

New initiatives in the PPP Process in Israel¹

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A. Introduction

The Central Bureau of Statistics in Israel (ICBS) participates in the International Comparison Project (ICP) on a regular basis since 1996², and from May 2010 as a member country of the OECD.

The ICP³ is a worldwide statistical initiative to collect comparative price data and estimate purchasing power parities (PPPs) of the world's principle economies. Using PPPs instead of market exchange rates to convert currencies makes it possible to compare the output of economies and the welfare of their inhabitants in real terms - that is, controlling for differences in price levels.

The Statistical Office of the European Communities (Eurostat) and the Organization for Economic Co-operation and Development (OECD) conducted its 2008 PPP program that included 50 countries. Eurostat covered 41 countries - the 27 EU member states, the EFTA countries (Iceland, Norway and Switzerland) Albania, Bosnia-Herzegovina, Croatia, Macedonia, Serbia, Montenegro, Armenia, Belarus, Kazakhstan and Kyrgyzstan. The OECD part of the program included nine other countries – its eight non-European member countries: United States, Canada, Mexico, Japan, Korea, New Zealand, Australia **Israel** (Chile from 2011 round), and Russia as a non OECD member.

¹ The authors want to thank Alla Proskurovsky, from the Israeli CPI division, for the assistance with the methodological work and quality checks and to Andrei Ginsburg from the information system division, for the development of the technological tools.

² Israel participated in the early 1980s but was forced to leave the program due to budget difficulties.

³ This description is from the World Bank ICP website at:

<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/ICPEXT/0,,pagePK:62002243~theSitePK:270065,00.html>

B. Issues in Price Collection for PPP

Price collection is the responsibility of the participating countries. Before they can begin price collection, they have to complete several tasks. These involve: selecting and contacting the outlets to be visited by price collectors; preparing the pricing materials and supplementary documentation for price collectors (including, if necessary, the translation of survey guidelines and product specifications into the national language); identifying which specifications on the final group product list are to be priced and, in the case of generic specifications, which brands are to be priced; and meeting with price collectors to clarify issues such as how many items per basic heading, how many price observations per item, etc.

The selection of outlets is of particular importance because of the effect it will have on the average prices of the products to be surveyed. Different products have different distribution profiles. Some products are sold mostly in supermarkets; other products are sold mainly in unique shops. Prices for the same product can vary from outlet type to outlet type because it is being sold under varying conditions.

A common starting point for the selection of outlets is the sample of outlets used for the CPI, but it is only a starting point. The product lists for Eurostat and OECD price surveys are larger than CPI lists, specifying products not included in the CPI. The CPI sample may not be ideal to collect reliable prices for these products because the selection of outlets by type is not in proportion to the volume of their sales of the products. In this case, it is necessary to augment the CPI sample with additional outlets. At the same time, because the resources available for PPP price surveys are limited, the CPI sample may be too large and has to be reduced.

C. The Present Work Process

The Division of Consumer Prices at ICBS assumed responsibility for PPP as of January 2004. In practice we collect prices for the 3,000 goods and services defined in the program that serve as the basis for computing the PPPs and international comparability.

Price collection for PPP is conducted via paper questionnaires that are sent by OECD. The overall work process that was established at initiation was as follows:

- The dataset is received from OECD and sent to the price coordinator for “deciphering”;
- A weekly timetable for price collection is defined;
- Price data are collected: price (standardized to definition), date of collection; also keyed into a different dataset are the details of the outlet and description of any problems encountered in the collection process;
- An editing and logical check process is applied. Data may be supplemented from the Internet or CPI data;
- The PPP coordinator sends the edited data to OECD;
- The Data are sent back from OECD to the PPP coordinator for questions, clarifications, etc;
- Additional checks are conducted in the field, when necessary.

D. Goals and purposes of automatic system for the PPP program:

The main outcomes of the PPP computerization project are two:

1. designing a computer system, based on CPI experiences;
2. Synergies with CPI data according to the OECD item list characteristics.

Since the major aim of the PPP project at the national level is to collect prices, ICBS decided to use the knowledge base of the CPI, while creating the necessary adjustments for PPP.

As stated, price collection is the responsibility of the participating countries that are required to price the final product list at a sample of outlets that reflect purchasing habits of households.

PPP questionnaires sent by OECD are collected in a paper based system in the absence of a computerized management system for control and supervision of the outlets sample and items selection.

