

# **TWINNING CONTRACT**

**BA 12 IB ST 01**

## **Support to the State and Entity Statistical Institutions, phase VI**



### **FINAL MISSION REPORT**

**on**

#### **Activity 2.2.6**

Further work on business demography.

Follow-up on achievements of component and recommendations for the future

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

## ***Business Demography***

### **Outstanding issues in Business Demography**

During this mission we have discussed and agreed how to use quarterly employment data, from the USR (Unique Registration System). For enterprises that only have quarterly employment figures from USR, employment data are calculated from four quarters. For enterprises registered and closed in the reference year, annual average employment data are calculated from the operating period.

Using annual averages over operating period may lead to enterprises having 0.25 employees. This would leave them out of the scope of BD population, where 0.5 employees is used as a threshold. Whether the threshold should be left at 0.5 or lower will be resolved later. Jaakko will discuss this issue with Eurostat and inform the outcome to the local experts.

Cases regarding bankruptcies and liquidation were discussed and it was agreed in accordance with the Business Demography Manual to treat them as all other units.

The coverage of business population in BD by NACE activity was discussed. It was noted that enterprises from NACE activities A to S (excluding O) may be used in matching even if some are out of scope, if it deemed feasible.

It was noted that the matching by activity should be conducted at the 4-digit level according to the BD Manual. Also, most detailed addresses should be used (street name and house number). Given, that so far the matching has been done manually, looking for matches from higher NACE activity levels is acceptable solution. If matching is automated with programs, the matching should be conducted strictly at 4-digit level.

The consistency between the SBS and the Business Demography was discussed. It was recommended by the experts to keep in mind that there should be consistency between SBS and Business Demography (number of enterprises and employment figures).

### ***Project component follow up, Business Demography***

#### **Status at the beginning of the project**

At the start of the Twinning project, Business Demography was not produced in Bosnia and Herzegovina. The Business Register contains data from reference year 2008. Experimental production of Business Demography for enterprises has been performed for the period 2010-2013 (employment figures from the USR were not available in SBR at this stage in both entities). Entrepreneurs were not included in the experimental production, as their employment data are available in the SBR from 2010 for RS and from 2013 for FBiH.

The BD component was developed in cooperation between SBS and SBR departments.

## Description of the project results

By the end of the Twinning project, BHAS, FIS and RSIS are producing a second set of test microdata on Business Demography. At the moment, data have been extracted from the SBR (entities) and delivered to BHAS. No matching has been performed yet.

The work has been organized between the offices. Also the methodological document is nearing completion. Therefore, the statistical authorities have gained the capability to produce tentative results on the core variables of BD and independently further develop the process.

The first results only contain enterprise births, deaths and active enterprises and work is mostly focused on matching. Number of surviving enterprises can be calculated from the same microdata, as it includes the number of enterprises that have stayed active up to five years after their birth. Also, the main focus of the work was on the units with 20+ employees, as the work was done manually.

Methodological document was drafted and extended during the missions. The matching methodology of births and deaths is a key chapter in the methodological document. At the end of the Twinning project, this chapter has been drafted. It will be included in the full document after the remaining questions are resolved within BHAS, FIS and RSIS.

Areas still to be developed in the draft matching chapter are:

- Matching with 4-digit NACE codes
- Using exact address data
- Writing the document as work instructions for persons doing the matching manually. Also, formatting the text which will assist in programming automated matching is recommended.

The methodological document represents a key development in this domain. It enables the production of more automated solutions where technically possible. A timetable for the tasks in the methodological document will be included.

The organization of the work on Business Demography was agreed by the end of the third mission. The steps are following:

1. BHAS extracts relevant SBR data for the production of Business Demography
2. Entities (BHAS for Brcko district) will assign activity indicators for the enterprises and delivered back to BHAS.
3. BHAS will assign the birth and death years from the data.
4. BHAS will prepare the data with addresses and other variables required for matching in order to have it standardized.
5. FIS, RSIS and BHAS will carry out the manual matching procedure. BHAS will carry out automated matching when possible.
6. BHAS will create a final data set for entities with correct units. The entities will aggregate the results and transmit back to BHAS for use and reporting to Eurostat.

## **Recommendations on the sustainability of the achievements**

The methodological document on BD is sustainable if the production and development is continued.

The increase of workload is the most significant risk to the sustainability of achievements. Conducting the matching according to the BD Manual will take considerable time if it is done manually. This risk could be alleviated by programming automated processes, which in turn is challenging due to the lack of standardized addresses.

To keep up the good work already achieved and established in connection to producing the Business Demography, further development of essential areas of the work process are highly needed. For examples further consultancy regarding the matching of data are needed. Furthermore, the development of Employer enterprises data and High growth enterprises data has not been undertaken yet. It is therefore recommended to include further development of the Business Demography in future projects and/or to arrange study trip where these issues are treated. If the project on Business Demography is closed after this mission, the concern might be that the work is not maintained and further developed.

