

25th Voorburg Group Meeting
Vienna, Austria
September 20th to September 24th 2010

SPPI Mini Presentation

SPPI for Cleaning Services
in Germany

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Federal Statistical Office Germany

The purpose of this paper is to provide a brief overview of the Services Producer Price Index (SPPI) program for the cleaning services industry (NACE rev.2, Code 81.2) in Germany. Other related service activities such as NACE Code 81.1 “Combined facilities support activities” and Code 81.3 “Landscape service activities” are not covered in this paper. There is no legal basis for a survey of the two Codes in Germany.

The structure of this paper follows the Content Development Framework set out by the Voorburg Group on Service Statistics. The SPPI for cleaning services was developed by the Service Producer Prices Division of the Federal Statistical Office Germany.

1. Definition of the Service

According to NACE¹ rev 2 Code 81.2, “Cleaning activities” is comprised of establishments primarily engaged in:

- 81.21 General cleaning of buildings
- 81.22 Other building and industrial cleaning activities
- 81.29 Other cleaning activities

Code 81.21 “General Cleaning services” include all kind of interior cleaning services of buildings. It is mainly perceived as traditional cleaning of working environments like offices, factories or shops.

Code 81.22 “Other building and industrial cleaning activities” contain different services which are further structured by the CPA 2008² into three sub-sectors: window cleaning services, specialised cleaning services and chimney cleaning services. “Specialised cleaning services” includes e.g. exterior cleaning services of buildings or cleaning for industrial machinery.

Code 81.29 “Other cleaning services” is further subdivided by CPA 2008 into four sub-sectors: disinfecting and extermination services, sweeping and snow removal services, other sanitation services and other cleaning services. “Other sanitation services” contain beach cleaning services whereas “Other cleaning services” embrace mainly cleaning services of buses, trains and so on.

CPA gives a close look which services are excluded from this sector. Establishments primarily engaged in carpet shampooing and curtain cleaning, building exterior cleaning (when associated with building completion), automobile cleaning or car wash or cleaning services of oil spills in other coastal areas are excluded from the cleaning service industry.

Due to the continuous outsourcing of services, companies of cleaning services are more and more leaving their core business – the cleaning of buildings – to offer a broad spectrum of service bundles around the operation of buildings during the last years. The service bundles range from facility management which includes the services of cleaning, catering, security &

¹ NACE: Statistical Classification of Economic Activities in the European Community;

² CPA: Statistical Classification of Products by Activity in the European Economic Community;

fire protection, reception, care taker, business management services up to service and maintenance of industrial machines.

2. Pricing Unit of Measure

The pricing unit of measure typically represents the cleaning service. The characteristics of the service depend on the different cleaning services laid down in the previous chapter.

Prices for general cleaning of buildings and window cleaning are often based on long-lasting contracts. The output of this industry could be described as repeated and well-specified cleaning services. The main price-determining variables or characteristics are the cleaning object, e.g. a office, the cleaning size in sqm, the frequency of the cleaning, e.g. 5 times a week and the package of service, e.g. daily clearing of the trash can, cleaning of the desktop and weekly cleaning of the telephone.

Prices and output for chimney cleaning services are also well-specified particularly with regard to consecutive periods. Here the price-determining characteristics are e.g. kind of fireplace e.g. solid, fluid or gaseous fuel, kind of ventilation system, kind of service e.g. cleaning, inspection or emission measurement.

3. Market Conditions and Constraints

3.1 Size of Industry

In 2008 the total turnover of code 81.2 (NACE rev 2) in Germany amounted to approximately 14.0 Billion € according to the FSO Service Statistics. The most important sub-class was general cleaning services of buildings. The other four sub-classes are considerably smaller. The following table gives an overview about turnover, number of enterprises and employees of the six different activity fields.

Table 1 – Cleaning services: Key figures by WZ-subclass in 2008³

WZ 2008-subclass ⁴	Turnover		Number of enterprises	Number of employees
	Bill. €	%		
81.2 Industrial cleaning	13.9	100.0	24 413	812 088
81.21.0 General cleaning of buildings	10.4	74.8	14 358	720 479
81.22.1 Chimney cleaning services	1.0	7.2	6 733	19 227
81.22.9 Specialised cleaning services	1.5	10.8	1 285	47 129
81.29.1 Means of transport cleaning	0.4	2.9	429	9 046
81.29.2 Disinfection and extermination s.	0.1	0.7	649	2 607
81.29.9 Other cleaning services	0.5	3.6	958	13 600

³ FSO Service Statistics (Dienstleistungsstatistik): the data for 2008 are preliminary results and not yet released to the public.

