TWINNING CONTRACT

BA 12 IB ST 01

Support to the State and Entity Statistical Institutions, phase VI

MISSION REPORT

on

2.2.7 Activity
Integrating entrepreneurs in the SBS survey II

Mission carried out by
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List of Abbreviations

BHAS	Agency for Statistics of Bosnia and Herzegovina
BiH	Bosnia and Herzegovina
CBBH	Central Bank of Bosnia and Herzegovina
EC	European Commission
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FIS	Institute for Statistics of Federation of Bosnia and Herzegovina
MS	EU Member State
RSIS	Institute for Statistics of Republika Srpska
RTA	Resident Twinning Adviser
TOR	Terms of Reference

Executive Summary

Presentation of work done so far in BiH on the SBS was presented. Furthermore, the availability of data was also presented. Finally the definition of entrepreneurs were explained and discussed. The estimation process in the Danish SBS was presented by the experts and discussed.

Different methodological issues were raised and discussed.

The uses of tools were discussed and the second day was dedicated to a presentation of the software "R" that is well suited for handling survey data.

1. General comments

This mission report was prepared within the Twinning Project "Support to the State and Entity Statistical Institutions, phase VI". It was the second mission devoted to integrating entrepreneurs in the SBS survey within Component 2.2. on Structural Business Statistics of the project.

The purposes of the mission were:

- Presentation of available data for entrepreneurs in BiH
- Presentation of used method for estimation of SBS variable for entrepreneurs in BiH
- Presentation of estimation of variables in the Danish SBS
- Discussion and analysis of the method used and the results of the estimation

The consultants would like to express their thanks to officials and individual involved in the mission for their kind support and valuable information which they received during the stay in Bosnia and Herzegovina, 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 EU, BHAS, FIS, RSIS or Statistics Denmark.

2. Assessment and results

The list of activities defined in the ToR included:
- Presentation of current situation of the production of SBS data in BiH
- Presentation of good practices for estimation of SBS variables for entrepreneurs
- Presentation of available administrative data for entrepreneurs in BiH
- Presentation of used method for estimation of SBS variable for entrepreneurs in BiH
- Analysis and discussion of the results of the estimation

The expected outputs of the mission were:
- Assessment and recommendation for improvement of the used method for estimating SBS variables for entrepreneur

- Conclusion about the possibility of producing SBS variables for entrepreneurs in BiH the entities, based on the available data
- Mission report – summarized and detailed version completed

General overview

On day one BHAS presented the current situation of the production of SBS, including the history of the SBS production from the start in 2008. Furthermore, the data for entrepreneurs currently available in the SBR used in production of the SBS were presented. Finally, the definition of entrepreneur was carefully explained by BHAS.

The Danish experts presented the estimation process in the Danish SBS. The rest of the day was used mostly to talk about the estimation method used in the entities in connection to the availability of data sources.

Day two was used to present the statistical software tool called "R". Statistical production within BiH today is primarily done with Excel. The use of R is increasingly popular in statistical production throughout European agencies. Regin, the expert from Denmark, presented the program and how easily available it is.
First the installation process was demonstrated. Afterwards simple calculations were used as introduction to the tool. Finally, SBS data from BiH were imported and ideas for estimation were discussed.

Day three was mainly used to sum up the estimation method, further discuss the Danish estimation process and discussion of other methodological issues.

Methodological issues

Different methodological issues were discussed. In the entities, estimates for entrepreneurs are calculated by multiplying key figures for enterprises with the ratio of persons employed and the ratio of employees in entrepreneurs divided by persons employed and employees in enterprises respectively. These ratios are calculated at NACE 3 digit level combined with size classes. The number of observations of enterprises within this group can be quite small in some cells and hence the estimation of entrepreneurs in the corresponding cell will be uncertain. A larger grouping of enterprises and size classes should be considered in order to get more stable estimates.
For example, instead of using NACE 3 digit level, NACE 2 digit level or the next closest class can be used.

