TWINNING CONTRACT

Institutional Capacity Building for the Central Agency for Public Mobilisation and Statistics (CAPMAS) and Developing the Legal Framework for Statistics in Egypt

EG/07/AA/F106

MISSION REPORT

on

General methodology and data collection in the Egyptian PPI

Component no 5.3.2

Mission carried out by
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Cairo, 29 March- 2 April 2009

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List of Abbreviations

CAPMAS	Central Agency for Public Mobilisation and Statistics
CAA	Central Agency for Accounting
CBE	Central Bank of Egypt
CPI	Consumer Price Index
EU	European Union
GDP	Gross Domestic Product
IMF	International Monetary Fund
MOED	Ministry of Economic Development
NA	National Accounts
PPI	Producer Price Index
TOR	Terms of Reference

Executive Summary

This mission report was prepared within the Egyptian-Danish Twinning Project "Institutional capacity building for the central agency for public mobilisation and statistics". This was the second mission within component 5.3 and it was devoted to the recommendations on general methodolgy of the PPI in Egypt and was a merge of 5.3.2 "Workshop on general PPI methodology" and 5.3.3 "Workshop on data collection of PPI". The mission was conducted with the aim to discuss and outline a methodology to increase the overall quality of PPI. The mission was conducted as a workshop that covered issues such as: Coverage classifications, data sources, weights and enterprise/commodity sample. The current questionnaires were reviewed as well as the price collection procedures, the uppdating of prices and the validation/error checking. After an assesment and further discussions with the CAPMAS staff the mission resulted in a number of short proposals with particular attention to:

- **Proposal of a total documentation of general methodology, classifications and the sampling procedure.**
- **Proposal of using scanning software in order to avoid processing errors and also reduce time consuming manual data entry.**
- **Proposal to study the possibility of using more actual weight information.**
- **Proposal to investigate a separate data collection procedure for PPI excluded from CPI.**
- **Proposal to study the possibility to extend the price observation period and at the same time adjust the period of price collection and also to publish one month after the price collection period.**
- **Proposal to decide on certain criteria for validation and thereafter document them.**
- **Proposal to track and analyse the non response rate in order to improve the quality of the PPI output.**

CAPMAS price index officials and participants from the Egyptian Central Bank, the Ministry of Economic Development and the Central Agency for Accounting were also given an overview of the calculation of the PPI in Sweden. The terms of reference of the participants to the mission, PPI calculation in Sweden and an action plan for future work within the PPI are provided in the appendices to this report.

Next activity will be 5.3.3 with Finnish expert Ikka Lehtinen to be held in May 2009. This activity will cover checking of the data, quality change, missing observations, seasonal products and specific products.

1. General comments

The mission was conducted with the aim to discuss and outline a methodology to increase the overall quality of PPI in Egypt. The mission was held as a workshop that covered issues such as: Coverage classifications, data sources, weights and enterprise/commodity sample. The current questionnaires have been reviewed as well as the price collection procedures, the uppdating of prices and validation/error checking.

The expected results of the mission were:

* Recommendation on the general methodology of PPI, concepts and scope, classifications, data sources of the weights, enterprise and product sampling, price collection, questionnaires and updating of prices.

We would like to express our gratefulness to all the staff at CAPMAS we met during our stay in Cairo for their kind support, which was essential to conduct our work.

The views and observations stated in this report are those of the consultants and do not necessarily correspond to the views of EU, CAPMAS, Statistics Denmark or Statistics Sweden.

2. Assessments and results

2.1 General methodology of Egyptian PPI

Below are the findings and recommendations concerning the general methodology described.

2.1.1 Concept, classifications and scope

In the Egyptian PPI the price observations are only allocated to the domestic market, however the weights constitute combined values of production for the domestic as well as the export market. In the Swedish PPI and according to international recommendations (IMF) separate indices for the domestic, export and also import market have been implemented. If the aim of the index is to describe the price development of domestic consumption, the share of exports should be removed from the weight and a separate export price index should be constructed. There are frames and weights available for the export provided by the foreign trade statistics.

