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PRODUCER PRICE INDEX FOR TELECOMMUNICATIONS IN SWEDEN

Appendix: Sweden

Session on IT Related PPI for Services

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Introduction

A Producer Price Index (PPI) for telecommunication services has been produced in Sweden since January 2000. The index is developed from the Consumer Price Index for telecommunication services, with the addition of telecommunication services for enterprises. The survey changes from year to year, with the constant renewal and development of the services in the market.

The PPI for telecommunication services is not published because there is one dominant actor in the market.

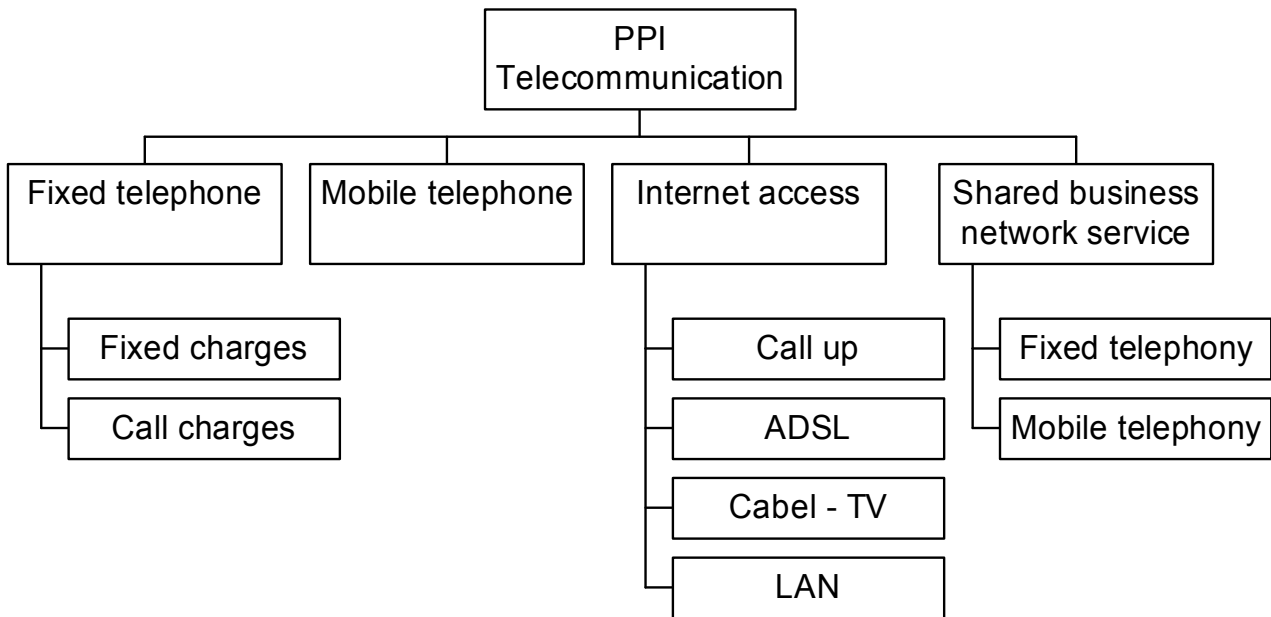
This report will illustrate the current methods for measuring price development for telecommunication services and the challenges that exist.

Industry output

CPA 64.20.1 consists of public local telephone services, public long distance telephone services, mobile telephone services, shared business network services, data network services and Internet access provision services.

It is planned to include the adjacent sectors, Other telecommunication services CPA 64.20.2 and Cable TV and radio services CPA 64.20.3, successively so that the whole subgroup CPA 64.20 is covered.

On 31 December 2003 there were 369 enterprises registered at the National Post & Telecom Agency in Sweden (PTS) having one or more services in telecommunications. The end consumer market for telecommunications had a total turnover of SEK 50.4 billion in 2003.



Index Methodology

The National Post & Telecom Agency in Sweden (PTS) carries out a survey every year on all enterprises in the telecommunication services sector. The survey asks about income, the number of call minutes and the number of calls, divided into private persons and enterprises in the different services areas related to telecommunications. The results of the survey are received in detail, with the registered responses to all questions in the survey and this constitutes the frame for the sample.