Most of the countries conducted the PPP program according to a minimal budget and therefore encountered difficulties in operating the project at a sufficient quality level. Synergy between CPI and PPP was declared by the OECD as the main goal of the organization in recent years. The OECD noted that the main purpose is to standardize the survey by using CPI data, but without proper funding, this goal will not materialize. It should be noted that while ICBS activities on PPP during the last decade were conducted with a minimal budget compared to The Israeli Consumer Price Index, at present we have secured a sufficient budget for the technical and methodological requirements of PPP.

ICBS has already made many efforts to assist Israel in becoming a member of OECD. Therefore one of our main goals is to continue and adopt OECD standards, in particular the integration of the CPI data into the PPP program according to its existing resources that include:

1. Tools for data collection in the field;
2. methodology skills of price collection and measurement;
3. A large CPI database according to the household private consumption in order to combine them automatically with the PPP item list.

The decision to computerize the PPP program in Israel derives from several factors:

1. Be a pioneer country in developing a new automatic system that takes into account the CPI measurement quality standards, technical tools and human skills. The ICBS

explores ways to utilize the resources that are already allocated for the CPI, in order to adhere to OECD standards.

2. Unification of processes under the same unit: On one hand the CPI work process that includes automatic systems for data collection, logical checks, calculation procedures and sampling supervising, and on the other hand, the price collection and the logical stages for the PPP, under the responsibility of the participating countries. The price collection is conducted via paper, that are sent to the participant countries by OECD, and an editing and logic check process is applied on excel files, without automatic sample supervision. ICBS decided to give priority to the PPP processes under the country responsibility, in order to bring them to a reasonable level of quality at all stages.

3. Data collection via paper may lead to typing errors.

4. In contrast to the CPI, where there is a legal obligation to participate, the PPP program required “lobbying” on our part in order to ensure participation. Many prices that are needed for PPP were already being collected in the CPI framework (especially household expenditure). Furthermore, at times, prices for PPP were collected in stores that were located “next door” to the CPI outlets. The synergies with the CPI will reduce the response burden.

5. Metadata Archiving – database of prices during the past decade for a good benchmark – quality assurance.

Since the project is also designed for price measurement, we decided to use the vast knowledge base already acquired. We've mapped the processes in both programs, CPI and PPP and identified a number of similar processes:

- a. The distribution to a base period and current period: the GDP breakdown as weights for PPP and the consumption aggregate from the household consumption survey for the CPI. The price collection process is relevant for the both frameworks.
- b. Price collection in various outlets according to private consumption.
- c. Data collection in accordance to specific characteristics and special logical checks designed to ensure the preservation of this methodology.

d. Both framework structures designed as an aggregate pyramid, from the specific item through the main groups and the total CPI or GDP.

The first step was to identify the processes that are missing in the PPP project:

- a. Samples management – outlets and observations samples;
- b. Computerized data collection system;
- c. Use of scanner data for selection of representative products, by using current market shares. The system is already available for the CPI framework, but not for PPP;
- d. An automatic system for data quality and logical checks;
- e. Combining data from different sources in order to calculate an average price for PPP. While the CPI data are taken only from the field, at the PPP program, data can be integrated more than one source at the same time.

The computerization project included five stages:

- a. Documentation of definition requirements, according to OCED methodology and price index theory;
- b. Design new procedures on samples management, representative observations, and average price for PPP from multiple sources;
- c. Computerized system by the CPI development team;
- d. Technical experiments in the field;
- e. Writing the technical manual in order to operate the modules, through methodological procedures.

The actual production process began in January 2012 with price collection of the Health and Furniture survey according to the OECD timetable.

The main goal of the computerized system for the PPP program is to produce a flexible set of tools for the overall steps of the process and lead to full transparency of the data sources.

E. Enhancing the Synergies between CPI and PPP

The “disconnect” between the two programs can be caused by gaps in methodology and operations. Realizing that the CPI program can be utilized in many ways in favor of PPP we initiated a program during the 2011 round that enhances the synergies between the programs in three areas: (i) price collection (ii) price methodology and (iii) technological improvement, based on CPI principles.

