

# TWINNING CONTRACT

BA 15 IPA SR 01 17

## Support to the reform of the statistics system in Bosnia and Herzegovina



## MISSION REPORT

**Activity 2.4.2:**  
**Planning for a pilot surveys on new SPPIs**

**Component 2: Business Statistics**  
**Sub-component 2.4: Services Producer Prices Index**

Mission carried out by  
**Anna-Riikka Pitkänen, Statistics Finland**  
**Josipa Kalčić Ivanić, Croatian Bureau of Statistics**

**04-08 June 2018**

Version: Final

## **Expert contact information**

***Anna-Riikka Pitkänen***

*Statistics Finland*

*Helsinki, Finland*

*Tel: +358 29 551 3466*

*Email: [anna-riikka.pitkanen@stat.fi](mailto:anna-riikka.pitkanen@stat.fi)*

***Josipa Kalčić Ivanić***

*Croatian Bureau of Statistics*

*Zagreb, Croatia*

*Tel: +385 98 548 387*

*Email: [kalcicj@dzs.hr](mailto:kalcicj@dzs.hr)*

## Table of contents

1. General comments .....	4
2. Assessment and results .....	4
3. Conclusions and recommendations .....	6
What to do before the next mission for the BC Counterpart .....	6
What to do before the next mission for the MS Counterpart .....	7
Topics for the next mission .....	7
Annex 1. Terms of Reference .....	8
Annex 2. Persons met .....	10
Annex 3. Activity plan for the whole project .....	11
Annex 4. Chosen deflators by the Nace groups, Croatian example .....	15

## List of Abbreviations

API	Agriculture Price Index
BHAS	Agency for Statistics of Bosnia and Herzegovina
BiH	Bosnia and Herzegovina
CBBH	Central Bank of Bosnia and Herzegovina
CPI	Consumer Price Index
EC	European Commission
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FIS	Institute for Statistics of Federation of Bosnia and Herzegovina
MS	EU Member State
PPI	Producer Price Index
PPS	Probability proportional to size
RSIS	Institute for Statistics of Republika Srpska
RTA	Resident Twinning Adviser
SBR	Statistical Business Register
SBS	Statistical Business Services
SPPI	Services Producer Price Index
ToR	Terms of Reference
XPI	Export Price Index

## 1. General comments

This mission report was prepared within the EU Twinning Project "Support to the reform of the statistics system in Bosnia and Herzegovina". It was the second mission to be devoted to Services Producer Price Index within Component 2 of the project.

The purposes of the mission were:

- Results from initial research phase (feedback from the field)
- Adoption of a general plan for development of SPPI incl. timetable of pilot survey
- Frame for the pilot survey defined and reporting units selected
- Preparation of a final draft of questionnaire and supporting documents for pilot survey
- Evaluation of the nationally available price statistics as potential source for development of deflators for service industries

The consultants would like to express their thanks to all officials and individuals met for the kind support and valuable information which they received during the stay in Bosnia-Herzegovina and which highly facilitated the work of the consultants.

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, CBBH, Statistics Denmark, INSEE, Statistics Finland and Croatian Bureau of Statistics.

## 2. Assessment and results

### Day 1

On the first day, the overview of results carried out from the previous activity and the assessment on the current situation on development of SPPI in BiH was discussed. There are three statistical institutions within Bosnia and Herzegovina that are responsible for producing statistics. All three institutions will be engaged in producing SPPIs. There are challenges to ensure adequate resources for starting on-going production of SPPI, because only one person works on development of SPPI in each statistical institution. However, they have a great interest in developing new SPPI indices.

The BC experts presented the final pilot survey questionnaire. Between missions they had sent the preliminary questionnaire to the Croatian expert for comments, and they had also visited a few big companies. After visiting the enterprises, they had made some changes based on feedback from the enterprises. The respondents felt that especially the price data is sensitive, but the BC experts convinced them that the data is used only for statistical purposes. The pilot questionnaire was sent to large and medium sized companies, but the BC experts are considering sending the questionnaire to small enterprises as well.

