

**VOORBURG GROUP**

**2006**

**Thesaurus  
of  
Producer Price Indices for  
Services (SPPI's)**

... you cannot use language to get in between language and reality. If you describe reality, you always use words; so when you compare a concept with reality, you in fact compare only a concept with another concept.  
– Roger Scruton (after Wittgenstein)

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# 1. Introduction

Producer Price Indices for services (SPPI's) have received increasing attention in the Voorburg Group. Here, an important problem emerged: members of the Group use ad hoc terminology. This is not surprising as SPPI's deal with new statistics, not discussed conceptually before internationally. Within one National Statistical Office, it is easy to share a clear and common terminology, as the group of SPPI statisticians is small and their contacts are frequent. This is not the case in an international exchange, where statisticians from many different mother tongues convene. Consequently, the prices session of the Voorburg Group was hampered by confusion in terminology, although individual papers were clear as they used the ad hoc terminology of a single writer.

Problems were bigger in reaching the main goal of the OECD/Eurostat SPPI Guide: codification of the present state of knowledge on SPPI's. In the compilation of this Guide a Babel on terminology erupted. After considerable effort, a satisfactory consensus was reached. The Guide was presented at the 2005 Voorburg Group meeting, as well as the paper 'Pricing methods' which analyses difficulties in terminology on SPPI's. As a consequence, the Task Force that reviewed the Voorburg Group process, voiced the need for a dictionary or thesaurus to standardise the vocabulary and terminology of SPPI's.

The Eurostat/OECD SPPI Guide provides extensive discussions on seven pricing methods. These seven **pricing methods** are the basis for a good description of a pricing method of an individual SPPI. However, to describe an SPPI well and unambiguously, it has to be described in the light of an additional concept: the **data type in the survey**.

The principal part of this thesaurus consists of the terms in the table hereunder: seven pricing methods, and six types of data type in the survey. *It is envisaged that these terms are the main ones used in future mini-papers and sector-papers of the Voorburg Group.* They are discussed in section 2 'Main terms'.

<b>Pricing methods</b>	<b>Data type in the survey</b>
Direct use of prices of repeated services	Percentages fees and related value
Contract pricing	List prices
Model pricing	Input prices
Unit values	Real transaction prices
Component pricing	Revenue and amount sold
Percentage fees	Expert estimate
Pricing based on working time	

Section 3 'Other preferred terms', discusses further terms, also envisaged for future use in papers. Section 4 'Related terms', lists many more terms (including many used in Voorburg Group papers between 2000 and 2005). The use of these is discouraged, mostly because they mean (almost) the same as terms in sections 2 and 3; having multiple terms for one concept is considered not necessary, even confusing.

The underlining of a term means that it has its own entry in section 2, 3 or 4.

Additionally, it is of much interest to describe an SPPI in terms of three more aspects. This is especially interesting for international comparisons and discussion on the merits and quality of different options. This is the topic of section 5.

## 2. Main terms

### 2.1 The seven pricing methods from the OECD/Eurostat SPPI Guide

**Component pricing:** a pricing method that divides the service into a number of key output components of which one or more are then priced separately. The data type in the survey for this pricing method concerns existing company data (real transaction prices, revenue and amount sold, list prices, etc.). The statistician enters all the prices on a worksheet or bill, resulting in an aggregate price. This price is not (necessarily) an estimation of a transaction price as it can be the price of components which are never transacted separately.

Component pricing uses only 'hard' company data and differs thereby from model pricing for which at least some subjective estimation is made.

This method's best-known use is in telephony SPPI's, where it is sometimes known by a synonym, bill method, a term which should not be used to avoid confusion.

**Contract pricing:** a pricing method which uses real transaction prices of a special kind as the data type in the survey. They are special because the prices are charged for the same (or very similar) service that is repeated each survey period by the same producer for the same client. 'Contract' in the name refers to the long-term and/or framework contracts that are established between client and producer. This pricing method may work if the pricing mechanism entails these contracts, for instance in cleaning, security services and freight transport. This pricing method can be regarded as a special case of the direct use of prices of repeated services.