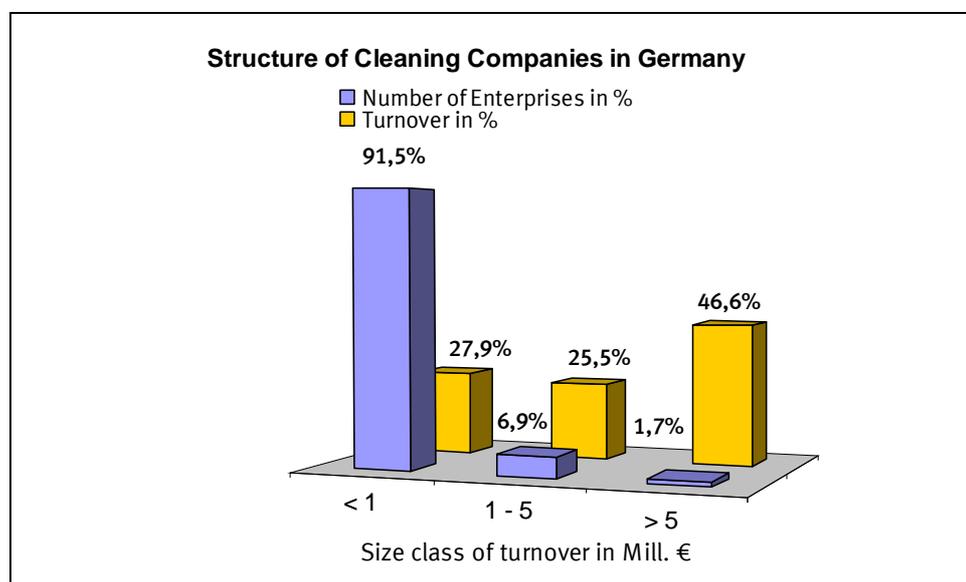
⁴ WZ (Wirtschaftszweigklassifikation): the German classification of economic activities

An indication of the concentration of the different sub-activities can be given by the turnover per enterprise. The highest share of 1 167 315 € turnover per enterprise was registered in WZ 81.22.9 offering specialised cleaning services such as window cleaning. Followed by cleaning services for trains, buses, planes etc (WZ 81.29.1) which were achieving a turnover per enterprise of 932 401 €.

The highest productivity seen as turnover per employee is on average at 52 010 € for the subclass chimney cleaning services in 2008. In contrast the most import subclass, the general cleaning services for building, earned only 14 435 € per employee which was caused by the highly labour-intensive work found in this activity field, conducted mainly by unskilled relatively cheap employees.

The universe of companies of NACE 81.2 is dominated by a large number of small and medium sized companies (up to 1 Mill € of turnover). These companies are very often providing specific cleaning services. A few large firms offer all kind of cleaning activities as well as other service-bundles in the field of building operation. According to preliminary results of the FSO Service Statistics 2008, 1.7 % of all companies were companies with a turnover of more than 5 Mill €. These achieved a market share of 46.6 %. The following figure shows the relevance of the large companies for this sector in more detail:

Figure 1 – Cleaning services: Distribution by size class of turnover in 2008⁵



3.2 Special Conditions or Restrictions

Special conditions for developing SPPI for cleaning activities in Germany can be pointed out for the different sub-sectors:

⁵ FSO Service Statistics (Dienstleistungsstatistik)

A. General cleaning services and window cleaning services

The economic situation of this sub-sector is influenced by the outsourcing process for cleaning services. Most companies of the private industry have outsourced their cleaning services to cleaning providers.

The development of the real estate market for office buildings is also important for this industry. An increasing demand for offices is normally accompanied by a growth of the cleaning sector.

Another result of the economic situation is the pressure exerted by customers to lower prices for cleaning services. This can lead to extended cleaning intervals.

