TWINNING CONTRACT

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Support to the State and Entity Statistical Institutions, phase VI

FINAL MISSION REPORT

on

Activity 2.3.1.4
Preparation of regular survey on producer (output) prices in construction

Mission carried out by
Christoph Schäfer, DESTATIS
Sigrid Krogstrup Jensen, Statistics Denmark

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STATISTICS DENMARK

Statistics Finland

Expert contact information

Christoph Schäfer
Destatis
Merseburger Strasse 2
D-06110 Halle
Germany
Tel: (0345) 2318 203
Email:Schaefer@stala.mi.sachsen-anhalt.de

Sigrid Krogstrup Jensen
Statistics Denmark
Sejrøgade 11
DK-2100 Copenhagen Ø
Denmark
Tel: 3917 3456
Email: sij@dst.dk

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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
RSIS	Institute for Statistics of Republika Srpska
RTA	Resident Twinning Adviser
TOR	Terms of Reference
CPPI	Construction Producer Price Index
SCM	Standard Component Method
IPSA	IPSA Institute, private consulting company, Sarajevo, BiH
KM	Konvertible Mark
VAT	Value Added Tax

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 fourth mission to be devoted to introduce Producer Prices for Construction (CPPI) in BiH within Component 2.3.1 Short-Term Statistics 7-11 March 2016 of the project. The purposes of the mission were:

- Preparation of regular survey on producer (output) prices in construction

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.

2. Assessment and results

The list of activities defined in the ToR for the fourth 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.)
- Preliminary calculation of CPPI by using Pilot data and SCM calculation method
- Amended methods for the regular surveys on CPPI, based on the experiences from the Pilot survey
- Preparation of final questionnaire for regular survey (redesign)
- Plan for a regular survey
- Presentation of German and Danish output tables (publication forms, transmission formats, etc.)
- Preparation of output tables (publication forms, transmission formats, etc.)
- Presentation of the German and Danish data editing process and treatment of non –response in CPPI survey
- Development of methodology

During the mission the following output has been achieved:

- Analysis of the first (Pilot) results made
- The calculation method was demonstrated
- Agreement about the questionnaire for the regular survey
- Plan for regular production of CPPI developed

- Methods for treatment of non-response defined
- Methods for data editing and processing agreed
- German and Danish experiences for output tables presented
- Output tables defined (publication forms, transmission formats, etc.)
- Input to a draft methodology made

3. Conclusions and recommendations

3.1 Experiences from the field and analysis of first results

A pilot survey has been conducted in both entities and BD.

Response rates

FIS has sent out questionnaires to around 260. 128 reporting units have responded with useful data. This gives a response rate of nearly 50 pct. 95 pct. of these reporting units have reported no development in prices of the construction items between the 3rd and 4th quarter of 2015. This could easily be the case but it should be monitored for how long the prices they give remain unchanged.
87 response units claimed to be placed in the wrong activity group in the business register and as a consequence they were removed from the sample. Finally, 45 units did not respond.

For BD questionnaires were sent out to 33 response units. 7 of these responded. The remaining units were contacted by phone. Of these some were placed in the wrong activity groups and some were not reachable using the available contact information.
However, as BD is a rather small district seven to ten responds is thought to be representative for BD.

RSIS sent out 119 questionnaires. Of these, 31 never responded, 10 were in the wrong activity code and 78 gave the data. Only 30 replied within the deadline, which is to be expected as this is the first data collection for this statistics. The remaining 48 responded to reminders via phone.

Experiences

One experience from this pilot survey is that the companies are not able to give prices for all 30 items in the questionnaire. This is mainly because the larger companies, to some extent, use sub-contractors. However, if these sub-contractors are represented in the sample this will not be a problem.

Another experience is that some companies use the option to give their own item description instead of the one already given in the questionnaire. In this case it is very important that the companies keep reporting prices that correspond to this description. Since questionnaires only can be printed and sent out once a year it is very important that companies are made aware of this. I.e. if they change the description for one quarter they should use this description when giving prices in all remaining

quarters. If these descriptions do not match any of the 30 items in the weighting structure they should be matched to the remaining 250 items in the bill of quantities and included in the weighting structure at a later point. This means that all items of the bill of quantities should be categorised by numbers.

There are quite large differences in price level between companies. However, when calculating indices it is price developments which are of interest and not the levels. Even though items are priced at different levels by different companies their development rates can be quite similar.

It might not always be possible to get three prices for each item. Even though this should be the rule we try to follow always, using relevant information is better than not using them. Therefore, it is a matter of methodological decision, whether information should be included in the calculation, even though the number of observations is not sufficient. Attempts could be made to include more companies in the survey to see if this would improve the number of prices.

3.2 Preliminary calculation of CPPI by using Pilot data and SCM calculation method

The preliminary calculation has not been carried out as a calculation system, e.g. in Excel, has yet to be set up.

