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Mini-Presentation

**Service Producer Price Index for
Cleaning Services in Israel**

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1. Introduction

At the Voorburg Group meeting in Oslo in 2009 it was decided that Cleaning Services will be on the agenda of the 2010 meeting, and will be covered in a mini-presentation. CBS Israel has been calculating and publishing a Service Producer Price Index for Cleaning Activities since 2008 on a quarterly basis, and in reference to the year average 2007 = 100.0 points. The development of the index started in 2006 based on a survey of that industry. This paper describes the development and methodological framework of the index.

The structure of the paper is according to the Content Development Framework set out by the Voorburg Group, and forms the basis for its presentation at the 25th Voorburg Group meeting in Vienna, Austria.

2. Definition of the Service

According to the ISIC Rev 4, this group (812) includes the activities of general interior cleaning of all types of buildings: offices, factories, shops, institutions and others; exterior cleaning of buildings, specialized cleaning activities for buildings or other specialized cleaning activities, cleaning of industrial machinery, cleaning the inside of road and sea tankers, disinfecting and extermination activities for buildings and industrial machinery, bottle cleaning, street sweeping, snow and ice removal. The group is split into two main sub-groups:

- 8121 - General cleaning of buildings
- 8129 - Other building and industrial cleaning activities

The sub-group "**General cleaning of buildings**" covers mostly interior cleaning of building of all types, such as: offices, houses or apartments, factories, shops, institutions and general cleaning of other business and professional premises and multi-unit residential buildings.

The sub-group "**Other building and industrial cleaning activities**" covers:

- Exterior cleaning of buildings of all types, including offices, factories, shops, institutions and other business and professional premises and multi-unit residential buildings

- Specialized cleaning activities for buildings, such as window cleaning, chimney cleaning and cleaning of fireplaces, stoves, furnaces, incinerators, boilers, ventilation ducts and exhaust units
- Swimming pool cleaning and maintenance services
- Cleaning of industrial machinery
- Bottle cleaning
- Cleaning of trains, buses, planes, etc.
- Cleaning the inside of road and sea tankers
- Disinfecting and exterminating activities
- Street sweeping and snow and ice removal
- Other building and industrial cleaning activities

This class excludes: agriculture pest control (0161), cleaning of sewers and drains (3700), automobile cleaning and car wash (4520).

Traditional household cleaning is not included in that service industry.

Usually SPPI should measure export transactions, as it is included in the definition of the index, but export transactions are not relevant to cleaning services.

3. Pricing Unit of Measure

The pricing unit of measure for general cleaning and for window cleaning is usually time-based - an hour of cleaning, a global monthly rate - or the price for cleaning by square meter. The definition of the service includes the type of building, the type of cleaning, the time of day when the cleaning takes place (morning/day or evening), if the service includes cleaning materials (chemicals and paper) and the frequency of cleaning (5 days in a week etc). All the characteristics of the cleaning are usually defined in the contract.

For Disinfecting and extermination and for polishing services, the unit of measure is usually determined by the size of the building/apartment - the number of rooms or size in square meters - (price for extermination for a 3 room's apartment).

4. Market Conditions and Constraints

4.1 Size of the Industry

Businesses involved in the cleaning services industry are classified in class 7501 - "cleaning services" of the Israeli version of the ISIC Rev 3.

In Israel cleaning services are relatively large, as outsourcing of this service has become significant in the last two decades; and the cleaning staff is now employed by the service contractors and not by the owner of the place to be cleaned, as was the case 20 years ago.

