

TWINNING CONTRACT

**Support to the State and Entity Statistical
Institutions, phase V**

Bosnia-Herzegovina



MISSION REPORT

on

Retail Trade Statistics

Component no 1.4, Activity 1.4.2

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		 STATISTICS DENMARK

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Table of contents

Executive Summary	3
1. General comments	4
2. Assessment and results	5
3. Conclusions and recommendations	8
4. What to do before the next mission for the BC Counterpart.....	6
5. Topics for the next meeting.....	6
Annex 1. Terms of Reference.....	10
Annex 2. Persons met.....	15

List of Abbreviations

BiH	Bosnia-Herzegovina
BHAS	Agency for Statistics of Bosnia and Herzegovina
CPI	Consumer Price Index
FBIH	Federation of Bosnia and Herzegovina
FIS	Institute for Statistics of Federation of Bosnia and Herzegovina
ITA	Indirect Tax Authority
KAU	Kind of Activity Unit
LKAU	Local Kind of Activity Unit
RS	Republika Srpska
RSIS	Institute for Statistics of Republika Srpska
RT	Retail Trade
RTI	Retail Trade Index
SA	Seasonal Adjustment
SBR	Statistical Business Register
STS	Short Term Statistics
ToR	Terms of Reference
VAT	Value Added Tax
WA	Working day Adjustment

Executive Summary

This mission primarily was aimed at providing training in methodology relevant for the production of survey-based trade statistics. Included in these training sessions was feedback on data and documentation given by the BC prior to the mission, as well as examples from the Danish retail trade statistics. Furthermore, the continuing planning of future surveys on retail and distributive trade in BiH was to be part of this mission.

The most important topics covered during the training sessions were *sample designs, estimation, quality indicators and seasonal adjustment*. Throughout these sessions the participants showed a sincere interest in the topics covered, leading to fruitful discussions often starting from examples from the Danish RTI or the current situation in BiH.

The existing sample frames from BiH were made available to the experts prior to the mission and this topic was discussed in detail. There is a common understanding that a harmonized way of sampling using SBR as a common sample frame should be examined.

The current differences in sampling methods combined with the complete lack of estimation (no grossing up of collected data) are probably the biggest challenges in regard to being able to publish RT figures on state level that is in compliance with the EU regulation. It was

agreed upon that the use of estimation using auxiliary information should be examined, first analyzing the effect on historical data.

On the next mission decisions will be made regarding future sampling and estimation, and focus will also be on redesign of questionnaires, with the aim of changing the surveys from 2013. In addition to this the agreement of a detailed working plan for the introduction of these new surveys will be essential to next mission.

During this mission there was also a meeting with Mr. Wolfgang Berger, who is RTA at ITA, regarding use of ITA-data in the production of business statistics. Joining the meeting was also EU delegation representative Mrs. Dijana Sikima, and they were informed of the definite quality improvements in using VAT-data from ITA in trade statistics. Unfortunately there is no way of knowing if or when this data will be available for statistical purposes, and the work on this component continues without assuming this availability any time soon.

That being said it should be emphasized that there is a great need for this external data, to improve the quality of SBR and ensure the future use of this as a basis for all business statistics.

The need for future use of seasonal adjustment of statistics in BiH was also stressed during this mission. It is strongly recommended to provide methodological experts with more training in the theory of SA. It is a possibility that by the end of this project there could be funding for a seminar on this topic.

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 second mission within subcomponent 1.4 on retail trade statistics of the project. This mission primarily was aimed at providing training in methodology relevant for the production of survey-based trade statistics. Included in these training sessions was feedback on data and documentation given by the BC prior to the mission, as well as examples from the Danish retail trade statistics. Furthermore, the continuing planning of future surveys on retail and distributive trade in BH was to be part of this mission.

The first mission on this subcomponent, carried out in the beginning of November 2011, was an assessment mission resulting in a rather comprehensive mission report including important background information on the current situation regarding internal trade statistics in BH. This report will assume familiarity with the report of the first mission. For the same reason this report will be of a much lesser extent. Also, see annex 3 for more background information.

