TWINNING CONTRACT

Support to the State and Entity Statistical Institutions, phase V

Bosnia-Herzegovina

MISSION REPORT

on

Retail Trade Statistics

Component no 1.4, 4th activity

Mission carried out by   Søren Kühl Andersen, Statistics Denmark
                                   Lasse Breuning Sluth, Statistics Denmark

3 December – 7 December 2012

Version: Final

		STATISTICS DENMARK

IPA 2008

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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

A major achievement of this mission was agreement on sample design. This was concerned with the structure of the frames on an aggregated level, to some extend altering the stratification quite a bit. The most important results from this mission was that this work was completed in a way that all could agree to, so that the 'only' thing left to do is allocation and actual drawing. The results of this work are as follows:

Retail trade survey

It was agreed to introduce a new grouping of the Nace rev. 2 activity classes to be used as stratification by activity (see annex 3 of the full report). Regarding stratification by size the following groups was agreed:

Group	Yearly turnover (KM)
1 (cut-off)	<100.000
2	100.000-500.000
3	500.000-2 Mil.
4 (take-all)	>2 Mil. or at least 20 employees

Distributive trade

It was agreed to stick to the initial stratification by activity, which is Nace rev. 2 activity on a 3-digit level. Regarding stratification by size the following groups was agreed:

Group	Yearly turnover (KM)
1 (cut-off)	<100.000
2	100.000-500.000
3	500.000-4 Mil.
4 (take-all)	>4 Mil. or at least 20 employees

In addition to this it was agreed for both surveys to collapse group 2 and 3 in all activity classes where either of these classes had less than 5 units. With this design the number of strata with less than 5 enterprises was reduced significantly.

In addition to the work on samples, the most important actions and agreements of this mission were:

- Presentation of IT application
    - Usability regarding data editing, error checking and imputation
    - Possible development regarding deflation and use of ratio estimation
- Imputation
    - Methods to be used
    - Agreement of restriction of imputation to size class 4 and small strata
- Backcasting and linking
    - Use of backcasted historic data on Nace rev. 2 classes
    - Linking of the new series to the old one
    - Use of matched sample technique to calculate growth rates from latest available period in old series to first period of new series
- Treatment of enterprises with secondary activity
    - Agreement on the compilation of a correspondence table, connecting each of the 4-digit classes in a 3-digit group of one division (45,46,47) to a 3-digit group of a different division, to be used for placing secondary activity within Distributive Trade enterprises
- Agreement on common revision policy
    - Regular revision of previous period and yearly revision of a full year

Benchmark C on this subcomponent says:

"Existing surveys on retail trade and distributive trade modified by the end of 6th project quarter (end of March 2013)."

Some activities in the preparation of achieving this were delayed, but still, it is the opinion of both the BC and IPA experts that this is still a realistic aim. Hopefully RT statistics on state level can be published already from end of March 2013 (including both January and February 2013 figures), and accordingly improved DT statistics on state level can be published by end of May 2013 (including figures on 1st quarter 2013).

To achieve this, new samples for 2013 for both surveys have to be finalized within a few days after the end of this mission. The process of linking the new results to the old series, as described below, also should have high priority in the coming months.

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 fourth mission within subcomponent 1.4 on retail trade statistics of the project. This mission contained several important activities, including final agreements on sample designs, estimation, imputation, deflation and linking of new series to old ones.

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 domestic trade statistics. 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. This report will assume familiarity with the reports of the three previous missions.

As always the work during this mission was performed under pleasant conditions thanks to the welcoming and hard-working local collaborators. Special thanks are also given to the very committed and skilled interpreter.

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

A major achievement of this mission was agreement on sample design. This was concerned with the structure of the frames on an aggregated level, to some extend altering the stratification quite a bit. The most important results from this mission was that this work was completed in a way that all could agree to, so that the 'only' thing left to do is allocation and actual drawing.

On this topic, as well as others mentioned below, many fruitful discussions took place. However, to include in this report anything more than the final conclusions to these discussions would not more meaningful.

Frames and samples

BC experts presented an initial sample and how enterprises with missing financial reports had been dealt with. Also, it was mentioned that the number of KAU's in the samples had been heavily reduced, as agreed upon on earlier missions. The IPA experts reviewed the sample designs and made suggestions on how to alter these with the aim of reducing the number of thin strata.