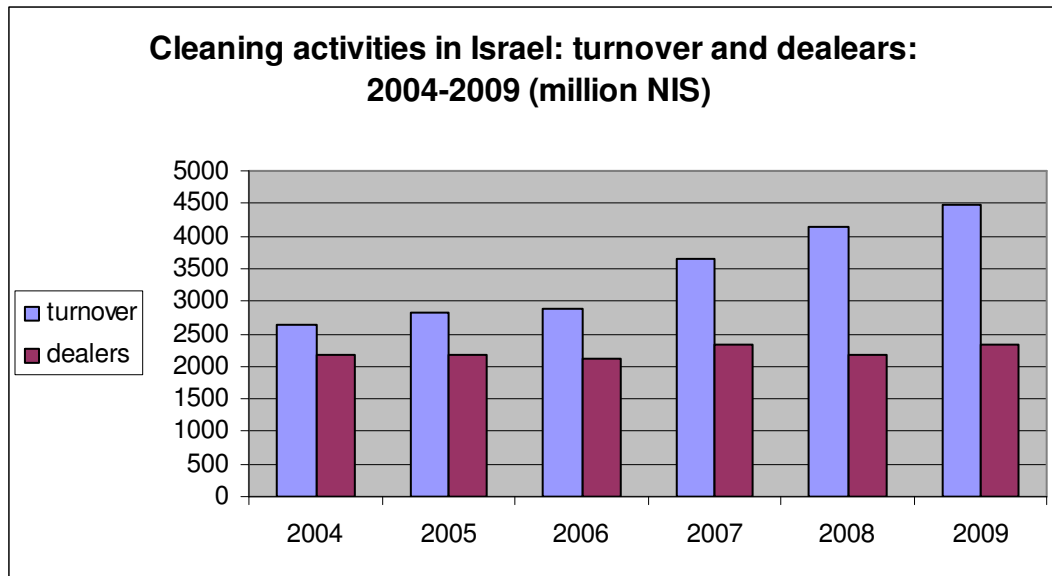
It is typical for companies in that industry to provide a full set of building maintenance services, especially cleaning of buildings and security services. The separation of the different activities in the business statistics is complicated. For that reason the CBS publishes data on turnover, dealers, occupations, wages and other business statistics for the 3-digit level of cleaning and security services together, but data and estimations are available also for the 4-digit level.

The industry of security and cleaning services in Israel in 2009 accounts for approximately 0.5 percent of the total revenue of trade and services in Israel; i.e., approximately NIS 11,283 million. Cleaning alone accounts for 0.2 percent of total revenue, approximately NIS 4,467million¹.

Figure 1 describes the development of turnover and dealers during the years 2004-2009. As can be seen from Fig. 1, cleaning services have been developing rapidly in recent years, from NIS 2,628 million in 2004 to NIS 4,467 million in 2009. The number of companies remains relatively stable, from 2,179 dealers in 2004 to 2,327dealers in 2009.

¹Central Bureau of Statistics, Dealers and Revenue of Economic Industries According to Value Added Tax, 2009

Figure 1:



In 2009 there were 2,327 businesses in the cleaning industry. This industry is relatively concentrated; it includes a few very large companies, and a host of medium and small companies. Among the former group is a very large international company that operates in 50 countries throughout the world, with a share of approximately 8% of the industry's revenue and 5,500 employees. An additional 6 large companies are responsible for another 12% of the industry's revenue and each employs 1200-4800 workers. The rest of the industry (80%) consists of medium (500-1,000 workers) and small companies, with low incomes and fewer workers².

The large companies provide all kinds of cleaning services - general cleaning services and specialized cleaning services such as window cleaning, industrial cleaning and more. Table 1 describes the distribution of companies by size group of revenue in 2009. According to data from "Dealers and Revenue of Economic Industries"¹, 77.9% of all cleaning companies had an annual revenue of up to NIS 1 million (equivalent to approximately USD 250,000), which constitutes only 10.4% of the entire annual revenue of the industry. At the other end of the scale there were 0.1% of all firms with an annual revenue of NIS 100 million or more (equivalent to approximately USD 25 million), which is 15.4% of the annual revenue of the industry; 1.8 of all firms with an annual

revenue of NIS 20-99.99 million (USD 5-25 million), which is 32.4% of the entire annual revenue of the industry; and 1.6% of all cleaning firms with an annual revenue of NIS 10-19.99 million or more (USD 2.5-5 million), accounted for 10.9% of the entire annual revenue of the industry.

