TWINNING CONTRACT

Development of new statistical methodologies and indicators in selected areas of statistics in line with EU statistical standards

Ukraine

MISSION REPORT

on

Classifications on Structural Statistics

1.4.1 Evaluation mission

Mission carried out by Ville Tolkki, Statistics Finland

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List of Abbreviations

SBS	Structural Business Statistics
SRS	Stratified Random Sample
SSSU	State Statistics Service of Ukraine
ToR	Terms of Reference

Executive Summary

If report-core text- exceeds 4 pages

Include information to Project Leaders and the RTA.
Main conclusions and highlights from findings.

1. General comments

This mission report was prepared within the Twinning Project „Development of new statistical methodologies and indicators in selected areas of statistics in line with EU statistical standards". It was the first mission to be devoted to Evaluation within Component 1.4 Classification in Structural Statistics of the project. The mission was aimed at defining a strategic plan forming the base of the further implementation of the project in this statistical area.

The concrete objectives of the mission were:

- Presenting by the SSSU the principles of structural survey of enterprises in Ukraine: generate the populations of reporting units, collect, develop, generate and disseminate data of structural survey, prepare the report related to quality of results of sampling structural survey of small enterprises.
- Assessing the information base of structural statistics of enterprises with regard to which it is necessary to make back-casting analysis of data under KVED-2010.
- Clarifying the content of further actions

The consultant would like to express his/her thanks to all officials and individuals met for the kind support and valuable information which he/she received during the stay in Ukraine, and which highly facilitated the work of the consultant.

This views and observations stated in this report are those of the consultant and do not necessarily correspond to the views of EU, SSSU or Statistics Finland.

2. Assessment and results

Currently SSSU has double coded the business register for the year 2010. That is, there exists KVED-2005 (compatible with NACE Rev1.1.) and KVED-2010 (compatible with NACE Rev2.) for every legal unit (enterprise). Also conversion tables for number of enterprises (main activity), number of employees, and turnover (main activity and KAU) have been calculated. SSSU collected KVED-2010 activity data (turnover and number of employees) within SBS survey for 2010 using separate annex (KAU-level). Also other sources were used.

For 2007 SBS survey was a census. For 2010 and 2011 SBS survey is divided into census (enterprises employing +50 persons) and to stratified random sample (SRS) part (enterprises employing 1-50 persons). Stratas are based on KVED-2005. Also SBS survey covers starting from 2011 all necessary variables for SBS regulation annexes 1-4. From 2012 onwards SBS survey is designed (sample and variables) only using KVED-2010.

To implement KVED-2010 (NACE rev2.) for different statistical domains SSSU has established the target group. Target group is led by the Deputy Director General of SSSU. Also all directors are within the group.

Turnover and value-added should be back-casted for the year 2007. This should be done for KAU and local KAU series for National Accounts needs.

SSSU has prepared a list for variables to be compiled for 2010 and 2011 according KVED-2010. Also list indicates which indicator should be compiled for enterprise, size class, KAU and local KAU series. It was asked, which conversion table would be best for each indicator.

SSSU presented the current status and resources. Also the principles of back-casting were discussed and main features of Finnish experiences from back-casting were presented. Finnish experiences are fro micro approach.

According to the detailed discussions it seems more preferable to use macro method for 2007. Also for KAU and regional series it seems to be more preferable to use macro method. For enterprise level indicators it is possible to use also the micro method for years 2010 and 2011.

Back-casting methodology

Basically there are two alternatives for back-casting. These are micro and macro approaches. Also these can be combined for mixed approach. Properly executed micro approach is more costly. But on the other hand macro alternative might distort the structure of economy. That is, when choosing the macro alternative one makes an assumption that the units classified in a section over time have the same properties. Furthermore the proportion observed in conversion table for the year 2010 remains unchanged over time. The other advantage when choosing the micro alternative is that it does not require a specific variable to work with. With macro method one chooses the conversation table (a specific variable) to work with. In the end when using macro method, the link between micro and macro data is lost.

Generally the micro approach is more feasible for business statistics. Although, some variables (such as turnover from main activity) could be distorted.

In the case of macro method one table can be used for the all indicators or the best fitting alternative for each indicator can be chosen. The quality of the coefficients should be analysed.

