

TWINNING CONTRACT

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Support to the State and Entity Statistical Institutions, phase VI



MISSION REPORT

on

Activity 2.3.2.3

Testing of pilot surveys results of the producer (output) prices in services

Mission carried out by
Anka Javor, Central Bureau of Statistics Croatia
Rasmus Anker Kristiansen, Statistics Denmark

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Expert contact information

*Rasmus Anker Kristiansen
Statistics Denmark
Sejrøgade 11
DK-2100 Copenhagen Ø
Denmark
Tel: +45 39 17 35 32
Email: rkr@dst.dk*

*Anka Javor
Central Bureau of Statistics Croatia
Ilica 3
10000 Zagreb
Croatia
Tel: +385 091 171 94 06
Email: javora@dzs.hr*

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List of Abbreviations

BHAS	Agency for Statistics of Bosnia and Herzegovina
BiH	Bosnia and Herzegovina
CBBH	Central Bank of Bosnia and Herzegovina
EC	European Commission
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FIS	Institute for Statistics of Federation of Bosnia and Herzegovina
MS	EU Member State
RS	Republika Srpska
RSIS	Institute for Statistics of Republika Srpska
DB	District of Brčko
RTA	Resident Twinning Adviser
ToR	Terms of Reference
RAK	Regulatory Agency of Communication
KAU	Kind of Activity Unit

1. General comments

This mission report was prepared within the Twinning Project "Support to the State and Entity Statistical Institutions, phase VI". It was the third mission to be devoted to introduce Producer Price Index for Services (SPPI) in BiH within Component 2.3.2 Short-Term Statistics 7-11 September 2015 of the project. The purpose of the mission was:

- **Testing of pilot surveys results of the producer (output) prices in services in BiH**

The consultants would like to express his/her thanks to all officials and individuals met for the kind support and valuable information which he/she received during the stay in Bosnia-Herzegovina and which highly facilitated the work of the consultant.

This views and observations stated in this report are those of the consultant and do not necessarily correspond to the views of EU, BHAS, FIS, RSIS or Statistics Denmark and Statistics Croatia.

2. Assessment and results

The list of activities defined in the ToR for the third mission includes:

- Presentation of experiences from the field: feedback from reporting units, recalling of reporting units, the most frequent mistakes, etc.
- Analysis of first results regarding data collection process (response rate, data quality, etc.)
- Defining of methods for calculation of price indices (weighting structure, testing of calculation methods on available data set)
- Presentation of the Croatian and Danish data editing process and treatment of non –response
- Defining set of formal and logical controls
- Presentation of Croatian and Danish methodological papers; sample selection, survey design, data collection and analysis

During the third mission the following output have been achieved:

- Analysis of the first results were made
- Methods for treatment of non-response were defined
- A set of formal and logical controls were defined
- Methods for data editing and processing were agreed
- Methods for calculation of price indices were defined
- Preparation of the methodological documents were started

3. Conclusions and recommendations

3.1 Initial experiences from the pilot survey

During the third mission, experiences from the initial data collection process for the pilot survey for 2015Q1 and 2015Q2 were presented by BC experts. In general, all companies included in the pilot survey were contacted as defined in mission two.

As planned in the previous missions, the emphasis of the pilot project was to get response from the field in quantity, rather than quality. However, the optimal outcome of course relies on both. Therefore, for service activities 53 and 61 respondents were asked for both turnover and volume to calculate realised unit value prices where available.

In case of the remaining service activities, respondents were asked to report actual prices of representative services. In certain cases, better response was received when reporting units were visited, rather than contacted by phone or e-mail. There were some feedback to the questionnaires from the field, however no major changes are deemed necessary to implement for future use.

Necessity for tailor made questionnaires appeared only in the case of 53 Postal Services. The uses of questionnaires will mainly be applied for industry 49.41 Freight Transport by Road as this industry consist of the largest number of reporting units in the population.

The following table gives a detailed overview of the response rates from the initial data collection, from the pilot project for periods 2015Q1 and 2015Q2.

Table 1 – Response rates by industries 2015Q1 and 2015Q2, number of units

NACE	Industry	Entity	Total units	Responses	Misclassified, liquidation, no information	Refused to reply	Other reasons
49.41	Road freight transport	Total	71	47	16	8	-
		RS	26	13	12	1	-
		FBiH	38	28	3	7	-
		DB	7	6	1	-	-
51.10	Air passenger transport	Total	1	-	-	-	1
		RS	-	-	-	-	-
		FBiH	1	-	-	-	1
		DB	-	-	-	-	-
52.10	Warehousing and storage	Total	8	1	3	1	3
		RS	2	1	1	-	-
		FBiH	6	-	2	1	3
		DB	-	-	-	-	-
52.24	Cargo handling	Total	3	1	2	-	-
		RS	2	-	2	-	-
		FBiH	-	-	-	-	-
		DB	1	1	-	-	-