A deliberate selection of sub-categories is taken from each main category. Fixed telephone services are divided into fixed charges and call charges, and Internet access is divided into different forms of access before the service providers are selected. For mobile telephone services, service providers are selected first and then the specific services are chosen. This is because the services on offer are relatively homogenous for the dominant service providers. Service providers are selected separately for each sub-category and the market segment is selected with a cut-off sample. For each sub-group, the chosen service providers covers at least 90 per cent of the market, for some subgroups the chosen service providers covers more than 95 per cent of the market.

The collected price information consists of a mixture of list prices collected from the Internet and transaction prices that are supplied by the service providers themselves. The prices taken from the Internet are collected once a month in the week in which the 15th of the month occurs and a mean value for the quarter is calculated. The prices received from the service providers are collected once every quarter and are an average for the period. For fixed telephone services, this relates to income per minute, divided into national calls, international calls and calls to mobile telephones, for three different types of customers. For mobile telephone services, income per unit is given for connection charges, subscription charges, SMS services, national calls, international calls and GPRS.

The price index for telecommunication services is calculated in several steps, with weights for all levels.

1. Firstly, the *index for the respective sub-group is calculated*, ${}^G I$. A Laspeyres type index is used:

$${}^G I = \sum_i w_i \frac{P_i^t}{P_i^0}$$

where $p_{1,i}$ is the price for a specific service

and $w_i = \frac{Q_i^0 P_i^0}{\sum_0 Q_i^0 P_i^0}$ is a turnover weight and sum up to one.

2. Secondly, the *total index for telecommunications is calculated*, I , by weighting together the indices which are calculated for each enterprise in the first step.

$$I = \sum_G {}^G w^G I$$

where

$${}^G w = \frac{\sum_G Q_i^0 \cdot {}^G P_i^0}{\sum_G \sum_i Q_i^0 \cdot {}^G P_i^0}$$

Weights

The annual survey carried out by PTS is used as a basis for the sample frame and the weighting between the different segments, main categories, sub-categories and services. The survey collects income data from enterprises on a service level. For a more refined breakdown of the services, the survey is complemented by further information from some of the large service providers. The data received relates to two years earlier than the year in which the survey is carried out. It is assumed that the weightings have not changed from the year for which we have the information to the base year. If there is information that there has been a significant change, forecasts are made instead. Data for the forecasts are taken from the most recently available quarterly reports of the service providers included in the survey.

Issues in Maintaining Constant Quality

The survey for telecommunications is set up so that new services and enterprises are chosen every year. Continuity is tried to maintain with the previous year by keeping the same services and enterprises but otherwise, the service and enterprises are selected by the size of their turnover. Services within the telecommunications sector change quickly, which means that the surveys must also change in order to ensure sufficiently good coverage.

When a service provider replaces a service that is included in the sample with a new service during the year, this service is also replaced in the survey. There can be problems in making a quality evaluation of the new service to ensure the correct price development. For example, it is difficult to make a quality evaluation of faster Internet access, as this is a subjective judgement for customers.

Another problem is that additional services introduced by the service providers during the year are not included until the end of the year. There is then the possibility that changes in price or quality are missed for those customers that choose the new service instead of the service that is included in the survey. It is not possible either to change the sample on the assumption that all customers will choose the new service, because trends show that many customers choose to remain with the old service. This is partly because customers are loyal but also because a certain number will be tied to a contract.

Price Measurement Challenges

Some problems also occur when the service providers try to compete with lower prices. One can assume that some customers of other service providers will choose the service provider with the lower prices instead. This redistribution of weights is not carried out during the year but at the end of the year. Therefore, price reductions for some customers are missed. However, new weights are calculated every year so that the survey can retain good quality.

As list prices are used for some of the service providers, a lot of information on the actual price paid by the customers is lost. For enterprises, it can be assumed that larger customers can reach better agreements with service providers. Obtaining invoiced prices would give better information on price development but some service providers have difficulty in providing this information because the respondent burden is too large. In addition, the market changes so quickly that the questionnaires would need to be continuously reviewed.