

## **TWINNING CONTRACT**

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

## **Bosnia-Herzegovina**



## **MISSION REPORT**

**on**


**Retail Trade Statistics**

**Component no 1.4, 6<sup>th</sup> activity**

Mission carried out by Søren Kühl Andersen, Statistics Denmark  
Karen Keller, Statistics Denmark

26 November – 29 November 2013

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		 <b>STATISTICS DENMARK</b>

*IPA 2008*

*Author's name, address, e-mail*

*Søren Kühl Andersen  
Statistics Denmark  
Sejrøgade 11  
DK-2100 Copenhagen Ø  
Denmark  
Tel: +4539173561  
Email: ska@dst.dk*

*Karen Keller  
Statistics Denmark  
Sejrøgade 11  
DK-2100 Copenhagen Ø  
Denmark  
Tel: +4539173839  
Email: kke@dst.dk*

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### List of Abbreviations

BiH	Bosnia-Herzegovina
BHAS	Agency for Statistics of Bosnia and Herzegovina
HBS	Household Budget Survey
CPI	Consumer Price Index
DT	Distributive Trade
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

The work on this mission was primarily concerned with follow-up and assessment regarding the various aspects of the redesigned trade statistics. Special attention was once again given to seasonal adjustment as well as deflation, both being completely new aspects of the production of trade statistics in BiH. Below a very short summary of the discussions and results obtained during this mission is given. For more details, please refer to the full mission report.

### Overall status

The Statistical institutions of BiH introduced new sample and questionnaires from the beginning of 2013, collecting and processing data by new methods. State level data on RT has not been published yet, but the plan is to be able to publish figures from the reference period

of January 2014. The goal is to be able to include deflated data as well as seasonal adjusted series, and this is still to be fully implemented.

### **Questionnaires and variables**

In general the new questionnaires work well.

### **Data collection, response rate**

In general the data collection is going well, resulting in satisfying response rates.

### **Data entering and error checking**

Data is entered in an application, which simultaneously performs logical checks and probabilistic checks (on a micro level) of the data entered. The new STS IT application, developed at BHAS, is to be used for this, but it is still in development, and the entity offices expressed that they experience some performance issues when entering data.

For this reason RSIS still uses an older application, but FIS does not have this option and sees it as a big challenge in performing their daily work. It was agreed to give priority to solving this issue in the near future.

### **Imputation**

The methods used for imputation are described well in the RT methodology paper and follows the suggestions made by the IPA experts. It was emphasized that imputation is primarily to be used in two situations:

1. In case of non-response by enterprises in the take-all size class, in which the variance of the turnover amongst the enterprises is normally quite large.
2. In case of non-response in stratification groups with very few respondents.

### **Ratio estimation**

Ratio estimation is now being performed on RT survey in FIS and RSIS, with the assistance of methodology colleagues. It is the plan that it will be implemented in the IT application.

It is also the plan to introduce ratio estimation in the DT survey, probably from the publication of the reference period 1st quarter of 2014.

### **Time plan and timeliness**

No problems on entity level at the moment, but it was emphasized that they have very few days to enter the data, which makes the performance of the IT application even more important.

### **Assessment of the new data series**

Prior to the mission, RT and DT data series covering 2006-2012 for both entities as well as state level was sent to the IPA experts, with the aim of assessing this data in general and particularly preparing for the seasonal adjustment and working day adjustment of the series.

Focussing mainly on the RT series, certain aspects of the data series were discussed. In general the data quality seems very good, with consistent seasonality, consistent turnover shares of the activity classes as well as the entity levels.

### **Status on the use of CPI as deflator**

The RT series are to be deflated for calculation of (indirect) volume indices on both entity level and state level. Correspondence tables between COICOP and CPA as well as CPA and NACE rev. 2 have now been produced, allowing the calculation of appropriate deflators using CPI. Deflators from January 2010 have been calculated; soon 2006-2009 will follow.

### **Status on the IT application**

The IT application has been developed so that it now supports ratio estimation of retail trade, Brcko District data was used as a pilot. Work has also been made on the treatment of non-response in the RT survey (weighting and imputation). The newest version is not yet delivered to FIS and RSIS, but it will be soon, when everything is working well.