The cleaning sector is a highly labour-intensive sector and therefore affected by each modification of social or economic working conditions. The labour force of the sector consists mainly of unskilled and relatively cheap employees. In Germany many people who do marginal part-time work in this sector earn a monthly wage of 400 Euro at most. Up to this limit the employee is exempt from social security taxes whereas the employer has to pay a flat rate.

Since March 2010 there are minimum salaries fixed by law for the cleaning sector in Germany. Fixed minimum salaries affect the cost structure of the sectors companies and their pricing.

The German traditional cleaning market is developing rapidly and the competition is hard. In the past mainly simple (traditional) cleaning services were offered. Now the cleaning sector is more and more orientated to provide customized integrated service bundles to the point of an all embracing facilities management. Often big customers wish a full service provider for their property (including e.g. cleaning, catering, security services, caretaker services) instead of handling five or six different providers. Commissioning in industrial cleaning is almost exclusively set over the price while the commissioning for comprehensive service bundles leaves more flexibility in price setting. Furthermore providers of services on the market merge more and more frequently to meet the requirements for a comprehensive facility management. This trend to a comprehensive facility management affects also the calculation of SPPI for the industrial cleaning sector. The transparency and clear mapping of enterprises to sector 81.2 could be increasingly difficult in the future.

B. Chimney cleaning services

The German chimney cleaning sector is regulated by a regional monopoly regulation of the state, the so called Kehrmonopol, which has its origin in the years before 1750. This monopoly means that all owners of buildings have to let their chimneys swept by an official chimney sweeper, who is working on behalf of the state as a public craftsperson.

This service was exclusively regulated by the legislative of the *Länder* and determined by 16 different regulations by the end of 2009.

The EU Commission complained about these regulations of the chimney cleaning industry. As a result the German ministry of economics harmonized the 16 different regulations. The German association of all chimney sweepers worked out a regulation for Germany as a whole,

which has been coming into effect since January 2010. The regulation describes the different services of a chimney sweeper such as cleaning, checking and measuring as well as the annual frequency of the service and its prices. This regulation will reform the German market for chimney cleaning by lifting the monopoly to an open market in 2013.

C. Means of transportation cleaning

The German cleaning sector of means of transportation is dominated by one company, the German railway service company: ‘Deutsche Bahn Services’⁶ with its six regional subsidiaries. The price calculations of these subsidiaries are independent, which means there are different prices for the same service. These subsidiaries offer also a comprehensive facility management from the services for the buildings (stations) over the maintenance of the track system to the cleaning for trains, busses and partial airplanes. The cleaning for trains covers the cleaning of the interiors and exteriors as well as the disposal of solid and liquid (WC) waste. 95 % of the trains of the mayor German railway company the ‘Deutsche Bahn AG’ are cleaned by this company.

Referring to the submarket for trains, this market comprises also of a few smaller companies offering cleaning services mostly for the regional rail transport.

The sub-market for airplane cleaning consists of a few small to middle-sized companies which are specialized on cleaning of airplanes at the big German airports.

As it is seen by experts there is a tendency of some airline companies’ to save cleaning costs by making a reduced cleaning on their own.

Like the traditional cleaning services, the sector for cleaning of means of transportation services could be described as highly labour-intensive and therefore be affected by each modification of social or economic working circumstances.

3.3 Record Keeping Practices

The level of organisation at which data items are collected differs from the phases of the survey. Phase I (production of the weighting pattern) needs overall figures that are usually kept at corporate level; in contrast, the pricing records needed for phase II (current price observation) are normally kept at the operational level. In some cases, this includes asking several subsidiaries of the company. The frequency of the price observation is quarterly.

4. Standard Classification Structure and Details

There were some changes in the composition of the past and current versions of the different classification systems: NACE, CPA and the national classification WZ. An overview in detail is given in the appendix (Table 2).

⁶ “Deutsche Bahn Services” is a subsidiary of the mayor German railway company, “Deutsche Bahn AG”

The current versions (2008) of NACE, CPA and WZ structure the cleaning industry on 4-digit-level in the same way, into:

- 81.21 General cleaning of buildings
- 81.22 Other building and industrial cleaning activities
- 81.29 Other cleaning activities

CPA splits the cleaning industry up into eight products, whereas the German WZ differentiates only by six products on 5-digit-level. CPA differs between “window cleaning” and “specialised cleaning”, WZ combines both into “other building and industrial cleaning services”. CPA shows “sweeping and snow removal services” and “other sanitation services” (e.g. beach cleaning services), whereas the German WZ assigns both products to “other cleaning services”. It is assumed that the German turnovers for the extended products are only marginal and therefore of not so much importance.

