TWINNING CONTRACT

Support to the State and Entity Statistical Institutions, phase V

Bosnia-Herzegovina

MISSION REPORT

on

Extended household budget survey (EHBS)

Component no 2, 1st activity

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Table of contents

List of Abbreviations

BiH	Bosnia and Herzegovina
BHAS	Agency for Statistics of Bosnia and Herzegovina
EHBS	Extended Household Budget Survey
ESS	European Statistical System
EU-SILC	European Union Statistics on Living Conditions
FIS	Institute for Statistics of Federation of Bosnia and Herzegovina
HBS	Household Budget Survey
RSIS	Institute for Statistics of Republika Srpska
ToR	Terms of Reference

1. General comments

This mission report was prepared within the Twinning Project „Support to the State and Entity Statistical Institutions, phase V". It was the first mission to be devoted to EHBS within Component 2 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:

- Assessment on the current situation of the household budget survey
- Analysis of technical and organizational capacity.
- Overview over EU regulations in this area.
- Monitoring, through analysis, of the data from the new modules and its impact on the core HBS data.
- The assessment of data editing and imputation methods used in previous HBS
- Preparation of activities to be done before next mission
- List of activities for next mission

> - *presentation of the objectives of the mission*
> - *where necessary reference to other parts of the project / to other missions*
> - *where necessary background information*

The consultants 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 Bosnia-Hercegovina, and which highly facilitated the work of the consultant.

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 or Statistics Finland / Statistics Lithuania.

2. Assessment and results

Introduction

The main focus of this mission was to make an assessment of the current situation of the household budget survey, data editing and imputation methods used in previous HBS and preparation of the list of activities for next mission.

Current situation

As a starting point for the further work, an overview of the EHBS was presented by Edin Šabanović. EHBS 2011 fieldwork was finished just before the mission week.

EHBS 2011 is the third HBS (the previous ones 2004 and 2007), carried out by statistical institutes in Bosnia and Herzegovina. All these surveys use the same methodology, prepared in 2003 with the methodological and technical help of Italian National Institute of statistics. In 2011 HBS was extended by introducing two ad hoc modules: Module on social exclusion, migration and remittances and module on health status and health care services. Modules mainly contain questions from EU-SILC core survey and from ad hoc modules (except migration).

BHAS and RSIS have one person each appointed to HBS. People from Price statistics division, National accounts division, methodological division, IT division were involved in methodological work and other preparatory work as well. Questions to be included in the EHBS were discussed with representatives from Central bank, ministries and some other organizations.

A Master Sample for sample selection was created in 2009 by enumerating all households in 1500 selected enumeration areas.

The same methodology is used in both entities: Federation of BiH and Republika Srpska as well as in Brcko District of BiH.

Questionnaires/Diaries

Same questionnaires are used in FIS, RSIS and Brcko. PAPI technique is used for data collection.

Diary is filled-in by household and it is devoted for registering expenditure on food and other daily expenses. Diary keeping period lasts 14 days. 5 pages are assigned for each diary keeping day with pre-coded lines for each COICOP code. It facilitates the work of statisticians as no coding required. However it can lead to errors in assigning the expenditure to the appropriate line.

Self-Consumption Booklet used by a household to record consumed quantities and estimated values of articles produced by the household itself. It should be filled-in by household during diary keeping period. Records should be made once per week for whole week.

Questionnaire is filled-in by interviewer during final interview and devoted for collecting data on household members, housing conditions, income, and consumption expenditure, not collected via diary keeping. Different reference periods - one, three or 12 months - used for different expenditure lines.

Data collection

71 interviewers and 20 supervisors were employed in the fieldwork for EHBS 2011. Interviewers were recruited for that single survey, no permanent interviewers available.

Wages for interviewers directly depends on a number of interviewed households. This encourages the interviewers try to persuade households to participate in the survey.

Despite comprehensive survey program, non-response rate is rather low: about 24 per cent in 2011.

Data entry will be performed by 8 data entry operators.

Blaise software is used for data entry. Data entry software has numerous logical checks foreseen, but only few of them so called 'hard' mode checks: when an error is detected, it is impossible to go on entering data until the error is corrected. All other logical checks are of so called 'soft' mode: when an error is detected, an error message is displayed, but it is possible to confirm the 'wrong' value and go on entering data. The data entry operator only verify that the value he/she entered corresponds with the one written on paper questionnaire, in order to make sure the error was not produced by him/herself.

Data entry was performed simultaneously with the fieldwork. EHBS raw data for the first 6 months of 2011 have been analysed.

