Consumer Price Index, Net Price Index, Harmonised Index for Consumer Prices 2013

PR0101

This description first provides administrative and legal information on the survey as well as its purpose and historical background. The content and accuracy of the survey are then described, followed by how the survey is carried out and how the results are made available. By clicking on a heading on the contents page, you can move directly to the relevant section.

Contents

A General information

A.1 Subject area

Subject area: Prices and consumption

A.2 Statistical area

Statistical area: Consumer Price Index
Net Price Index
Harmonised Index for Consumer Prices

A.3 Official Statistics of Sweden classification

Official Statistics of Sweden (SOS)

Yes, included in Sweden's official statistics

Special rules apply for surveys that are included in the Official Statistics of Sweden concerning quality and availability. See the Official Statistics Ordinance (2001:100).

The Consumer Price Index (CPI) is included in the Official Statistics of Sweden. The Net Price Index (NPI) is calculated based on the CPI and is included in the Official Statistics of Sweden. For more information on the NPI, click on the heading: **More about this survey,** on Statistics Sweden's website under the Consumer Price Index section.

Two measures of underlying inflation, CPIF and CPIX, are also calculated based on the CPI, and this is done on commission from the Riksbank. These measurements are not included in the Official Statistics of Sweden. For more information about the underlying inflation measures, click on the above-noted heading on Statistics Sweden's website.

Information is available about the Harmonised Index for Con-

sumer Prices (HICP) under *Section A.9 EU regulations.* The HICP is not included in the Official Statistics of Sweden. More detailed information about the HICP can also be found through the above-noted pathway on Statistics Sweden's website.

A harmonised constant tax index, called the HICP-CT (Harmonised Index of Consumer Prices at Constant Tax Rates) is calculated as a complement to the EU harmonised index HICP. The HICP-CT is calculated so that the direct effects of changes in tax rates are not reported as price changes.

A.4 Statistical agency responsible for statistics

Government agency/organisation:	Statistics Sweden
Postal address:	Box 24300, SE-104 51 Stockholm, Sweden
Visiting address:	Karlavägen 100
Contact person:	Oxana Tarassiouk
Telephone:	+46 8 506 945 67
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A.5 Producer of statistics

Government agency/organisation:	Statistics Sweden
Postal address:	Box 24300, SE-104 51 Stockholm, Sweden
Visiting address:	Karlavägen 100
Contact person:	Oxana Tarassiouk
Telephone:	+46 8 506 945 67
Email:	firstname.lastname@scb.se

A.6 Obligation to provide information

There is an obligation to provide information according to the Official Statistics Act (SFS 2001:99).

A.7 Confidentiality and rules for handling personal information

For confidentiality regarding the authority's specific task of the production of statistics, Chapter 24 Section 8 of the Public Access to Information and Secrecy Act (2009:400) applies. For the automatic handling of personal data, the rules in the Personal Data Act (1998:204) apply. Within the area of statistics, there are also specific rules on the handling of personal data in the Official Statistics Act (2001:99) and the Official Statistics Ordinance (2001:100).

A.8 Archiving regulations

National Archives culling decision no. 391, 4 Sep 1973

A.9 EU regulations

The CPI is the starting point for the calculation of the EU measure, Harmonised Index of Consumer Prices (HICP). The regulation is in accordance with Regulation (EC) No 2494/95 of the European Parliament and of the Council. The different countries shall use a common methodology in certain important respects of the HICP. Compared to the CPI, the HICP does not include the majority of the housing costs of private home owners, owner-occupied apartments as well as state gambling proceeds. The HICP includes, unlike the CPI, costs for care of senior citizens, hospital services as well as certain financial services (where the fees are proportional to the size of the transaction). For more information about the HICP, click on the heading ”More about this survey¨ on Statistics Sweden's website under the section Consumer Price Index.