E1. Price Collection: many of the goods and services that are collected in the CPI framework are also required for PPP (especially household expenditure). The following procedures were introduced:

- Using the prices of the following services for PPP: electricity, gas, water, public transportation, health insurance, car insurance, recreation and several other personal services are taken directly from the CPI without requiring additional resources.
- The prices of many goods (food, clothing and footwear, furniture, electronic appliances, drugs, household and personal appliances) are linked and transferred automatically from the CPI, according to the specific characteristics.
- Fresh fruit and vegetables: average annual prices are computed based on the monthly CPI collection. This alleviates the problem of seasonality.
- Refusals have been brought to minimum due the fact that collecting the CPI data for purposes of PPP has elevated the legal binding of this data under the statistical ordinance. In addition the PPP price collector has gained experience and established cordial relations with the shopkeepers.
- a unique application for data collection process developed and installed in the hand held computer – PDA (Personal Digital Assistance).

E2. Combining *price methodology* of CPI and PPP in the fieldwork:

- Sampling procedures for CPI have been expanded to allow for inclusion of PPP;
- Use of administrative data for CPI (housing, health records, etc.) in PPP;
- CPI methodology requires mainly selection of the popular goods and services in the local economy. PPP methodology requires a mix of representativity in local markets and international comparability – two forces can be contradictory at times. The CPI sample was expanded in order to serve both programs;
- The selection process of items in the CPI is based on the most popular (by expenditure) according to the scanner data system. Many required items for the PPP also selected from the same system.

E3. Improving the PPP process by a new automatic system for data collection, samples management, data editing and quality control for PPP

The Prices Division of ICBS assumed responsibility for PPP in 2004. After learning many of the problems associated with PPP we realized that enhancing the synergies between the two programs could have mutual benefits. Many components of the PPP program have been absorbed into the CPI program. In addition, a new automatic system for the PPP process, based on the CPI methodology and systems, was introduced the new automatic system includes 7 parts:

1. Automatic linking between the PPP item list and CPI time series. The system automatically classifies PPP and CPI into identical categories. This enables current updates of the indices needed for the PPP by OECD. The CPI basket is updated every two years and the computer system accordingly.
2. File registration: an automatic system that produces a computerized OECD pyramid from the EXCEL file.

Chart 1:

The screenshot shows the 'PPP Interface' window. On the left, there is a sidebar with buttons for 'File Registration', 'File Download', 'Image Download', 'Local Data Link', 'Adjustment to Informer', 'Upload to Laptop', 'Download from Laptop', 'Item Audit', and 'Statistics'. The main area contains a 'File List' table with columns: 'Ind', 'File Name', 'Reg. Date', 'Fin. Date', 'File Category', 'File Address', and 'Status'. Below the table are 'Make File' and 'Previous Status' buttons.

Ind	File Name	Reg. Date	Fin. Date	File Category	File Address	Status
17	example.xls	Jan 6 2011		Specifications	C:\Document	Audited
20	test2.xls	Jan 18 2011		Furniture	C:\Document	Registered
21	PPP Example.xls	Jan 24 2011		Specifications	C:\Document	Registered
22	test2.xls	Jan 24 2011		Specifications	C:\Document	SokerUpload
23	test1.xls	Jan 24 2011		Specifications	C:\Document	MadadAdjuste
24	test1.xls	Jan 24 2011		Electronics	C:\Document	Registered
25	test_a.xls	Jan 24 2011		Specifications	C:\Document	Registered
26	test_b.xls	Jan 24 2011		Specifications	C:\Document	Loaded
27	test_c.xls	Jan 24 2011		Specifications	C:\Document	InformerAdjust
31	TestFinal2011.xls	Jul 5 2011		Specifications	C:\Document	MadadAdjuste
32	test_b.xls	Oct 26 2011		Specifications	C:\AndreiPro	SokerDownloa
33	Sp09i.xls	Dec 27 2011		Consumer Go	C:\Document	SokerDownloa
34	Sp09i.xls	Dec 28 2011	Jan 10 2012	Specifications	C:\Document	Audited
35	Sp09i.xls	Dec 29 2011		Specifications	C:\Document	Registered
36	Sp09i.xls	Jan 1 2012		Specifications	C:\Document	SokerUpload
37	Sp09i.xls	Jan 2 2012		Specifications	C:\Document	Registered
38	Sp09i.xls	Jan 3 2012		Specifications	C:\Document	Registered

Chart 2:

The screenshot shows a software interface with several input fields: 'File Name' (Sp09i.xls), 'Category Name' (Specifications), 'Sheet Name' (List), 'Code Column' (D), 'Name Column' (E), and 'Description Column' (F). There are also 'Read File' and 'Set the 1st row' buttons. On the right, there is an 'OECD Pyramid' tree view showing a hierarchy of categories. An 'Attention' dialog box is overlaid on the interface, displaying the message: 'Data has been recorded from the file. The Tree has been built. Make shure, it is correct.' with an 'OK' button.