53.10	Universal postal services	Total	3	3	-	-	-
		RS	1	1	-	-	-
		FBiH	2	2	-	-	-
		DB	-	-	-	-	-
53.20	Courier services	Total	9	3	1	1	4
		RS	3	-	-	-	3
		FBiH	6	3	1	1	1
		DB	-	-	-	-	-
61	Telecommunication	Total	19	8	3	4	4
		RS	7	4	3	-	-
		FBiH	11	4	-	4	3
		DB	1	-	-	-	1
Total		Total	114	63	25	14	12

Findings regarding data quality etc. from the data collection process, for each of the six industries subject to the pilot project, are listed below:

49.41 Freight Transport by Road

For this industry, the largest and most important units mainly responded. There are a significant number of misclassified units, units in liquidation and units with no information at all (16 in total). Eight units explicitly refused to respond (of which 3 large units in size class 4). There were no serious problems with the questionnaire itself. It was in general perceived as clear and it is not likely that there are going to be changes to the questionnaire. It was also noticed that some units reported annual turnover for 2014 for more than one service group, but only one price.

This issue highlights a common difficulty for reporting units to grasp the concept of defining service prices. It is therefore suggested, that more emphasis should be put on reminding respondents about the fact that they should give information about prices.

Another difficulty was the fact that two points of contact in enterprises should be addressed in order to get data for the first quarter; accounting department for turnover and management for prices. However, better response is expected in future periods, as respondents will learn about quality and reporting service prices by interacting with statisticians.

51.10 Passenger Air Transport

This industry consists of one dominant company which is currently under financial distress. The company is in a process where it might be acquired by a foreign airline company, in which case it will be contacted to report service prices.

52.10 Warehousing and Storage

The intention for this industry was to obtain full coverage due to the low number of units in the population, with a total of 9 units; 6 from FBiH and 3 from RS. The data collection process however yielded a poor response, with 6 misclassified units and units in liquidation, from the total of 9 units.

Furthermore, two units refused to answer the questionnaire altogether. To make amends and extend coverage, there is a possibility to include one unit (operating Port of Brčko) which operational activity includes both services within industries 52.10 Warehousing and storage and 52.24 Cargo handling. In any case this market should be explored further and efforts should be made to include KAUs from enterprises registered in other industries.

52.24 Cargo handling

This industry hardly exists in BiH. Full coverage consists of three operating units, two of which reported that they were in liquidation. The only one reporting unit representing this industry for whole BiH will be Port of Brčko, the unit which will also be covered under industry 52.10 Warehousing and storage.

53.10 Postal Activities under Universal Service Obligation

Out of three covered companies in this industry, all of them responded. They gave a maximum of information which is at their disposal at the moment. There was a necessity to change the questionnaire for all three units according to their possibilities to respond, especially regarding the financial data. Price data will be a mix of list prices collected from the internet and reported turnover and volume for realised unit value prices.

53.20 Courier Services

Out of 9 units in industry 53.20 Courier Services, only three responded, however three units were not contacted. They will be contacted as soon as possible to obtain information for all three quarters of 2015. Reporting units already covered under industry 53.10 will also report data for 53.20 Courier Services. This industry will be subject to further investigation.

61 Telecommunications

In this industry there is also a great share of misclassified units or units in liquidation. Major units responded and they will be contacted further. Communication with RAK has not been established and further efforts should be made. There is a suggestion to exclude one very small unit which deals only with cable TV and Internet packages. Reporting units also had difficulties with how to identify turnover by service groups. A number of unit value prices were collected (price per minute) and calculations showed that these were indeed a realistic measure.

3.2 Methods for calculation of price indices and weights

Methods for calculation of price indices were discussed in detail during the mission, with Croatian and Danish experts offering their experiences to the BC experts. Based on the available collected data, pros and cons of different methods were evaluated. Due to the high level of detail in the collected data in terms of specific turnover for the different services and reporting units, there are a number of possibilities for weighting structures. Based on current data, weights can be used on price-, company- and CPA group level. For now, the calculation setup will be constructed in order to be able to apply the most suitable weighting method later in the project. During the mission, two approaches were considered in connection to weighting structure. The basic approach is calculating an index for each CPA group with equal weights, using the following formula:

$$Index_{t-1:t}^{CPA\ group} = \sum_{i=1}^r \left(\frac{\rho_t^i}{\rho_{t-1}^i} \right) * (1/r) * 100$$

Where ρ is collected service prices. Alternatively, the index can be calculated as above but with individual weights, by replacing $(1/r)$ with weights based on collected turnover data. Two examples of calculations, one with equal weights and one with specific company weights, can be found in annex 3. Comparing the index results from the example shows, that the index with individual company weights is slightly lower (101.22) than the index with equal weights (101.28). This difference is explained by the lower individual weight assigned to Company B in the later example, meaning that the service price increase from 1.560 to 1.700 KM has a smaller impact on the overall index result.