Short-term plan is to implement the use of CPI for deflation and to fix the current problems with performance in the data entering/error checking stage.

### **Seasonal adjustment**

Performing seasonal as well as working day adjustment to the RT series was dealt with in some detail. The IPA experts presented results of their analysis, and particularly the question of indirect/direct adjustment was discussed.

An agreement on how to perform seasonal adjustment on the RT series on entity as well as state level was reached. A summary of this can be found in annex 2 of the full report. It was agreed to include this text in the RT methodology paper.

### **RT methodology paper**

BHAS prepared prior to the mission a rather comprehensive paper describing the methods used in the RT survey, covering all stages from the aim of the survey, over questionnaire and variables, data collection, error checking, non-response treatment, estimation, deflation and seasonal adjustment to the final dissemination.

The paper was treated in some detail, with suggestions from all parties being worked in, and a final version will be prepared as soon as possible.

The IPA experts made a point of having one version for internal use and one for public access, since most (but not all) of the content could be of interest to many users.

It was agreed to prepare a similar paper for the DT survey.

## **Conclusions and recommendations**

This was the final mission on this component. Prior to the mission the one remaining final benchmark of the component was:

**E. Short Term Business statistics improved retail trade short term indicators harmonized with EU standards by the 8th project quarter (end of September 2013).**

The project-ending was postponed due to the population census; hence the deadline of this benchmark is effectively the end of 2013.

For a summary of the entire work done on this component, please refer to the annex. It is clearly fair to say that harmonization with EU standards is almost completed, and from 2014 BHAS will be able to transmit data to Eurostat in compliance with the STS regulation.

A few things still need to be done, and they can be summarized as follows:

- Complete the deflation of the RT series
- Perform seasonal adjustment and working day adjustment of the series
- Implement ratio estimation on the DT survey

A few recommendations for future development were also discussed:

- Short-term:
  - Introduce a sampling design in Brcko District similar to the one used in RS and FBiH
  - Introduce a more macro-oriented error checking, not necessarily integrated in the IT application
  - Prepare a DT methodology paper
- Long-term:
  - Consider moving the time for new samples in order to maximise the quality of the frame
  - Introduction of electronic forms (general issue, not specific for RT and DT surveys)
  - Further development of the seasonal adjustment methods, including the possibility of including moving holidays to a larger extend.
  - More metadata than what is already included in the methodology papers (quality indicators, revision policy and revision analysis, imputation rates etc.)

None of these recommendations should be taken as indicating that the accomplishments during these past two years are not fully satisfying.

Due to the hard work of everyone involved, the situation regarding RT and DT statistics in BiH is now improved beyond any expectations. Congratulations!

## **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 sixth and final mission within subcomponent 1.4 on retail trade statistics of the project.

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. The second mission, carried out in March 2012, was primarily a training mission, making local experts familiar with general methodology and in particular current production methods in Danish statistics covering RT and DT. In addition to this, issues concerning the domestic trade statistics in BiH were discussed, resulting in important homework of which the results were discussed during the third mission carried out in June 2012. During that third mission a rather detailed plan for the work towards the production of improved domestic trade statistics

from 2013 was made. The fourth mission contained several important activities, including final agreements on sample designs, estimation, imputation, deflation and linking of new series to old ones. The fifth mission contained a 1.5 days course in practical use of Demetra for seasonal adjustment. The remaining part of the mission was spent on regular work on the component, primarily concerned with the monthly retail trade statistics and assisting the BC in implementing the new estimation methods. This report will assume familiarity with the reports of the five previous missions.

Over the past two years it has been an absolute pleasure to work with the local collaborators involved with the production of retail trade and distributive trade statistics in BiH. The combination of skills, the sincere interest in implementing improved methods and work-flows and certainly a very welcoming and friendly attitude towards the visiting experts has made this a highly interesting and fruitful collaboration. The component leader, having participated in all six missions, would like to express his thankfulness towards everyone who contributed to the important results obtained on this component, in particular the local component leaders who always pursued productive solutions, even when facing different opinions or interests.