Both consultants would like to express thanks to all local collaborators met during this mission. We were met with a pleasant cooperativeness and sincere dedication, which highly facilitated the work of the consultants. Special thanks are given to the very committed and skilled interpreters, who managed to do precise and dynamic translation during this rather technical mission.

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 / Statistics Lithuania.

2. Assessment and results

Introduction

The main focus of this mission was training of local experts. The topics covered were

- Sample design (establishment of frame, stratification, sample size, sample allocation, coverage errors)
- Estimation and weighting (design-based, non-response adjustment, estimation with auxiliary information)
- Imputation methods
- Quality indicators (response and non-response rate, mean square error, etc.)
- Introduction to ESS guideline documents
- Introduction to working day adjustment and seasonal adjustment of time series with Demetra

These topics were all introduced in a general theoretical framework. Each topic was then exemplified based on experiences from the Danish Retail Trade Index and in many cases followed by questions and answers also including the current situation in BH. During these sessions the participants showed a great interest in the topics covered and especially the practical examples from the Danish RTI.

The original agenda was ambitious and had to be altered a bit during the week, partly due to the committed attendance and interest showed by the participants. Thus, the training part of the mission ended up by filling up more than half of the mission. In the view of the experts this was highly rewarding.

Other topics to be covered on this mission were:

- Follow-up on information provided by BC on:
 - Analysis of current sampling practice used in BH
 - **Seasonal adjustment of available time series on retail trade in BH with Demetra**
 - *Deflator of sales (analysis of possibility of using CPI of BiH as deflator)*
- **Examples from Danish RT statistics**
- *Input on questionnaires used for monthly survey on retail trade TRG-1*
- Current situation regarding use of VAT-data from ITA for retail trade statistics
- Preparation of general work plan for developing distributive and retail trade
- Preparation for the next mission:
 - Preparation of the list of activities to be done before the next mission
 - Preparation of the list of topics for the next mission

The topics marked **bold** we included during the training sessions, as already mentioned. The topics marked with *italics*, unfortunately we only had time to touch briefly.

Below, the activity on the most important of the above topics is described in more detail.

Training, including examples from Danish RTI

No actual summary of the theory gone through will be included here, mainly stating the most interesting topics we covered through our following discussions.

Sample design

The participants were introduced to the theory of establishing a frame, stratification, sample size, sample allocation and coverage errors, finishing with practical examples from the Danish RTI. We had fruitful discussions on especially the choices made regarding stratification and sample allocation. Also, it led to a short introduction to the Danish SBR and the turnover variables included herein (from VAT registrations).

Estimation and weighting

This was a topic of particular interest, since no weighting is currently being applied in the production of the internal trade statistics in BH. The theory of ratio estimation was gone over in some detail, including the use of this in the Danish RTI. Again, the topic of the auxiliary turnover variable came up, referring to a later topic (VAT-data from ITA).

Imputation methods

It was emphasized that an extensive use of imputations is not recommended. However, in some situations (e.g. non-response from very important units) it is necessary, and different techniques for imputing were gone over. The manual imputation used in the production of the Danish RTI was also discussed in some detail. Imputation methods will be discussed further in the next mission.

Quality indicators and introduction to ESS guideline documents

The rather technical theory behind CV calculations of survey-based estimates was gone over. From the Danish RTI examples of more process-oriented quality indicators were given (e.g. response rates, error detection evaluation). This also led to a detailed talk of the error detection system used in the Danish RTI (which is macro based), which in turn led to discussing the use of auxiliary information in error detection.

In BiH there is a wide use of turnover per employee figures used for error detection, resulting in a question of employment being included in most business surveys (including RT). While this can be an effective error detection method, the experts stressed that in many cases, employment data is not needed to do efficient error detection in surveys following many repeated enterprises over time. Indeed, a question of number of employees in the monthly retail trade turnover should not be included for the purpose of error detection alone.