In general, lot of discussion was devoted whether to collect turnover data as weights and in which periodicity. It was decided to continue with annual collection of turnover data by services. This will keep reporting units continuously aware of specific needs for production of price indices of services and enable better data quality. Turnover data by service groups for 2015, collected at the beginning of 2016, will show if the current structure is close to the one for 2014. This information will be helpful when the decision on type and updating of weights for the base year (2015) is made.

3.3 Data editing and treatment of non-response

The Croatian and Danish experts presented their domestic approaches to the data editing process and treatment of non-response. In general a set of formal and logical controls must be established with regards to treatment of inliers, outliers and non-response. With input from the Croatian and Danish experiences, the following set of formal and logical controls were defined by the BC and MS experts. For **inliers**, the logical control will be five consecutive quarters without price change, with standardised reasons as consistency check.

For **outliers**, the logical control will be a control range for both unit values and price developments, e.g. $\pm X \%$, also with standardised reasons as consistency check. A control range for unit values should be revised periodically based on previous data, e.g. for the previous 8 quarters. For **non-response**, the logical control will be missing questionnaire (unit non-response) or missing values in either turnover or volume and – most importantly – prices (item non-responses).

In all cases of non-response, consistency check will be extensive contact with reporting units. If unsuccessful in contacting these units, treatment of non-response will be imputation. In case of contract pricing, imputation could be “carry forward” method, in other cases use of average movements of the respective service group or use of other sources. In case of unit non-response for several consecutive quarters, it could be rotating of the sample (replacing unit which does not respond with new one). In cases when item non-response appears, because services are no longer offered, new or substitute services should be reported using overlap approach.

During the mission, practical examples of such replacements were presented. It is also advisable to follow up reasons for price changes which could indicate if they are caused by quality changes. These sets of formal and logical controls will be implemented by the BC experts in the data collection process going forward.

3.4 Preparation for methodological documentation

The Croatian and Danish experts presented a draft methodological paper in preparation for the BC experts to develop their own methodological document. The methodological document will serve as a mean for partly fulfilling quality related principles in the European Statistical Code of Practice. Another mean of quality enhancing documentation which could be considered, is the use of the Generic Strategic Business Process Model (GSBPM) to document various processes. MS experts will continue to provide examples of practical uses of both for the remainder of the project.

3.5 Expert recommendations

The Croatian and Danish experts presented different options for weighting structures and methods for calculation of indices for the selected industries in the pilot project. Turnover data by service groups for 2015 (base year), collected at the beginning of 2016, will show which set of weights should be implemented going forward. It is recommended that much effort must be made to collect as many prices as possible and turnover values where available. This way, the BC experts will have a more solid foundation for future decisions on index calculations and weights.

The Croatian and Danish experts presented a set of formal and logical controls for the data editing process. The presentations served as useful information for the BC experts to get familiar with data editing in the data collection process.

It is recommended that the BC experts attempt to implement these formal and logical controls in the upcoming quarters, when collecting data for the rest of the base year (2015Q3 and 2015Q4). Experiences gained from this will be useful before deciding on which final approach best fits the data collection and production of the SPPI in BiH.

What to do before the next mission for the BC Counterpart

Action	Deadline	Responsible person
First draft of methodological document prepared.	By fourth mission	BHAS, FIS and RSIS
Investigate possibilities for uses of KAUs for 52.10 from other industries.	By fourth mission	BHAS, FIS and RSIS
Further contact with RAK.	By fourth mission	BHAS
Implementation of set of formal and logical controls in data collection process.	By fourth mission	BHAS, FIS and RSIS
Perform test calculations of pilot indices based on agreed methods.	By fourth mission	BHAS, FIS and RSIS

What to do before the next mission for the IPA experts

Action	Deadline	Responsible person
Provide detailed examples of production process documentation (calculation methods, data editing, GSBPM etc.). Provided by e-mail to BC experts.	End of October	Anka Javor (HR), Rasmus Anker Kristiansen (DK)
Prepare presentation on publication (revision policy) and transmission formats for Eurostat, used in HR and DK.	Before fourth mission	Anka Javor (HR), Rasmus Anker Kristiansen (DK)

