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# **PRODUCER PRICE INDEX FOR CAR RENTAL IN SWEDEN**

Session on PPI for Services

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## 1 Introduction

In 2000, Statistics Sweden initiated a project that aimed to develop a price index for service industries. The first stage was to develop a design for a price index for car rental. Primary pricing methods used internationally were studied. The work then proceeded, with cooperation from industry organisations and large enterprises in the service sector. A pre-survey was carried out at the end of the year and prices for the whole year were collected. A minor review of the current price measurement method was carried out at the beginning of 2004. The methods used and the related challenges are briefly described here.

## 2 Industry output definitions

In NACE Rev 1.1, group 71 is divided into subgroups as follows:

Code	Subgroup	Label
71		Rental of machinery and equipment without operator and of personal and household goods
	71.1	Rental of automobiles
	71.2	Rental of other transport equipment
	71.3	Rental of other machinery and equipment
	71.4	Rental of personal and household goods n.e.c.

This paper only focuses on subgroup 71.1 Rental of automobiles here called car rental.

The abbreviation of the car rental industry association for members of the car rental industry in Sweden is BURF. According to BURF, in 2000 the member enterprises had a turnover of approximately SEK 1.6 billion out of a total turnover of SEK 2 billion for the industry as a whole. In 2003, there was a total of 27 000 cars available for short-term rentals in Sweden; some 91 per cent of these vehicles were administered by BURF member enterprises. The 53 member enterprises had a total of 917 rental locations in Sweden. In principal, the five largest enterprises in the industry association cover the whole country of Sweden; their rental locations represent 77 per cent of all BURF member rental locations. These five enterprises own 81 per cent of BURF's total number of rental cars.

Car rental is carried out by three types of enterprises: full service enterprises, oil company chains and other enterprises that are not included as a licensee in either of the other two categories. All the full service enterprises offer car rental in several countries across the world. Of the industry organisation's 53 member enterprises, 5 are full service enterprises and 4 are oil company chains.

Nearly 90 per cent of the total car fleet of an enterprise which is a member of the industry organisation are passenger cars and the majority of these are owned by full service enterprises. The majority of minibuses and light lorries for rental are however owned by the petrol companies. Customers of the full service enterprises are largely other enterprises whilst the petrol companies mainly rent vehicles to private persons.

Car rentals can be divided into two types, namely short-term and long-term rentals. All rentals over one year in length are considered long-term rentals, i.e. operational leasing. Due to the difficulties in measuring price developments for operational leasing, an agreement has been made with the National Accounts in Sweden that the price index for all car rentals shall be based on price developments for short-term rentals until further notice.

The rental enterprises replace the cars every three years. The cars are then leased, purchased and subsequently sold as used or repurchased by the sellers. The major rental enterprises often have repurchasing agreements with suppliers and they also have special deals with certain car manufacturers.

The large car rental enterprises have most cars in categories B and C. Category B refers to a “small” car and “C” refers to a “medium” type of car. These categories are considered the most profitable and in demand. The current trend is that persons who previously rented larger cars (category D) have changed their preference to somewhat smaller cars (category C). At the same time, the cars in each respective category are becoming larger.