Instead the calculation method was explained using the spreadsheet example given in the previous mission. It can be found in Annex 4 to the mission report for component 2.3.1.3. In short index calculations will be made through four levels:

Construction items – i.e. specific construction tasks performed by construction companies
Construction subgroups – e.g. earth works, concrete works, etc.
Construction groups – e.g. architecture and construction, water supply and sewage, etc.
Total construction of dwellings

Indices per item are first calculated for each company. Then indices for each of the items are calculated across all companies using geometric mean.

Sub group indices are calculated by weighting together the items indices using the weighting structure based on the bill of quantities.

Sub group indices are then weighted together to form the group indices and, finally, the total indices are calculated by weighting together the group indices.

This method should be used in both the entities and the Agency. They should also use the same weighting structure and the same data editing procedures. This is very important in order to make comparable results.

Agency must be given micro data, i.e. all price information – however, all information about the response units should be anonymised.
Indices calculated for the entities by the entities themselves and Agency should be the same.
The data collection and entity and Agency calculation structure thus must be aligned and they should follow the same time schedule to be able to comply with Eurostat deadlines – i.e. 3 months after the calculation period.

A template for common data storage and data delivery to the Agency should be set up. Once data has been transmitted to the Agency no changes should be made to the entity data unless Agency asks. Otherwise, the results obtained will be different. There should be time to edit data within the time schedule.

3.3 Amended methods for the regular surveys on CPPI

Survey methods have been discussed thoroughly in the previous missions. It has been decided not to deviate from what has been concluded in these missions.

3.3 Preparation of final questionnaire for regular survey (redesign)

Entities and Agency will continue to use the pilot questionnaire. Every quarter reporting units will be asked to report prices for both the current and previous quarter. All 280 items in the bill of quantities should be encoded even though the questionnaire only asks for prices on 30 items. In this way, if the companies report prices that go beyond the 30 items, entities can fit these items with items from the bill of quantities, and eventually this will ensure a broader representation of items in the index.

Experts recommend that printing and distribution of questionnaires take place every quarter instead of on a yearly basis. Furthermore, this would make it possible to pre-print the companies' own descriptions along with the price given for the previous quarter. In Danish and German experience this is of great help to the reporting units.

For now the questionnaires will ask for both current price and the price for the previous period. This could, however, cause problems when information changes from one survey to another survey for the overlapping quarters, e.g. the staff in charge of filling out the questionnaires in the company has changed. If for quarter 1 and 2 prices for one item were reported, e.g. 100 and 110, and in the next survey for the same item for the same company a price for quarter 2 about 50 and for quarter 3 about

51 was reported, then we have different information for the same item in the same period; 100 to 50. This could in part be overcome by pre-printing the reported prices from the previous quarter.

Finally, introducing electronic questionnaires would make them more flexible so that they could be adapted specifically to each company.

3.4 Plan for a regular survey

The plan for the regular survey is basically an adaptation of the plan for the regular survey for the SPPIs made in component 2.3.2.4. Both SPPI and CPPI are quarterly and they follow the STS regulation, thus, they have similar deadlines. Regular surveys for the CPPI in BiH will begin in 2016 in continuation of the pilot project. This means that results for 2015 from the pilot project will be used as base year. Regular surveys will be performed during 2016 and results will be closely monitored. The plan is as follows:

MAIN ACTIVITIES	COMPONENTS OF MAIN ACTIVITY	DATE OF REALIZATION	RESPONSIBLE INSTITUTION	NOTE
Data collection	Sending questionnaire	end of February 2016	BD - BHAS FIS RSIS	
	Response from reporting units	t+25 (t+15 for reporting units and 10 days for reminders)		
	Data entry	t+45		
Data editing and processing	Data editing	t+50	BD - BHAS FIS RSIS	20.05.2016; 20.08.2016; 20.11.2016; 20.02.2017.
	Non-response treatment (imputations)			
Data delivery	Data delivery to BHAS (excel tables)	t+55	FIS RSIS	25.05.2016 (first delivery for Q1 2016); 25.08.2016; 25.11.2016; 25.02.2017.
Calculation of indices	Calculation and analysis of results	t+60	BHAS FIS RSIS	31.05.2016; 30.08.2016; 30.11.2016; 28.02.2017.

3.5 Presentation of German and Danish output tables

In Statistics Denmark, for all main statistics a news release is sent out every time new figures are released. This is very similar to the BiH news releases. However, in the Danish release there is no description of methodology. This description is available on the statistics website which also holds the key figures for the statistic.

Furthermore, all figures are available in the online Statbank where all users can access all published data and create and export their own tables based. Only indices are published, both in the news releases, on the website and in the Statbank.

Figures are transmitted to Eurostat through EDAMIS. EDAMIS is simple to use and only requires internet access to upload the data. EDAMIS provides adapted solutions that fit the possibilities of the NSI, thus data formats can be arranged with Eurostat.

Statistical reports from Germany were shown. In addition to the output tables some methodological descriptions in short, graphics and more indices (by type of building) were presented.

German data is transmitted to Eurostat by Destatis by a generally for all German statistics used secure system to transmit.

Examples for both, the Danish and the German public output tables can be found on the respective homepages (www.dst.dk, www.destatis.de).