Introduction to working day adjustment and seasonal adjustment

The theory of SA is a vast subject. The experts introduced parts of this theory, with the main focus on the pre-adjustment phase, partly because only the working day adjusted series are required through the STS regulation.

Following the theoretical sessions, again examples from the Danish RTI were introduced. **Furthermore the use of Demetra was exemplified by applying SA to turnover series from the two entities, leading to fruitful talks of the seasonal patterns in BH.**

Currently there is no SA being applied in BiH statistics at all. The experts emphasized the importance of this topic and demonstrated how Demetra is an easily accessible tool for performing SA.

Analysis of current sampling practice used in BiH

Prior to this mission the BC provided the experts with sample frames from District Brcko, FBIH and RS on both distributive trade surveys and retail trade surveys (in six separate data sets). The experts to some extent assessed these sample frames prior to the mission, and they were discussed during the mission.

The participants showed great interest in this topic, eager to supply additional information and explain some of the apparent disadvantages to the current sample practice. Adding to the information already provided in the previous mission report, the following were noted:

At RSIS the quarterly statistics on distributive trade is currently based on a survey with complete coverage. The frame is based on SBR but with additional information from other sources. The sample for the monthly RT survey is based on the frame of the quarterly survey and does not involve a random element. There is a large take-all group, and in the remaining strata always the largest enterprises are selected for the sample, until there is turnover coverage of 85 pct. (within each stratum).

At FIS sampling is used in both surveys. SBR is not trusted to give accurate information on activity and status on the units, so there is an extensive use of additional information. No random sampling is currently applied, only replacing death units with new ones. The subject matter experts from FIS experience many discrepancies between the information on enterprises they gain during the data collection and the information in SBR. This information of course should be adapted to the SBR, but unfortunately resources for updating SBR are very low.

Deflator of sales and input on questionnaires used for monthly survey on retail trade TRG-1

These two topics were only briefly discussed and will be included in the next mission.

Regarding the use of CPI as a deflator of sales there is a challenge of calculating price indices on the proper levels of activity codes. There is currently work being done on the CPI in BiH, and hopefully in the future it will be possible to facilitate the trade statistics with useful data.

The questionnaires will be worked on prior to and during the next mission. The experts expressed some general views on the current questionnaires, especially regarding monthly questions of variables mainly used for control (number of employees, stocks), which maybe could be omitted in the future (for the sake of simplification as well as reducing the burden on enterprises).

Current situation regarding use of VAT-data from ITA for retail trade statistics

During the mission a meeting was held with the current RTA of an ITA project as well as a representative from the EU delegation. The aim of the meeting was to inform the participants on potential use of administrative data in business surveys. The VAT-data from ITA could be used for such purposes and with no doubt increase the quality of business surveys in BiH.

The current situation is that only information on external trade is provided from tax authorities for the purpose of statistical production, and currently not on a level of detail that enables the statistical offices to identify the business units. This of course limits the use of the data.

Regarding VAT-data from ITA the situation is complicated partly because of the apparent existence of conflicting laws, and the process is slowly moving. Needless to say this is a matter to be taken care of at a higher level.

Preparations of future work and missions

Nearly a full day during this mission was spent discussing the long term plan for the work on this component and especially the work to be done prior to and during the next mission. We went through the more important methodological aspects discussed during this mission, for each of them addressing what needs to be done to eventually be in compliance with the EU regulation on STS. More on this in the next section.

3. Conclusions and recommendations

Based on the results and activities described in the previous section, this section will go through the conclusions made regarding the subjects directly connected to the production of trade statistics in BH.

During the final talks the experts emphasized the ultimate objective of the work on this component:

To enable the state agency to publish both monthly statistics on retail trade (which is currently not done at all) and quarterly statistics on distributive trade, in a way that is in compliance with the EU regulations. The shortcomings of the current practise were described in some detail in the previous mission report.