BC experts presented source data for choosing the enterprises. They had used the data from SBR, SBS and quarterly survey on distributive trade and other services. BC experts had used those data to get a better perception about the service sector in BiH. BC experts are using cut off method (turnover and number of employees) in selecting the sample. MS experts are recommending random sampling, for example PPS or stratified sampling, but coverage can also be good in cut off sampling.

## Day 2

In the beginning of the second day MS expert from Finland gave a presentation about validation and editing data in Finnish SPPI. BC experts were very interested in the topic, and we discussed quite detailed about validation and quality adjustment methods. We went through examples in validation at both micro and macro level. The Finnish expert informed about good experiences in Nordic co-operation in SPPI as it is very useful to share knowledge and good practices about compiling statistics with countries with similar economic conditions. MS experts recommended to continue the good co-operation between the three statistical institutions and also with neighbour countries. As a result, it would improve the quality of statistics and countries could share good practices and solutions for the challenges they are confronting.

In the afternoon, MS expert from Croatia gave a presentation about data editing and validation in Croatian SPPI. We discussed detailed about webdata collection system which was very interesting to BC experts. Croatian web applications for SPPI surveys have several types of automatic data control at micro level (errors, warnings and logical and numerical control).

## Day 3

In the morning, MS expert gave a presentation on mission observation, imputation and index calculation. We went through calculation examples concerning price ratios, elementary aggregates, aggregation, chain index and the basic ideas on PPS and stratified sampling. We went through the Finnish PPI rules on stratified sampling in enterprises. The BC experts are also considering using either PPS or stratified sampling on their SPPI. The BC experts do not have the possibility to use for example SAS to draw a PPS sample, so a stratified sampling might be easier to apply. MS experts suggested to do the sampling (PPS or stratified sampling) using R program if possible – it is an open source statistical program. We also discussed about adding a new index series to the total index.

In the afternoon, BC experts together with MS experts created a general plan for developing SPPI, which also includes the timetable for the pilot survey. MS experts were curious about the co-operation with PPI or CPI. BC experts do not have close co-operation with other price statistics.

## Day 4

The MS experts gave presentations on index production system concerning both Finnish and Croatian IT solutions. BC experts found this topic very useful. MS experts showed a detailed example on how to do PPS sampling in Excel. MS experts also validated the index calculation example given by BC experts. BS experts presented different options for deflating the services. MS experts shared their experiences on deflators, especially concerning ISP. Also, CPI, PPI, API, XPI and index of wage and salary earnings can be used if SPPI is not available. Preferable method is to use SPPI.

## Day 5

BC experts and MS experts went through the summary mission report of this mission. BC experts and MS experts agreed that all the topics in the ToR were successfully met.

### 3. Conclusions and recommendations

- MS experts are recommending random sampling, for example PPS or stratified sampling. If cut-off approach is used, it might cause bias.
- MS experts suggested to do the sampling (PPS or stratified sampling) using R program if possible – it is an open source statistical program.
- MS experts recommend continuation of the good co-operation between the three statistical institutions. As a result, it would improve the quality of statistics and institutions share good practices and solutions for the challenges they are confronting.

The recommendations follow the regulations and recommendations of EU and/or Eurostat-OECD Methodological Guide for Developing Producer Price Indices for Services, and also Croatian and Finnish experiences.

#### What to do before the next mission for the BC Counterpart

Action	Deadline	Responsible person
Analyse the first results of pilot survey (data collection process, non-response, FAQ, etc.)	First half of October 2018	BHAS, FIS and RSIS
Data editing and treatment of non-response	End of September 2018	BHAS, FIS and RSIS
Preparation of set of formal and logical controls	End of September 2018	BHAS, FIS and RSIS
Quality of first results from the pilot survey	First half of November 2018	BHAS, FIS and RSIS
Preparation of first version of correspondence tables for deflators	End of December 2018	BHAS, FIS and RSIS
Study methodological documentation in detail to extend the knowledge and understanding of SPPIs	Ongoing process	BHAS, FIS and RSIS
Study methodological documentation on annual chain-linked index elaborated by the STS Task Force on chain-linking	Ongoing process	BHAS, FIS and RSIS
Check the main activity of businesses and make feedback to SBR during the work in the field	End of December 2018	BHAS, FIS and RSIS
Collect both information about availability of prices and turnover to address further decisions about weighting possibilities	End of December 2018	BHAS, FIS and RSIS