3. Automatic link between CPI and PPP according to item specification.

2. PPP Pyramid – Item specifications

- 11.01.21.1 (COFFEE, TEA AND COCOA)
 - (0) 11.01.21.1.01.aa (Coffee, roasted, Arabica, WKB)
 - (0) 11.01.21.1.01.ba (Coffee, roasted, blend, small pack, WKB)
 - (0) 11.01.21.1.01.bb (Coffee, roasted, blend, large pack, WKB)
 - (0) 11.01.21.1.01.ca (Instant coffee, NESCAFE Gold)
 - (0) 11.01.21.1.01.cb (Instant coffee, NESCAFE Classic)**
 - (0) 11.01.21.1.01.cc (Instant coffee, WKB)
 - (0) 11.01.21.1.02.ea (Earl grey tea, TWININGS)
 - (0) 11.01.21.1.02.eb (Black tea, small box, WKB)

Brand: NESCAFE
 Model: Classic
 Type: instant Package
 type: glass jar
 Quantity: 200 g Price
 for: 1 package

1. OECD Pyramid – Item list

- General Data
 - 11.01.11.1 (RICE)
 - 11.01.11.2 (OTHER CEREALS, FLOUR AND OTHER CEREAL PRODUCTS)
 - 11.01.11.3 (BREAD)
 - 11.01.11.4 (OTHER BAKERY PRODUCTS)
 - 11.01.11.5 (PASTA PRODUCTS)
 - 11.01.12.1 (BEEF AND VEAL)
 - 11.01.12.2 (PORK)
 - 11.01.12.3 (LAMB, MUTTON AND GOAT)
 - 11.01.12.4 (POULTRY)
 - 11.01.12.5 (OTHER MEATS AND EDIBLE OFFAL)
 - 11.01.12.6 (DELICATESSEN AND OTHER MEAT PREPARATIONS)
 - 11.01.13.1 (FRESH, CHILLED OR FROZEN FISH AND SEAFOOD)
 - 11.01.13.2 (PRESERVED OR PROCESSED FISH AND SEAFOOD)
 - 11.01.14.1 (FRESH MILK)
 - 11.01.14.2 (PRESERVED MILK AND OTHER MILK PRODUCTS)
 - 11.01.14.3 (CHEESE)
 - 11.01.14.4 (EGGS AND EGG-BASED PRODUCTS)

4. Israeli CPI – outlets list

infName	infInformerId	roPrice	Currency
יש הכל ובזול פתח תקווה	1005689	19.99	NIS
מיני מרקט שטרית	1003212	7.99	NIS
מגה בעיר הרצליה	1003231	18.99	NIS
יש הכל ובזול רמלה	1003262	23.49	NIS
מתן באר שבט	1004217	17.99	NIS
מכולת אלשריף	1004736	8.5	NIS
אתר נט סל	1003998	17.9	NIS
מגה בעיר עוזיא רמת גן	45206	24.99	NIS
יש הכל ובזול בית שאן	94204	19.99	NIS
שמעון שמואל	32203	24.8	NIS
מכולת אביב	1000675	28.9	NIS
מגה בול קרית גת	14303	17.9	NIS
שופרסל שלי כרמל	71312	26.29	NIS
סופר כל 10	1003183	29.99	NIS
מתן נתניה	1004671	17.99	NIS
מכולת טלפית מועין	67101	10	NIS
מגה בול עכו	76302	18.99	NIS
מגה בול נצרת עלית	1004221	17.9	NIS
מחסני כמעט הינם מגדל	1006029	19.99	NIS
חום אקספרס	1005681	20.86	NIS
סופר אס	17105	(null)	NIS
מגה בעיר חדרה	72002	24.99	NIS

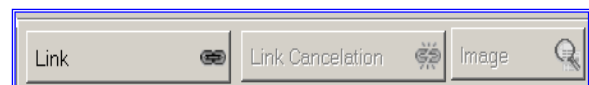
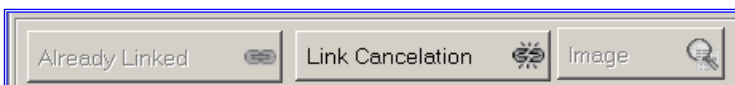
3. Israeli CPI – Item list