## **Recommendations for further work**

The lack of standardized addresses in the SBR has been a major hindrance to the development of Business Demography. This forces the statisticians to conduct matching manually. Normally manual verification is only used for the largest births and deaths. The development of address data is a large task for SBR and would be a major step forward in BD production.

It is strongly recommended, that the BHAS, FIS and RSIS finalize the methodological document. Also, it is recommended that Business Demography be included in future development projects with Eurostat as described above.

More automated processes should be produced for BD, but this will require either SAS, Python, Java or similar programming. As a secondary recommendation, it would be beneficial if the statisticians could test and develop the matching and reporting processes themselves. The staff should be supported to achieve this capability. As mentioned above, the lack of programmed matching will expose the achievements to a considerable risk.

The missions to Bosnia and Herzegovina did not focus on the specifics of Eurostat transmission. High-growth enterprise and employer enterprise data were not discussed either. However, these areas are entirely dependent on the process steps developed during the project. Developing these data sets is also a much smaller task, as they utilize results produced for the regular BD data. Also, determining employer enterprise births, deaths and survival follows the same logic as the regular BD data production. It is recommended that these areas are developed even if it is not possible to enhance or automatize the matching.

***Project component follow-up, SBS Annex VIII: Business services***

The project regarding collecting data on business services started in 2015 having 2014 as the first reference year. Two missions devoted to the subject were undertaken.

**Activities initiated by the two missions**

1. Design questionnaires for the data collection on business services
2. Integrating the questionnaires into the regular survey on SBS
3. Analysis of the results were made
4. Preparation of datasets to be transmitted to Eurostat
5. Confidentiality treatment of datasets
6. Validation of datasets
7. Transmission of data to Eurostat
8. Writing methodological document
9. Plan for future regular production and transmission of data

**Results**

Questionnaires were designed and attached to the regular SBS survey. The results were analysed and the response rate was considered satisfactory. After the second mission transmission of data was completed and the data has been transmitted regularly since. In addition, a methodological document has been written and a plan for regular data transmission has been established. To conclude, the component involving Business services has been fully completed and is in compliance with EU regulation 295/2008 Annex VIII.

**Recommendation for future work**

As this project component has been fully completed in compliance with EU regulation 295/2008 Annex VIII, there are no recommendations for future work.

***Project component follow-up, Integrating entrepreneurs in the SBS survey***

Two missions were devoted to integrating entrepreneurs in the SBS survey within component 2.2. on Structural Business Statistics. When starting the first missions, the SBS survey had been carried out for 2007 and 2009 as pilot surveys. Furthermore, reference year 2010 and 2011 had been conducted with partial coverage, whereas surveys for reference years 2012 onwards were conducted with the full NACE coverage. Quality checks on data were performed in accordance with Eurostat's Edit tool and primary and secondary confidentiality treatment was completed. Data are being transmitted to Eurostat on a regular basis, however there are some delays and those transmissions do not include data on entrepreneurs.

**Activities initiated by the two missions**

During the first mission methods for producing variables on entrepreneurs were presented by experts from Lithuania. In addition, the current estimation method used by experts from BiH were presented and discussed. The experts from Lithuania concluded that the method used at that time could be used in principle; however it might result in overestimation of entrepreneurs. It was recommended to aim at getting data on entrepreneurs from the Tax Authorities in the future to be able to make more accurate estimations on entrepreneurs.

During the second mission devoted to the subject the current status were presented and method for calculating estimates for entrepreneurs were discussed. At that moment the estimates were calculated at NACE 3 digit level combined with size classes. The Danish experts recommended a larger grouping of enterprises and size classes as it might result in more stable estimates.

IT tools were also discussed during the second mission and one of the mission days were devoted to introducing the R as a possible tool for the future work with calculating estimates. After the last mission, data sources were screened for information on entrepreneurs. A document was drafted, where all input data to tax administration by entrepreneurs were listed. Tax administration does not process all information correctly to feed statistical office correctly. Therefore number of persons employed was still the only information available.

## **Results**

By the end of the last mission, the methods used by the experts from BiH to calculate estimates for entrepreneurs were concluded to be the best possible way of completing the task, with the tools and data sources available. Furthermore, it was concluded that R could be a good tool for future work, but at the moment there were no time to invest in getting to know the tool and to implement it in the production. Therefore work will continue to be done using excel, which is working well for the purpose.

Since the last mission on this subject was completed, the experts from BiH has finalised the estimation using SBS variables for enterprises to calculate the variables for entrepreneurs and the same activity is planned for 2015 data. SBS data including entrepreneurs have been published for the reference year 2014.

## **Recommendations for future work**

It is important to get data on entrepreneurs, therefore in the upcoming period the aim should be on enhancement of the cooperation with the Tax Authorities on receiving turnover data on entrepreneurs on a regularly basis. Moreover, the data should be delivered in a format that makes it possible to translate it into statistical use.

With information on turnover from the entrepreneurs, it will be possible to calculate better estimates.