Instead of estimating by multiplying with ratios, estimation can be done through calculating average key figures per employed in enterprises and multiply with number of employed in entrepreneurs. This method returns exactly the same results, but requires calculations of additional columns with average key figures. However this method would improve the transparency of key figures making it easier to compare key figures across industries. Average key figures can be helpful in the editing phase and can be used for sanity checks in general.

The estimation made in BiH is on an aggregated level. In Denmark it is made on micro-data level. The two methods were discussed and the final results might actually produce exactly the same result. However, The Danish expert will look into this issue further

after returning to Statistics Denmark and make a comparison of the two methods, and send the results to the experts in BiH.

IT tools

Today most of the data management in BiH is done in Excel. It is easy to get data in and out of Excel, it is easy to manipulate data and it is easy to get started with using R. Due to its simplicity Excel has some limitations compared to other software tools designed for handling data. The software R (www.r-project.org), is open source and is primarily developed and maintained in research environments throughout the world. In addition, users have updated packages that can be used for certain purposes. Especially the survey package from Thomas Lumley is well suited for handling most phases in the production of national statistics.

R was introduced to the experts from BiH in order to point out the usefulness of R in statistical production. Simple definition of numbers, vectors, tables and lists were shown. Examples of how to manipulate data in data tables were shown. It is very likely that R could be of great help in the statistical production in BiH. It might be difficult to get the staff in BiH to devote the time and effort needed in order to get started with using R. Especially when Excel is performing well in tasks needed in BiH.

In production of statistics at national agencies the survey package might be the best reason for using R. This package has been used by staff in BiH for the last 4-5 years, but has not spread to other parts of the agency yet.

3. Conclusions and recommendations

In general taking the availability of data in to consideration, the way BiH are handling the estimation of entrepreneurs is the best available method.

We would recommend the following:

- Be careful not to use too small group in the estimation of variables. A larger grouping of enterprises and size classes should be considered in order to get more stable estimates. For example, instead of using NACE 3 digit level, NACE 2 digit level or the next closest class can be used.
- The use of "R" could make the estimation task easier and more efficient. And as it is available for free, the only thing invested in it is time. We are aware that it can be difficult to find the time to invest in the learning of "R", but we would still recommend that the experts in BiH in the future invest time in further learning and use of "R". Moreover, the use of "R" could be useful in other areas of the production of the SBS or other statistics.

Topics for the next mission

There is not planned a next mission on this topic.

Annex 1. Terms of Reference

EU Twinning Project BA-12-IB-ST-01

<u>Terms of Reference</u>

Component: 2.2.Structural Business Statistics
15-18. march 2016
Agency for statistics of Bosnia and Herzegovina
Sarajevo, Ferhadija 11, third floor

Activity

2.2.7 Integrating entrepreneurs in the SBS survey II

Benchmarks

- Methodology for Business Services developed by 8th project quarter
- Methodology for Business Demography developed by 8th project quarter
- New SBS variable on Business Services compiled and available by 8th project quarter
- New SBS variable on Business Demography compiled and available by 8th project quarter

Purpose of activity

<u>The expected activities are:</u>

- Presentation current situation of production of SBS data in BiH
- Presentation of good practices for estimation SBS variables for enterpreneuers
- Presentation of available administrative data for entrepreneurs in BiH
- Presentation used method for estimation SBS variables for entrepreneurs in BiH
- Analysis and discusion of results of estimation

Expected output

- Assessment and recommendation for improvement the used method for estimation SBS variables of entrepreneurs
- Conclusion about possibility of production SBS variables for entrepreneurs for BiH and entities base on available administrative data
- Mission report – summarized and detailed version completed.

Annex 2. Persons met

Agency for Statistics of BiH

Tima Karačić	Head of Department for Structural Business Statistics
Bojana Cicović	Senior Official for SBS

Institute for Statistics of Federation of BiH (FIS)

Aida Ljuca	Senior Official for SBS
Alma Čolpa	Senior Official for SBS

Institute for Statistics of Republika Srpska (RSIS)

Slađana Šebez	Specialist for SBS
Danica Babić	Specialist for SBS

Twinning Project Administration

Søren Leth-Sørensen	RTA
Đemka Šahinpašić	RTA Assistant
Svjetlana Pavičić	Interpreter