## What to do before the next mission for the MS Counterpart

Action	Deadline	Responsible person
Prepare a presentation on validation and editing of SPPIs with practical examples	Before third mission	Josipa Kalčić Ivanić (HR), Susanna Tåg (FI)
Prepare a presentation of correspondence tables used for deflators	Before third mission	Josipa Kalčić Ivanić (HR), Susanna Tåg (FI)

## Topics for the next mission

Activity 2.4.3	Analysis of pilot surveys results on SPPI
Budget section	7
Subject	<ul style="list-style-type: none"> <li>- Analysis of first results of pilot survey (data collection process, feedback from reporting units, recalling of reporting units, the most frequent mistakes, etc.)</li> <li>- Data editing and treatment of non-response</li> <li>- Quality of first results from the pilot survey</li> <li>- Preparation of set of formal and logical controls</li> <li>- Preparation of first version of correspondence tables for deflators</li> </ul>
Methods	Workshop and discussions with BHAS, FIS and RSIS. Presentations by MS, BHAS, FIS and RSIS
Resources	MS: Susanna Tåg (FI), Josipa Kalčić Ivanić (HR) BC: Relevant staff of BHAS, FIS and RSIS
Duration	2 STEs x 3.5 working days
Output	<ul style="list-style-type: none"> <li>- First results from the pilot survey assessed</li> <li>- EU experiences on data editing and treatment of non-response presented</li> <li>- Set of formal and logical controls prepared</li> <li>- First version of correspondence tables for deflators structure prepared</li> <li>- Input provided to the ToR of next activity</li> </ul>
Time schedule	October 2018

## **Annex 1. Terms of Reference**

### **Terms of Reference**

**EU Twinning Project BA 15 IPA ST 01 17**

**Component 2: Business Statistics**

**Sub-component 2.4: Services Producer Prices Index**

**04-08 June 2018**

**Hosting institution: BHAS – Agency of Statistics of BiH**

#### **Activity 2.4.2: Planning for a pilot surveys on new SPPIs**

##### **1. Mandatory result and benchmarks for the component**

Mandatory result:

- New indicators for producer prices in services produced by 8<sup>th</sup> project quarter

Benchmarks:

- Plan for development of producer prices in services produced by 1<sup>st</sup> project quarter
- Draft questionnaire and supporting documents for pilot survey prepared by 1<sup>st</sup> project quarter
- Pilot survey conducted by 2<sup>nd</sup> project quarter
- Criteria for an IT application defined by 2<sup>nd</sup> project quarter
- Results of pilot survey analyzed by 4<sup>th</sup> project quarter
- Plan for regular production of producer prices in services developed by 4<sup>th</sup> project quarter
- Indices on producer prices in services compiled by 6<sup>th</sup> project quarter
- Indices on producer prices in services made available to users by 8<sup>th</sup> project quarter
- Methodological document on producer prices in services developed by 8<sup>th</sup> project quarter
- Quality report for producer prices in services developed by 8<sup>th</sup> project quarter

##### **2. Purpose of the activity**

- Results from initial research phase (feedback from the field)
- Adoption of general plan for development of SPPI incl. timetable of pilot survey
- Frame for pilot survey defined and reporting units selected

- Preparation of final draft of questionnaire and supporting documents for pilot survey
- Evaluation of the nationally available price statistics as potential source for development of deflators for service industries

### **3. Expected output of the activity**

- Results from initial research phase presented
- Final design and Plan for pilot survey developed
- Supporting document for pilot surveys prepared
- Pilot questionnaires finalized
- Evaluation made of available price statistics for deflators
- Input provided to the ToR of next activity

