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.B Preparation of sample designs, calculations and input data

Mission carried out by
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October 27th – November 3rd 2020

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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 second 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 October 27th to November 3rd 2020. The mission was mainly devoted to Preparation of sample designs, calculations and input data.

The purposes of the mission were to discuss and work on the below mentioned subjects:

- Designing a sample of representative product codes, the main principles and criteria, methods and approaches, formulas and numerical examples
- Set up technical task for new software for routine UVI calculation together with the IT staff
- Criteria for input data: Determination of value intervals, limits of the duration of export/import in months and the number of declarations for each product code per year
- Preparation of the basis (final list of product codes, weighting system, base unit values) for the calculation of UVIs)
- Preparation of input data: Transfer of the External Trade Database to the Oracle database

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. In addition to, the great work they put into the work done in between remote sessions, even though the time was limited.

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

We started by looking at the UVI database created by Geostat, and they presented the criteria they have used in creating the UVI database. In general, the consultants encouraged Geostat to include as much data as possible in the UVI database, only items e.g. goods for humanitarian aid should be excluded from the outset, cf. below. The product selection, as much as possible, should be done in the process of constructing unit values. However, due to the massive dataset that is the base for the IMTS the consultants agreed that certain goods could be excluded a priori. They are listed here:

- Mixed goods (chapter 77)
- Goods with high value and low frequency (like ships and aircrafts)
- Goods for humanitarian aid
- Goods for processing purposes
- Declarations with weight=1 or quantity = 1
- If there is only one observation at the most detailed level

Then we had a look at the R program created by Geostat. Despite having no previous knowledge of programming in R, Geostat had managed to create a program that could produce UVIs. The consultants were very impressed on the progresses achieved. We spent some time in the remote session to discuss what the ultimate goal for this program is, namely a program that is broad and generic enough to calculate a UVI for all

HS sections in one go. Also some time were spent on the fact that it is difficult to work with the large volume of data. To get to the end goal, several improvements were suggested by the consultants, among others:

- Structuring the R program in a mother/daughter set-up so that UVIs can be calculated for all HS-sections in one go
- Each HS-section can still have a large volume of data, efficiency can be gained by introducing restrictions from the beginning using cumulative shares and missing observations
- An alternative is to switch to a different R-library, such as data.table, that are designed to handle a larger volume of data
- If possible, upgrading the computers RAM is also an easy solution

The absence of alternative trade prices, such as survey based prices, makes it difficult to validate the trade prices created based on unit values. The experts suggested one method of securitizing the quality of the final indices. The final indices can be confronted with the underlying trends in the micro-data. This is to be done systematically for selected HS-sections. More often than not a handful of products and firms constitute a significant portion of trade in a given HS-section. This products/firms can be hand-picked and their unit values can be compared with the section level unit values. The experts have shared a sample exercise done for unit values at Statistics Denmark, and Geostat will try to reproduce the exercise. The experts also encourage Geostat to look into alternative trade prices that can be compared with the UVIs, such as e.g. PPI. Although they cannot be compared one-to-one with the HS-sections, the general underlying trends can be compared in broad terms.

From a statistical point of view, various choices are made in the construction of unit values. Such as thresholds for flagging outliers, product/firm/partner inclusion or exclusion based on missing observation and shares, a minimum threshold for trade flows etc. These and other choices command a sensitivity analysis. Geostat will undertake a sensitivity analysis and present to the experts. The ultimate goal is to maximize data recovery without compromising much on the quality of the final indices.

On the final session we managed to discuss about the choice a base year, and how to change the base year if necessary. The experts advice Geostat to follow the national accounts.

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3. Conclusions and follow up

- Create a 2nd version of the R program that can create UVI for all HS sections
- A quality check of each of the HS sections should be performed. Does each of the section level indices reflect the underlying micro-data that is used to create them
- If the above tasks are ready for the next mission we will be able to start working on making the R program ready to produce quarterly indices
- On the next mission we agreed that we should discus revision policies for recalculating indices

Actions needed for moving forward:

Action	Deadline	Responsible person
Create a version 2 of R program for UVI calculation	December, 2020	Mr. Giorgi
Geostat performs sensitivity analysis on each HS section to identify relevant parameters for each section The parameters are implemented in the R program	December, 2020	Mr. Oto
Give feedback on the R program	December2020 /January 2021	Mr. Dawit
The results of the sensitivity analysis is presented at the next mission	January, 2021	Geostat

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Annex 1. Terms of Reference

EU Twinning Project GE 16 ENI ST 06 18

October 27th – November 3rd 2020

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.B (RS): Preparation of sample designs, calculations and input data

1. Purpose of the activity
To discuss and work on the below mentioned subjects:
- Designing a sample of representative product codes, the main principles and criteria, methods and approaches, formulas and numerical examples
- Set up technical task for new software for routine UVI calculation together with the IT staff
- Criteria for input data: Determination of value intervals, limits of the duration of export/import in months and the number of declarations for each product code per year
- Preparation of the basis (final list of product codes, weighting system, base unit values) for the calculation of UVIs)
- Preparation of input data: Transfer of the External Trade Database to the Oracle database

2. Expected output of the activity
- Draft sample of representative products is designed
- Technical task for new software for routine UVI calculation is checked
- Software solution for calculations discussed and identified – if solution based on R is chosen – Training needs for R identified
- Draft Criteria for input data: Value intervals, limits of the duration of export/import in months and the number of declarations for each product code per year are determined
- Work on final product codes list, weighting system and base unit values are prepared
- Database for input data is verified.
- 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
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