

TWINNING CONTRACT

2023/447-234



EU for Further Development of Statistics System in BiH



MISSION REPORT

Activity 4B: Production of longitudinal dataset (SAS) Component 4: Statistics on Income and Living Conditions

Mission carried out by

Marie Reijo, Statistics Finland
Sonja Bärlund, Statistics Finland

09 – 11 September 2025

Version: Final

EU FOR FURTHER DEVELOPMENT OF STATISTICS SYSTEM IN BIH



Funded by
the European Union



STATISTICS
DENMARK



REPUBLIC OF SLOVENIA
STATISTICAL OFFICE

Statistics Finland

European Union Member State Expert Contact Information

Marie Reijo
Statistics Finland
marie.reijo@stat.fi

Sonja Bärlund
Statistics Finland
sonja.barlund@stat.fi

Table of contents

Executive Summary	4
1. General comments	4
2. Assessment and results	4
3. Conclusions and recommendations	6
4. What to do before the next mission for the BC Counterpart.....	6
Annex 1. Terms of Reference for the current mission.....	7
Annex 2. (input for the) Terms of Reference for the next mission	9
Annex 3. Persons met	10
Signatures	10

List of Abbreviations

BC	Beneficiary Country (Bosnia and Herzegovina)
BHAS	Agency for Statistics of Bosnia and Herzegovina
BiH	Bosnia and Herzegovina
CBBH	Central Bank of Bosnia and Herzegovina
EU	European Union
EUD	European Union Delegation to Bosnia and Herzegovina
FIS	Institute for Statistics of the Federation of Bosnia and Herzegovina
LA	Language Assistant
MS	EU Member State
RSIS	Institute for Statistics of Republika Srpska
RTA	Resident Twinning Advisor
RTAA	Resident Twinning Advisor Assistant
ToR	Terms of Reference

Executive Summary

The focus of the mission was on the production of integrated cross- and longitudinal BA-SILC -files. Based on good practices shared by experts from Statistics Finland and discussions with the participants, the development targets were identified and prioritized during the mission.

The presentations dealt with an approach for FI-SILC data base system and production flow, issues on data and quality validating with regards to longitudinal component, including indicators calculation and standard errors calculation. An overview for calculating longitudinal weights was given.

As the outcome, short-term experts from Statistics Finland gave 5 recommendations which were agreed by the BiH experts. The primary recommendation is to construct an adequate data system. The solution should be supported by the institutions' IT structure and be compatible with processing and analysing tools, including tools provided by Eurostat. Integrating cross-sectional and longitudinal data for available survey years into the reconciled SILC format by the end of 2025 is an action forward.

1. General comments

This mission report was prepared within the EU Twinning Project "Further Development of the Statistics System in Bosnia and Herzegovina". It was the second mission to be devoted to the Statistics on Income and Living Conditions Component of the Project.

The purposes of the mission were:

- Production of longitudinal dataset (SAS) and validations
- Quality reporting (further discussions)
- Evaluation of the actions required after the 1st mission
- Mission Report
- Preparation of ToR for next activity

The consultants would like to express their thanks to all officials and individuals from Bosnia and Herzegovina met for the kind support and valuable information, and which highly facilitated the work of the consultants.

This views and observations stated in this report are those of the consultants and do not necessarily correspond to the views of EU, BHAS, FIS, RSIS, CBBH, Statistics Denmark, Statistics Finland, Statistical Office of the Republic of Slovenia or The Italian National Institute of Statistics.

2. Assessment and results

The mission begun with a discussion on the targeted actions taken after the previous mission and current processing phases with regards to BA-SILC (Survey on Income and Living Conditions). Although many positive actions have been carried out for designing the production system during the rather short time period since the first mission (Activity 4A: Calculation of SILC indicators) in March, the situation is rather similar. Four data collections of BA-SILC have been successfully completed in 2022-2025 (2025 recently). For 2022 the cross-sectional files have been validated and for 2023 the cross-sectional files have been transmitted to be validated by Eurostat. The 2024 data set is still being processed and it is not ready to be transmitted to Eurostat. The collected data for the

2025 survey will start to be processed later. In general, the production processes have been continuously developed compared with the previous survey years.

