise. Interest of new countries to join the effort may then also be explored.

Actions

The final report will be made available to those interested. The results will be made available as much as disclosure allows.

6.   PROJECT: ICT INVESTMENT

Martti Lumio presented the item. He referred to the document F6/ISS-WG/Jun08/06 and the summary of the opinion questionnaire collected before the meeting. He explained the background, the legal basis and the earlier phases of the project. He presented the discussion points raised in the document and the opinion questionnaire. He referred to the opinions of the respondents concerning the questions raised. Finally he presented the proposal for how to continue work on ICT investment/expenditure.

Most of the respondents supported collecting data both on expenditure and investment. It was remarked that the definition should make it clear that data on all purchases should be collected and then specified how much was capitalised and how much directly expensed. Some countries considered it too difficult to collect the investment data on a harmonised basis, as the national rules and practices for capitalisation vary too much. Investment data should be collected according to the National Accounts definition, which was suggested to be applied by the NSI and not to be presented to the respondents. Enterprise level data should, however be targeted.

Proposed variables were discussed. The level of detail seemed reasonable to most of the respondents. Some doubts were expressed concerning the content and media products and specifications of software and leasing.

ICT goods were defined in terms of the OECD classification of ICT products. It was suggested that Eurostat should consult OECD on the content and media products in this context. Collecting data on expenditure and investment of ICT will provide interesting information of intermediate consumption of ICT products, components for instance. Pre packaged and customised software seems to be a relatively clear item, but for the own account software needs clear instructions for estimation. Also here enterprise level data should be targeted rather than making aggregate level estimates based on numbers of IT professionals.

DG INFSO suggested splitting the ICT services item separating the telecommunication services from the other ICT services. It was pointed out that often the implementation services are often more important than the hard- and software. Data linking possibility should be kept in mind while choosing the tools. Public sector survey was supported.

The target population of the survey was discussed. Adopting the same scope as the ICT usage of enterprises survey was supported. Many countries wanted to extend the coverage to the public sector and this was supported by the users. As the survey would be optional, the participants may widen the scope beyond the minimum, which would be linked to the ICT usage survey.

Appropriate data collection tools were discussed. In the opinion questionnaire more than half of the countries declared that they would use the SBS to collect the data, even if the legal basis would be in the ISS Regulation. Some countries would, however, opt for the the ICT usage survey, as this would be directly based on the Regulation and would provide a direct link between the investment data and ICT indicators. Some countries would prefer other tools, like a general investment survey or a stand-alone survey. A recommendation for SBS was, suggested. The response burden issue was raised.

Eurostat proposed to leave to the participants the choice of the tool to carry out the survey. The requirement would be output oriented. As the survey would be optional and additional financial support would be provided, no country would be overwhelmed by excessive obligations.

Nine countries expressed interest in participating in the TF, which gives a solid basis for the work. Four countries would be interested in a pilot survey. Six countries would not be interested in the survey, if optional.

Conclusions and further actions

Eurostat will convene a Task Force after the summer break for finalising the conceptual framework for the ICT investment survey, writing a "methodological manual" for it. The OECD will be consulted concerning the content and media products. The action aims at preparing everything in 2009 for a survey in 2010.

7. ANY OTHER BUSINESS

DG INFSO gave latest information on the follow-up of the i2010 strategy and benchmarking framework. The i2010 strategy will expire in 2010. DG INFSO are preparing a new policy initiative as successor to the i2010 strategy and an update of the respective benchmarking framework. It is intended to involve the NSIs in the related discussions. This will be done in the frame of the meetings of the i2010 high level group. Eurostat would be asked to do a mini survey among the NSIs on current and possible new benchmarking indicators.

Comments on the proposal for amending the framework Regulation 808/2004 concerning Information Society statistics were received after the March working group meeting. At the same time, the legal service of Eurostat was consulted on the proposed text. Unit F6 are currently preparing documents for discussing the proposal at the SPC meeting on 24 Sep 2008.

There is a written consultation of the NSIs on the 2008 implementing consultation, which will finish on 9 June 2008. After having received a positive reply, Eurostat will continue with the adoption of the regulation by the Commission.

The calls for proposal for the 2009 data collection for households/individuals were launched with a deadline for submission of proposal on 19 June 2008. The calls for proposal for the 2009 data collection for enterprises will be launched on 27 June 2008 with a deadline for submission of proposals by 22 August 2008.