**Direct use of prices of repeated services:** a straightforward pricing method which surveys a real transaction price or a list price, thereby acquiring directly the price of a service that occurs every survey period (a real transaction). This coincides with the PPI Manual's transaction pricing and is standard PPI and CPI practice. It is the preferred and easiest method because there is no difference between the surveyed prices and the price entering standard PPI compilation procedures, no assumptions or calculations are necessary.

**Model pricing:** a pricing method in which a price is estimated for a standardised product, a model transaction, which is not transacted in the comparison period. A single fictitious service can be set as the re-pricable product for a group of respondents. Alternatively, the specifications of the standardised product can be based on an actual service provided in the past. Synonyms for this second type found in the literature, which should not be used to avoid confusion, are: estimated net transaction price or billed method.

In model pricing an expert of the respondent enterprise estimates a realistic transaction price. The expert might consider real transaction prices, revenue and amount sold, list prices, input prices as data type in the survey for calculating this price, (each of which may reflect prices for time worked). The resulting total price for the standardised product is always fully fictitious. Alternatively, the expert can use his subjective judgement based on the overall market situation, for instance by keeping recent bids in mind, resulting in a pure expert estimate.

The model pricing method is used for unique services, notably the professional business services for which hourly charge-out rates are also used often. It is often a challenge to make an adequate quality adjustment when the standardised product becomes outdated and is replaced by a new standardised product.

Model pricing differs from component pricing in always involving estimation.

**Percentage fees:** a pricing method that estimates a price by multiplying a percentage and the value of the good that the service and the percentage fee are tied to. This is only possible if the pricing mechanism uses these figures. For example, the price for a service related to a specific piece of real estate uses the price of this real estate and a percentage fee. Other examples include placing advertisements, architecture and rental.

For operational or practical reasons separate measurement of the change of the percentage fees and the price of the good are often necessary.

Each data type in the survey (the percentage and the price of the good) can be surveyed from a different source. Strictly speaking, the percentage can be taken from a list or be estimated by an expert or calculated as an average. Often, the price (index) of the good is already available within the statistical institute, like the price index for house prices or goods rented (e.g. office equipment).

A synonym, not to be used to avoid confusion is ad valorem price.

**Pricing based on working time:** a pricing method which surveys the money amount charged to a buyer of a service, for a standard amount (e.g. one hour) of work by an employee of the producer, contributing to the production (provision) of that service. It is only used in the professional business services where the pricing mechanism is such that the price of a service is largely based on the number and charge-out rates of the hours needed to produce the service (not to be mistaken for the employee's wage). The data type in the survey can differ highly:

1. unit values type information of revenue divided by number of hours worked (also known as realised hourly rates and fee income per grade of worker),
2. list prices (also known as standard hourly rates),
3. input prices in the form of wages increased by a factor or sum, or
4. expert estimate.

Pricing based on working time usually results in an hourly charge-out rate, but prices for working time can also be entered into a model transaction. If the price of a model transaction is highly determined by hourly rates, the OECD/Eurostat SPPI Guide recommends that the pricing method is classified as pricing based on working time, to make clear to users that the resulting SPPI has potentially a 'productivity bias', i.e. there is no correction for changing productivity during the working time.

**Unit values:** a pricing method that uses revenue and amount sold as data type in the survey. The quotient of these two results in an average price over a large number of transactions, which may be regarded as an output component or a real transaction but it is usually an average price over a whole group of transactions. For example in telephony, the 'local calling price' is the total revenue from local phone calls divided by the total number of local phone calls. If heterogeneous products are added up, a bias can occur.

Besides for a pricing method, the term 'unit value' is often used for the data type in the survey, (for which revenue and amount sold is proposed here) and for the resulting price. The term is often used for any 'average price' over multiple transactions and/or a survey period, being preferred over the alternative, a single price observation. Note that other literature like the PPI Manual uses the term slightly differently, although not in contradictory ways. Note also the term unit price.

## 2.2 Data types in surveys

**Expert estimate:** a data type in the survey which bases a price on the potentially subjective judgement of the expert in the responding company who fills in the survey form. The estimate can reflect different types of units, for instance only components of an entire service or prices per working time and per product. If an SPPI uses expert estimates, it effectively transfers the responsibility and burden of pricing to the expert. The pricing statistician therefore has less control over how the price that enters SPPI calculation is established.