A.10 Objectives and background

The CPI shall measure the average price trend for the entire private domestic consumption based on prices consumers actually pay. The Consumer Price Index is the accepted measure for calculations of compensation and inflation in Sweden. Beginning July 1954, the CPI is calculated on a monthly basis. Quarterly data are available calculated from 1949 through June 1954.

The HICP has been developed to enable comparisons of price trends between countries within the EU. Methods for calculating the national consumer price index and the corresponding indices vary for different countries, and these methods have been coordinated in the HICP. The HICP has been calculated since January 1995.

A.11 Use of the statistics

The major users of the CPI are:

- The Ministry of Finance: as a basis for decisions in economic policy and stabilisation policy.
- The Ministry of Health and Social Affairs: for establishing the price base amount which is linked to certain pensions, other social benefits and student loans.
- The Swedish Tax Agency: for the calculation of conversion ratios for taxation of capital gains on property and for calculating break points in income tax rates.
- The Riksbank: as an explicit target variable and as a basis for monetary policy decisions
- Statistics Sweden: for deflating the National Accounts and turnover statistics.
- Other central government administrations including the Swedish Board of Agriculture and the National Institute of Economic Research.
- Organisations, enterprises and individuals: for indexation of agreements and conversions of value amounts to a fixed monetary value.

- Asset management enterprises and institutions: as a basis for assessing future interest rates and real returns.

The principal users of HICP are:

- The European Central Bank (ECB) for evaluating EMU's monetary policy goals and for following up the convergence criterion regarding price stability for membership in the EMU.

A special committee is linked to Statistics Sweden and the CPI, the Consumer Price Index Board. Its functions and composition are regulated in the directive (1988:137) for Statistics Sweden. The Board consists of one chairperson and eight representatives. The chairperson and seven of the board members are appointed by Statistics Sweden. One board member is appointed by the government. Statistics Sweden appoints one board member on the recommendation of Sweden's Riksbank, one on the recommendation of the National Institute of Economic Research, and one on the recommendation of the Swedish Social Insurance Agency and the National Board of Health and Welfare. Three of the other members shall possess scientific competence such that their combined expertise encompasses economics and statistics.

The Board shall deal with matters relating to the calculation of the Consumer Price Index, and shall in that connection decide matters of principle concerning application of the index calculation criteria, and promote the development of methods for calculating the Consumer Price Index. Memorandum from past meetings of the Index Board in recent years are available on Statistics Sweden's website: http://www.scb.se/Pages/Standard____246885.aspx (in Swedish only).

A.12 Design and implementation

The CPI and HICP are calculated monthly based on changes in the prices of goods and services in private domestic consumption. Price data are collected for a sample of so-called representative products and a sample of retail outlets. There is an updated sample of products and selection of retail outlets every year. The primary sample methods used include so-called orderly PPS samples with sample probabilities proportional to market shares, independent random samples, and size samples.

Every year, there is an update of the weighting factors of those product categories where products are included and of the types of industries in which they are sold. Changes in the composition of consumption and other changes in the consumer market are successively taken into account through this procedure.

Two types of weighting factors are used in calculating indices at the most detailed level, the combination of product category and industry. The first type weighs up individual price notations with inverted sample probabilities for products and retail outlets, respectively (when sample probability is applied), and the second type weighs the combination by estimated market shares.

Price collection is conducted locally through shop visits and telephone interviews, and centrally by employees at Statistics Sweden. Price collection at the

local level is done with the support of PDAs. Since 2008, the period for local price collection takes place during three weeks: the week that includes the 15th of the month, as well as the weeks before and after this week. The month of December is an exception, since the measurement weeks are extended and brought forward. Price collection for fuel has been carried out during a three-week period since January 2007.

For more information on the retail outlet and product samples, see Part B, *Section 2.2.1 Samples* and *2.2.2 Frame coverage*.

Central price collection is carried out mainly per the 15th of every month or during the week that includes the 15th. Price collection is carried out centrally in cases where a product can be assumed to have uniform prices across the country, or where special methods must be used. The collection is carried out via postal questionnaires, email questionnaires, websites and data from cash registers.