The most important changes of the reorganisation of WZ for Germany are that window cleaning will be separated from general cleaning of buildings and will reassigned to 81.22 “other building and industrial cleaning activities”. New is the inclusion of sanitation, remediation and similar activities to code 81.29 “other cleaning services”.

The construction of the price survey for the cleaning industry was based on the 2003 German classification of economic activity (WZ), but could easily be transferred into the new 2008 classification system (WZ). The main price determining characteristics for the cleaning industry is the type of cleaning service e.g. general cleaning, window cleaning, chimney cleaning and means of transport cleaning. These are represented by the current classification systems.

5. Evaluation of Standard vs. Definition and Market Conditions

The price collection survey for the German cleaning industry has proved the importance to distinguish between three types of cleaning services on 4-digit levels of the classification systems. These economic activities are: “general cleaning of buildings”, “other building and industrial cleaning services” (in Germany mainly focused on window cleaning and chimney cleaning) and “other cleaning services” which are dominated by transport cleaning. The differentiation into three activities harmonises with the respective market conditions and definitions in Germany

6. National Accounts Concepts

German National Accounts use the SPPIs for cleaning activities: Code 74.70.1 (WZ2003) “Cleaning of buildings, rooms and equipment” and Code 74.70.2 “chimney cleaning” as most detailed position for price and volume measures.

The new German SPPI is based on contract pricing, which is accepted as an A method in the Eurostat Handbook on price and volume measures in national accounts.

7. Pricing Methods

The cleaning sector covers a large heterogeneous range of different services. For each of the three sub-classes different price mechanisms and price developments exist. This requires a differentiated approach by designing different questionnaires and by using different pricing methods.

A. General cleaning services and window cleaning services

Prices for general cleaning services and window cleaning services run according to free price negotiations between the customer and the service company.

As pointed out by experts of the sector, square meters and hourly rates are used for the calculation of the price. The time of balancing the bill is another important point for the calculation of the price. The price is affected by a high degree by wage expenses for the service personnel (approximately 80 % of the costs). If the receipt of payment of the delivered service takes place in the same month of the service, the cleaning company will easily be able to pay the wages at the end of the month. Otherwise the cleaning company has to finance the wages in advance. Therefore some offers have a 1 to 3 % discount in case of paying the monthly fee at the end of the regular month.

Furthermore some long-lasting contracts include a wage indexation (“Lohngleitklausel”). This means that the wage-related part of the contract fee is linked to the development of wages in collective agreements; the price for the service can automatically rise during the contract period.

Prices in the traditional cleaning sector are often based on long-lasting contracts. These are repeated and well-specified services. In Germany the pricing method used is **contract pricing**. Therefore the cleaning companies are asked by the FSO to select real transaction prices for specific contracts. The number of contracts observed depends primarily on the size of enterprise. Furthermore, general cleaning contracts are chosen by kind of cleaning object with the highest turnover, this is done individually for each enterprise. The contract has to be described exactly and all characteristics of the price determination should be clearly visible. These are:

- Kind of cleaning object: office, wholesale and retail, hospital, school or kindergarten, factories or garages in producing industries, residential home of elderly, hotel or restaurant
- Kind of cleaning: hoovering, wiping, sweeping, waxing ...
- Kind of floor covering: carpet, flagstones, marble, wood ...
- Kind of room: office, washroom, hall, stairs ...
- Cleaning size (in sqm): for the floor covering, for the window ...
- Frequency of the cleaning: 5 times a week, once a week, monthly ...
- Package of service: daily clearing of the trash can, cleaning of the desktop, weekly cleaning of the telephone set, lamp, doors ...
- Time of the service: after work, on weekends ...
- Wage indexation: yes or no
- Time of payment: ten days after invoicing ...

Price adjustments usually happen in case of changes in the frequency of the cleaning, changes in the wages of collective agreements, follow-up contracts and changes of payment modalities. If there is any change in the service, a quality adjustment has to be made.