**Input prices:** a data type in the survey which corresponds to the prices of all (or a number of) input components needed to make a set amount of output. The profit margin is always to be included as an important input component. The pricing mechanism is sometimes such that an enterprise applies a set factor to calculate an output price from an input price. This practice is best known from the pricing method pricing based on working time which multiplies an hourly wage with a factor (see also mark-up) to arrive at an hourly charge-out rate. The other pricing method using this data type in the survey is model pricing.

Strictly speaking, the input prices can be taken from a list or be estimated by an expert or calculated as an average from real transactions, but an input price is set apart as it is not an output price, unlike every standard data type in the survey.

**List price:** a data type in the survey in which the price of a product is quoted from the producer's price list, catalogue, Internet site, etc. It is generally the gross price exclusive of all discounts, surcharges, rebates, etc. that may apply to an actual transaction. A list price is therefore inferior to a real transaction price or shipment price for SPPI compilation, although from case to case the assumption of correspondence with a real transaction price can differ from reasonable to poor. List prices for fixed amounts of working time are known as standard hourly rates. Another synonym which should not be used to avoid confusion is book price.

**Percentage fees and related value:** a data type in the survey, only used in the pricing method percentage fees. Strictly speaking, the percentage can be taken from a list or be estimated by an expert or calculated as an average from real transactions, but a percentage is set apart as it is not a price, unlike every other data type in the survey. The 'related value' (see percentage fees) is an unusual data type as well and refers to an underlying good or other product to which the service relates.

**Real transaction price:** a data type in the survey in which the price was truly paid in the market, taken from a receipt, bank statement or electronic database with transactions.

**Revenue and amount sold:** a data type in the survey in which the quotient of the two variables (revenue and amount sold) results in a price, which can be used in almost any pricing method. In calculating this price, the equation  $Value(v) = Price(p) * Quantity(q)$  is re-written at the micro level into  $p=v/q$ .

### 3. Other preferred terms

**Amount:** the quantity of (a component of a) service which is homogenous enough to be useful in SPPI related calculations. E.g. the quantity of 'calling minutes' in telephony is useful, but the quantity of projects of an engineering firm is not useful. See revenue and amount sold.

**Data type in the survey:** a description of the raw data surveyed by a statistician from a respondent. The pricing method transforms these data into prices ready for standard PPI compilation procedures.

**Fictitious service:** a service that is devised for a price survey only, used in model pricing.

**Hourly charge-out rates:** the price of one hour's work by an employee of the producer which contributes to the production (provision) of a service.

**Input component pricing:** a pricing method which is based on the assumption that a selection of input prices can be an acceptable estimate of output prices. Although this amounts to a pricing method on its own, it is a bad one and is therefore not listed with the main terms. An example is the use of truck write-off, driver's wage and fuel costs to estimate an output price for road haulage. Note that input prices can be used in a number of better pricing methods.

**Lump sum:** a total price (quote) which is derived from substantial calculations based on (typically many) components, as opposed to separate price (quoting) of the components, e.g. the price of a large engineering project.

**Model transaction:** a standardised service which is frozen to allow meaningful price comparisons over time.

**Order price:** the price quoted at the time the order is placed by the purchaser. (From PPI manual). See also shipment price.

**Pricing method:** the use of a specific type of information on prices to represent the evolution of price in price index compilation. It is a procedure put in place by statisticians to make price data eligible to

be entered in an index. The pricing method is largely determined by the characteristics of the data. (from OECD/Eurostat SPPI Guide).

**Pricing mechanism:** the way prices come about in the market between producer and client. It differs from a pricing method which is a method used by a statistician. In the ideal circumstance where the data type in the survey = real transaction prices, the difference between pricing mechanism and pricing method is unimportant. In the ideal case, a price that came about in the market is surveyed and directly used in SPPI calculation.

**Revenue:** money paid to a producer, see revenue and amount sold. The same is sometimes meant by income and turnover.

**Shipment price:** the price at the time the order is delivered to the purchaser. (From PPI manual). See also order price.