Frames, samples and estimations

Currently, the SBR is used on the entity and state level as a frame for all new surveys that are being introduced in accordance with the EU regulations. Nevertheless, there are still needs for improvements of SBR with additional information's primarily on activity and status on the units. So far, sampling for existing trade surveys is done on entity level, and done in different ways.

Regarding estimations there is currently no grossing up performed to the collected data at all. With the exception of the distributive trade survey of RSIS all surveys include a true sample, so the lack of estimation obviously causes underestimation of the turnover totals. Since it is the smaller enterprises that are out of the sample, in terms of bias in the growth rates, the consequence is underestimation of growth in smaller enterprises, often different from the growth in larger enterprises. Because of differences in the methods used in the entities the bias in the RS-figures are probably different from the bias reflected in FBIH figures, complicating the use of the data for state level totals further.

One way of trying to harmonize the sampling and estimation methods is to make more consistent (and similar) use of SBR. To make a qualified decision on this matter, it was agreed that the methodology experts from the entities (and possibly state level), with the

support of the subject matter experts, will analyse the consequences of a more consistent use of SBR. This will include the following:

- Simulation studies using SBR instead of the current sample frames.
- Estimation by ratio estimates, using auxiliary variables from the frame.
- Comparisons with SBS data and comparisons between quarterly and monthly surveys (concerning RT).

Related to the sampling and estimation topics is also the matter of turnover data from enterprises with activity not only in one entity or district Brcko. The current practise yields an underestimation, because data on local units in FBIH or district Brcko, whose enterprise is in RS, is not collected. FIS and Brcko collect data on turnover from units outside their own area, but RSIS does not. On the other hand RSIS collects data on local units belonging to an enterprise outside RS, and they need this data for geographical break down of data (municipalities). RSIS expressed willingness to extend their questionnaires with information on trade outside RS. It was agreed that the statistical institutes will decide on the future practise.

Another issue that came up during this mission was underestimation of trade turnover totals due to the lack of entrepreneurs in the survey. They are not in the SBR and currently very limited information is available. Currently there is some information on entrepreneurs from Direct Taxation Authorities, but without information on activity codes. Registration by the entrepreneurs is now demanded by law, so in the future more detailed information might be available.

Based on the findings so far, there is no doubt that the calculated level of the retail trade turnover figures is inaccurate (and generally underestimated). The use of indices and not totals in the dissemination is therefore strongly recommended. Of course for the purpose of state level statistics, information on the levels is needed. It should be noted that the sample for monthly retail trade statistics for RS was originally designed with the purpose of indices production only, and not the totals too.

Seasonal adjustment

Eventually WDA and SA need to be performed to many statistics in BiH. In addition to this it is strongly recommended to provide methodological experts with more training in the theory of SA. It is a possibility that by the end of this project there could be funding for a seminar on this topic.

Deflation

The introduction of calculations on volume is essential to be in compliance with the regulation. This will be discussed further on the next mission and it is recommended to start this work as soon as possible to ensure that possible changes in CPI facilitates all the needs of STS.

Questionnaires

One of the main focuses in the short term should be on possible redesigns of the questionnaires in use. This will be discussed during the next mission, but it is recommended to begin this work prior to the mission. From the experts' point of view the focus should be on simplifying the questionnaires.

Use of VAT-data from ITA

Hopefully in the near future, SBR can be enriched with VAT turnover from ITA on enterprise level. This would to a great extent improve the potential quality of SBR itself, sampling and estimation. There is to our knowledge no way of saying if and when this ideal situation could be achieved. So for now we plan our work without assuming the availability of VAT-data.

That being said it should be emphasized that there is a great need for this external data, to improve the quality of SBR and ensure the future use of this a basis for all business statistics.

Final remarks

These two first missions were spent mainly on assessment of the current situation and on training, including several examples from the Danish RTI. Furthermore, on this second mission the direction of the future work on trade statistics in BH was discussed. The work prior to the next mission and during the next mission is of great importance and should be focused on how to conduct these trade surveys in a way that enables state level totals to be published timely and with satisfactory quality, starting in 2013.