The SPPI of NACE 81.21.0 “General cleaning services” is based on five elementary indices which turned out by pre-survey as the most important cleaning objects:

	share of turnover in % ⁷
– Offices, wholesale and retail	39.2
– Hospitals	19.6
– Schools and kindergartens	17.2
– Factories and garages in producing industries	16.4
– Residential homes of elderly, hotels and restaurants	7.6

B. Chimney cleaning services

As specified in chapter 3.2 the chimney cleaning services are regulated by a monopoly regulation of the state and determined by a fee regulation. These fee regulations describe the different services of a chimney sweeper, the annual frequency of the service as well as the prices. The prices are composed of a time aspect (*Arbeitswert*) and a value component (in € for each *Arbeitswert*) for each service.

The time aspect (*Arbeitswert*) is more or less a constant factor in this regulation. The value component (in € for each *Arbeitswert*) can be changed every year – usually in January. Sometimes the value is adjusted in line with the development of the salary of civil servants.

An example makes the price formation clearer:

Service: Cleaning of a chimney up to 5 meters:

– Basic value for each building:	14,08 <i>Arbeitswerte</i>
– Value for each chimney:	6,19 <i>Arbeitswerte</i>
Total	20,27 <i>Arbeitswerte</i>
Value for each <i>Arbeitswert</i> in €:	0,644 €

The price: 20,27 *Arbeitswerte* multiplied with 0,644 € = 13,05 €

The prices for the service of chimney sweeper are priced independently from the kind of building: a private house, an office or a factory building. The services are exactly defined by the fee regulation of the state showing real transaction prices. In collaboration with the sector association the FSO have formulated real service cases of chimney sweeping differentiated by kind of building and for different situations. The prices are given by the fee regulation and can easily be observed by the FSO. Further price adjustments depend on changes of the value component (in € for each *Arbeitswert*), but also on changes of the time aspect (*Arbeitswert*) or on changes of the frequency of the service. For that reason the pricing method used is **model pricing**. Since the fee regulation gives no space for negotiations of the

⁷ Results are from the pre-survey of the weighing pattern for the year 2006

fee (price) and also special discounts are not given, model pricing is able to measure the actual price exactly.

C. Means of transportation cleaning

The prices for this sub sector are freely negotiated. The sector could be differentiated of the different means of transportation such as cleaning of trains or airplanes. Therefore different price determining characteristics exist.

The price for cleaning of trains is characterized by following criteria:

- interior or exterior cleaning;
- Type of cleaning: daily cleaning, reduced cleaning (cleaning while taking a turn), cleaning in transit or basic cleaning
- Type of the wagon: there exist more than 300 types of different wagons for subway, suburban, regional and intercity railway. All of them with different furnishing: with or without carpet, square meter of glass, square meter of chromed metal ...
- The kind of cleaning is exactly described and differentiated in:
 - ‘Unterhaltsreinigung’ = Cleaning in transit: removal of waste, cleaning of the bathroom and basic dirt
 - I 0 ‘Wendereinigung’= cleaning several times daily during the locomotive takes a turn: removal of waste, cleaning of the bathroom and basic dirt
 - I 1 ‘tägliche Reinigung’= daily cleaning: removal of waste, cleaning of the bathroom and basic dirt
 - I 2 ‘Zwischenreinigung’= weekly cleaning: comprehensive cleaning
 - I 3 ‘Grundreinigung’= basic cleaning every 6 to 8 weeks

There are also some extra services offering as carpet cleaning or cleaning of the seats.

The specification of the service describes the kind of cleaning and the type of wagon. Each service specification is measured by the input of time per employee⁸. Additionally there is included extra time for waiting (up to the arrival of the next train) or time for delays. Then the time per employee is to be multiplied by the hourly rate, which depends on the specific tariffs differentiated between day and night work.

Most contracts run for a year. Price adjustments come about usually in the case of changes of the service, in case of new labour agreements or at the time of the change of the timetable. As a result at new timetables there are mostly other times for waiting or other times for night work and these factors play a role by setting up the price.

The price determining characteristics for the cleaning of airplanes are as follows:

- Service of the cleaning such interior or exterior;
- Kind of cleaning such as reduced cleaning (transit cleaning in 10 minutes), night-stop cleaning, extra cleaning or basic cleaning (deep cleaning with change or shampooing of the seat cover),
- Kind of equipment such as cleaning of the cabin, toilette or laundry
- Services for waste removal such as waste of kitchens or separating of the waste

⁸ In German it is called “Mannminuten”.