After a discussion with the Egyptian PPI staff it stood clear that it is difficult to obtain export prices from the enterprises due to uncertain contracts outside the control of CAPMAS. If an export price index will be considered in the future it is essential to first solve the obstacle of data gathering. We do not have an exact figure regarding the export value so a good idea would be to monitor the development and the relative importance of the export transactions. Although an increased coverage of services would be an advantage we instead recommend to devote resources to increase the quality of PPI for goods and study the possibilty of producing a future export price index. This is also a request from the Egyptian National accounts. Secondly CAPMAS should investigate the conditions for producing a future import price index. The future progress is dependent on a close cooperation with other authorities and governmental institutions.

The classifications of the Egyptian PPI follow ISIC ver. 4. with a supplemental national code system down to a 10 digit level whenever possible. The classifications from 7 digit to 10 digit level (national codes) are not readily available for users in other languages than Arabic today. Since PPI is an economic indicator of interest internationally and compared across different countries, we recommend a translation into English. The translated document would preferably be disseminated to the users via

CAPMAS home page for instance. We also suggest CAPMAS to state the different codes on all product levels in the published bulletin.

2.1.2 Data sources of the weights

The product and enterprise weights are obtained from Industrial, Agriculture and Service Statistics from the fiscal years 2002/2003 and 2003/2004 (average of the production in these years). The cooperation with other departments within CAPMAS seems to work out well and the basic weight data does not appear to be unsatisfactory. However the weights are rather obsolete in comparison to EU practice. IMF recommendations say that the weight reference period should not be too distant from the price reference period to reflect the current structure of domestic production[1]. According to international practice weights should at least be updated every fifth year[2]. In the Swedish PPI weights and sample for price measurement are updated annually with the weight reference period two years behind the price reference period (y-2). We therefore propose CAPMAS to study the possibility of using more actual weight information.

2.1.3 Enterprise and product sampling

The sampling procedure of the Egyptian PPI is carried out in a similar manner as in Sweden. The frame is stratified by business activities according to ISIC. Companies and products are sampled from each stratum manually but with computeraid, where the probabilities of being selected is proportional to size of the production value on a 10 digit level whenever possible. The allocation of the total sample size is carried out and compiled in an Excel sheet.

Our suggestion is that the sampling procedure is documented in a handbook in order to facilitate future updates of the sample. This is an ongoing project and we are looking forward to take part of the result. Furthermore we recommend CAPMAS to translate the documentation into English and include it in the publication for international use. In Sweden we have a national documentation system for all official statistics, which impose requirements for documenting the production process including the sample method.

2.2 Data collection of PPI

Under this chapter we have the ambition to outline recommendations on data collection issues within the Egyptian PPI on the basis of our findings.

2.2.1 Price collection procedures

The frequency of data collection is controlled by CAPMAS. According to CAPMAS they have a wide experience about price collection, price determination and market mechanisms and this explains why quarterly and monthly price collection is applied in different business sectors interchangeably. Price collectors also gain experience about the price determination regarding each detailed product. Frequency/follow up can also depend on the relative weight or importance of a certain product. When the prices are reported in the first observation month of the quarter they are assumed to be unchanged unless the respondent does not indicate something else. The Egyptian PPI staff mentioned that it is not common to adjust the quarterly price quotation during the price observation period

A major advantage with interviewers used is that they can set up a close dialogue with the respondents and reduce the non response rate. It is essential to educate the price collectors currently and use their opportunity of detecting errors and suspicious prices at an early stage. A disadvantage with interviewers is that a system of interviewers is not optimal for the purpose of

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[1] Producer Price Index Manual, Chapter 4.23, IMF 2004
[2] Ibid, Chapter 4.4

PPI. For instance the respondents have to spend more time in dialogue with the statistical office representatives and apart from CPI outlets factories are not always clustered in population centres.[3] We therefore suggest CAPMAS to investigate a separate data collection procedure for PPI.