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**

### **Introduction**

The work on this mission was primarily concerned with follow-up and assessment regarding the various aspects of the redesigned trade statistics. Special attention was once again given to seasonal adjustment as well as deflation, both being completely new aspects of the production of trade statistics in BiH. Below a very short summary of the discussions and results obtained during this mission is given. For more details, please refer to the full mission report.

### **Overall status**

The Statistical institutions of BiH introduced new sample and questionnaires from the beginning of 2013, collecting and processing data by new methods. State level data on RT has not been published yet, but the plan is to be able to publish figures from the reference period of January 2014. The goal is to be able to include deflated data as well as seasonal adjusted series, and this is still to be fully implemented.

### **Questionnaires and variables**

In general the new questionnaires work well. The questionnaire for distributive trade contains in “table 2” with a detailed break-down of the turnover on various classes of goods. FIS experienced that many respondents are unwilling (or even unable) to fill out this table. The table is not necessary for regular production, so it was discussed whether or not to drop it – this has been discussed on previous missions, with the IPA experts recommending to omit this table from the quarterly questionnaires. RSIS does not experience similar problems, and the table does give valuable information, e.g. demand from national accounts, for the compilation of deflators (see below). It was decided to keep the table in the questionnaire for now.

The retail trade questionnaire includes a table for indicating the main activity of the enterprise. RSIS and BHAS are going to drop this table, but FIS is going to keep, as it is being used for checking industry classifications of the enterprises. It should not be a problem that the questionnaires will differ on this regard.

### **Data collection, response rate**

In general the data collection is going well, resulting in satisfying response rates. An issue regarding the timing of the drawing of the sample was brought up: The sample is to be renewed every year, with data collection using the new sample starting with the reference period of January/1<sup>st</sup> quarter. This means that all questionnaires for the coming year are sent out in December/January, and this again has the implication that the new sample is to be finalized during December.

In order to have time to finalize the sample in December, the frame, coming from SBR, is usually drawn by the end of September. For RT survey in 2014, sample frame will be drawn with the state of SBR at the end of November this year. The frame needs quality checking by subject matter staff as well as methodology experts, so a certain period of time is needed. This of course causes a certain delay from the actual drawing of the frame to the final sample is in effect. Inevitably this will mean that some enterprises, active in SBR at the time of drawing the frame, will have become inactive at the time the sample is in effect.

This delay cannot be avoided, but the issue brought up by the local experts is that SBR apparently performs a yearly update after the end of the year, so that a frame drawn from SBR might actually be of better quality than one drawn near the end of the year.

This brought up the discussion of two different types of response rates:

1. The number of responding units compared to the total number of units in the frame
2. The number of responding units compared to the number of still active units in the frame

The first one is interesting in terms of quality measures, weighting etc.  
The latter is interesting in terms of evaluating the data collection, how effective is the response chasing etc. (not being able to get an inactive unit to respond)

Of course, if the timing of the drawing of the frame causes the first mentioned response rate to be lower than it need to be (meaning that it could be higher if the frame was drawn at another time of the year), it is worth considering moving the introduction of new samples to another time of the year. This would cause a change of the current practise, and there might be some practical challenges connected to that. Theoretically there is no need for the sample change to be introduced by the end of the year.

It was agreed that it is something worth considering in the future.

### **Data entering and error checking**

Data is entered in an application, which simultaneously performs logical checks and probabilistic checks (on a micro level) of the data entered. The new STS IT application, developed at BHAS, is to be used for this, but it is still in development, and the entity offices expressed that they experience some performance issues when entering data.



For this reason RSIS still uses an older application, but FIS does not have this option and sees it as a big challenge in performing their daily work. It was agreed to give priority to solving this issue in the near future.

A short discussion on the use of a more macro-based approach to error checking took place. The current situation is that all error checking of the respondents' data is done with a micro-approach, primarily comparing the data with previous month and same month previous year.

Introducing a macro-based method could improve the efficiency in deciding which data to mark for error checking, e.g. by comparing the monthly growth rate for a respondent to that of the similar enterprises in the same activity class and size group.

It was agreed that this could be a topic for future development.

## **Imputation**

The methods used for imputation are described well in the RT methodology paper and follows the suggestions made by the IPA experts. It was emphasized that imputation is primarily to be used in to situations:

1. In case of non-response by enterprises in the take-all size class, in which the variance of the turnover amongst the enterprises is normally quite large.
2. In case of non-response in stratification groups with very few respondents.