A total survey (census) is carried out for prescription drugs and alcoholic beverages with the use of administrative records. For used cars, a private enterprise collects about 300 price data each month for Statistics Sweden.

A total of about 14 000 price data from the local price collection are included in the monthly calculations. About 51 000 price data from the central price measurements are included in the monthly calculations of which about 47 500 from cash registers and 3 500 from other collection methods. These data numbers do not include prescription drugs, alcoholic beverages, and used cars. More information about measurement is available under the *Section 2.2.3 Measurement* in Part B.

A.13 International reporting

Reporting of HICP (see *Section A.9 EU regulation*) to Eurostat takes place in accordance with established deadlines via Eurostat's online tools and in some cases via email. Other international reporting takes place via an email form sent to various international organisations.

A.14 Planned modifications in future surveys

Beginning 2012, data from cash registers are used for a large part of groceries and everyday items whose prices are measured in the CPI.

For more information on cash register data and previous method changes in the CPI, see the Consumer Price Index Board on Statistics Sweden's website: http://www.scb.se/Pages/Standard____35697.aspx (in Swedish only).

B Quality declaration

B.0 Introduction

Statistics Sweden describes the quality of surveys according to a quality concept consisting of five main components:

Contents
This section describes the statistic contents to show how well the statistics meet external requirements and requests.

Accuracy
The information in this section describes the extent of the accuracy of the statistics. In order to structure the information, different sources of uncertainty are treated that have an impact on the statistics' quality. What Statistics Sweden does to minimise these inaccuracies is also discussed here.

Timeliness and Punctuality
This section provides information about the time interval between the publication of the statistics and the statistics' reference time as well as information on publishing frequency and how well the publication plan has been followed.

Comparability and Coherence
This section deals with various aspects affecting comparability of statistics over time and between groups, as well as the possibilities of using the statistics together with other statistics.

Accessibility and Clarity
This section indicates the media and channels where the statistics are available. Information is also provided on how to gain access to the statistics' documentation. Other references are also provided here to studies, handbooks, etc. that are relevant for the interpretation of results and the accuracy of the statistics.

For more information on the concept of quality of official statistics and a more detailed account of the meaning of the five main components, see the report *Kvalitetsbegrepp och riktlinjer för kvalitetsdeklaration av officiell statistik* (MIS2001: 1) in the series *Meddelande i samordningsfrågor för Sveriges officiella statistik*. The publication is available on Statistics Sweden's website, http://www.scb.se/Grupp/Hitta_statistik/Forsta_Statistik/Metod/_Dokument/MIS2001_1.pdf

B.1 Contents

1.1 Statistical target parameters

1.1.1 Objects and population

Transactions regarding products and services could be regarded as objects. The population would then be considered to consist of all the transactions in private

domestic consumption during the period that the price index should refer. The number of objects in the population cannot be counted, nor is it possible in practice to observe and measure the transactions.

An approach that describes the survey's structure is to see the population as three-dimensional. Each year consists of a base month (December of the previous year) and 12 comparison months. There is a population of retail outlets (shops, service outlets, websites, etc.) that to some extent changes during the year as some objects cease and new objects are added. Some objects change but can still be considered as remaining. The third dimension consists of products, which also have a limited lifetime. This means that certain products must be considered as having ceased and others are added, while others are treated as substitutes for each other, even though they are not exactly alike.

1.1.2 Variables

The primary variable is the price of the product that the consumer actually pays, without special conditions, for example, in the form of member discounts, coupons, etc. To deal with substitutions during the year, data are collected on package sizes, quality characteristics, and assessed differences in quality. These latter variables are used to adjust prices for comparability.

1.1.3 Statistical measures

CPI: Index figures (1980=100, 1949=100), change in percent since the previous month, change in percent during the most recent 12-month period, and average prices.