The PPI staff mentioned that it is not normally true transaction prices that are gathered in the manufacturing sector. Rather a list price is the source. The reason for using price lists is the enterprises unwillingness to report unofficial prices. The consequence of not measuring prices of real transactions is that measurement errors will be inevitable and the price development pattern will be misleading (underestimate the price volatility)[4]. In the Swedish PPI price lists are sometimes used but often justified by discounts. We propose the interviewers to convince the respondents to release actual transaction prices. It is important though to make sure that the transactions are comparable across time in terms of the price determination characteristics.

In the Egyptian PPI the data collection period is short for the quarterly and monthly collection of prices, only a few days. The price observation period is even shorter. In the Swedish PPI the price collection period is between the 1st and approx. the 20th one month after the price observation period and the publication date is in the end of the collection month. The price observation period is normally the entire month, which means average prices are reported.

The main advantage with the point-in-time observation is that preliminary results can be calculated and published quicker. The drawback with this method is that the price variations during the month are not captured. Another disadvantage is that a transaction may not have occurred on the specified date. According to the IMF manual this can be avoided by asking the respondent to provide details of a transaction that occurred as near as possible to the specified date. The point-in-time observation method does not fulfil the requirement that the index should relate to the time period of flows of goods when PPI is used as a deflator in the National accounts.[5]

We recommend CAPMAS to study the possibility to extend the price observation period and at the same time adjust the period of price collection and thereby also to publish one month after the price collection period. Our proposal is that the collection of producer prices is separated from the CPI collection. The questionnaires should preferably not be common with CPI's when it comes to the price collection period. A shuttle form similar to the one used by the Swedish PPI would be a reasonable solution. The shuttle forms in Sweden are designed to visualise prices for the entire calendar year and are sent back and forth between Statistics Sweden and the respondents.

The switch of data distribution method from postal forms to an electronic tool between the regional offices and the headquarters of CAPMAS has not been evaluated. The media choice should ideally be coordinated with the choice of media for price collection.

2.2.2 Questionnaires and updating of prices

The structure and content of the questionnaires were generally appropriate. The price of the previous month is not visible on the form. The Egyptian PPI staff argued that the reason for this is the otherwise risk of leaving the price wrongly unchanged, in the Swedish PPI though the

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[3] Ibid, Chapter 6.53
[4] Ibid, Chapter 6.23
[5] Producer Price Index Manual, Chapter 6.14, IMF 2004

experience is somewhat different. The view is that the respondent often needs the historic price movements to evaluate the reliability of the price data.

An important task for statisticians is to reduce the response burden and therefore we doubt why a box for discount data is available on the questionnaire when it is not in use.

In the Swedish PPI most prices are updated every month through monthly collection. There are exceptions for prices fixed by a contract, model estimated prices and certain prices on utilities, for instance on water supply. The problem with reporting prices in advance is that it assumes a reliable data provider and close monitoring of changed market conditions. In the PPI of Egypt the updating of prices is slightly different from in Sweden especially for the quarterly collection. The quarterly prices are reported in the first month of the quarter. The price is then regarded to be unchanged with respect to previous experience of the price determination pattern. If price changes occur during the quarter, enterprises report these changes to the regional offices according to an agreement. We recommend the PPI staff to be careful and do not take for granted that the real prices remain the same. You can never be 100% certain that the enterprises report changes when they occur.

2.2.3 Validation/error checking

The data entry in the Egyptian PPI is manually carried out typing price by price. This is a source of processing error but also a very time consuming procedure. In the Swedish PPI most of the data are automatically entered by a Touch tone Data Entry (TDE), phone system. The remaining data is entered manually from the shuttle forms, e-mails and facsimile into the database. A web based application is under development, which is supposed to replace most of the other data collection tools in the end of 2009.

We recommend the use of scanning software perhaps provided by other departments within CAPMAS. A prototype is already under development.