RSIS stated that imputation is normally not needed, since they receive data from all enterprises for which it could be relevant.

FIS has some experience with imputation and clarified some details concerning the treatment of non-response in general.

## **Ratio estimation**

Ratio estimation is now being performed on RT survey in FIS and RSIS, with the assistance of methodology colleagues. It is the plan that it will be implemented in the IT application.

It is also the plan to introduce ratio estimation in the DT survey, probably from the publication of the reference period of 1<sup>st</sup> quarter of 2014.

## **Time plan and timeliness**

No problems on entity level at the moment, but it was emphasized that they have very few days to enter the data, which makes the performance of the IT application even more important.

BHAS stressed the importance of having RT data from entities at t+25 to be able to transmit to Eurostat at t+30. RT data on state level are still not published, but the plan is to be able to publish figures from the reference period of January 2014. The goal is to be able to include deflated data as well as seasonal adjusted series, and this is still to be fully implemented.

## **Assessment of the new data series**

Prior to the mission, RT and DT data series covering 2006-2012 for both entities as well as state level was sent to the IPA experts, with the aim of assessing this data in general and particularly preparing for the seasonal adjustment and working day adjustment of the series.

Focussing mainly on the RT series, certain aspects of the data series were discussed. In general the data quality seems very good, with consistent seasonality, consistent turnover shares of the activity classes as well as the entity levels. A few questions from the IPA experts were raised:

1. The very high share of the total turnover in activity class 47.3 (petrol stations) in both entities, especially RS, where it is higher than 33 pct.
2. Differences between the entities in the turnover shares of primarily 47.11, 47.19 and 47.2.
3. 'Strange development' in certain (smaller) activity classes, especially in FBiH.

Ad 1) This brought up the subject of entrepreneurs in the retail trade sector of BiH. They are not covered by the RT survey but apparently comprise a rather large proportion of the retail trade surveys. Since entrepreneurs are probably under-represented in the activity class 47.3 (making the RT survey estimate of the turnover of this particular activity class closer to the true total than for many other classes), this could partly explain the very high share.

Ad 2) Classification determination between these particular three classes can be rather subtle. When adding the three, the sum constitutes about the same share of the total, for both entities.

Ad 3) Some of these could be easily explained, and some were fixed after looking into the data.

### **Status on the use of CPI as deflator**

The RT series are to be deflated for calculation of (indirect) volume indices on both entity level and state level. Correspondence tables between COICOP and CPA as well as CPA and NACE rev. 2 have now been produced, allowing the calculation of appropriate deflators using CPI. Deflators from January 2010 have been calculated; soon 2006-2009 will follow.

The deflators as well as the calculated volume indices on state level were presented. There are some quality issues for some of the deflators, originating from the CPI, e.g. an unusual downward drift in the deflator used for 47.71 (clothing), but all in all it is very satisfying finally to be able to deflate data.

The plan is to implement the deflation in the STS IT application as soon as possible.

### **Status on the IT application**

The IT application has been developed so that it now supports ratio estimation of retail trade, Brcko District data was used as a pilot. Work has also been made on the treatment of non-response in the RT survey (weighting and imputation). The newest version is not yet delivered to FIS and RSIS, but it will be soon, when everything is working well.

All development was paused from mid-June to November, due to the resources transferred to work on population census-related issues.

E-mails from the users with suggestions for changes and improvements are being collected and will be dealt with in a systematic way.

Short-term plan is to implement the use of CPI for deflation and to fix the current problems with performance in the data entering/error checking stage.

A long-term goal is to change the application from being a desktop application to a web application.

### Seasonal adjustment

Performing seasonal as well as working day adjustment to the RT series was dealt with in some detail. The IPA experts presented results of their analysis, and particular the question of indirect/direct adjustment was discussed.

An agreement on how to perform seasonal adjustment on the RT series on entity as well as state level was reached. A summary of this can be found in annex 2. It was agreed to include this text in the RT methodology paper.

