Twinning Project

Contract: GE 16 ENI ST 06 18

Strengthening the Capacity of the Georgian Statistical System

Component 1: Development of External Sector Statistics

Sub-component 1.3: "Foreign trade (Export - Import) Unit Value Indices in IMTS"

MISSION REPORT

Activity: 1.3.C (RS) "Calculations and software testing"

Mission carried out by
Dawit S. Temere, Statistics Denmark
Anette M. Hertz, Statistics Denmark

March 22nd – April 21st, 2021

Version: Final

Expert contact information

Mr Dawit S. Temere
Statistics Denmark
Copenhagen, Denmark
Tel: +3917 3714
Email:DSI@dst.dk

Ms. Anette M. Hertz
Statistics Denmark
Copenhagen, Denmark
Tel: +3917 3026
Email: AHZ@dst.dk

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1. General comments

This mission report was prepared within the EU Twinning Project "Strengthening the Capacity of Georgian Statistical System". This was the third mission within the sub-component 1.3: " Foreign trade (Export - Import) Unit Value Indices in IMTS". Due to COVID-19 the mission was carried out as a Remote Session in the period from March 22nd to April 21th 2021. It was initialy scheduled as three remote sessions, however during the mission it was decided to add a fourth session.The mission was mainly devoted to unit value calculations and statistical package testing..

The purposes of the mission were:

- To discuss and to work on the following:
  - Calculate Import and Export UVI by HS sections for a given period of time
  - Prepare and test the R-program used to compile the UVI. The program covering initial data selection and preparation, as well as outlier filtering
  - Calculation of data recovery, i.e., proportion of data used to construct UVI out of the original dataset
  - Identification of main problems in the process of UVI calculation and the related solutions

The consultants would like to express their gratitude to the Geostat staff who participated in the mission, for the kind support and valuable information received during the mission.

The views and observations stated in this report are those of the consultants and do not necessarily correspond to the views of the European Union, Geostat, Statistics Denmark, or other statistical institutions involved in the implementation of the project.

2. Assessment and results

As mentioned above most of this mission consisted of UVI calculations and statistical package testing. More precisely most of the mission concentrated around performing sensitivity analysis using the R-program developed. Among others, the goal of the sensitivity analysis is to identify appropriate parameters to be used in the final compilation of unit value indices, and to check the robustness of the final results.

On the first mission the consultants gave feedback to the R-program developed by Geostat, specifically the consultants had three comments:

1. There should be some form of preliminary filtering before calculating UVIs. This step ensures useless datasets, such as single observations per product-firm-partner combinations are removed from the outset. In fact, the criteria were determined on the previous mission, and Geostat had informed the experts that the preliminary filtering was made in a separate R-program.
2. To facilitate the division of labour and speed up the process, the sensitivity analysis, such as plots, can be done in excel. This requires that the R-program outputs excel datasets corresponding to each parameter choice.
3. During the outlier filtering process of the bottom-up-approach data are dropped. Here it is important to remember to recalculate the weights such that they always sum to one.

The remaining part of the mission evolved around how and why to perform sensitivity analysis. During the mission two issues came up:

1. How to deal with missing data when compiling UVI
2. How to handle the introduction of a new HS-regime

For the first issue we discussed the fact that some sections may not have enough data to support the bottom-up approach. This could also be determined by performing a sensitivity analysis where different model choices are analysed. In fact, it might be necessary to aggregate away the firm and partner dimension of the microdata, i.e.,

a simple method where UVI is calculated based on product level data. An important point to be made is that the parameter and model choices can be different for each section. The differences are to be communicated to the users in the documentation of the UVI (metadata).
Regarding the second issue, we decided that Geostat should create a correspondence table between the old and the new HS-regime, this will be much helpful for discussing the quarterly UVI production process in the upcoming mission.

To perform a full sensitivity analysis the R-program should be flexible enough and accommodate:

- Different Suspicion parameters
- Parameters for minimum observation thresholds
- Parameters for cumulative shares
- Method choices – simple vs. bottom-up
- Etc.

Different combinations of the above criterions should be tested. An easy way to present the results is in a graph where a UVI for each parameter choice is depicted.

One way of providing support for the final UVI at HS section level is to confront the final indices with the underlying trends in the microdata. Check if some of the largest firms have unit value developments that is in-line with the final indices at the section level.
Once the parameter choices are made the UVIs should also be compared to alternative prices, from the PPI, CPI or National Accounts. In fact, we decided that Geostat should collect relevant prices and have them ready in Excel for the next mission, such that we can make a comparison on the next mission.