The service is described in the specification which is calculated in the same way as it is described for trains. The price formation depends on the kind of cleaning, the type of airplane, the time on ground and day and night work.

The daily cleaning varies between the different airlines. In some cases there is an ad hoc decision what kind of cleaning is the best. The cleaning depends always on the time on which the airplane is on ground.

This sub-market is highly competitive and so the prices are always negotiated. Contracts run usually for two or three years. During this time there are usually no price adjustments.

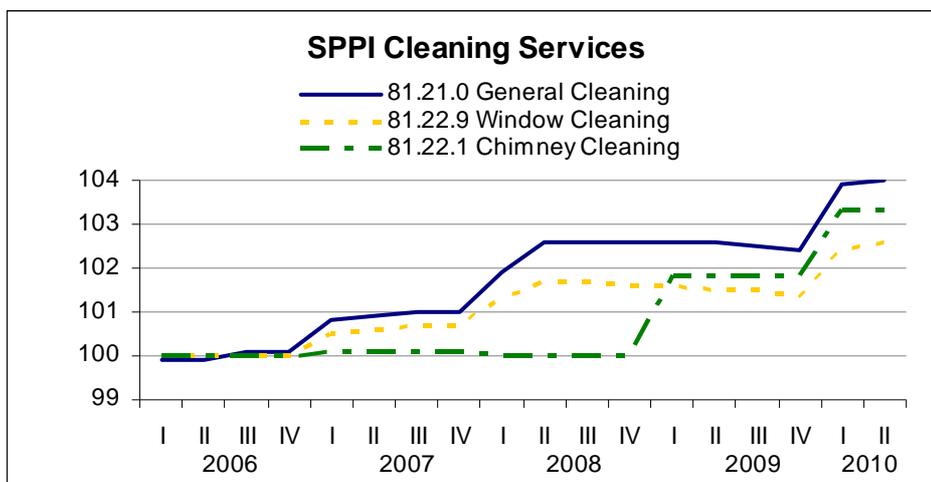
The cleaning of trains could be described as well-specified and repeated services depending on the kind of cleaning service and the type of wagon. So the six regional subsidiaries of the German railway service company could be asked to select some of the most common cleaning cases that are representative of their turnover. The prices of these services are actual transaction prices for the German railway service company and have to be observed on a quarterly base. The pricing method used would best described as **pricing of repeated services** (as standard cases).

The sub-class “means of transportation cleaning” counts for about 0.4 billion € in turnover and achieves only a share of 2.9 % on NACE 81.2. So the cost-benefit ration in measuring prices for it is quite high. For that reason the current price observation for the sub-class “means of transportation cleaning” will be postponed. But the FSO is going to check the importance of this sub-class in the following years and will collect price data in the future if necessary.

D. Results for the cleaning Industry in Germany

Figure 2 shows the development of the producer price indices for the cleaning industry for the three observed sub-sectors in Germany from 2006: general cleaning, window cleaning and chimney cleaning.

Figure 2 – SPPI for cleaning services in Germany, Base 2006 = 100



During the last 4 years the prices increased moderately. In 2009 and 2010 price adjustment for chimney services was realised in the run up of the new regulation.

8. Quality Adjustment and Methodology

Constant contracts and consequential constant quality over time is not a common practise in the cleaning industry. The quality of the service is determined by the price determined characteristics described in chapter 7 the most important are cleaning object, cleaning size, frequency of the cleaning and the package of service.

Quality adjustment methodologies are needed when quality changes in the recorded cleaning contracts occur. Different methods for quality adjustments can be applied: In case of the end of a recorded contract, a follow-up or new, similar contract has to be found, if possible from the same enterprise. The reporting enterprise is asked to state the quality-adjusted price difference between the old and the new contract. Therefore a supplementary questionnaire was developed in Germany (see appendix 2). Comparing the new realized hourly rate with the old one with a similar service, the expert of the responding company is asked for the percentage rate of change (**expert estimate**). If there is no expert estimation, the price change of the missing contract between the two periods will be imputed by the aggregate price change (**match-models method**).

9. Evaluation of Comparability Regarding Turnover/Output Measures

The German Service Statistic has been producing results of turnover figures for cleaning activities since 2000. During this period the accuracy of measurement of turnover figures has continuously increased.