The CPI is calculated as a chain index with annual links. Every annual link measures how much the average price level has changed during the year from the average price level in the previous year. You could say that the chaining runs via the whole year. The weighting factors are the geometric mean of the consumption volume of the two years concerned. A final link measures the change in the current month's price level from the average price level of the full two years before. The weighting factors here represent full-year consumption volumes for the two years before. Index figures with 1980 as the base index year are calculated by multiplying together, i.e. chaining together, annual links (via the full year) and ending with the link for the relevant month. For more information about index construction in the CPI, see the memorandum, *Förbättrad KPI-konstruktion från 2005: Teknisk beskrivning,* on Statistics Sweden's website: http://www.scb.se/statistik/PR/PR0101/2004M03/Pm11307.pdf (in Swedish only).

HICP: Index figures (December previous year = 100, 2005 = 100), percentage changes since the previous month, percentage changes in the most recent 12-month period. Like the CPI, the HICP is a chain index with annual links, but with chaining via December.

1.1.4 Study domains

In the regular reporting of CPI an HICP, there are 12 main categories and some 90 sub-categories of products in private consumption according to the international standard for Classification of Individual Consumption by Purpose (COICOP).

1.1.5 Reference times

Monthly figures refer to the CPI's entire measurement period, which in some cases means the 15th day of each month or the next weekday (for example, short-term interest rates for private dwellings) and in other cases for the entire week that includes the 15th (for example, tickets to sporting events, theatres and dance halls) or during a three-week period, for example, food, clothing and fuel (see also *Section A.12 Design and implementation*). Exceptions are primarily rental apartments that refer to the full month and are surveyed quarterly in January, April, July and October. Annual averages are formed by unweighted arithmetic averages of monthly figures. The CPI index reference year is 1980.

The HICP index reference year is 2005.

1.2. Comprehensiveness

The CPI shall measure price trends for all private consumption according to the National Accounts. The Net Price Index, NPI, is calculated based on the CPI as are two measures of underlying inflation, CPIF and CPIX on commission from the Riksbank. HICP is used for comparisons with other countries within the EU.

Currently, about 95 percent of total private domestic consumption in the CPI is broken down into 364 product categories. The greatest difference between private consumption and the amount used to calculate the CPI weighting factors is in the housing area (mainly in the group 04.x Owner-occupied housing: use of the dwelling). The difference is based on the calculation of the weighting factor in the CPI and is performed using a cost estimate that is consistent with the way housing costs are considered in the index calculations, while the budget amount in private consumption is based on a rental equivalence approach. Other areas not included in the CPI consist largely of health and social care fees, certain financial services and various other services (for example, brokerage services, company car benefits, etc.). For a more detailed explanation, see the memorandum, Undercoverage in the CPI, on Statistics Sweden's website http://www.scb.se/statistik/PR/PR0101/Undertäckning%20i%20KPI.pdf (in Swedish only).

HICP contains about 85 percent of the private domestic consumption. See under *Section A.9 EU regulations* for a comparison of what is included in the CPI and the HICP, respectively.

B.2 Accuracy

2.1 Overall accuracy

The most important sources of error in the CPI and the HICP are weighting factor error, coverage error, sampling error and errors due to changes in quality of the products for which prices are measured (a form of measurement error). The method of calculation established for sub-surveys also significantly affects the results. This applies especially to the homeowner item.

2.2 Sources of inaccuracy

2.2.1 Samples

There are three types of sampling processes applied in the CPI which are explained in the following:

1. A sample of retail outlets (shops, hypermarkets, restaurants etc.) in the CPI is drawn annually in May with a so-called rotated sequential Poisson sampling with sample probabilities proportional to size (orderly PPS samples). Approximately 20% of the outlets are replaced annually and another 10% are replaced due to changes in the population, 70% remain in the sample for the following year. The sample is drawn within the frame for the coordinated sampling system for economic statistics, called SAMU, from Statistics Sweden's Business Register. The retail outlets in the local price collection are divided into some 40 strata by type of industry according to the current standard for Swedish industrial classification (SNI 2007). Samples for many centrally collected prices, for example electricity, health care and entertainment, are renewed to a minor degree annually.