## **Annex 2. Persons met**

### **Agency for Statistics of BiH (BHAS)**

Alen Bajramović, BHAS

### **Institute for Statistics of Federation of BiH (FIS)**

Merima Hadžalić, FIS

### **Institute for Statistics of Republika Srpska (RSIS)**

Jelena Glamočika, RSIS

### **MS Experts**

Anna-Riikka Pitkänen, Statistics Finland

Josipa Kalčić Ivanić, Croatian Bureau of Statistics

### **Twinning Project Administration**

Katja Møller Hjeltvang, RTA

Đemka Šahinpašić, RTA Assistant

Haris Imamović, Interpreter

**Annex 3. Activity plan for the whole project**

No.	MAIN ACTIVITY	COMPONENTS OF MAIN ACTIVITY*	DATE OF REALIZATION**	PARTICIPANTS	RESPONSIBLE INSTITUTION	BENCHMARK	NOTE
1	COVERAGE	1. Selection of service activity that will be covered through this project 2. Definition of the target population - observation units 3. Sample frame for SPPI pilot surveys determined	March 2018	BC experts, IPA experts	BHAS FIS RSIS	Plan for development of producer prices in services produced by 1st project quarter	*Activities proposed in General Plan could be changed in Detail Plan **Proposed dates are provisional
2	SAMPLE DESIGN	1. Determination of the criteria for sample design 2. Sample design 3. Sample selection for Pilot survey	Second project quarter (June 2018)	BC experts, IPA experts	BHAS FIS RSIS		
3	ACTIVITY PLAN WITH TIMETABLE	1. General Activity Plan for SPPI surveys agreed 2. Detailed Activity plan including Timetable with deadlines for pilot surveys (data collection, entering, processing, etc.)	Second project quarter (June 2018)	BC experts, Sample experts, IT experts, IPA experts	BHAS FIS RSIS	Plan for development of SPPI for selected services	
4	QUESTIONNAIRES FOR PILOT SURVEYS	1. Preparation of draft version of questionnaires 2. Review and proposed changes of the questionnaires 3. Final version adopted 4. Instructions for filling in the questionnaires prepared	<ul style="list-style-type: none"> <li>First project quarter for activity 4.1. (March 2018)</li> <li>Second project quarter for activities 2, 3 and 4 (May 2018)</li> </ul>	BC experts, IPA experts	BHAS FIS RSIS	Draft questionnaire and supporting documents for pilot survey prepared by 1st project quarter	

5	DATA COLLECTION	Timetable with deadlines for conducting Pilot survey on SPPI (delivery of questionnaires to reporting units, data collection process, etc.)	Second project quarter (June 2018)	BC experts, IPA experts	BHAS FIS RSIS	Pilot survey for activity M71.1 conducted by 2nd project quarter	
5.1		Sending questionnaires	end of May 2018	BC experts	BHAS FIS RSIS		
5.2		Response from reporting units	t+30	BC experts	BHAS FIS RSIS		
5.3		Data entry	t+60	BC experts	BHAS FIS RSIS		
5.4		Analysis of data collection process, feedback from reporting units, recalling of reporting units, the most frequent mistakes, etc.	Before 3rd mission (October 2018)	BC experts	BHAS FIS RSIS		Data expected to be available for Q1 and Q2 2018
6	DATA EDITING AND PROCESSING	1. List of controls for micro data checking 2. Data editing 3. Non response treatment 4. Imputation methods 5. Outlier checking and treatment 6. Preparation of first version of correspondence tables for deflators	From second mission	BC experts, Sample experts, IT experts, IPA experts	BHAS FIS RSIS		