The Egyptian PPI staff has a more or less manual system of validation. A fast check is made by the interviewers after they receive the questionnaire from the respondent. The first paper validation is carried out by the regional offices before the forms are sent to the head quarters of CAPMAS. If the offices have any queries regarding the reported prices they will return the questionnaires back to the respondents. At the headquarters of CAPMAS the final paper validation is carried out with support from Excel software. In this stage the current price and the base price previous month are compared, both the single prices and the average prices of each commodity with a regional perspective. Feedback from the respondents is asked for whenever suspicious observations occur. A report with extreme indices is generated by a database application. Check is then done line by line. No documented criteria for validation are available today. CPI in Egypt has a validation tool today and a tool for PPI is under development. We are looking forward to take part of the result of the implementation of this software since it will hopefully reduce time consuming auditing.

In the Swedish PPI a validation software is embedded in the house made SQL application. Check lists are generated on order by a SAS program. Every month a validation meeting is held where all extreme values are discussed. An extreme value is defined and captured when the relative price change of a single price quotation is outside the interval -20% and +25% or the effect on the aggregated total index for the market is +/-0.02 percentage units. Each handling officer is responsible for micro level validation within their business sectors. The advantage with this organization is that each handling officer becomes an "expert" within their sector. If you are a product/market expert you have a greater ability to analyze the specific characteristics in the product/market you are responsible for.

Our first proposal is to decide on certain criteria for validation and thereafter document them. Secondly investigate the opportunity to set up specified responsibilities among the PPI staff, for instance responsibility for micro validation in a certain business sector or sectors. A handbook with guidelines

would further support more effective routines managing validation issues. In Sweden we have good experience of a similar management.

2.2.4 Non-response and imputations

The non-response rate is the number of missing answers divided by the total number of price quotations. According to PPI staff at CAPMAS non-response is normally not a big issue since it only counts for 3-4% on average. The reporting of prices is compulsory and enforced by national law, which is also true in Sweden. A list of missing values is generated monthly through a database application. Missing prices are imputed by nearby product groups price development in a hierarchically order. Carry forward is used in some cases.

In the Swedish PPI the aim is to reduce the non response rate to be around 2 percent per month on average. The non-response rate is recorded and followed up every month.

Even though the non response rate is relatively low it is strongly recommended to track it and analyse it in order to improve the quality of the PPI output.

3. Conclusions and recommendations

Proposals concerning the general methodology and data collection of the current Egyptian PPI.

Proposal 1:
Proposal of a total documentation of general methodology, classifications and the sampling procedure. (Methodology for internal/external use, classifications on a national level in English) and also a PPI handbook with routines for the different stages in the production process.

Proposal 2:
Manual data entry in the PPI a source of processing error and also time consuming. It is recommended to use scanning software perhaps provided by other departments within CAPMAS.

Proposal 3
CAPMAS should study the possibility of using more actual weight information.

Proposal 4
It is recommended that CAPMAS investigate a separate data collection procedure for PPI excluded from CPI.

Proposal 5
CAPMAS should study the possibility to extend the price observation period and at the same time adjust the period of price collection and also to publish one month after the price collection period.

Proposal 6
It is recommended to decide on certain criteria for validation and thereafter document them and also investigate the opportunity to set up specified responsibilities among the PPI staff.

Proposal 7
Even though the non response rate is relatively low it is strongly recommended to track it and analyse it in order to improve the quality of the PPI output.

Annex 1. Terms of Reference

for a short-term mission to the Central Agency for Mobilisation and Statistics
on
Activity 5.3.2
Workshop on general PPI methodology
And
Activity 5.3.3
Workshop on data collection of PPI

Background
CAPMAS and Statistics Denmark with partners have established a fruitful cooperation in the framework of Twinning. This twinning project is EG/07/AA/F106.

This activity is part of component 5, *Development of certain statistical areas* in the subcomponent dealing with the producer price index. The objective for this component is the developing of the producer price index (PPI) in Egypt.

This activity will contribute to this objective and especially to the benchmark set out in the contract: *By the 18th month, A new methodology to collect and process producer price data and to calculate and publish PPI.*

Purpose of the mission
The mission is a workshop, where the MS and BC experts will work together to outline a methodology to increase the quality of PPI. The proposed methodology will be based on international guidelines and regulations.