Data editing and imputation

Data editing and imputation in two previous HBS surveys was performed using the tailor-made software for data editing and imputation (it consists of CONCORD and additional programs developed in C++) developed in ISTAT. This software was used for data editing and imputation of both categorical and continues variables. Software uses logical relations

among variables (edit rules) for detecting errors in variables and for detecting missing variables as well.

For categorical variables SCIA program was used implementing both the Fellegi-Holt algorithm for localizing random errors in data and nearest neighbour hot-deck technique for imputation. The application of this step was divided into different hierarchical procedures. Continues variables checks mainly were based on the idea that variable values (or ratio variable values) must be located in certain pre-defined intervals. The boundaries for these intervals were built by local experts by observing data. Once these intervals have been defined, values that were not in the acceptance region were considered erroneous and thus replaced by imputed values. Nearest neighbor method was used for imputation in two previous surveys.

Rules for data editing, i.e. logical relations among variables and edit rules as well as boundaries for pre-defined intervals for variables were built by BHAS, FIS and RSIS staff. Such rules and boundaries for pre-defined intervals for EHBS 2011 have been prepared.

What concerns data editing and imputation in HBS 2004 and HBS 2007, it was performed with the help of the tailor-made software for data editing and imputation mentioned above and developed within a technical assistance projects. Staff in BiH statistical institutions has not enough knowledge in using this software.

HBS team in statistical institutes in BiH opinion is that above mentioned software is the only way to get data cleaned and edited for the EHBS 2011. Time schedule is too tight to implement alternative ways and alternative software for data editing.

3. Conclusions and recommendations

Staff of the statistical institutes in BiH has started EHBS 2011 data editing, using the tailor-made software for data editing and imputation. Description of some logical relations between variables and boundaries for pre-defined intervals for variables has been prepared.

In opinion of experts it is reasonable to continue to use the tailor-made software for data editing and imputation. However some technical assistance of ISTAT – i.e. software provider – could be important at that stage.

4. Topics for the next meeting

Assistance in the revision of the existing Data Editing and Imputation (DE&I) methods.
Tailor-made training on data editing and imputation procedures

Annex 1. Terms of Reference

Extended Household Budget Survey (EHBS)
23th to 27th of January 2012
Terms of Reference - Activity 2.1
EU Twinning Project BA 08-IB-FI-03

Component 1 Business Statistics

      1.1. Statistical Business Register

      1.2. Structural Business Statistics

      1.3. Construction Statistics

      1.4. Retail Trade Statistics

      1.5. Tourism Statistics

Component 2 Extended Household Budget Survey

Component 3 Institutional Capacity

      3.1. Long term strategy

      3.2. Metadata and classification system development

      3.3. Promotion of dissemination

Benchmarks

A) Previously used methods of data editing and imputation (DEI) revised, DEI methods for HBS 2011 selected for further implementation and the plan for data editing and imputation prepared   by 4th project quarter

B) Procedures for data editing and imputation finished for both categorical and continuous variables by 8th project quarter

C) Software for DEI developed and implemented and cleaned data base ready for analysis

D) Necessary documentation for HBS prepared as a basis for first HBS metadata

E) HBS data analysis revised and possibly improved. Dissemination means improved

F) Development plan for future production of the HBS and EHBS prepared in the context of other social statistics (LFS, SILC, LSMS, etc.)

2.1. Activity

Assessment on the current situation of the household budget survey

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The expected activities are:

➢ Presentations and discussions of the present status of the household budget survey (HBS) in Bosnia and Herzegovina. Analysis of technical and organizational capacity.

➢ Overview over EU regulations in the area of HBS

➢ Monitoring, through analysis, of the data from the new modules and its impact on the core HBS data

➢ Evaluation of previous project assessments and results related to household budget survey

➢ The assessment of data editing and imputation methods used in previous HBS and selection of the appropriate methods and software solutions for use in HBS 2011. Presentation of procedures, rules and other work already done related to E&I activity for HBS 2011.

➢ Preparation of the list of activities to be done before the next mission

➢ Preparation of the list of topics for the next mission

Expected output

➢ Clarified current status of the BiH HBS in terms of the methodology, analysis and DEI and better compliance with the EU standards

➢ Proposals for improving of the HBS data analysis and calculating of new indicators

➢ Selection of the appropriate methods and software solutions for DEI of the categorical and continuous variables

➢ Mission report – summarized and detailed version completed

➢ General and detailed activity plans and draft ToR for the next mission prepared and agreed by all partners (BHAS-BD/ FIS/RSIS participants, experts and RTA)

Explanation of the Expected outputs:

The statistical institutes in Bosnia and Herzegovina expect from experts to analyze our method of HBS data analysis, especially in terms of the monthly consumption expenditure calculation, to compare it with best practices of the EU countries and possibly to propose a method to improve data analysis.