Local Pyramid

- מדד כנלי
 - מוזן, פרט לייקוה ופירות
 - לחם דגנים ומוצרי בצק
 - לחם
 - כנר לחם
 - לחם כחה אחיד, לא ארוז 750 גרם
 - לחם לבן, לא ארוז 750 גרם
 - לחם כחה אחיד פרום וארוז
 - לחם לבן פרום וארוז, אל תבחר לחם מיוחד
 - פיחה
 - לחם מיוחד אחר
 - חלה
 - לחמניות, בייגלים ובאגטים
 - מצות

5. The select item in the CPI according to the OECD specification

Observations				Properties	
infName	infInformerId	roPrice	Currency	propName	modName
סופר אס	17105	(null)	NIS	שם יצרן	נסטלה
מגה בעיר חדרה	72002	24.99	NIS	צנצנת זכוכית	נס קפה רד מאג
שופרסל שלי הנחשול רא	42003	34.99	NIS	שם מסחרי	ספרד
מיסטר זול ההגנה ירושלי	11203	34.99	NIS	ארץ ייצור	גרם 200
עינבר ברכת יעל	47103	19.99	NIS	משקל	מגורען
מכולת אנדרהיוקטור	91004	22.5	NIS		
מכולת איציק	1003357	23	NIS		
סיטונאות מאיר	1000915	34.95	NIS		



4. Adjust to informer: Outlets selection and work portion for the price collectors in the field.

2.CPI item list

Informer List
Select Branch: All Branches

Name	City
Orez a-melakim	תל אביב
Porcus	ירושלים
Reut le Malan	ירושלים
royal	תל אביב
Shulhanot ad a-zavar	תל אביב
Shupersal Big	ירושלים
Shupersal Sheli	חדרום
Shupersal Sheli	המרכז
Sofa im hatul	ירושלים
Sugar Queen	חיפה
Wallpaper 4	ירושלים

Informer Data

Name: Sofa im hatul
Address:
City/Region: ירושלים

1.PPP-Item list

OECD Data

- General Data
 - 11.01.11.1 (RICE)
 - 11.01.11.2 (OTHER CEREALS, FLOUR AND OTHER CEREAL PRODUCTS)
 - 11.01.11.3 (BREAD)
 - 11.01.11.4 (OTHER BAKERY PRODUCTS)
 - 11.01.11.5 (PASTA PRODUCTS)
 - 11.01.12.1 (BEEF AND VEAL)
 - 11.01.12.2 (PORK)
 - 11.01.12.3 (LAMB, MUTTON AND GOAT)
 - 11.01.12.4 (POULTRY)
 - 11.01.12.5 (OTHER MEATS AND EDIBLE OFFAL)
 - 11.01.12.6 (DELICATESSEN AND OTHER MEAT PREPARATIONS)
 - 11.01.13.1 (FRESH, CHILLED OR FROZEN FISH AND SEAFOOD)
 - 11.01.13.2 (PRESERVED OR PROCESSED FISH AND SEAFOOD)
 - 11.01.14.1 (FRESH MILK)
 - 11.01.14.2 (PRESERVED MILK AND OTHER MILK PRODUCTS)
 - 11.01.14.3 (CHEESE)
 - 11.01.14.4 (EGGS AND EGG-BASED PRODUCTS)
 - 11.01.15.1 (BUTTER)
 - 11.01.15.2 (MARGARINE)
 - 11.01.15.3 (OTHER EDIBLE OILS AND FATS)