2. Prices for everyday items are collected from about 80 retail outlets. Different samples of representative products in approximately 90 product categories are utilized in the retail outlets, depending on which store chain the outlet is associated with. The samples are drawn from statistics from each chain's cash register data system and consist of about 800 precisely specified products per chain. These are chosen randomly using sample probabilities proportional to sales values. Samples of products for price measurement at pharmacies (not pharmaceuticals, which are measured in a different survey), tobacco shops and health food stores are also selected using the same method. Samples of representative products are updated annually. These samples are changed more slowly than outlets however.

Generic product specifications are established centrally for a large share of the remaining local price collection; thus, deliberate samples are applied here. Sources for these samples include information from the household budget surveys. The person collecting the data (the interviewer) is then instructed to choose the best selling product (by volume) in the selected retail outlets in terms of the specification.

3. The third sampling process is the selection of specific product varieties within the sampled outlets. For 30% of the new outlets all products varieties are of course new in the sample but varieties must also be replaced continuously when they are out of stock.

The sample of outlets and products in the central price collection is drawn partly by using PPS samples and partly by a variant of quota or cut-off principle. For certain products, total surveys (census) are applied, that is, all products within the specific area are included in the sample.

The CPI basket weights for product groups and industries are also updated annually. These weights are based on several sources of information, most of which are sample surveys. The household budget survey, HBS, is one important source. Due to large error margins, several years of HBS data are aggregated.

Complexity in the CPI affects sampling error
In statistics, sampling error or estimation error is the amount of inaccuracy in estimating some value caused by only measuring a portion of a population (i.e. a sample) rather than the whole population. This amount of inaccuracy is commonly referred to as sampling error and expressed as confidence intervals.

The complexity of the CPI statistics implies complex structure of the sampling error. Dalén & Ohlsson (1995) states that the independent sampling of outlets and products yield a two-dimensional, cross-classified sample. A design based variance formula is derived by exploiting the general theory for cross-classified sampling. This can be applied to the annual link from the base period (December year, *y-1*) to each month in the current year (year, *y*, and month, *m*).

The sampling errors due to sampling of outlets and products have a constant impact on one calendar year at a time. Norberg (2004) finds that the third sampling process of product varieties generally contributes most to the total sampling error. This sampling error is also found to be least correlated over time.

Some of the most important CPI-statistics involve several annual links, for example the inflation rate which is computed as the change from year, *y-1,* and month, *m,* to year, *y,* and month, *m*. The sampling error for the change statistics includes sampling errors for two samples (for two years).

Estimation of sampling error in the CPI
Dalén & Ohlsson (1995) proposes an analytic approach for estimation of variance in a cross-classified sample design of outlets and products. This can be applied to the annual link from base period (December year, *y-1*) to each month in current year (year, *y,* and month, *m*).

Dalén (2001) uses approximations and reasoning to motivate the best estimates of sampling errors for various reported measures of CPI changes that comprise more than one annual link.

Norberg (2004) studies the character of variation in price changes using analysis of variance models. Variance estimators in analytical forms are compared to estimators based on re-sampling procedures and models. All three methods result in estimates of roughly the same magnitude. Re-sampling procedures make it possible to estimate the variance for complex functions of index links

such as the inflation rate and change of inflation rate without extra assumptions.

Nilsson, H. et. al. (2008) produces new estimates of sampling errors for the centrally collected product groups. These correspond to 46 % of consumer expenditure.

Estimates of sampling error
Based on the four papers above, the sampling errors of the CPI-measures have been assessed and are given for the last years in the table below:

Table 1: Estimated sampling errors, lengths of 95% confidence intervals 2012

Statistics	Estimated length of 95% confidence interval	Comment
Monthly change	±0,15 - ±0,2	± 0,15 in April, May, June, November and ±0,2 other months
Annual change (inflation rate)	±0,3	Somewhat lower in December[1]
Monthly change of inflation	±0,2 - ±0,25	±0,2 in April, May, June, November, December and ±0,25 other months

[1]The annual link from December to December is based on one and the same sample.