The workshop will cover issues such as: Coverage, classifications, data sources, weights and enterprise/commodity sample.

Also the current questionnaire will be reviewed as well as the price collection procedures, updating of prices and validation/error checking.

Expected Results
• Recommendation on the general methodology of PPI, concepts and scope, classifications, data sources of the weights, enterprise and product-sampling, price collection, questionnaire and update of prices.

Activities
A tentative schedule for the mission is:

Sunday 29 March
Introduction to and overall discussion of the activity with RTA
Meeting with component leader and the relevant staff within CAPMAS
Settling the agenda for the mission
Presentation of the Swedish production of PPI

Monday 30 March
Discussion on coverage, classifications, data sources and weights

Tuesday 31 March
Discussion on enterprise and commodity sampling

Wednesday 1 April
Review of questionnaire
Discussion of the price collection procedures, updating of prices and validation/error checking

Thursday 2 April
Final discussions and clarifications with CAPMAS
Presentation of preliminary results and findings

Tasks to be done by CAPMAS to facilitate the mission
The beneficiary will arrange meetings with the relevant staff in CAPMAS.

Consultant and counterpart
The mission will be carried out jointly by:
Mr. Henrik Petterson, Statistics Sweden (activity 5.3.2)
And
Mr. Bo Thydén, Statistics Sweden (activity 5.3.3)

The beneficiary's counterpart will be Ms Awatef Hussein and Ms. Magda Mahmoud.

Timing
The mission will be carried out during 29 March 2009- 2 April 2009 in Cairo.

Report
A final report from the mission should be made available not later than two weeks after the termination of the mission.

Annex 2. PPI calculation in Sweden

Indices are calculated for producer prices, both for domestic sales, export sales (export price index) and also for the total production. Moreover indices are calculated for import prices and domestic supply prices (domestic sales and import). The index numbers (base year 2005=100) are chain indices calculated from yearly index links (base December previous year). Each year new quotes are added and the weights used to calculate aggregate index links are revised in order to reflect a recent (year *y*-2) composition of output and foreign trade.

The sample of items (transactions) is drawn in a two-stage process: first a combination of product categories according to Combined Nomenclature (CN) and producers/importers are sampled, and then specific representative items are selected in consultation with the enterprises. Probability according to size is the main criteria for sampling. Sample and weights are updated annually according to a scheme.

The present sample consists of approx. 1800 producers/ importers reporting in all nearly 5000 price quotes monthly (1800 home sale, 1300 export and 1900 import).

Annex 3. An Action plan for future work within the PPI

1. Work Plan for 2009-2010

Activ. No.	Title	MS Country	Days	1	2	3	4	5	6	7	8
5.3.1	**Assessment of data sources and methodology in compiling the Egyptian PPI**	2 * Finland	10			X					
5.3.2	**General methodology of PPI**, concept and scope, classifications, data sources of the weights, enterprise and product sampling, price collection, questionnaire, update of the prices (Old 5.3.2 and 5.3.3)	2 * Sweden, End of March - 09	10			X					
5.3.3	Checking of the data, quality change, missing observations, seasonal products, specific products (Old 5.3.4)	1 * Finland, May -09	5			X					
5.3.4	**Calculating PPI**, Index formula, **Publication** of the index, press release, internet and **use of the index** (GDP-deflator – Central Bank – Ministry of Finance). Old 5.3.5 and 5.3.6	2 * Sweden, Sep.-Nov.-09	10					X			
	Total, Days		35			2 5		1 0			

TIME USE IN THE PPI PROJECT (MS persons by country and working days)**:**

Index	Finland	Sweden	Total
PPI	Mr Ilkka Lehtinen, 1*5=5 Mr Toni Udd, 2*5=10	Mr Pettersson, Mr Grunewald, Mr Thyden, Mr Kullendorf, 4*5=20	
Total	15	20	35