Retail trade survey

It was agreed to introduce a new grouping of the Nace rev. 2 activity classes to be used as stratification by activity (see annex 3). Regarding stratification by size the following groups was agreed:

Group	Yearly turnover (KM)
1 (cut-off)	<100.000
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4 (take-all)	>2 Mil. or at least 20 employees

In addition to this it was agreed to collapse group 2 and 3 in all activity classes where either of these classes had less than 5 units. With this design the number of strata with less than 5 enterprises was reduced significantly.

Distributive trade

It was agreed to stick to the initial stratification by activity, which is Nace rev. 2 activity on a 3-digit level. Regarding stratification by size the following groups was agreed:

Group	Yearly turnover (KM)
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In addition to this it was agreed to collapse group 2 and 3 in all activity classes where either of these classes had less than 5 units. With this design the number of strata with less than 5 enterprises was reduced significantly.

IT application

The IT application, which is to be the general tool for production of several short term statistics at the statistical offices of BiH, was introduced. It is in continuing development but already used by other surveys. Usability regarding data editing, error checking and imputation was presented and discussed.

In particular the importance of being able to check manually automatically imputed values, and the ability to control treatment of non-response with certain codes was emphasized.

In order to use the application for production of output tables for RT and DT statistics some further implementation is needed. In particular, the use of ratio estimation is not yet supported by the application, so now the plan is to use HT estimation, making the estimates more vulnerable to skewed non-response.

Imputation

The topic of imputing values for non-responding units was on the agenda for the previous mission, where examples from the Danish RTI were presented, and it was returned to on this mission. Different methods were discussed, and it was agreed that imputation is to be used for all non-responding units in size class 4 and in very small strata of size class 2 or 3.

Deflation

Currently no deflation of trade turnover is being performed in the domestic trade statistics of BiH. The plan is to use appropriate CPI aggregates for this deflation in the future. In order to calculate these deflators, a link between CPI price indices and the activity classes of the trade statistics to be deflated is needed. Furthermore, appropriate weights must be compiled.

This work is in progress, and ultimately the use of deflation should also be incorporated in the above mentioned IT application. At this stage the completion of this work is expected to be by the end of the project (September 2013), at the latest.

Backcasting and linking

Both entities performed backcasting of existing data on Nace rev. 1.1 industries to Nace rev. 2 industries, applying a micro approach. So the focus of this topic was the linking of the new series, calculated from 2013 by new methods, to the old series.

A presentation on this was given by IPA expert, and it can be found in annex 4. It was agreed that the procedure described here, will be used, when linking January/1st quarter of 2013 to the old series. Also, it was agreed that the specific problem with calculating growth rates from December 2012 to January 2013 for RT will be solved by applying a "matched sample" technique on the group of enterprises responding in both periods. The same applies for 4th quarter 2012 and 1st quarter 2013 in DT. This is further explained below.

Matched sampling

The principle is to use the overlap between the old and the new sample to perform the estimation. The existence of a useful overlap is ensured since all enterprises classified in size class 4 are included in both samples. The estimation should be performed using the corresponding sampling weights from the new sample. This produces new estimates for December and January which are comparable. They will both be underestimated, but in the same way, which means that bias on the growth rate – which is our parameter of interest – is almost ignorable.

Output tables and dissemination

The first issue that came up on this topic regarded the treatment of secondary activity within both RT and DT. In the RT questionnaire the enterprises can report part of the turnover as being outside retail trade activity. This can be disregarded when compiling totals for the RT statistics.

Regarding DT, the enterprises can divide their turnover on Nace rev. 2 divisions 45, 46, 47. It was agreed to compile a correspondence table, connecting each of the 4-digit classes in a 3-digit group of one division to a 3-digit group of a different division. This means for example: If a wholesale trade enterprise with main activity 46.65 reported part of their turnover as retail trade turnover, this table should show, in which 3-digit group in division 47 to put this (grossed up) turnover. In this case it should be 47.5.

It is important to emphasize that this process of moving totals from the main activity of enterprises to secondary activity estimates, should be performed *after* the estimation phase. This also means that there is a risk of skewing this estimate, because this was not taking into consideration when choosing the sample. It was agreed that this is an acceptable risk, since most enterprises with significant secondary activity are large and therefore force selected for the sample, but it obviously is important to keep an eye on this issue.

During the discussion on output tables, the calculation of comparable base year values was also returned to. This yielded a further explanation with concrete examples on how to perform the linking described above.