Actions needed for preparing and conducting the next mission or future missions

Action	Deadline	Responsible person/institution
Analyse the extent of misclassifications of RT enterprises wrongly classified (comparing the original frame with knowledge from data collection and actual SBR) with main activity outside RT. Send a brief report to experts.	1/5-2012	BHAS (BD) FIS RSIS
Analyse the group of KAU's in RT belonging to enterprises correctly classified (comparing the original frame with knowledge from data collection and actual SBR) outside RT, divided by activity. Send a brief report to experts.	1/5-2012	BHAS (BD) FIS RSIS
Perform analysis on historical data, including: - Simulation studies using SBR instead of the current sample frames. - Estimation by ratio estimates, using auxiliary variables from the frame. - Comparisons with SBS data and comparisons between quarterly and monthly surveys (concerning RT). Send a short note on the results to the experts by 15 May 2012. Prepare short presentation for the 3 rd mission.	15/5-2012, Before next mission	BHAS (BD) FIS RSIS
Send proposals of new questionnaire designs on distributive as well as retail trade.	15/5-2012	BHAS (BD) FIS RSIS
Review and propose changes to the received questionnaires.	Before 3 rd mission	Søren Kühl Andersen
Agree on how to handle turnover from local units belonging to enterprises from another entity/district.	Before 3 rd mission	BHAS (BD) FIS RSIS
Preparations for using CPI as deflator. Specification of current shortages and possible ways to come by these.	Before 3 rd mission	BHAS, Søren Kühl Andersen
Review of the results on the use of KAU's from enterprises outside RT in the monthly survey on retail trade.	Before 3 rd mission	Laima Brakauskienė
Pursue familiarity with SA in Demetra on both user and	Unknown	BHAS (BD)

methodological expert level. First step is to gain access to Demetra for relevant persons.		FIS RSIS
Pursue funding for methodological training in SA theory, possibly within this project.	Unknown	RTA, Søren Kühl Andersen

4. What to do before the next mission for the BC Counterpart

See table above.

5. Topics for the next meeting, action 1.4.2

1. Follow-up on training sessions from 2nd mission
 - a. Imputation techniques
 - b. Use of CPI in Danish RTI
 - c. Questions from BC experts?
2. Analysis on use of SBR and estimation on historical data
 - a. Results presented by methodological experts
 - b. Interpretation of results?
3. Deciding on future methods to be used, regarding
 - a. Sampling
 - b. Estimation
 - c. LKAU's from enterprises in other entity/district
4. Redesign of questionnaires
 - a. Quarterly survey on distributive trade
 - b. Monthly Retail trade
5. Deflation – use of CPI, and possible other outstanding issues
 - a. Possible meeting with subject-matter CPI experts in BiH
 - b. News on the situation regarding VAT-data?
6. Overall plan for making quality data available to BHAS, suitable for the calculation of state level totals
7. Planning of next mission

Annex 1. Terms of Reference

<p>Retail Trade Statistics 12th to 16th of March 2012 Terms of Reference - Activity 1.4.2. EU Twinning Project BA 08-IB-FI-03</p>
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| 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 | 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

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| <p>A. Plan for modification of existing survey on retail trade and quarterly survey on distributive trade developed by the 2nd project quarter.</p> <p>B. Detailed plan and preparation for modification of existing surveys on retail trade and distributive trade by the end of 4th project quarter.</p> <p>C. Existing surveys on retail trade and distributive trade modified by the end of 6th project quarter.</p> <p>D. Relevant results analyzed and plan for regular surveys in force by the 8th project quarter.</p> <p>E. Short Term Business statistics improved retail trade short term indicators harmonized with EU standards by the 8th project quarter.</p> |
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1.4.2. Activity

<p>Training of retail trade regarding methods for sampling, data collection, processing, analysis and SA and WDA.</p> <p>Harmonization of the existing monthly surveys on retail trade, bringing them in line with EU regulation on STS and ensuring producing of retail trade statistics at state level.</p>