Macro method for back-casting

Basically macro method seems to fit better for the SSSU needs and resources for back-casting the 2007 and 2010 data.

Data for conversion tables were collected with 2010 and 2011 surveys. Conversion tables can be calculated for the enterprise main activity and KAU-level. The conversion data is not collected regionally. Thus, for local KAU data the best alternative is to use KAU-level conversion table.

If separate conversion tables are calculated for small, medium and large enterprises then the sum of size classes would not add up to the total. This would be difficult to communicate for users of the data. That is, for size class –series the main activity based conversion tables should be used.

Generally conversion table based on the variable in question should be preferred. That is, for turnover the conversion table based on turnover should be used. If this is not available, then the conversion table, which has a best correlation with the target variable should be chosen. Also conversion tables should be used at the most detailed level.

The quality of the correlation coefficients should be analysed and assured. If conversion coefficients seem unreliable they could be adjusted or aggregated. Basically the unreliable correlation coefficient result from problems with micro data and the branch statistician expertise is needed to make the adjustments. Also one option is to calculate the coefficients also for the year 2011 and compile the average from 2010 and 2011. This would result more robust estimates because there are more units for each conversion class.

To decide which conversion table fits best, it would be good idea to analyse the correlations between the target variable and number of employees and turnover. For this purpose Pearson Correlation Coefficient should compiled. Usually the strongest correlation seems to be the best resolution. The correlation analysis could be done using the macro data at the most exact level of detail.

When using macro method the data for year 2007 (turnover and value-added) for the KAU and local KAU series should be compiled using KAU-level conversion tables (year 2010). Conversion tables based on the local KAU data are not possible to compile, because data was collected only at the KAU-level.

For the year 2010 the KAU-level conversion tables should be used for the KAU and local KAU series and enterprise-level (main activity) conversion tables for series based on main activities.

Micro method for back-casting

Basically micro method could be considered for 2010 or 2011 data and enterprise data only. There is no need for micro level back-casting for 2007 data. Also for KAU and local KAU-level data there is no benefit from micro method. This can be illustrated with the simple equation.

$\sum \alpha t = \alpha \sum t$
t=turnover from activity i (in KVED-2005) for a enterprise,
α=conversion coefficient of the turnover from activity i (in KVED-2005) to activity j (in KVED-2010)
∑=sum over activity j

Because α is constant over j, in theory the micro and macro method will produce same results for KAU and local KAU series. That is, there is no difference if the micro data is converted to KVED-2010 and then summed up or macro data is directly converted to KVED-2010.

For 2010 there is double coded business register. That is, for census part of the survey only simple adding up is needed. For the sample part post stratification is necessary according to KVED-2010 stratas.

With post-stratification one must keep in mind that some activities might disappear and variances could increase do to fewer number of units in each strata.

Basically micro method would provide the true values. That is, if micro method is applied for example for 2011 then it can be used to analyse the accuracy of macro method by comparing the results produced with micro and macro methods (for 2011).

3. Conclusions and recommendations

1) Macro method is most suitable for 2007 and 2010.

2) Also for 2011 KAU series it is better to use macro method.

3) Study/assure the accuracy of the conversion coefficients. If needed the adjustments should be made to the coefficients.

4) Pearson Correlation Coefficients should be compiled between the each target variable and each base variable of the conversion tables. With this information it could be assessed which conversion table should be used for each target variable.

5) It would be useful to use micro method for example for statistical year 2011 to assess to accuracy of macro method. This can be done only for enterprise level data.

*6) It could be useful for SSSU to hear from the back-casting experiences from Slovakian NSI (*M Štalmašková*).*

Actions needed for preparing the next mission – fill out and add tables as needed.