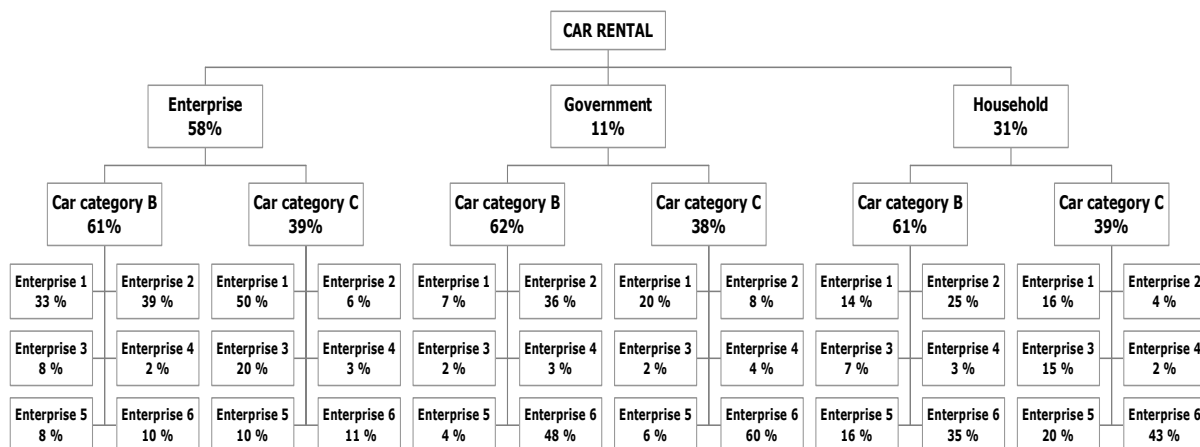
### 3 Item selection and weighting issues

The membership register of the industry association is used as the sampling frame. These member enterprises account for 80 per cent of the total turnover in the industry. The sample consists of the six largest enterprises in the industry, all of which have a national network of rental locations. Four of the enterprises are full service enterprises and two are petrol companies. The sample covers slightly over 70 per cent of the short-term rental industry.

The car categories that are the most in demand and from which the rental enterprises derive their largest income are categories B and C. For these two categories, revenues and number of rental days for short-term rentals are collected on a quarterly basis. In accordance with the needs of the National Accounts, the information is broken down by customer category - enterprise, government and household. As the majority of the enterprises have a very well-established and accurate accounting system, the required data can easily be taken from their systems.

The revenues of every enterprise from car rentals in vehicle categories B and C per customer category are used as the enterprise weightings for the following year.

The breakdown of weightings for 2004 were as follows:



Enterprises 1 to 4 are full service enterprises and 5 and 6 are petrol companies. Full service enterprises account for 65 per cent and petrol companies for 35 per cent of the total weighting.

## 4 Pricing and Index Methodology

The service is defined as providing access to a car in a certain car category without giving ownership of the car. Car rental enterprises monitor each other's price setting practices and are also subject to price pressures from major customers, who generally have an agreement with two or more rental enterprises at the same time. This leads to small price differentials and squeezed margins in the industry.

There are two basic models for price setting. Firstly, a fixed amount per rental day plus a kilometre fee and secondly, a fixed amount without mileage restrictions. Fuel is always additional. A price that includes limited mileage with an additional variable price occurs most often.

Information on monthly revenues and the number of rental days for renting a car in categories B and C for enterprises, government and households is collected quarterly. The price variable is called price per rental day and applies to the average invoiced price per rental day during the reference period (revenue/number of rental days), VAT and other taxes are excluded.

Until 2004, a CPI for car rental was used for the two petrol companies. After the revision, however, those companies are able to provide us with the same detailed information as the full service enterprises. Furthermore the revision has led to an increase of the sample size.

### Index calculations

The index is calculated in three stages:

1. In the first stage, for each customer category  $k$ , car category  $g$ , ( $k$  = enterprise, government, household;  $g$  = car category B, car category C), a Laspeyres index is calculated according to:

$${}^{k,g}I_m = \left( \sum_{f=1}^n \left( \frac{{}^{k,g,f}P_m}{{}^{k,g,f}P_1} \times {}^{k,g}w_f \right) \right) \times 100,$$

where  $P_m$  is the price per rental day for the  $f$ th enterprise, in month  $m$ , and the weights  ${}^{k,g}w_f$  refer to the six enterprises.

2. In the second stage, for each customer category  $k$ , the indices calculated in the first step are weighted together with weight  $w_g$ , where  $g = 1, 2$  refers to the two car categories B and C. An index for each customer category  $k$  is calculated according to:

$${}^kI_m = \sum_{g=1}^2 ({}^{k,g}I_m \times w_g).$$

The weights  ${}^kw_g$  refer to revenues for each car category  $w_g$  for the whole of the previous year.