### RT methodology paper

BHAS prepared prior to the mission a rather comprehensive paper describing the methods used in the RT survey, covering all stages from the aim of the survey, over questionnaire and variables, data collection, error checking, non-response treatment, estimation, deflation and seasonal adjustment to the final dissemination.

The paper was treated in some detail, with suggestions from all parties being worked in, and a final version will be prepared as soon as possible.

The IPA experts made a point of having one version for internal use and one for public access, since most (but not all) of the content could be of interest to many users.

It was agreed to prepare a similar paper for the DT survey.

## 3. Conclusions and recommendations

This was the final mission on this component. Prior to the mission the one remaining final benchmark of the component was:

**F. Short Term Business statistics improved retail trade short term indicators harmonized with EU standards by the 8th project quarter (end of September 2013).**

The project-ending was postponed due to the population census; hence the deadline of this benchmark is effectively the end of 2013.

For a summary of the entire work done on this component, please refer to annex 3. It is clearly fair to say that harmonization with EU standards is almost completed, and from 2014 BHAS will be able to transmit data to Eurostat in compliance with the STS regulation.

A few things still need to be done, and they can be summarized as follows:

- Complete the deflation of the series
- Perform seasonal adjustment and working day adjustment of the series
- Implement ratio estimation on the DT survey

A few recommendations for future development were also discussed:

- Short-term:
  - Introduce a sampling design in Brcko District similar to the one used in RS and FBiH
  - Introduce a more macro-oriented error checking, not necessarily integrated in the IT application
  - Prepare a DT methodology paper
- Long-term:
  - Consider moving the time for new samples in order to maximise the quality of the frame
  - Introduction of electronic forms (general issue, not specific for RT and DT surveys)
  - Further development of the seasonal adjustment methods, including the possibility of including moving holidays to a large extend.
  - More metadata than what is included in the methodology papers (quality indicators, revision policy and revision analysis, imputation rates etc.)

None of these recommendations should be taken as indicating that the accomplishments during these past two years are not fully satisfying.

Due to the hard work of everyone involved the situation regarding RT and DT statistics in BiH is now improved beyond any expectations. Congratulations!

**Annex 1. Terms of Reference and agenda**

**Retail Trade Statistics**  
**26<sup>th</sup> to 29<sup>th</sup> of November 2013**  
**Terms of Reference - Activity 1.4.5.**  
**EU Twinning Project BA 08-IB-FI-03**  
**Federal Institute for Statistics of FBiH,**  
**Zelenih beretki 26, Sarajevo**

- |             |  |
|-------------|--|
| Component 1 | Business Statistics<br>1.1. Statistical Business Register<br>1.2. Structural Business Statistics<br>1.3. Construction Statistics<br><b>1.4. Retail Trade Statistics</b><br>1.5. Tourism Statistics |
| Component 2 | Household Budget Survey  |
| Component 3 | Institutional Capacity<br>3.1. Long term strategy<br>3.2. Metadata and classification system development<br>3.3. Promotion of dissemination  |

**Benchmarks**

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

**1.4.5. Activity - Follow up on the work done on RT statistics**

Final mission dedicated to the results of the retail trade statistics component. Follow up on improvements made between missions. Preparation of RT methodology and supporting documentation.

**Expected activities**

- Follow up by BC and experts on the results of performed activities between missions
- Assessment and evaluation of new trade surveys regarding:
  - Questionnaires and variables
  - Data collection and response rates
  - Error checking
  - Quality of collected data
  - Imputation
  - Estimation
  - Time plan and timeliness
- Assessment of the quality of the new data series
- Follow-up on deflation
- Follow-up on seasonal adjustment
  - Indirect/direct SA
- Status on the STS -IT application
- Preparation of RT methodology
- Transmission to Eurostat
- Preparation of short summary on RT subcomponent
- Conclusions and outstanding issues
  - Future development (short term and long term)

**Expected output**

- Mission report – summarized and detailed version completed
- Assessment and evaluation of redesign surveys with proposals for their further improvements
- Agreement on methods that will be used for modified surveys on retail trade and distributive trade
- Adopted draft version of RT methodology