3.6 Preparation of output tables

Output for BiH should be both preliminary output, such as output for data control and editing and output for data exchange between the entities and Agency, and final output for publishing and data transmission to Eurostat.

The focus of this mission has been on the preliminary output. Preferably, an IT application will be developed. The application should have modules to handle data entry, data editing and generation of the preliminary output (at some point it should also be able to calculate indices and generate final output). Since IT resources are scarce due to the work with the census it was discussed how the work with the IT application should proceed. Experts recommend that the requirements, which the application should meet, should be prepared with representatives from both the entities and Agency. In case of developing a common application the tasks involved should be divided fairly between developers from each institution (e.g. one institution develops the data entry module, one institution develops a module for output tables and one develops a module for calculation). This will ensure that

the data is treated in the exact same way, and thus, it will be comparable. The CPPI could join forces with SPPI as both data collection, data editing and calculations are very similar for these statistics.

To manage to develop such an application it is first of all important to identify if the necessary IT-resources are available and when they will be available. Secondly, all requirements must be specified thoroughly and clearly. It is important to spend the necessary time on this as this will be the back bone of the developing work.

Below is a suggestion on how to specify input variables:

Input field	Position	Length	Format	Description
EF1	1 - 9	9	C	Item number, 3 digits, 001-280
EF2	10	1	C	Additional item, 1 digit, 0-9
EF3	11 - 510	500	C	Description - text of the item
EF4	511 - 514	4	C	Reporting Year JJJJ
EF5	515	1	C	Reporting Quarter Q (1-4)
EF6	516 - 525	10	C	Reporting Unit - Number of the reporting unit
EF7	526 - 545	20	C	Price previous quarter from previous report, maximum 17 digits, comma, 2 characters after the comma
EF8	546 - 565	20	C	Price previous quarter from current report, maximum 17 digits, comma, 2 characters after the comma
EF9	566 - 585	20	C	Price current quarter from current report, maximum 17 digits, comma, 2 characters after the comma
EF10	586 - 605	20	C	Price devlopemt price current quarter / price previous quarter - both from last report, 20 characters, 4 characters after the comma
EF11	606 - 607	1	C	Reason for price change - from the report (1-5)
EF12	608 - 609	1	C	Editing-Assignment: empty = normal reported, 1 = estimated (non response), …. To be developed ….
	610 - 809	200	C	Comments by company or other comments by specialists

The entities and Agency have agreed to a format for the exchange of data between the offices. Below, as well as in the exemplary data exchange-table in Annex 2, the content could be described:

Item number identifies the item from the bill of quantities. This variable will be three characters long.

Additional activity will be used if the companies report a price for an activity which is not described in the bill of quantities. An example is given in Annex 2, row 4.

Item description is the description from the bill of quantities. If the reporting unit has given a different description this should be put in.

Year and *quarter* should be the current compilation period.

Entity identifies in which entity the price is collected.

Reporting unit identifies the reporting company. All companies should be given a unique number. In this way they will be anonymous when data is transmitted to Agency.

Measurement unit is the construction unit, e.g. $10m^2$, $1m^3$, 5kg, etc.

Price previous period, 1 is the current price of the item given in the survey for the previous period. This should be filled out automatically.

Price previous period, 2 is the previous price of the item given in the survey for the current period.

Price current period is the current price of the item given in the survey for the current period.

Price development, % is the development between current and previous price given in the current period. This should be calculated automatically once the prices have been entered.

Reason for change in prices is the reason given by the reporting unit in the questionnaire.

Editing is to mark whether data has been edited by the entity, e.g. due to non-response. Each way of editing data should be given a number.

Comments give the entities the possibility of leaving a comment with the price.

3.7 Presentation of the German and Danish data editing

See Annex 3 for the Danish example. Supported by samples and presentations, Danish and German data editing methods where introduced and discussed. Both, the Danish and the German calculation models refer to the pure change of prices between the current and the previous period without. While the German method always refers to a permanently adjusted base price, the Danish method refers to the comparable price in the previous reporting period. For the adjustment of the base price in the German program, very complex programming processes and data structures are used. As result of the

comparative discussion it was commonly agreed, the Danish method fits better to the planned survey design, available resources and the available data.

3.8 Development of methodology

Once again, as the two statistics are quite similar on many points and they both follow the STS regulation, the methodology report for CPPI will follow the same structure as the report for the SPPI. The list of content of the report can be found in Annex 4. Agency will prepare the first draft of the report and experts will contribute with the paragraph about pricing methods. Experts will deliver their contribution by April 20th 2016 and the first draft will be done on the April 22nd 2016. It will then be sent out to all parties for comments. The deadline for comments will be on May 6th 2016 and the 2nd draft will be ready on May 18th 2016. The report will be finalised by the final mission, which is expected to take place in early September 2016.

Topics for the next mission

Finalization of methodology

Follow-up on the results achieved in the component. Discussions and recommendations for future work

Development plan for future improvements

Clarification of outstanding issues