The same is expected from the point of view of the Data Editing and Imputation (DEI) methods. This part of the HBS activities is of the highest importance for the statistical institutes in Bosnia and Herzegovina because there is still lack in using DEI methods in the HBS. Methods used in the surveys in 2004 and 2007 should be revised and the decision on methods which will be used in HBS 2011 must be taken urgently. This decision should be made based on consideration of past experiences, current state of the DEI activities, EU best practices and time constraints within the HBS timetable.

List of Participants

Agency for Statistics of BiH

Edin Šabanović, Assistant Director in the Sector for Statistical Methodology, Standards, Planning,

Quality and Coordination

Dajana Mitrović, Senior Advisor for HBS

Jasna Hadžić, Head of the Sampling Method Division (second half of the mission week)

Ševala Abaz, Head of the Division for Applications Design and Database Management (second half of

the mission week)

Marko Zekić, Junior Officer for Database Design and Programming (second half of the mission week)

Institute for Statistics of Federation of BiH (FIS)

Mesuda Kamberović, Head of Price Statistics Division

Nermina Ibrišević-Ademović, Head of the National Account Division

Amina Arijana Muhić, Head of the Sampling and Data Analysis Division (second half of the mission

week)

Anesa Mirica, Senior Advisor for Sampling and Data Analysis (second half of the mission week)

Nataša Radović, Senior Advisor for Software Engineering (second half of the mission week)

Džemal Borovina, Senior Associate for Application Development (second half of the mission week)

Institute for Statistics of Republika Srpska (RSIS)

Bogdana Radić, Assistant Director

Sanja Panić, Senior Associate for HBS

Radoslav Latinčić, Assistant Director in the IT Sector (second half of the mission week)

Darko Marinković, Senior Officer for Sampling Design and Data Analysis (second half of the mission

week)

Bojan Stanković, Senior Associate - implementation of standards and methodologies of surveys and

statistical activities (second half of the mission week)

Igor Radan, Senior Associate – data base administrator (second half of the mission week)

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Agenda

23 January (Monday) – 27 January (Friday)

Time	Event	Purpose / detail
23 January 09:00	Welcome	Introduction by experts on the EU Twinning Project, Component 2 (Household Budget Survey) and program of the week Experts
	Presentations and discussions of the present status of the HBS in Bosnia and Herzegovina. Analysis of technical and organizational capacity.	BiH participants Experts
	Discussion	
	Overview over EU regulations in the area of HBS. Best practices and methods related to data analysis.	Experts
	Discussion	
	Monitoring, through analysis, of the data from the new modules and its impact on the core HBS data	BiH participants
	Discussion	
	Evaluation of previous project assessments and results related to household budget survey especially in terms of the data analysis methods (for ex. calculation of monthly aggregates, etc.).	BiH participants Experts
	Discussions	
	Presentation and assessment of data editing and imputation methods used in previous HBS and selection of the	BiH participants Experts

	appropriate methods and software solutions for use in HBS 2011	
	Discussion	
	Next mission-Which topics? What to do for the next mission?	Possible suggestions BiH Participants Experts
27 January 09:00-12:00	Debriefing	Other issues and evaluation of the Mission Experts

Annex 2. Persons met

BHAS:

Edin Šabanović, Assistant Director in the Sector for Statistical Methodology, Standards, Planning, Quality and Coordination

Dajana Mitrović, Senior Advisor for HBS

Jasna Hadžić, Head of the Division for Applications Design and Database Management

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Nermina Ibrišević-Ademović, Head of National Account Division

Amina Arijana Muhić, Head of Sampling and Data Analysis Division

Anesa Mirica, Senior Advisor for Software Engineering

Džemal Borovina, Senior Associate for Application Development

RSIS:

Sanja Panić, Senior Associate for HBS

Bojan Stanković, Senior Associate – implementation of standards and methodologies of surveys and statistical activities.

Igor Radan, Senior Associate – data base administrator.

RTA Team:

Bente Dyrberg, RTA

BHAS:

FIS:

RSIS:

RTA Team:
Bente Dyrberg, RTA
xxx, RTA Assistant
XXX, Interpreter