The level of comparability between the SPPI and turnover data is high; both statistics use the same classification system WZ. While the output of turnover is well defined and surveyed, base of the sample for both the SPPIs and the Service Statistic is the FSO business register which appears as one of the main difficulties. For that reason the FSO sections for SPPIs and for Service Statistic are in close contact with each other. To improve the universe for the cleaning sector a matching of all enterprises above 10 Million EURO turnover has been made.

10. Summary

NACE class 81.2 includes cleaning services which covers five heterogeneous sub-classes: general cleaning of buildings, specialised cleaning (incl. window cleaning), chimney cleaning services, means of transport cleaning, other cleaning services and disinfection and extermination services.

In Germany the prices are observed for the three most important sub-classes. The prices for two of them, the “general cleaning of buildings” and “window cleaning”, can be measured by using contract pricing. The prices for the third sub-class “chimney cleaning services” depend on a fee regulation of the state. For this purpose model cases are formulated whose prices are actual transaction prices which can repeatedly be observed.

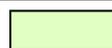
Federal Statistical Office Germany

The inclusion of both all market players achieving an annual turnover of more than 25 million Euros and a random stratified sample drawing on enterprises with a yearly turnover up to 25 million Euros assures a representative coverage for the cleaning industry. FSO Germany has introduced SPPIs for the cleaning industry successfully in 2008. They are in line with turnover measurement, National Accounts concepts and the requirements of the SPPI methodology.

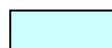
Appendix 1

Table 2 – Cleaning services: Overview of the different classification systems

WZ		NACE		CPA	
2003	2008	Rev 1.1 2002	Rev 2 - 2008	2002	2008
74.7 Industrial Cleaning	81.2 Cleaning activities	74.7	81.2 Cleaning activities	74.7	81.2 Cleaning services
74.70.1 Cleaning of buildings, rooms and equipment incl. window cleaning services <i>and other cleaning services (see below)</i>	81.21.0 General cleaning of buildings	74.70	81.21 General cleaning of buildings	74.70.13	81.21.10 General cleaning services of buildings
	81.22.9 Other building and industrial cleaning services e.g. window cleaning		81.22 Other building and industrial cleaning activities	74.70.12	81.22.11 Window cleaning services
74.70.2 Chimney cleaning services	81.22.1 Chimney cleaning services			74.70.14	81.22.12 Specialised Cleaning services
				74.70.15	81.22.13 Furnace and chimney cleaning services
74.70.3 Means of transport cleaning	81.29.1 Means of transport cleaning		81.29 Other cleaning activities	74.70.16	81.29.19 Other cleaning services
74.70.4 Disinfection and extermination services	81.29.2 Disinfection and extermination services	74.70.11		81.29.11 Disinfecting and exterminating services	
74.70.1 ... other cleaning services <i>(see above)</i>	81.29.9 Other cleaning services	90.03.13		90.03.13	81.29.13 Other sanitation services
90.03.0 Sanitation, remediation, similar services			81.29.12 Sweeping & snow removal services		



The green marked items were included in Code 81.29 in 2008 for the first time



The blue marked items didn't belong to Code 74.7 in 2003

Appendix 2

Supplementary questionnaire for new or follow-up contracts

In Germany expert estimations help to determine the price change between old and new contracts. Therefore a supplementary questionnaire was developed. Comparing the new realized hourly rate with the old one with a similar service, the expert of the responding company is asked for the percentage rate of change.

Content of the supplementary questionnaire:

Requirements:

- the respondent has to substitute an old contract by another one
- this contract can be a follow up contract or a new contract
- the service of the new contract should be as similar as possible to the old one

Questions:

- “Indicate: follow-up contract or completely new contract”
- “If you think of the price calculation of the old and the follow-up/new contract: How much did the present realized hourly rate change compared with the old one?
(In case of a completely new contract the respondent should make the comparison with another old contract with a similar service.)”
- “Therefore estimation is sufficient. Indicate the scale of the percentage rate of change:
 - o less than -10%
 - o -10% up to -5%
 - o -5% up to -3%
 - o -3% up to -1,5%
 - o -1,5% up to 0%
 - o 0% up to 1,5%
 - o 1,5% up to 3%
 - o 3% up to 4,5%
 - o more than 4,5%”