Figure 1 Inflation rate 2008-2011. 95% confidence interval

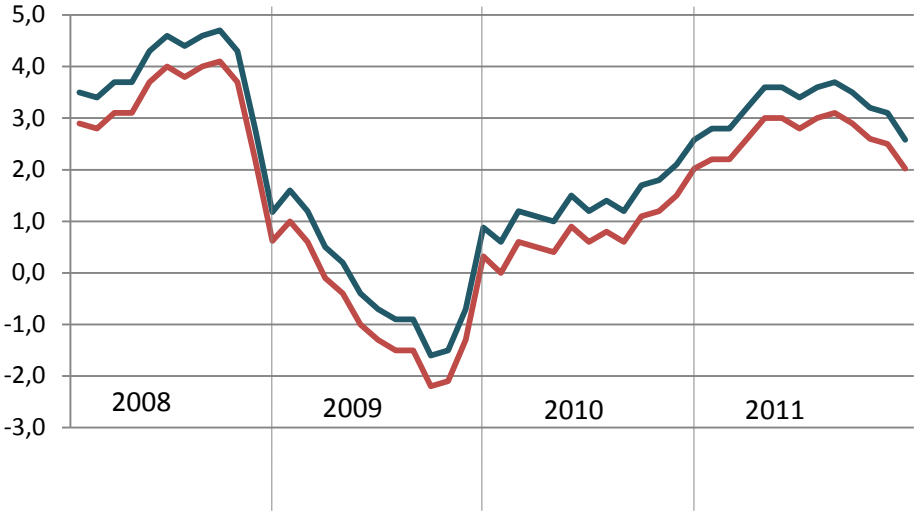

Figure 2 Monthly change of inflation rate 2008-2011. 95% confidence interval

During 2011 the inflation rate change was “statistically significant” in March (up), April (up), October (down) and December (down). The inflation rate was +2.3 ± 0.3% in December 2010 as well as in December 2011.

How sampling errors can be reduced
The general answer to the question of how sampling errors can be reduced is to increase sample sizes. Statistics Sweden is making progress in the reducing sampling errors by using cash register data (scanner data) received from retail chains. By using these data the sampling error for the area in question can be reduced as well as the costs for manual collection. For most other product groups more funding is needed to increase sample sizes.

2.2.2 Frame coverage

The first sample (a so-called gross sample) of retail outlets for the CPI is drawn already in May. The sample is first checked centrally and subsequently visited by interviewers, mainly with regards to timeliness and which products are sold. The enterprises that remain after this review comprise next year's net sample. Sales on the internet, by mail order and sales at marketplaces are underrepresented. The coverage of stores is generally good; however, the measure of the size of the retail outlet is poorly correlated with sales (in SEK) for individual product categories. New retail outlets that open during the index year are ignored and cause a bias (from 0.03 to 0.05 index points according to the manual (2001)).

364 product categories are carefully listed, and weighting factors are derived for each of them according to the National Accounts, household surveys and other available market information. Here the coverage is good; the areas not included in the CPI consist largely of fees for health and social care, certain financial services and various other services (for example, brokerage services, company car benefits, etc.).

A current or complete sampling frame is often lacking regarding the product sample within each product category. In these cases, a variety of sample

techniques are used. This is often some form of deliberate sample, quota or cut-off principle. An intentional undercoverage is created for "impossible" product categories, such as art objects and some seasonal goods.

A deliberate undercoverage is created by measuring only certain combinations of product categories and branches of the retail outlets. Sales of, for example, food, tobacco, fast food, sunglasses and toys at petrol stations are thereby excluded. Newspapers and tobacco are measured in some branches, but are sold in many. This is considered a small problem, as the prices are quite similar for these product categories through central decisions.