Table 1: Distribution by Size Groups of Revenue, 2009

Size of company (million NIS)	Dealers (percent)	Revenue (percent)	Revenue (cumulative percent)
100+	0.1 (~ 2 companies)	15.4	15.4
20-99.99	1.8	32.4	47.8
10-19.99	1.6	10.9	58.7
5-9.99	3.4	12.1	70.8
1-4.99	15.2	18.8	89.6
Up to 0.99	77.9	10.4	100

Labor

Cleaning services is a highly labor-intensive industry; in 2009 there were 119,000³ employee jobs in cleaning and security services. In cleaning services alone there were approximately 52,000 employee jobs⁴ - approximately 3% of all jobs in trade and services, and much greater than their share of revenue (approximately 0.2%). Cleaning workers are mostly employed by cleaning firms (cleaning contractors), not hired from temporary work agencies.

In general, there is a high representation of females, immigrants, students, young people and uneducated people among the workers. The representation of females in general cleaning services - cleaning of buildings such as offices, houses, shops, factories etc. - is approximately 65%. In other cleaning services, such as window cleaning, street sweeping and extermination and disinfection, most - if not all - of the workers are males.

² Data from the Association of Cleaning Companies, 2009

³ Statistical Abstract of Israel 2009, Table 12.38 employee jobs by industry (division and group)

⁴ Based on an estimation using hybridization between industrial activity and occupations.

Workers in cleaning services are cheap labor and earn minimum wage salaries, approximately NIS 3,850 per month (approximately USD 1,000). Most workers employed by cleaning contractors are not temporary workers at all, and have been working in those firms more than five years².

In recent years the industry has seen increases in professionalism. An association of cleaning firms was founded which take care of the firm's interests. Competition in the market has put pressure on companies to invest in advanced equipment and materials and in technical developments and innovations that improve efficiency and productivity in the industry.

Customers

The industry's main customers are other businesses and the public sector. Demand by households constitutes only a minor part of the industry's total demand.

There are two kinds of customers in this market, as follows:

- ❖ The public sector - includes mainly government ministries and local authorities for cleaning offices and educational premises. This sector also includes government companies and authorities such as airports, the aircraft industry and others. About 50% of all transactions are with the Public sector.
- ❖ The private sector - divided into big companies, including banks, hospitals, commercial buildings, chain stores and industrial premises; and small businesses, such as restaurants and shops.

Transactions with the public sector (government) are determined by tenders, and usually the firm that offers the lowest price wins the contract. The tenders are usually for 1 year, with a renewal option of up to 3 years. In the private sector it is accepted practice to choose one of three offers, usually the most inexpensive one.

4.2 Special Conditions and Constraints

Until recently the market of cleaning services was not regulated and companies could enter it with minimal investment requirements. But this year, as a result of cooperation between the cleaning companies' association and the regulation authorities, cleaning companies will have to register and get a formal license from the Ministry of Industry and Trade in order to operate (The revision is from January, 2010). According to the

new regulations, the companies will have to prove their managerial and business experience and their knowledge of workers' rights, and post a bond in order to obtain the license. The purpose of that procedure is to organize the market of cleaning and security services.

Competition in cleaning is very intense, due to the low entrance barrier and the importance of the price factor in the demand for this service. In the cleaning business the service is more transparent than in the more complex services of professionals (lawyers, architects, etc.), so it is easier for the clients to compare tenders, and usually the firm that offers the lowest price is awarded the contract. In addition, there is a big client in the market - the government - with considerable market power to reduce prices, another factor leading to tougher competition, and even to claims on the part of the cleaning companies about "loss prices" in tenders.

However, it is expected that the new regulations will lead to a reduction in competition, as small companies with no ability to post the bond will be forced to leave the market.