It was agreed to postpone any further discussions on output tables and dissemination to the next mission.

Revision policy

A common revision policy regarding the two trade statistics was agreed upon. There will be regular revisions of the previous period with every first publication of a new period. In addition to this there will be a yearly revision of the entire year.

3. Conclusions and recommendations

Benchmark C on this subcomponent says:

"Existing surveys on retail trade and distributive trade modified by the end of 6th project quarter (end of March 2013)."

Even though the time plan (agreed upon on the previous mission) for achieving this has been somewhat delayed, it is the opinion of both the BC and IPA experts that this is still a realistic aim. Hopefully RT statistics on state level can be published already from end of March 2013 (including both January and February 2013 figures), and accordingly improved DT statistics on state level can be published by end of May 2013 (including figures on 1st quarter 2013).

To achieve this, new samples for 2013 for both surveys have to be finalized within a few days after the end of this mission. The process of linking the new results to the old series, as described above, also should have high priority in the coming months.

Two aspects of the production by new and improved methods that had to be postponed are deflation and seasonal adjustment. Deflation by CPI based deflators is to be integrated in the IT application and it is uncertain if it will be ready much before the end of the project, but the topic will be returned to on future missions. Regarding seasonal adjustment, it will be an important topic on the next mission, so that by the end of the project, it will be possible to seasonal adjust the trade statistics of BiH.

Another important outstanding issue is the use of ratio estimation. It was previously agreed to apply this method in the future, but the IT application does not support it. It is the recommendation of the experts to facilitate the use of ratio estimation as soon as possible, and until then have special focus on skewed non-response.

Originally only one more mission was planned for this component, but it is now possible to include an additional mission. The dates of the next mission will have to be finally agreed upon, but the aim is first half of June. The composition of this next mission is yet to be finalized, but the BC and the IPA experts agree that an option to pursue is to combine the mission with a practical course in the use of Demetra for seasonal adjustment. This course would then make up half of that mission, including also BC experts from other areas.

A final mission on this subcomponent will probably take place in September, hopefully ensuring the completion of benchmarks D and E:

D.   Relevant results analysed and plan for regular surveys in force by the 8th project quarter   (end of September 2013).

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

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

For BC, see below.

Prior to the next mission the IPA experts will do the following:

- Provide documentation on Demetra
- Prepare presentation on variance estimation
- Prepare presentation on how to handle structural changes

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

- Provide series for SA
- Demetra (not Demetra+) installed on computers, ready to use
- Prepare presentation on use of IT application
- Prepare presentation on challenges met

5. Topics for the next meeting, action 1.4.5

- Course in practical use of Demetra (to be confirmed)

- Working day and Seasonal adjustment of RT and DT series

- Experiences with new estimation methods
    - New published series
    - Challenges met by BC
    - Treatment of structural changes

- Presentation on use of IT application
    - Status on implementation of ratio estimation
    - Status on use of CPI as deflator

- Variance estimation and other quality measures
    - Quality declaration from Danish RTI

- Structure and content of methodology documentation

- Planning of future mission

Annex 1. Terms of Reference and agenda

Retail Trade Statistics
3rd to 7th of December 2012
Terms of Reference - Activity 1.4.4.
EU Twinning Project BA 08-IB-FI-03
Agency for Statistics of BiH, Zelenih beretki 26, Sarajevo

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

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 (end of March 2013).

D. Relevant results analysed and plan for regular surveys in force by the 8th project quarter (end of September 2013).

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

1.4.4. Activity

Improvements of the existing quarterly distributive trade survey and monthly survey on retail trade, bringing them in line with EU regulation on STS and ensuring producing of distributive trade and retail trade statistics at state level.

Expected activities

- Presentations by BC on the results of performed activities:
  - Final frame
  - Final sample design and final sample
  - Use of KAU's
  - Estimation methods

- Presentation by BC of IT application(s) used for production

- Data editing, error checking

- Imputation

- Deflation

- Back casting of historical series
  - Example from Danish RTI

- Output tables and dissemination

- Revision of input data and output results

- Working day and Seasonal adjustment

- Planning of future mission(s)

- Preparation for the next mission:
  - Planning of 5th mission and topics for the next mission
  - Preparation of the list of activities to be done before the next mission

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Expected output

- Mission report – summarized and detailed version completed

- Analysis of performed activities with proposals for improvements in regular RT and DT surveys