Some product categories in the CPI are not measured directly but are represented by other groups. The most important example is owner-occupied apartments that are represented by rental apartments.

2.2.3 Measurement

Price trends are calculated for 364 product categories and industries, for which weighting factors have been developed. The calculation of the CPI weighting factors is based on the National Accounts' preliminary annual estimates for household consumption expenditures. At a more detailed level, data are used from household budget surveys, retail trade statistics, and a variety of other sources of information about the private consumption of various products.

Prices are collected locally in stores by about 100 interviewers who conduct visits and telephone interviews, and centrally by Statistics Sweden, for example, by postal questionnaires, e-mail questionnaires and websites (see Section A 12). Some minor studies have shown that interviewers note prices incorrectly. A larger factor is uncertainty about what is the correct price in the retail outlets. The Swedish Consumer Agency has shown that price information is deficient by an average 6 percent.

Quality assessment of products and services
The Consumer Price Index shall not be affected by changes in prices due to changes in the quality of goods and services. When the products are altered or even must be replaced (substituted), a quality assessment must be performed to remove the difference in observed prices due to different quantities and qualities.

Quality assessment of everyday items
Few quality assessments are made for everyday items. The same, exactly specified, product is measured every month for as long as it is marketed. If necessary, it is corrected for small changes in quantity, type of packaging, etc. For other locally collected prices (with the exception of clothing, shoes and computers), the interviewer selects a new representative product when the previously measured product is no longer sold or no longer sold in any significant amount. Together with store clerks, the interviewer assesses the value of any quality difference between the new product and the old. For example, if an increase in quality can be considered to correspond to an observed price difference, the price index of the good will remain unchanged. If the quality of

the change is considered equivalent to one-half of the price change, then one-half of the price difference may take effect as a price change etc. Price collection of music CDs, videos, etc. is made from the respective store's list of sales ranking. This means that the interviewer does not need to assess the value of any quality change when titles change on the ranking list.

Quality assessment of clothing
A hedonic quality assessment is done for clothing. In hedonic regression, many different data are used concerning the goods' appearance and content in order to assess the market value of these characteristics. In addition to prices, the interviewer thus also collects data on the different characteristics of the clothing.

Quality assessment of shoes
For shoes, a hedonic regression is used in combination with narrow product descriptions. This method means that product exchanges are allowed within the narrow product specification and within different brand groups. The hedonic regression is used in product exchanges between brand groups to assess the market's valuation of the difference between the brands.

Quality assessment of computers
For computers, a method called monthly chaining is used to handle the exchanges. A new computer is not included in the index calculation until it has existed for two consecutive months.

Collection of price information
Prices are collected centrally at Statistics Sweden for products in about 100 product categories, including those cases where a product is likely to have uniform prices across the country, or where special methods must be used. One such product category is, for example, theatre tickets. The products consist of different types of theatre tickets that can be purchased at various theatres around the country. Changes in quality are assessed in virtually the same way in the central price collection as in the local price system.

Measurement of housing costs
The trend in housing costs is measured in part through monthly rental surveys. In addition, price data are collected centrally for heating and electricity.

Summary
The lack of clarity and inability to define quality and to measure quality differences comprise a relatively big problem for the CPI and HICP.

2.2.4 Non-response

In visits to stores, telephone interviews, online data collection and direct collection from enterprises, the non-response is nearly non-existent; in the quarterly rental surveys, non-response is slightly more than 5 percent. Both unweighted and weighted non-response in price measurements are a small problem in comparisons with other sources of uncertainty. The household budget surveys, which are a basis for the weighting factors have a large non-response, which in many cases renders the weighting factors uncertain at a

detailed level.

2.2.5 Data processing

An IT system, Pi09, has recently been developed to perform most of the CPI calculations. A few calculations are performed apart from the Pi09. Quality assurance of software/systems is now in place. This means that the risk of processing errors is small. Handheld computers have made it possible to perform editing directly during the collection of data. It is not possible to assess the impact of various sources of error.