BA-SILC follows 4-year rotation panel design, the household being a sample of 11.022 households (FBIH 6.049, RS 3.708 and Brčko District 1.265 households) of the stratified 2-stage selection design. CAPI (Computer Assisted Personal Interviews, Blaise software and IST software) is the main collection mode. One of the main problems of the data production is insufficient tools accessible for data processing. They should be compatible with the data base system in which the sample is operated, and with the tools provided by Eurostat for analysis and validation before data transmission (See Activity 4A Mission Report). The design for the data base system within the BiH institutions' environment for statistics production is preliminary but complies with the outcome of the action required in the first mission. The BA-SILC files are organized in a cross-sectional structure, the next step is to integrate the longitudinal components with the cross-sectional files.

Statistics Finland short-term experts presented an approach for data base system to compile the integrated cross-sectional and longitudinal data, as FI-SILC an example for the standard production processes which has been developed on the basis of many survey years. The data base system (SQL), which includes the sample units, consists of many data tables with variables according to production stage and substance content, e.g. initial data collected from interviews and administrative sources, intermediate data on derived variables and the integrated cross- and longitudinal FI-SILC files on final variables. For merging tables and collecting data from administrative sources of the institutions' statistical environment as well, national pseudo-IDs in addition to the SILC IDs are used.

Practical reasons for the implemented solutions were presented. The discussion dealt with tools, program languages for producing and validating data sets, managing processes, as well responsibilities of statistical experts in designing and producing data base system and implementing tools for statistics production. Regarding validating data in particular, the output from Eurostat validating programs (SAS-programs) for FI-SILC files was shown and errors for technical report transmitted with the data files were discussed. Also, Eurostat's EDAMIS - tool aimed for pre-validation before transmitting - was shown, and it was suggested to use it, especially when SAS-validation programs can't be used.

FI short-term experts gave an overview of the methodology of calculating longitudinal weights and showed examples of FI practices and actions taken by FI methodological experts for improving the estimation precision requirement for that the "at-persistent-risk-of-poverty" indicator is fulfilled. BA-SILC has a panel of 2 (3) years available for calculating longitudinal weights and test calculations have been made. Problem with recognizing and linking same persons between subsequent waves emerged. Matching techniques have been used, but not all persons could be identified. Another problem was the lack of marginals in the target population of sex and age groups for panels durations. Timely census data for margins is not available and the estimates based on SILC survey-data will be used instead. Calculation of longitudinal indicators was presented by the FI short-term experts. The importance of calculating the indicators and standard errors was emphasized. The results are used to assess the compliance with precision requirement for the persistent-risk-of-poverty rate indicator. Standard errors for cross-sectional and longitudinal indicators are reported in the quality report as well as with the first data transmission. FI-SILC programs with scripts were shown as an example of calculating indicators in a SAS environment.

Quality reporting was treated briefly in connection to longitudinal component indicators and standard errors calculations. SIMS reporting would need a more detailed treatment than in this mission, to continue the discussions from the first mission, where a general overview was given.

SAS programs will not be an option as a tool for processing and analysing SILC-data in BA. SPSS will continue to be used, and other tools will be introduced when possible and compatible for the statistics production system.

From the request of BiH experts the topic on questionnaire development was put on the table as an additional item. The BiH experts informed that they would improve/simplify the questionnaire used in data collection. The aim is to simplify also the data processing. Among others, the structure of the questionnaire will be simplified and standardizing naming of variables according to Eurostat's methodology. FI short-term experts briefly showed the current FI-SILC questionnaire (available in English). Use of prefills was demonstrated, as well as identifying household persons in the beginning of the interview.

3. Conclusions and recommendations

Recommendation 1: Create integrated longitudinal and cross-sectional BA-SILC tables according to the reconciled SILC format required by Eurostat. The solution should be supported by the institutions' IT structure and be compatible with processing and analysing tools, including tools provided by Eurostat.

Recommendation 2: Improve data collection in order to create correct personal identifying codes (RB030, PB030) to be able to link personal information between waves for the longitudinal component.