5. Classification Structure and Details

According to the UN **ISIC Rev. 3.1**, cleaning belongs to the 3-digit group 749 – Business activities n.e.c. , class **7493 – Building-cleaning and industrial cleaning activities** (other classes in this group include: labour recruitment and investigation and security)

The UN **CPC** gives more details and specifies the following group categories:

Description	CPC code
Cleaning services	853
Disinfecting and exterminating services	8531
Window cleaning services	8532
General cleaning services	8533
Specialized cleaning services	8534

According to the **ISIC Rev 4**, cleaning activities are classified in Section N, Division 81, and Group 812:

Section: N - Administrative and support service activities

Division: 81 - Services to buildings and landscape activities

Group: 812 - Cleaning activities

This Group is divided into the following classes:

8121 - General cleaning of buildings

8129 - Other building and industrial cleaning activities

Class 8121 - General cleaning of buildings includes:

- General (non-specialized) cleaning of all types of buildings, such as: offices, houses or apartments, factories, shops, institutions
- General (non-specialized) cleaning of other business and professional premises and multi-unit residential buildings

These activities cover mostly interior cleaning, although they may include the cleaning of associated exterior areas such as windows or passageways.

Class 8129 - Other building and industrial cleaning activities include:

- exterior cleaning of buildings of all types, including offices, factories, shops, institutions and other business and professional premises and multi-unit residential buildings
- specialized cleaning activities for buildings, such as window cleaning, chimney cleaning and cleaning of fireplaces, stoves, furnaces, incinerators, boilers, ventilation ducts and exhaust units
- Swimming pool cleaning and maintenance services
- Cleaning of industrial machinery
- Bottle cleaning
- Cleaning of trains, buses, planes, etc.
- Cleaning of the inside of road and sea tankers
- Disinfecting and exterminating activities
- Street sweeping and snow and ice removal
- Other building and industrial cleaning activities

6. Evaluation of Standards vs. Definitions and Market Conditions

In Israel, cleaning services have been divided into three service types:

- General cleaning of buildings - including all types of buildings, such as: offices, factories, institutions, shops and other business premises. These activities cover mostly interior cleaning services.
- Window cleaning services - this subclass includes interior cleaning of windows in dwellings and other buildings, and exterior cleaning of windows.
- Disinfection and extermination services - this includes disinfecting dwellings and other buildings, exterminating insects, rodents and other pests, fumigation services and pest control services.

Other activities included in specialized cleaning services in the CPC classification, such as cleaning of chimney of fireplaces, stoves, furnaces and others are of relatively low importance, and therefore have not been included in the index.

The biggest sub-group is general cleaning of buildings, which generates 80% of the industry. The other two sub-groups - window cleaning and disinfection and extermination - are more or less of the same size and together constitute 20% of the industry.

7. National Accounts Concepts and Measurement Issues

The National Accounts Department of CBS Israel is now considering using the SPPI for Cleaning Activities for the deflation of value series instead of the general CPI index. SPPI is an appropriate deflator, as it covers all transactions and especially BTB transactions, which are the main transactions in that industry and not covered in CPI. The level of detail of SPPI for cleaning is product level and the main pricing method - contract pricing – is considered an “A” method as it based on real transaction prices. These are additional factors that make the index appropriate for deflation in national accounts.

8. Pricing Methods

Contract pricing is applicable to cleaning services due to the repetition of the same service by the same producer to the same client for a long period of time (e.g., the daily cleaning of an office). Long-term contracts with price escalation are the prevailing

pricing mechanism in this industry. The contracts are the result of firms competing for tenders; usually the firm that offers the lowest price wins the bid. The unit measure in contract prices can refer to price per hour of work, a global monthly price or price per square meter.

The second mechanism of pricing is based on working time; these are transaction rates, usually **hourly rates**, that specify the kind of service, type of building, time of the day and if prices include materials or not.

In the cleaning industry, **list prices** are not available. The objective is always to monitor **finalized prices**, that is, after allowing for any discounts.

The price determining factors are:

- ❖ Type of cleaning (general, windows, etc.)
- ❖ Type of building (office, hospital, enterprise, etc.)
- ❖ Time of day (morning, evening)
- ❖ Materials – included or not (paper, chemicals)
- ❖ Size of the building in sq. m.