**Participants**

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

**Agency for Statistics of BiH**

Alen Bajramović, Head of Department for Services Statistics

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

Adnan Gušić, Senior Advisor for Planning and Programming

Alen Mrgud, Senior Advisor in IT Department

Aida Semić, Trainee in Department for Services Statistics

**Federal Institute of Statistics of BiH**

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

Dužanka Mandić, Junior Officer for Retail and Whole Trade Statistics

Merima Hadžalić, Trainee in Department for Services Statistics and External Trade

Edina Alajmović – Mehidić, Trainee in Department for Sample design and Methodology

**Republika Srpska Institute of Statistics**

Jelena Glamočika, Head of Department for Services Statistics

Sanela Vasiljević, Senior Officer for Retail Trade Statistics

**Experts**

Soren Kuhl Andersen, Statistics Denmark

Karen Keller, Statistics Denmark

**Twining Project Administration**

Bente Dyrberg, RTA

Djemka Sahinpasic, RTA Assistant

**Interpreter**

Haris Imamovic

<b>Agenda</b>
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<b>Time</b>	<b>Event</b>	<b>Purpose / detail</b>
26 November, 9:00	Follow-up by BC Assessment of the quality of the new data series from 2006 - 2012	Overview of current status of redesign monthly RT and quarterly distributive trade surveys Assessment and evaluation of RT and DT surveys regarding: Questionnaires and variables, Data collection and response rates, Error checking, Imputation methods, Ratio estimation, Time plan and timeliness, Quality of the new data series (back casting of historical series - match sampling and overlapping) from 2006 - 2012 (BC participants, IPA experts)
27 November, 9:00  13:00	Follow-up on deflation Follow-up on seasonal adjustment Status on the STS -IT application  Preparation of RT methodology	Status on use of CPI as deflator Indirect/direct SA Presentation by BC of development of IT application on RT  Preparation of RT methodology and supporting documentation. (BC participants, IPA experts)
28 November, 9:00  13:00	Continuation of the previous day – RT Methodology  Transmission to Eurostat Preparation of short summary on RT subcomponent	Discussion and proposals for final version of RT methodology  Danish experience Overview of work done through this twinning project (BC participants, IPA experts)
29 November, 9:00-12:00	Conclusions and outstanding issues Debriefing	Future development (short term and long term) Evaluation and approval of the Summary Mission Report (Soren Kuhl Andersen, Karen Keller, BC participants)



## Annex 2. Seasonal adjustment and working day adjustment

The STS regulation specifies that working day adjusted series must be submitted to Eurostat for all series. Seasonal adjusted series are to be submitted on a voluntary basis, but Eurostat prefers to receive this from the national statistical institutes instead of performing seasonal adjustment on national level themselves.

Seasonal adjusted (SA) and working day adjusted (WDA) series will be calculated on entity level as well as on state level. SA and WDA series will be calculated on the publication levels specified below. Demetra will be used with the following settings:

1. The first adjustment is performed with the use of Demetras automatic and default settings, including:
  - a. Standard calendar
  - b. Automatic test for all trading day effects and standard Easter effect, allowing the number of regressors to be reduced if no significant effect is identified by Demetra
  - c. Default parameters for a new automatic processing
  - d. Tramo/Seats to ensure that WDA series are in the output
2. In the following periods, previous models settings with re-estimation of the ARIMA and regression coefficients are to be used, to avoid larger revisions during the year
3. Once a year a new automatic processing is performed, allowing larger revisions in order to ensure a good model fit. Introducing a new model can be avoided if it does not change the adjusted series in any significant way.

For series without working day effect, the unadjusted series is transmitted as the WDA series. When seasonal adjusting an aggregate series it can be done directly, by seasonal adjusting the aggregate, or indirectly by first seasonal adjusting the components and then aggregating the seasonal adjusted series.

Whenever possible, the indirect approach will be used. This means that on entity level, the aggregated series consisting of at least two other series from the level of publication will be adjusted indirectly whereas all others will be adjusted directly, since no seasonal adjustment is done on series at a lower level than the one used for publication. On state level all adjustment is performed indirectly by summing the SA and WDA series from the entities and Brcko District.

The below table shows the publication levels and summarizes the use of indirect and direct adjustment.