Recommendation 3: Estimate marginals for longitudinal weights based on survey data from the first wave cross-sectional data. Decision to be made on what technique to be used for third and fourth waves of longitudinal data. Alternatives are presented in the SILC methodological guidelines. FI short-term experts suggest following the more precise alternative of using base weight information from the previous wave.

Recommendation 4: Develop own solutions for calculating essential BA-SILC indicators (e.g. AROPE and components, at-persistent-risk-of-poverty rate) since SAS -tools are not available.

Recommendation 5. Use Eurostat's EDAMIS pre-validation tool, and make necessary corrections before transmitting files to Eurostat since SAS-program tools are not available.

4. What to do before the next mission

Action	Deadline	Responsible person
Integration of cross-sectional and longitudinal data for available years into the reconciled SILC format	By the end of 2025	BiH WG on SILC
Calculation of essential indicators with BA programs (AROPE and components)	By the end of 2025	BiH WG on SILC

Annex 1. Terms of Reference for the current mission

Terms of Reference

EU Twinning Project BA 19 IPA ST 01 23

Component 4: Statistics on Income and Living Conditions

Timing:

09-11 September 2025

**Venue: Republika Srpska Institute of Statistics – Vladike Platona bb,
Banja Luka
Bosnia and Herzegovina**

Activity 4B: Production of longitudinal dataset (SAS)

Initially, the Project was supposed to assist on utilizing administrative data (AD) sources for the compilation of indicators on wages and salaries. However, since this topic is also on the agenda in the AD project, the BC has requested to change the content and, consequently, the results in the Twinning Project. The new requested subject is EU SILC (Statistics/Survey on Income and Living Conditions) focusing only on the survey part (Living Conditions), as the indicators for income will be covered by the AD project.

The Project will provide expert assistance in the processing of EU SILC research (production of quality reports, assistance in the preparation of longitudinal weights, assistance in the calculation of basic indicators).

1. Mandatory results

Preparation of quality report.

Creation of longitudinal weights.

Calculation of SILC indicators.

2. Purpose of the activity:

- Production of longitudinal dataset (SAS) and validations (to be confirmed)
- Quality reporting (further discussions)
- Evaluation of the actions required after the 1st mission
- Mission Report
- Preparation of ToR for next activity

3. Expected outputs of the activity:

- Production of longitudinal dataset (SAS) presented
- Quality reporting further discussed
- Evaluation of the actions required after the 1st mission performed
- Mission Report produced
- ToR for next activity prepared

Annex 2. (input for the) Terms of Reference for the next mission

Activity 4C	Validations of datasets
Budget section	III. Components Mandatory Results – Component 4
Subject	• Validations of datasets • Quality reporting (further discussions) • Mission Report • Preparation of ToR for next activity - TBC
Methods	Online STE mission in BiH
Resources	MS STEs, RTA, RTAA and RTALA BC: Relevant staff expected to be involved in component 4 Venue: Agency for Statistics of BiH or Federal Institute of Statistics, Sarajevo
Duration	2 MS STEs x 3 working days
Output	• Validations of datasets performed • Mission Report produced • ToR for next activity prepared - TBC
Time schedule	2026, if project extension is approved

Annex 3. Persons met

BHAS:

- Zlatan Hadžić, Expert Advisor for the Statistics on Income and Living Conditions (SILC)
- Jasna Hadžić, Head of Department for Sample Design and Methodology

FIS:

- Hidaeta Čolović, Assistant Director

RSIS:

- Vanja Vilipić, Unit of the employment and social statistics
- Vedrana Dejanović, Senior Statistician
- Željko Asentić, Assistant Director

RTA Team:

- Niels Madsen, RTA
- Senka Ahmetovic-Palic, Language Assistant

Signatures

For the approval of the contents of this report, representatives from BHAS, FIS and RSIS as well as MS experts and the RTA sign here:

Zlatan Hadžić

Component leader, BHAS

Amela Vesković

Component leader, FIS

Бирвана Мемич

Component leader, RSIS

Niels Madsen

RTA

Marie Reijo

MS Expert

Sonja Bärhund

MS Expert