**Spot (market) price:** a generic term referring to any short-term sales agreement, as opposed to prices in a long-term contract. It generally refers to a single provision of an uncustomized service, reflecting current (efficient) market conditions. (Largely from the PPI Manual).

**Tariff prices:** money to be paid by a customer for regulatory tariffs, additional to the service price that a producer charges. Tariff prices are ‘outside’ the pricing mechanism that arrives at a market price.

**Tender(ed) price:** a price that is offered and which may differ from the transaction price finally arrived at. A list price and model pricing may involve tendered prices.

**Transaction:** The buying and selling of a product on terms mutually agreed by the buyer and seller. (From PPI manual).

**Transaction pricing:** ideal pricing method using actually paid prices of individual transactions that are repeated in each survey period. For SPPI’s, same as direct use of prices of repeated services.

**Unique service:** a type of service such that any two actually provided services of the type differ too much to allow meaningful comparison of their prices for acquiring a price relative.

**Unit price:** a price of an individual product, e.g. a price per kg etc. A unit price is not calculated from revenue and amount sold (not a unit value).

**User cost prices:** prices calculated as forgone interest (compared to a standard interest rate), charged for FISIM of loans and savings in banking SPPI’s.

## 4. Related terms

The use of these is discouraged, as they mean (almost) the same as terms in sections 2 and 3.

**Ad valorem price:** see percentage fee.

**Average invoiced hourly rate:** see pricing based on working time.

**Average price per qualification:** see pricing based on working time.

**Bill(ing) method:** see component pricing.

**Billed method:** see model pricing.

**Billing rate:** a rate or price taken from a bill, and therefore a real transaction price.

**Book price:** see list price.

**Competitive contract pricing:** same as model pricing.

**Estimated net transaction price** or **estimated new transaction price:** see model pricing.

**Estimated output price approach:** pricing based on working time with input prices as data type in the survey; the input prices are hourly wages.

**Fee income per grade of worker:** see pricing based on working time.

**Income:** see revenue.

**Labour charge-out rates:** same as hourly charge-out rates, (=output) despite the suggestion of a relation to wages for labour (=input).

**Market price:** see real transaction price.

**Mark-up (markup):** a term used in SPPI context for the factor between input (like wages) and output prices (hourly rates), see input prices. Term should not be used as it is defined differently in the SNA.

**Model contract pricing:** same as model pricing.

**Model service:** see model transaction.

**Offered price:** see tender(ed) price.

**Price determination method:** same as pricing mechanism.

**Price fixing method:** same as pricing mechanism.

**Price setting:** same as pricing mechanism.

**Rate method:** roughly the same as component pricing. Term used for telephony SPPI's. A rate is the price of a unit of which typically large numbers are bought, e.g. a price per minute calling.

**Realised hourly rates:** see pricing based on working time.

**Specification pricing:** a term to be avoided, used in different and irreconcilable ways. The word 'specification' reflects that in a PPI, sampled products have to be specified and quality held constant.

**Standard hourly rates:** see pricing based on working time.

**Turnover:** see revenue.

## 5. Three more optional aspects for describing an SPPI

### 1) Length of delivery and length of the survey period

Three situations can be imagined:

- start and finish of delivery within one survey period,
- delivery that lasts longer than one survey period because one contract (transaction) covers a repeated service (e.g. *daily cleaning*); each period the same or similar services are delivered.
- delivery that lasts longer than one survey period due to the nature of the service (e.g. *construction project*).

### 2) Relation between the moment of delivery and price recording in the index

A number of situations can be imagined:

- a. During delivery
  - i. As delivery progresses, or at the moment of (instantaneous) delivery. This is preferred and the only option in agreement with the accrual principle.
  - ii. At the start
  - iii. At the end (e.g. shipment prices)
- b. Before delivery starts; when contract is signed (e.g. order prices)
- c. After delivery is finished (e.g. in *construction*)
- d. Depending on the moment of payment, which differs per transaction.

### 3) Number of real transactions covered in one piece of price information

For clarity's sake, it is for many SPPI's useful to discuss the number of transactions that are covered in one piece of price information as received from the respondent (One (e.g. contract pricing), More than one (e.g. unit value), None (e.g. model pricing)).