Action	**Deadline**	**Responsible person**
Pearson Correlation Coefficients	28.2.2012	SSSU
Contact Slovakian expert (if M Štalmašková is available for a next mission)	17.2.2012	RTA
Assure the accuracy of the conversion coefficients	16.3.2012	SSSU
Make preliminary calculations for 2007 data	30.3.2012	SSSU
NEXT MISSION	April	V Tolkki (SF), M Štalmašková (SK)

Annex 1. Terms of Reference

This project is funded by the European Union

Twinning Project

"Development of new statistical methodologies and indicators in selected areas of statistics in line with EU statistical standards"

Terms of Reference

For Short-term Mission to the State Statistics Service of Ukraine

Action – Component 1.4 Classification in Structural Statistics

1.4.1 Evaluation Mission

Background Information

Statistics Denmark in partnership with Statistics Finland, Statistics Lithuania, Central Statistical Bureau of Latvia, Statistical Office of Slovak Republic, INE Spain - National Statistical Institute of Spain and Statistics Sweden, implements in Ukraine "Development of New Statistical Methodologies and Indicators in Selected Areas of Statistics in Line with EU Statistical Standards" Twinning Project. The State Statistics Service of Ukraine (State Statistics of Ukraine) is the Beneficiary of this Project).

This action is being implemented under Component 1.4 "Classification in Structural Statistics". The purpose of this Component is to recalculate the times series of structural statistics of enterprises that is harmonised with EU standards.

This action will contribute to achieving the abovementioned objective and reference indicators specified in the contract, namely:

- Improved knowledge and practical skills of SSSU experts in back-casting analysis of data of enterprise structural statistics based on NACE, rev. 2;
- Drafted methodology of recalculation of time series of structural statistics of enterprises.

Purpose of the Mission

The prior purpose of the mission is:

- Presenting by the SSSU the principles of structural survey of enterprises in Ukraine:
  - generate the populations of reporting units, collect, develop, generate and disseminate data of structural survey, prepare the report related to quality of results of sampling structural survey of small enterprises.
- Assessing the information base of structural statistics of enterprises with regard to which it is necessary to make back-casting analysis of data under KVED-2010.
- Clarifying the content of further actions

Expected Results

- EU experts have got familiarized with structural surveys of enterprises in Ukraine as well as with availability of data for back-casting recalculations of structural statistics indicators due to introduction of KVED-2010.
- SSSU experts have got familiarized with general approaches to methods and procedure of back-casting analysis of structural statistics data based on NACE, rev. 2.

Actions

The tentative schedule of the mission is the following:

24.01.2012
Presenting by the SSSU the principles of structural survey of enterprises in Ukraine.

25.01.2012
Presenting by expert the European practice (in particular, of Finland) with regard to structural statistics as well as the procedure of back-casting analysis of structural statistics data due to introduction of NACE, rev.2.

26.01.2012
Updating the information base of structural statistics of enterprises with regard to which it is necessary to make back-casting analysis of data under KVED-2010.

27.01.2012
Discussing the content of further actions related to back-casting recalculation of data of structural statistics under KVED-2010.

Tasks to be fulfilled by the State Statistics to facilitate the mission
The information base against the indicators of structural statistics, for which it is necessary to make back-casting calculation due to introduction of KVED-2010, will be prepared.

Consultant and Partner
The mission will be conducted by:
Wille Tollki (Finland)

The Partner of the Country-Beneficiary will be:
Structural Statistics and Enterprise Finance Statistics Department of SSSU:

- Irina Zhuk, Director of Department, I.Zhuk@ukrstat.gov.ua,
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- Margarita Kuznetsova, Deputy Director of Department,
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- Olena Kolpakova, Deputy Director of Department – Head of Unit,
O.Kolpakova@ukrstat.gov.ua, tel. 287-14-33, 64-02.

Timing

The mission will be conducted within 24-27 January 2012 in Ukraine.

Report

The summary report on the results of the mission should be submitted not later than two weeks after the mission is completed.

Annex 2. Persons met

SSSU:
I. M. Zhuk – Director of Department for Structural Statistics and Statistics of Enterprise Finance;
M. S. Kuznetsova – Deputy Director of Department for Structural Statistics and Statistics of Enterprise Finance;
O. M. Kolpakova – Deputy Director of Department – Head of Unit for Surveys of Business Activity;
T. A. Zakharova – Head of Unit for Structural Surveys of Enterprises;
N. G. Komleva – Head of Comprehensive Work Unit;
V. I. Likova –Deputy Head of Unit for Structural Surveys of Enterprises;
A. M. Prokopenko – Deputy Head of Comprehensive Work Unit;
I. V. Nechitajlo – Chief Specialist-Economist of Unit for Survey of Business Activity
L. P. Novakovsky – Leading Specialist-Economist of Protocol Unit, HR Department

RTA Team:
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