The final thing we considered on this mission was data recovery. It is a quality indicator to be reported in the documentation for the UVIs. Data recovery is the remaining trade value as a share of original trade value or remaining products relative to original no. of products. The higher the share the better the UVIs represent the original trade data. On the next mission we will work more intensively on the documentation to be presented to the users of the new Import and Export UVIs.

3. Conclusions and follow up

Geostat has a goal of publishing their UVIs at the end of the second quarter of 2021. For this to be possible the R-program for the fixed period 2015-2020 needs to be finished by June 1st 2021. Therefore, we decided to do one last run through of the sensitivity analysis, such that Geostat can find the right parameters for their R-program.

The focus of the next and final mission will be on modifying the R-program such that it will work in a production environment where new data is added each quarter. As well as on metadata and documentation to the users of the UVIs.

Therefore things to be done are:

- A full sensitivity analysis on one section
- Finish the R-program for a fixed period with specific parameters and model choices for each section
- Prepare a correspondence table between the old and the new HS regime
- Collect prices to be used for a quality check of the resulting UVI

Actions needed for moving forward:

Action	Deadline	Responsible person
Sensitivity analysis on section 1 is shared by email	May, 2021	Mr. Dawit
A full example of a sensitivity analysis on an optional section is ready to be presented at the next mission	May 25th , 2021	Geostat
A correspondence table between the new and the old HS regime is prepared and available in a way that the R-program can read it	May 25th, 2021	Geostat
Import or export prices from, PPI, CPI or NA is collected and stored in Excel	May 25th, 2021	Geostat
The R-program for the fixed period is finished	June 1st, 2021	Geostat

Annex 1. Terms of Reference

EU Twinning Project GE 16 ENI ST 06 18

March 22nd – April 8th 2021

Component 1: Development of External Sector Statistics

Sub-component 1.3: Foreign trade (Export - Import) Unit Value Indices in IMTS

Mandatory results and benchmarks for sub-component 1.3:

- Foreign trade (Export-Import) Unit Value Indices in IMTS calculated

Indicators of Achievement (baseline and targets):

- Availability of Unit Value Indices (UVI) as a statistical product
  - **Baseline:** 2019 – UVI in IMTS is not produced
  - **Target:** January 2021 – UVI in IMTS available

- Number of staff capable of producing UVI
  - **Baseline:** 2019 – 0
  - **Target:** March 2021 – At least 3 staff members trained and capable of producing UVI

Activity 1.3.C (RS): Calculations and software testing

1. Purpose of the activity

To discuss and work on the below mentioned subjects:

- Calculation of experimental Export UVI/Import UVI by chosen classification(s) at relevant level
- Preparation and testing of software for the compilation of UVI taking into account the necessity of data analysis, the sampling procedure of representative product codes, data validation and editing
- Calculation of variation coefficients, analysis using other criteria, aggregation of elementary unit value indices to the total EUVI/IUVI
- Solutions of the main problems in the process of UVI calculation

2. Expected output of the activity

- IT solution for calculation UVI are prepared and tested, problems identified in this area are solved
- Variation coefficients are calculated
- Criteria for input data are evaluated and final criteria prepared
- Experimental UVI are calculated by appropriate classification
- Problems in the process of UVI calculation are identified and solved
- Mission Report is written
- ToR for next activity is prepared

Annex 2. Persons met

Geostat
Ms. Maka Kalandarishvili, Head of External Trade and Foreign Investments Statistics Department
Ms. Eka Jananashvili, Head of External Trade Statistics Division,
Mr. Otari Bunturi, Chief Specialist of External Trade Statistics Division,
Mr. Bachuk Bokuchava, Senior Specialist of External Trade Statistics Division,
Mr. Irakli Zoidze, Senior Specialist of External Trade Statistics Division,
Mr. Beka Benidze, Senior Specialist of External Trade Statistics Division,
Mr. Giorgi Kartvelishvili, Chief Specialist of Software and Geoinformation Systems Development Division, Information Technology Department

RTA Twinning Team
Mr. Steen Bielefeldt Pedersen, Resident Twinning Advisor
Ms. Eka Lobzanidze, Resident Twinning Advisor Assistant