

Twinning Project

Contract: GE 16 ENI ST 06 18

Strengthening the Capacity of the Georgian Statistical System

Component 2: “Enhancing Methodological Soundness in the National Accounts in line with EU standards”

Sub-component 2.1: “Compilation methods of National Accounts and new products”

MISSION REPORT

Activity: 2.1.C “Compilation of time series of quarterly GDP”

Mission carried out by
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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 first mission within the sub-component 2.1: "Compilation methods of National Accounts and new products" and was mainly devoted to calculations and estimations of different items

The purposes of the mission were:

- To discuss and to work and the below mentioned subjects:
 - Compilation of quarterly GDP by production approach based on NACE Rev.2 and SNA 2008 in accordance with the updated methods of annual national accounts
 - Backward estimates of quarterly GDP (conducting benchmarking for particular activities, selecting proper indicator for particular industries)
 - Construction of chain linked time series of GDP growth using annual overlap method
 - Consistency of GDP by production, expenditure and income approaches
 - A few issues on non-observed economy

The consultants would like to express their gratitude to all officials and individuals met for the kind support and valuable information which they received during the stay in Georgia and which highly facilitated the work of the consultant.

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

The current situation is that Geostat is working on a revision of the GDP production method for the period 2010-2013. Revision includes transition to NACE Rev2 and consistency with SNA. The first step is to find a suitable indicator for the transformation of data from NACE rev1 to NACE rev2. Such an indicator reflects the ratio of output in NACE rev2 to the output of the corresponding aggregation NACE rev1 for the 2017 quarters (splicing factor). The time series for the period 2010-2013 is subsequently converted by these splicing factors for the relevant NACE. Better results can be obtained by using the product of the transformation matrix $NACE_{rev1} \times NACE_{rev2}$ with the original data, which was recommended by the consultants.

In the second step, it is necessary to ensure consistency of quarterly data with annual data using benchmarking techniques. Geostat uses the `xlpbm` function (proportional Cholette-Dagum method within it), recommended by the IMF and with which the CZSO has experience. Consultants pointed out the differences in extrapolation when using the Cholette-Dagum and Denton methods and setting the function parameters. With each new period, however, the entire time series changes, so it was recommended to use the excel template for the benchmark, where you can fix any period in history. Situations where zero values appear in the time series and how to proceed (adjust the input time series), when the benchmark results are not satisfactory, were also discussed.

As a part of the revaluation to constant prices of the previous year, it was necessary to construct price indices to the average of the previous year for individual branches. The input month-on-month price indices had to be converted into monthly basic price indices (of 2010 average). Subsequently, quarterly price indices were constructed to the average of the previous year and current prices were deflated at the level of Nace rev2. Compared to current prices, there is no benchmark for constant prices, as annual values at constant prices are derived by adding the relevant quarters.

For the calculation of quarterly intermediate consumption at current prices, the annual shares of intermediate consumption in production are used. Subsequently, there is a benchmark for annual values and revaluation at constant prices.

After calculating the constant prices of the previous year, the method of chaining quarterly values using the annual overlap method was introduced. The annual overlap technique implies compiling estimates for each quarter at the weighted annual average prices of the previous year. The annual data at previous year's prices provide the linking factors to scale the quarterly data upward or downward. The calculation of quarterly values in chained constant prices with the relevant reference year was presented, using quarterly values at previous year's prices and annual links. The time consistency of chained-linked volumes and the horizontal inconsistency between the individual components of the aggregate were mentioned. The calculation was performed for any other reference period.

The annual overlap technique can be expressed by a mathematical formula:

volume chained index:

$$I_{t-1 \rightarrow q,t} = \frac{\sum \bar{p}_{t-1} * q_{q,t}}{\sum \bar{p}_{t-1} * q_{t-1} / 4} = \frac{\sum \bar{p}_{t-1} * q_{q,t}}{Q_{t-1} / 4}$$

chained index:

$$CI_{0 \rightarrow q,t} = CI_{0 \rightarrow t-1} * I_{t-1 \rightarrow q,t}$$

The experience of balancing quarterly estimates of production, expenditure and income methods was discussed marginally. Specific cases of non-observed economy estimates were also discussed.

3. Conclusions and follow up

- Thoroughly analyze the original time series that enter as an benchmark indicator. In some industries (wholesale, transport) high fluctuations were found, therefore it is necessary to explain this phenomenon or to adjust the original data.
- When switching to NACE rev2 using the splicing factor indicator, the result is burdened by the structure of 2017 and weak correlation between some industries of the old and new structures. In any case, it is preferable to use the transition year transformation matrix for the NACE rev2 2010-2013 time series.

- Estimation of intermediate consumption by annual production shares may lead to bias results in the seasonality of the resulting value added in particular industry.
- Benchmarked time series analysis where the indicator is close to or equal to zero. Results may be inadequate, so it is necessary to adjust the indicator.

Terms of Reference

EU Twinning Project GE 16 ENI ST 06 18

28th October – 1st November 2019

Component 2: Enhancing methodological soundness in the National Accounts in line with the EU standards

Sub-component 2.1: Compilation methods of National Accounts and New Products

Mandatory results and benchmarks for sub-component 2.1:

- Compilation methods of National Accounts improved and new products implemented

Indicators of Achievement (baseline and targets):

- Availability of Initial National Accounts calculations according to SNA08 as a statistical product
 - **Baseline:** 2019 – National Accounts are published. But not according to SNA08
 - **Target:** End of 2019 – initial release of yearly National Accounts according to SNA08
- Number of Staff sufficiently familiar with SNA08
 - **Baseline:** 2019 – 0
 - **Target:** March 2021 – At least 5 staff trained on SNA08

Activity 2.1.B “Calculations and estimations of different items”

1. Purpose of the activity

To discuss and work on the below mentioned subjects:

- Compilation of quarterly GDP by production approach based on NACE Rev.2 and SNA 2008 in accordance with the updated methods of annual national accounts
- Backward estimates of quarterly GDP
 - Sub-components of the topic are;
 - Conducting Benchmarking for particular activities
 - Selecting proper indicator for particular industries
- Construction of chain linked time series of GDP growth using annual overlap method
- Consistency of GDP by production, expenditure and income approaches
- A few issues on non-observed economy

2. Expected output of the activity

- Advise provided and work performed on the above mentioned issues.
- Mission report written



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Annex 2. Persons met

Geostat

Mr. Gogita Todradze, Executive Director

Mr. Levan Karsaulidze, Head of National Accounts Department

All staff members of National Accounts Department

RTA Twinning Team

Mr. Steen Bielefeldt Pedersen, Resident Twinning Advisor

Ms. Eka Lobzanidze, Resident Twinning Adviser Assistant