Observations by Informer: [18] פארם ירושלים

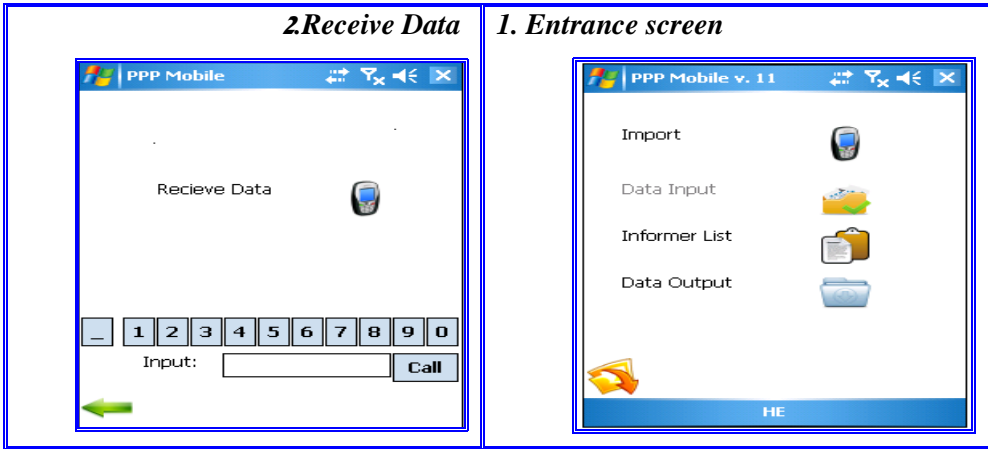
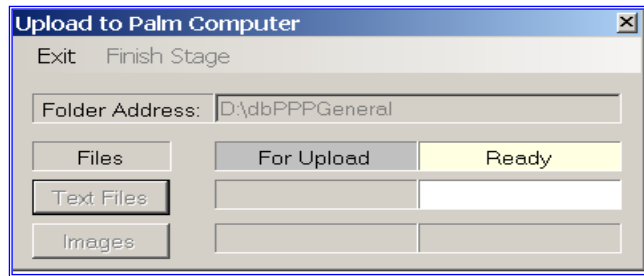
OECD Number	PyramidCode	Item Name	InformerCode	Informer Name
1826	11.06.12.1.01.aa	Plaster, textile, standard, WKB	1003031	סופר פארם ירושלים
1810	11.06.12.1.01.ab	Plaster, elastic, WKB	1003031	סופר פארם ירושלים
1811	11.06.12.1.01.ac	Plaster strips, WKB	1003031	סופר פארם ירושלים
1812	11.06.12.1.01.ba	Blister plasters, for heel, SB	1003031	סופר פארם ירושלים
1813	11.06.12.1.01.ca	Joint bandage, WKB	1003031	סופר פארם ירושלים
1814	11.06.12.1.02.da	Knee support, WKB	1003031	סופר פארם ירושלים

5. Upload to Laptop – a unique application for data collection process developed and installed in the hand held computer – PDA (Personal Digital Assistance).

The purpose of the data collection system is to be a good replacement to the paper questionnaires. The system has several advantages:

- ❑ Computerized interface for work portion of outlets and observations for data collection in the field. The work portion will include the unlinked item through the CPI;
- ❑ Data collection via PDA (handheld computer);

- Automatic data transmission by modem to the auditing system for logical checks;
- Distinguish according to the observations' source: CPI, field or average price of both sources, as opposed to the CPI data collection system;
- System flexibility - The work portion can be changed online by the price collector.



3. Item specification

4. Price screen

5. Work portion -Informer by status

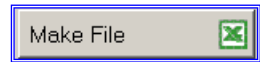
6. Work portion -observation by status

6. An independent system for editing and logical checks and automatic integration between CPI data and prices from the field.

<u>Item list for logical check</u>	<u>Key</u>
<ul style="list-style-type: none"> 11.06.12.1.04.ga (Fixation tape, WKB) <ul style="list-style-type: none"> 1820 (סופר פארם ירושלים) 1839 (TREND) 11.06.12.1.04.ha (Digital stick thermometer, WKB) <ul style="list-style-type: none"> 1070301020115001 1070301020115013 1070301020115017 1070301020122004 1070301020122006 	<ul style="list-style-type: none"> ■ Checked with collected (Isuf) price ■ Checked with edited price ■ Madad Data Only ■ Waiting for Check ■ Data is missing

Legend and Statistics		
Informer: סופר פארם ירושלים		
Category: Other medical products		
■ Price accepted	13	82%
■ Price updated	0	
■ Excluded	3	18%
■ Not checked	0	

7. An automatic system for producing an excel file at the OECD format.



F. Summary

After learning many problems associated with PPP we initiated a program that enhances the synergies between CPI and PPP in three areas: (i) price collection (ii) price methodology and (iii) technological improvements.

The new system has yielded many important outcomes:

- A dynamic computerized system for data collection and data editing that is updated online according to changes in both programs;
- More efficient allocation of resources aligned with CPI methodology and PPP procedures;
- Writing of operational guide for users;
- Design and build archive system for quality assurance and future research;
- Following OECD recommendations of using CPI data for PPP program.

The project has enabled ICBS to improve the PPP data and knowledge base within the Prices Division and upgrade the quality of the program to the "CPI level" and treat PPP as a natural process within the regular workload of the division.