Annex 1. Terms of Reference

EU Twinning Project BA-12-IB-ST-01

Terms of Reference

Component: 2.3.2 Producer (output) prices in services SPPI

7-11 September 2015

Activity

2.3.2.3 Testing of pilot surveys results of the producer (output) prices in services

Benchmarks

- Plan for development of SPPI for selected services done by 2nd project quarter
- Draft questionnaires and supporting documentation prepared by 2nd project quarter
- Pilot surveys for SPPI conducted by 3rd project quarter
- First results analyzed and questionnaires redesigned by 6th project quarter
- Methodological document developed by 8th project quarter

Purpose of activity

The expected activities are:

- Presentation of experiences from the field: feedback from reporting units, recalling of reporting units, the most frequent mistakes, etc.
- Analysis of first results regarding data collection process (response rate, data quality, etc.)
- Defining of methods for calculation of price indices (weighting structure, testing of calculation methods on available data set)
- Presentation of the Croatian and Danish data editing process and treatment of non –response
- Defining set of formal and logical controls
- Presentation of Croatian and Danish methodological papers; sample selection, survey design, data collection and analysis

Expected output

- Analysis of the first results made
- Methods for treatment of non-response defined
- Set of formal and logical controls defined
- Methods for data editing and processing agreed
- Methods for calculation of price indices defined
- Preparation of the methodological document started

Annex 2. Persons met

Experts

Rasmus Anker Kristiansen	Statistics Denmark
Anka Javor	Croatian Bureau of Statistics

Agency for Statistics of BiH

Alen Bajramović	Head of Department for Services Statistics
Lejla Krehić	Junior officer in Prices Department

Institute for Statistics of Federation of BiH (FIS)

Sanja Ambrožić	Head of Department for Services Statistics and External Trade
Elvir Juljević	Senior Officer for Information and Communication services

Institute for Statistics of Republika Srpska (RSIS)

Jelena Glamočika	Head of Department for Services Statistics
Aleksandra Đonlaga	Junior Officer for Services Statistics

Twinning Project Administration

Søren Leth-Sørensen	RTA
Djemka Sahinpašić	RTA Assistant

Interpreter

Haris Imamović

Annex 3. Calculation examples

The following calculation examples in annex 3 illustrates the differences between using equal and individual company weights, based on collected turnover values from the pilot project. Table 1 is for equal company weights and table 2 is for individual company weights. Both calculation examples are based on actual price developments from 2015Q1 to 2015Q2 on service group 49.41.6 'Prijevoz komadnih pošiljaka i/ili paletizirane robe' in RS.

Table 1 – Calculation example with equal company weights

Reporting unit	Service description	2015Q1	2015Q2	Δ	Turnover	Weight	Δ *Weight	Index t-1	Index t
Company B	Kamion sa ceradom 8600kg..., tura	1560,00	1700,00	1,09	2.036.815	0,1429	0,1557	100,00	101,28
Company C	Kamion sa ceradom, roba na paletama..., tura	1600,00	1600,00	1,00	4.308.992	0,1429	0,1429		
Company D	Kamion sa ceradom, Iveco Stralis..., km	1,80	1,80	1,00	4.078.477	0,1429	0,1429		
Company F	Prevoz lepenke, Brod-Heldefin..., tura	1400,00	1400,00	1,00	940.881	0,1429	0,1429		
Company I	Kamion sa ceradom-Mercedes Actros..., tura	1400,00	1400,00	1,00	2.413.020	0,1429	0,1429		
Company K	Šleper 24t, prevoz komadne..., km	1,50	1,50	1,00	493.643	0,1429	0,1429		
Company L	Kamion sa ceradom, Volvo..., km	2,00	2,00	1,00	652.885	0,1429	0,1429		

Index t is calculated as the sum of column Δ *Weight

Table 2 – Calculation example with individual company weights

Reporting unit	Service description	2015Q1	2015Q2	Δ	Turnover	Weight	Δ *Weight	Index t-1	Index t
Company B	Kamion sa ceradom 8600kg..., tura	1560,00	1700,00	1,09	2.036.815	0,1365	0,1487	100,00	101,22
Company C	Kamion sa ceradom, roba na paletama..., tura	1600,00	1600,00	1,00	4.308.992	0,2887	0,2887		
Company D	Kamion sa ceradom, Iveco Stralis..., km	1,80	1,80	1,00	4.078.477	0,2733	0,2733		
Company F	Prevoz lepenke, Brod-Heldefin..., tura	1400,00	1400,00	1,00	940.881	0,0630	0,0630		
Company I	Kamion sa ceradom-Mercedes Actros..., tura	1400,00	1400,00	1,00	2.413.020	0,1617	0,1617		
Company K	Šleper 24t, prevoz komadne..., km	1,50	1,50	1,00	493.643	0,0331	0,0331		
Company L	Kamion sa ceradom, Volvo..., km	2,00	2,00	1,00	652.885	0,0437	0,0437		

Index t is calculated as the sum of column Δ *Weight