Publication aggregate	Entities, Brcko	Components, if indirect	State level	Components, if indirect
47	Indirect	47.11, 47.19, 47.2, 47.3, 47.4, 47.5, 47.6, 47.7, 47.8, 47.9	Indirect	Sum of SA/WDA series from entities and Brcko District
47.11	Direct		-"-	-"-
47.2	Direct		-"-	-"-
47.11+ 47.2	Indirect	47.11, 47.2	-"-	-"-
47.19	Direct		-"-	-"-
47.4	Direct		-"-	-"-
47.5	Direct		-"-	-"-
47.6	Direct		-"-	-"-
47.7	Direct		-"-	-"-
47.8	Direct		-"-	-"-

47.9	Direct		..	..
47.4+ 47.5+ 47.6+ 47.7+ 47.8+ 47.9 + 47.19	Indirect	47.19, 47.4, 47.5, 47.6, 47.7, 47.8, 47.9	..	..
47.73+ 47.74+ 47.75	Direct		..	..
47.51+ 47.71+ 47.72	Direct		..	..
47.43+ 47.52+ 47.54+ 47.59+ 47.63	Direct		..	..
47.41+ 47.42+ 47.53+ 47.61+ 47.62+ 47.64+ 47.65	Direct		..	..
47.3	Direct		..	..
47- 47.3	Indirect	47.11, 47.19, 47.2, 47.4, 47.5, 47.6, 47.7, 47.8, 47.9	..	..

**Annex 3. Summary of component 1.4**

Six missions have been carried out on this component. The first mission was an assessment mission resulting in a rather comprehensive mission report including important background information on the current situation regarding the RT and DT statistics in BH. The main findings and conclusions at that time were:

- The use of SBR as a common sample frame and common sample methods must be introduced.
- There is an unusual extensive use of KAU's with retail trade activity, which belongs to an enterprise with main activity outside retail trade. As the statistical unit should be enterprise, this must be analyzed further.
- The monthly RT survey covers more variables (e.g. persons employed and stocks) than is needed. Possible simplifications should be examined.
- No grossing up is currently being applied. To compile aggregates of sufficient quality it is essential to introduce this.
- No working day adjustment or seasonal adjustment is currently applied. At least WDA is needed.
- No deflation is applied. A deflator, compiled from CPI data, must be introduced.
- Transition to Nace rev. 2 is needed. Planned for 2013.

Since then, four more missions were carried out, before the final one:

**The second mission** was primarily a training mission, making local experts familiar with general methodology and in particular current production methods in the Danish statistics covering RT and DT.

**The third mission** had its main focus on producing a rather detailed plan, including specific deadlines, for the remaining work towards the production of improved trade statistics.

**The fourth mission** contained several important activities, including final agreements on sample designs, estimation, imputation, deflation and linking of new series to old ones.

**The fifth mission** contained a 1.5 days course in practical use of Demetra for seasonal adjustment. The remaining part of the mission was spent on regular work on the component, primarily concerned with the monthly retail trade statistics and assisting the BC in implementing the new estimation methods.

**The sixth and final mission** was primarily concerned with follow-up and assessment regarding the various aspects of the redesigned trade statistics. As a result of the work on this mission, the following conclusions, relating to the main findings of the first mission mentioned above, can be made:

- SBR are now used as sample frame, and the sampling methods used in BiH are harmonized.
- The use of KAU's in the RT survey has been analyzed and are now limited to the most important non-retail trade enterprises with retail trade activity

- The questionnaires have been redesigned and harmonized, and the number of variables is reduced.
- Ratio estimation to gross up the sample data to the full population has been introduced.
- Staff has had basic training in the use of Demetra for seasonal adjustment, and agreements have been made as of how to perform the adjustments in the future.
- The use of CPI for deflation has been introduced and deflators have been calculated from January 2010, leaving only a little more work, before volume indices can be calculated for the entire series.
- The transition to Nace rev. 2 was completed, and furthermore the time series from 2006-2012 was backcasted to create a linked time series.

One of the primary goals of this component was to be able to calculate and publish monthly retail trade figures on state level. Differences in methodology in FIS and RSIS made this impossible, but thanks to the above-mentioned accomplished results, this can now be done starting from 2014 using methods in compliance with the EU STS regulation.