Factors that influence prices are mainly factors affecting changes in labour costs: cost-of-living allowance, minimum wage and changes in the price of materials, mainly paper and chemicals.

Most contracts are adjusted to variations in the cost-of-living and minimum wage regulations, as the payment is mostly for labour. When the minimum wage rises, cleaning companies usually do not raise their prices by the full increase amount, due to the aggressive competition.

The selection of contracts

Contract pricing is the dominant method in this industry. Contracts are selected in cooperation with companies according to the services typically provided by the firm. The contracts include a description of the service, the duration of the contract and the client. The selection of the pricing method reflects the pricing mechanisms in the industry and the availability of the data: long-term contracts, tailored to customer needs, which specify in great detail the nature of the service and the price.

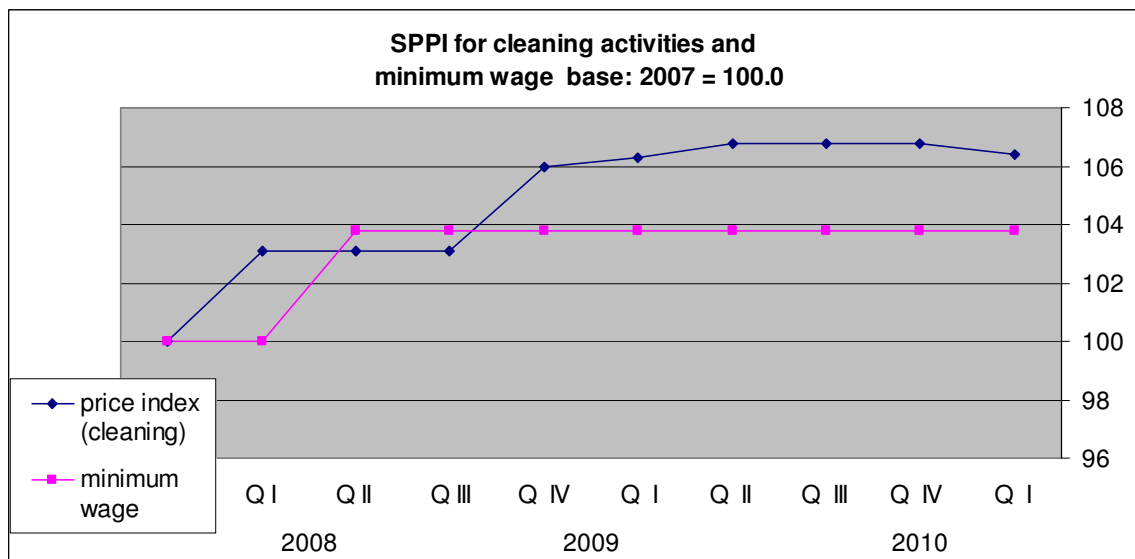
The firms were each visited by economists from the Central Bureau of Statistics in order to urge them to report the necessary information, and to fully understand their methods of determining prices.

During their visits the CBS employees selected a number of contracts to take as samples from each company. Special attention was paid to the duration and repetition of the contracts, with an emphasis on contracts that last over a sufficiently long survey period, and in which the service is delivered at least once per survey period (quarterly). Another consideration was to select contracts that reflect different volumes of service for different sizes of customers, because price development may vary with the size of customer or contract. After the visits Prices are collected on a quarterly basis directly from sampled firms by mail, telephone or fax.

Some results of price changes

Figure 2 below describes the price index for cleaning services. It can be seen that changes in prices are correlated with changes in the minimum wage. The biggest share of costs - labor costs - are influenced by changes in the minimum wage and cost-of-living allowances; other, less important, costs are materials (mainly paper and chemicals). Recently (in August, 2009) a collective agreement was signed with the "Histadrut" Labor Federation to raise the minimum wage in cleaning services by 20%. That step, if approved by the Ministry of Finance, will lead to a big increase in prices.