7	CALCULATION AND ANALYSIS OF RESULTS	1. Determination of the method for calculation of SPPI indices 2. Agreement of method for calculation of indices 3. Calculation of Indices on producer prices in services from Pilot survey 4. Calculation of Indices on producer prices in services for regular survey	<ul style="list-style-type: none"> <li>• for activities 1, 2 and 3 (end of 2018)</li> <li>• for activity 4 (June 2019)</li> <li>• until the end of project</li> </ul>	BC experts, Sample experts, IT experts, IPA experts	BHAS FIS RSIS	Results of pilot survey analyzed by 4th project quarter <ul style="list-style-type: none"> <li>• Indices on producer prices in services compiled by 6th project quarter</li> <li>• Indices on producer prices in services made available to users by 8th project quarter</li> </ul>	
8	IT SUPPORT	Development of IT application (data entry module, list of formal and logical controls, etc.)	From first mission till June 2018	BC experts, Sample experts, IT experts	BHAS FIS RSIS	Criteria for an IT application defined by 2nd project quarter	IT support is provided through sub-component 2.C
9	REVISION POLICY	1. Revision of input data and output results 2. Data confidentiality treatment	end of March 2019	BC experts, Sample experts, IT experts, IPA experts	BHAS FIS RSIS		

10	PREPARATI ON OF REGULAR SPPI SURVEYS	1. Implementation of Pilot survey in 2018, quarterly 2. Redesign of quarterly Pilot survey - Amended methods for the regular surveys on activity M71.1 based on the experiences from the pilot survey - Preparation of final questionnaire for a regular production - Preparation of output tables (publication forms, transmission formats, etc.) - Preparation of Plan for a regular production	Until the end of 2018	BC experts, IPA experts	BHAS FIS RSIS	Plan for regular production of producer prices in services developed by 4th project quarter	
11	SPPI METHODOLOGY	1. Methodology for activity M71.1 developed in accordance with EU standards 2. Defining the quality indicators 3. Preparation of Quality report for regular survey	From second to seven mission	BC experts, Sample experts, IT experts, IPA experts	BHAS FIS RSIS	<ul style="list-style-type: none"> <li>• Methodological document on producer prices in services developed by 8th project quarter</li> <li>• Quality report for producer prices in services developed by 8th project quarter</li> </ul>	

**Annex 4. Chosen deflators by the Nace groups, Croatian example**

Nace group	Periodicity	Source	Disagg_ method	Auxiliary_ source	CPI	Weight	PPI	API
4511	M	CPI			0711	1,000		
4519	M	CPI			0711	1,000		
4520	M	CPI			0723	1,000		
4531	M	CPI			0721	1,000		
4532	M	CPI			0721	1,000		
4540	M	CPI			0712	0,016		
4540	M	CPI			0723	0,984		
4611	M	CPI			0112	0,300		
4611	M	PPI				0,615	101	
4611	M	PPI				0,066	131	
4611	M	PPI				0,013	132	
4611	M	PPI				0,007	133	
4612	M	CPI			0453	0,500		
4612	M	PPI				0,373	192	
4612	M	PPI				0,004	244	
4612	M	PPI				0,123	201	
4613	M	CPI			0431	0,080		
4613	M	CPI			0561	0,320		
4613	M	PPI				0,267	16	
4613	M	PPI				0,029	203	
4613	M	PPI				0,304	23	
4614	M	PPI				1,000	28	
4615	M	PPI				0,171	257	
4615	M	PPI				0,173	259	
4615	M	PPI				0,036	275	
4615	M	PPI				0,619	310	
4616	M	PPI				0,176	13	
4616	M	PPI				0,392	14	
4616	M	PPI				0,432	15	
4617	Q	API	AUX	PPI		0,030	10	05
4617	Q	API	AUX	PPI		0,538	11	07
4617	Q	API	AUX	PPI		0,232	10	06
4617	M	PPI				0,200	12	
4618	M	PPI				1,000	SECTION C	