The expected activities are:

- Training in methodology:
 - Sample design (establishment of frame, stratification, sample size, sample allocation, coverage errors)

- Estimation and weighing (design-based, non-response adjustment, estimation with auxiliary information)
 - Imputation methods
 - Quality indicators (response and non-response rate, mean square error, etc.)
 - Introduction to ESS guideline documents
 - Introduction to working day adjustment and seasonal adjustment of time series with Demetra
- Follow-up on information provided by BC on:
 - Analysis of current sampling practice used in BiH
 - Seasonal adjustment of available time series on retail trade in BiH with Demetra
 - Deflator of sales (analysis of possibility of using CPI of BiH as deflator)
 - Examples from Danish RT statistics
 - Input on questionnaires used for monthly survey on retail trade TRG-1
 - Current situation regarding use of VAT-data from ITA for retail trade statistics
 - Preparation of general work plan for developing distributive and retail trade
 - Preparation for the next mission:
 - 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

- Participants received theoretical and practical knowledge on specific survey techniques including sampling, data analysis and SA and WDA for Retail trade in accordance to EU-STS regulations
- Proposals for modification of existing monthly survey on retail trade TRG - 1
- General work plan for developing retail trade and distributive trade statistics prepared
- Mission report – summarized and detailed version completed, including description of alternative sources, possible data collection methods and recommendations
- 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)

Participants

List of participants for second mission through IPA 2008 Twinning project for subcomponent 1.4 Retail Trade statistics:

Agency for Statistics of BiH

Alen Bajramović, Senior Adviser for Services Statistics

Jasmina Omić, Senior Adviser for Services Statistics

Fahir Kanlić, Junior Officer in Department for Industry Statistics and Construction

Jasna Hadžić, Head of Department for Sample design and Methodology

Aida Zukanović, Junior officer in Department for Sample design and Methodology

Federal Institute of Statistics of BiH

Sanja Ambrožić, Head of Department for Services Statistics and External Trade

Ademira Pirić, Junior officer for Retail and Whole Trade Statistics

Dušanka Mandić, Junior officer for Retail and Whole Trade Statistics

Arijana Amina Muhić, Head of Department for Statistical Methodologies

Republika Srpska Institute of Statistics

Jelena Glamočika, Head of Department for Services Statistics

Sanela Vasiljević, Senior Officer for Retail Trade Statistics

Darko Marinković, Senior Officer for Statistical Sample and Analysis

Experts

Soren Kuhl Andersen, Statistics Denmark

Lasse Breuning Sluth, Statistics Denmark

Twinning Project Administration

Bente Dyrberg, RTA

Djemka Sahinpasic, RTA Assistant

Interpreters

Agenda

12 March (Monday) – 16 March (Friday)**Institute for Statistics of RS - Veljka Maldjenovica 12d, Banja Luka**

Time	Event	Purpose / detail
12 March, 12:00	Welcome	Introduction by Experts on program of the week
		Training in methodology – including practical examples from the Danish RTI (Soren Kuhl Andersen, Lasse Breuning Sluth)
13 March 9:00		Follow-up on information provided by BC: Sample frames and Seasonal adjustment (Soren Kuhl Andersen, Lasse Breuning Sluth) Preparations for ITA meeting (all)
14 March 10:00h		Current situation regarding use of VAT-data from ITA for retail trade statistics Input on questionnaires used for monthly survey on retail trade TRG-1
15 March 9:00		Preparation of general work plan for developing distributive and retail trade Preparation for the next mission
16 March till 12:00		Debriefing

Annex 2. Persons met

See above for persons participating during the entire mission.

In addition:

RTA at ITA Project: Wolfgang Berger

Representative from EU delegation:

Annex 3. Additional documents

Prior to this mission a large amount of data and documentation was provided by the BC. This is too extensive to include or even list here.

Also, a background paper on the Danish RTI was produced prior to the mission as well as a note on the frames and samples used in BH trade statistics. They are available upon request, as are the representations done by the experts.