Figure 2: The Price Index for Cleaning



9. Quality Adjustment Methodology

When using contract pricing it is important to be in close contact with the respondents and a special effort should be made to ensure that the contents of the contracts remain unchanged over time. One way of doing that is by collecting information on possible changes in quality during each period. If there has been a change in contents, steps have to be taken to allow for a change in quality.

When applying contract price measurement, it is important to exercise caution regarding quality valuation when contracts are changed. Changes in quality between new and old contracts caused by dissimilarities are a potential problem. Close contact with the respondents assures being informed about any changes in the specifications of the contracts.

If a contract is discounted a substitution is needed; if there is any change in the quality of the service, an adjustment for quality must be made. There is a danger of a "changing contract bias" in the changing of contracts by simply linking the old contract with the new, without reflecting any correction for price (quality) change.

10. Evaluation of Comparability with Turnover Output Measures

Turnover statistics include two main surveys: "Monthly Revenue Indices for Trade and Services" based on reports to the VAT authority, and "Annual Survey of Trade and Services" for estimating outputs and the distribution of inputs based on the annual financial reports submitted to the Income Tax authorities. The classification of the revenue surveys is the same as for the SPPI (ISIC Rev 3., now in the process being moved to the ISIC Rev 4). In the turnover series units are classified according to the primary activity at the 4-digit level and the unit of measure is the establishment. In SPPI classification is based on a combination between industry and product classification.

The frame for both turnover data and SPPI is the Business Register. The SPPI is a sub-sample of the sample of the Survey of Trade and Services. The sample in the "Survey of Trade and Services" is based on the revenues of the firms and does not give information about the distribution of revenues among sub-groups, since most of the cleaning firms have a variety of services; this causes problems when one needs to sample firms in that industry. For that reason we use other sources such as the "Dun's Guide" file, which includes data on companies in Israel and lists of big cleaning firms, including information

on the number of employees, sales and specialization fields, as well as data from the association of cleaning companies. Ten firms from this combined framework were sampled, reflecting the relative size of the industry and its degree of centralization. The actual firms sampled by a combined method of judgmental and cut-off sampling. It should be noted that in cleaning services a relatively small sample of firms can suffice, because the market is comparatively transparent and competitive; but it should be a representative sample of the different sub-markets, since price development can differ between the various services.

Summarized turnover data are available at the 4-digit class level. To determine revenue data below the class level (for weighting purposes), data obtained during the visits to companies in the sample of the SPPI was used. Revenues of the firms from other services, such as security services, were not included.

Timing – revenue indices for trade and services are published monthly, and the survey of trade and services is published annually. The periodicity of SPPI is quarterly.

11. Summary

The Israeli Central Bureau of Statistics developed SPPI for cleaning services, and the index has been published, since 2008 with the base year average 2007 = 100.0 points. Data on prices are collected, as of the first quarter of 2007, from the largest companies in the industry whose combined market share is considerable. These companies primarily offer cleaning services. The prices of these services are monitored quarterly and the index is calculated as a Laspeyres type chain index. The main object in developing the index is for the deflation of value series in National accounts.

In Israel, cleaning services have been divided into three service types: General cleaning of buildings - the biggest sub-group; Window cleaning services and Disinfection and extermination services. Other activities included in "specialized cleaning services" in the CPC classification, such as cleaning of chimney of fireplaces, stoves, furnaces and others are of relatively low importance, and therefore have not been included in the index. Contract pricing is the main pricing method in this industry. Contracts are selected in

cooperation with companies and Close contact with the respondents assures being informed about any changes in the specifications of the contracts. If a contract is discounted a substitution is made; if there is any change in the quality of the service, an adjustment for quality is made. Most contracts are adjusted to variations in the cost-of-living and minimum wage regulations, as the payment is mostly for labour.

The price determining factors are: Type of cleaning (general, windows, etc.), Type of building (office, hospital, enterprise, etc.), time of the day (morning, evening), Materials – included or not (paper, chemicals) and Size of the building in sq. m.

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