3. In the third stage, the total index is calculated by weighting together the indexes that were calculated in the second step with the weights  $w_k$ , which represent the revenues for each customer category (enterprise, government and household), according to:

$${}^{tot}I_m = \sum_{k=1}^3 ({}^kI_m \times w_k).$$

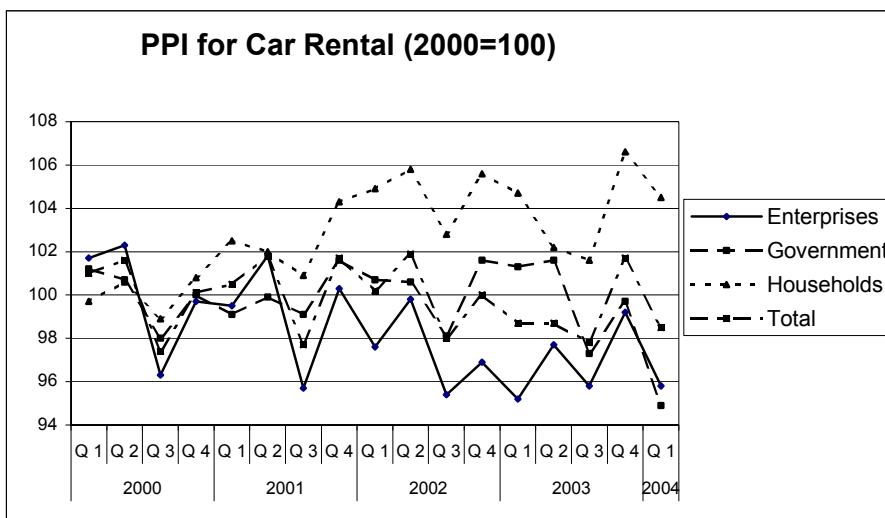
## 5 Issues in Maintaining Constant Quality

The service is defined as providing access to a car in a certain car category without giving ownership of the car. When renting a car, every customer assumes that the car is in good condition. The quality in this respect is quite homogeneous, since rental cars are a maximum of three years old. For customers, quality refers instead to guaranteed access to the rental car when it is needed, for example on short notice or very short notice.

By following a car category and not a specific car model, there is a good chance of avoiding the problem of a possible quality adjustment with a change in car model. Car categories are assumed to be permanent over time. This is attributed to the definition used in this service as well as the customers' quality concept. When reviewing the survey, it became apparent however that cars in the different categories are becoming larger and, at the same time, many customers who previously rented cars in category D have changed to somewhat smaller cars in category C. This has, until further notice, not led to any quality adjustments of the index but an alternative should possibly be quality adjustment with the CPI for cars.

## 6 Results

During a year there is a great seasonal variation on the prices for car rental. Since the start year 2000 the prices have increased for households but decreased for enterprises.



Price index for car rental (2000=100)					
		Enterprise	Government	Household	Total
2000	Q1	101,7	101,2	99,7	101,0
	Q2	102,3	100,7	100,6	101,6
	Q3	96,3	98,0	98,9	97,4
	Q4	99,7	100,0	100,8	100,1
2001	Q1	99,5	99,1	102,5	100,5
	Q2	101,8	99,9	102,0	101,8
	Q3	95,7	99,1	100,9	97,7
	Q4	100,3	101,6	104,3	101,7
2002	Q1	97,6	100,7	104,9	100,2
	Q2	99,8	100,6	105,8	101,9
	Q3	95,4	98,1	102,8	98,0
	Q4	96,9	101,6	105,6	100,0
2003	Q1	95,2	101,3	104,7	98,7
	Q2	97,7	101,6	102,2	98,7
	Q3	95,8	97,3	101,6	97,8
	Q4	99,2	99,7	106,6	101,7
2004	Q1	95,8	94,9	104,5	98,5