- Agreement on methods that will be used for modified surveys on retail trade and distributive trade
- Defined homework and draft ToR for the next mission

Participants

List of participants for fourth 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

Azur Đapo, Senior officer for Retail and Whole Trade Statistics

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

Belma Mesihović, Senior officer in IT Department

Gorčin Stojanović, Junior officer in Prices Statistics Department

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

Mufida Kurdija, Junior Officer for Retail and Whole Trade Statistics

Arijana Amina Muhić, Head of Department for Statistical Methodologies

Nedžada Hadžalić, Prices Statistics Department

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

Interpreter

Svjetlana Pavicic

Agenda

Time	Event	Purpose / detail
3 Dec, 12:00	Follow-up on information provided by BC	Presentations by BC on the results of performed activities: Final frame, Final sample design and final sample, Use of KAU's, Estimation methods; Analysis of performed activities (Soren Kuhl Andersen, Lasse Breuning Sluth, BC participants)
	IT application	Presentation by BC of IT application(s) used for production (Soren Kuhl Andersen, Lasse Breuning Sluth, BC participants)
	Data editing, error checking Imputation Deflation Back casting of historical series (Example from Danish RTI)	Data editing and processing (controls that are being used for micro data checking and outlier check); Analysis on non-response treatment and imputation methods proposed by BC; Discussion on activities to be done for regular compilation of deflators for RT; Presentation by IPA experts (Soren Kuhl Andersen, Lasse Breuning Sluth, BC participants)
	Output tables and dissemination Revision of input data and output results Working day and Seasonal adjustment	Analysis of current practice and agreement on methods used in regular compilation of results on RT and distributive trade; Agreement on revision policy Presentation by IPA experts (Soren Kuhl Andersen, Lasse Breuning Sluth, BC participants)
	Preparation for the next mission	Planning of 5th mission and topics for the next mission; Preparation of the list of activities to be done before the next mission (Soren Kuhl Andersen, Lasse Breuning Sluth, BC participants)

7 Dec, 12:00	Debriefing	Evaluation and approval of the Summary Mission Report (Soren Kuhl Andersen, Lasse Breuning Sluth, BC participants)

Annex 2. Persons met

See above for persons participating during this mission.

Annex 3. Additional documents

Nace rev. 2 groupings in retail trade statistics

4711
4719
472
473
4741
4742
4743
4751
4752
4753
4754, 4759
4761, 4762
4763
4764
4765
4771, 4772
4773, 4774
4775
4776
4777
4778
4779
478
479

Annex 4. Presentation on linking new and old data series

"Backcasting" – linking new results to an old series

By Søren Kühl Andersen

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Introduction

- Aim:
  - To avoid a visible break in the series caused by methodological changes (sampling, estimation, classification for example)

- Idea:
  - To move old series to the level of the new series, using chaining via the change rates from the old series

2   12/5/2012

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Linking series

- ## Initial situation

3   12/5/2012

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Linking series

- ## Linked series

4   12/5/2012

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How to link series

- How to do this for an index series?
- Levels (of turnover, employees etc.) must be calculated back in time to be able to have the right level for the base year
- Essential: To have an overlapping period t_0 where the level is calculated by both methods

5   12/5/2012

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How to link series

- If there is no overlapping period, other means of calculating growth rates from t_{-1} to t_0 must be used (other sources, reusing last years growth rates…)
- Possible solution: apply new methods to calculate level of t_{-1} using old survey data

6   12/5/2012

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"Algorithm" (RT turnover)

- Backcast old series to nace rev. 2 (done?)
- Add turnover to form the new publication groups (4711, 4719, 472, etc) for all periods up to t_0
- Calculate growth rates for all periods up to t_0
- Apply growths rates to the new level of t_0, linking the new turnover level backwards

7   12/5/2012   STATISTICS DENMARK

"Algorithm" (RT turnover)

- Calculate turnover totals on all needed aggregation levels (47, EU aggregates, others?)
- Calculate the monthly average turnover of the base year (2005 or 2010) for all publication levels
- Calculate indices by dividing all turnover totals by the average of the base year

8   12/5/2012   STATISTICS DENMARK

Deflation

- Same story:
  - First deflate all turnovers
  - Then calculate the needed totals
  - Then calculate the base year average deflated turnover on all needed levels
  - Then calculate indices
  - This way weighting of indices is avoided!

9   12/5/2012

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