4619	M	PPI				1,000	SECTION C	
4621	Q	API	AUX	CPI	0111	0,498		01
4621	Q	API	AUX	CPI	0111	0,364		02
4621	Q	API	AUX	CPI	0111	0,138		03
4622	Q	API	AUX	CPI	0933	1,000		042
4623	Q	API	AUX	PPI		1,000	101	11
4624	M	PPI				1,000	151	
4631	Q	API	AUX	PPI		0,061	103	06
4631	Q	API	AUX	PPI		0,539	103	041
4631	M	CPI			0116	0,083		
4631	M	CPI			0117	0,234		
4632	M	CPI			0112	0,500		
4632	M	PPI				0,500	101	
4633	Q	API	AUX	CPI	0114	0,587		121
4633	Q	API	AUX	CPI	0114	0,113		122
4633	M	CPI			0115	0,100		
4633	M	PPI				0,179	105	
4633	M	PPI				0,021	104	
4634	M	PPI				0,600	11	
4634	M	CPI			012	0,267		
4634	M	CPI			021	0,133		
4635	M	PPI				0,600	12	
4635	M	CPI			022	0,400		
4636	M	PPI				0,216	107	
4636	M	PPI				0,184	108	
4636	M	CPI			0118	0,600		
4637	M	CPI			0121	0,622		
4637	M	CPI			01191	0,178		
4637	M	PPI				0,200	108	
4638	M	PPI				0,600	102	
4638	M	CPI			0113	0,400		
4639	M	PPI				0,762	10	
4639	M	PPI				0,212	11	
4639	M	PPI				0,026	12	
4641	M	PPI				0,600	13	
4641	M	CPI			052	0,400		
4642	M	PPI				0,215	14	
4642	M	PPI				0,085	152	
4642	M	CPI			0312	0,269		

4642	M	CPI			0321	0,131		
4643	M	PPI				0,200	275	
4643	M	CPI			053	0,800		
4644	M	PPI				0,307	204	
4644	M	PPI				0,347	231	
4644	M	PPI				0,046	234	
4644	M	CPI			054	0,032		
4644	M	CPI			05611	0,268		
4645	M	PPI				0,200	204	
4645	M	CPI			12132	0,800		
4646	M	PPI				0,500	21	
4646	M	CPI			0611	0,500		
4647	M	PPI				0,584	310	
4647	M	PPI				0,016	274	
4647	M	CPI			051	0,400		
4648	M	PPI				0,598	265	
4648	M	PPI				0,102	321	
4648	M	CPI			1231	0,300		
4649	M	CPI			054032	0,500		
4649	M	PPI				0,248	162	
4649	M	PPI				0,244	172	
4649	M	PPI				0,006	323	
4649	M	PPI				0,002	324	
4651	M	CPI			0913	0,500		
4651	M	PPI				0,500	262	
4652	M	CPI			0820	0,500		
4652	M	PPI				0,500	263	
4661	M	PPI				1,000	283	
4662	M	PPI				1,000	284	
4663	M	PPI				1,000	289	
4664	M	PPI				1,000	289	
4665	M	PPI				1,000	31	
4666	M	PPI				1,000	289	
4669	M	PPI				1,000	28	
4671	M	CPI			0722	0,500		
4671	M	PPI				0,500	192	
4672	M	PPI				1,000	24	
4673	M	PPI				0,446	16	

4673	M	PPI				0,048	203	
4673	M	PPI				0,506	23	
4674	M	PPI				0,074	252	
4674	M	PPI				0,260	257	
4674	M	PPI				0,403	281	
4674	M	PPI				0,263	259	
4675	M	PPI				1,000	20	
4676	M	PPI				0,150	171	
4676	M	PPI				0,046	221	
4676	M	PPI				0,992	201	
4677	M	PPI				1,000	SECTION E	
4690	M	PPI				1,000	SECTION C	

## Signatures

For the approval of the contents of this report, representatives from BHAS, FIS and RSIS as well as MS experts and the RTA sign here:

Date: 8<sup>th</sup> of June 2018

\_\_\_\_\_  
Component leader, BHAS

\_\_\_\_\_  
Component leader, FIS

\_\_\_\_\_  
Component leader, RSIS

\_\_\_\_\_  
RTA

\_\_\_\_\_  
MS Expert

\_\_\_\_\_  
MS Expert