The collected observations are reviewed if errors are suspected. Contact is often taken with the retail outlet where the observations have been collected, or with the person collecting the data (interviewer) in those cases where price observation is collected locally.

2.2.6 Model assumptions

A so-called hedonic method for quality adjustment is used in the measurement of price trends for clothing. Consumer valuations of various details of a garment are estimated using a statistical model and cross-sections of CPI data. When garments are discontinued in the store's assortment, these valuations are used to calculate the prices of replacement garments so that their price level is comparable with the base versions in terms of quality. Compared with other product categories, the index calculation for clothes has a large random error (variance). The calculation has been shown to be relatively insensitive to the choice of hedonic model.

Some product categories in the CPI are not measured directly but are represented by the other categories. The most important example is owner-occupied apartments that are represented by rental apartments.

Otherwise, many different model assumptions are used depending on the consumer area surveyed. For example, consumption profiles are estimated for electricity consumption and telecommunications services for which price trends are surveyed.

2.3 Reporting of accuracy measures

Uncertainty figures correspond to a 95 percent confidence interval (standard deviation multiplied by 1.96). There are uncertainty figures for changes in the rate of inflation on a monthly and annual basis.

B.3 Timeliness

3.1 Frequency

CPI, NPI, HICP, HICP-CT, CPIX and CPIF are calculated and published monthly.

3.2 Production time

Production time is about four weeks (five weeks for January). Publication is usually 10-14 days into the next month after the reporting month. However, the

index figures for January are usually published a few days later than is the practice for other months, due to the calculation of weighing factors.

3.3 Punctuality

The publication follows the publishing plan for the Official Statistics of Sweden.
http://www.scb.se/Pages/PublishingCalendarStartPage____259922.aspx

B.4 Comparability and Coherence

4.1 Comparability over time

The CPI is a chain index with annual links. Methodology changes usually take place at the end of the year, that is, before a new annual link. Therefore, breaks in the time series normally do not occur.

Major changes over time are described below

- For everyday items (non-perishable goods), price lists instead of store measurements were used beginning 1983 through 1992.
- For clothing, a new measurement method was introduced beginning 1991 and a new method for valuation of quality differences was introduced beginning 1994.
- Beginning April 1990, a new method was introduced for weighing up the individual price notations that the index is based on. During the period January 1990 - March 1990, a, divergent methodology was used compared to both the period before as well as the period after.
- Beginning 1984, calculations of costs for owner-occupied housing were modified for interest rates and depreciation.
- Seasonal adjustments for fresh vegetables and fruit ceased beginning 1992.
- As of April 1997, a new method was used for calculating costs for owner-occupied housing with regards to interest rates. The change in method means that shifts in weighting during the year between loans with different fixed rate periods do not affect the index. The change also means taking into account the cost for redemption charges payable on early repayment of mortgage loans.

New construction of the index beginning 2005
Beginning January 2005, the Consumer Price Index (CPI) is calculated with a new construction for the index. At the same time, the inflation rate had begun to be calculated as the percentage change in the CPI over the past 12 months. The calculation of the Net Price Index (NPI) and the measures of underlying inflation (UND1X and UNDINHX) have been modified as a result of the changes in the calculation methodology for the CPI and inflation rate. The CPI will continue to be reported as an index figure with the base year 1980 = 100. The CPI figures from January 2005 will be a direct continuation of the previous series of CPI figures. Viewed on the average over many years, the revision of the index construction is expected at most to have a marginal impact on the calculated CPI figures. No consistent tendency can be statistically established on the existing basis.

Statistics Sweden provides back casted time series with inflation rates calculated using the new method (applied to existing CPI figures) from 1980 and onwards. The Harmonised Index for Consumer Prices (HICP) is not affected by the above noted methodological changes to the CPI and the inflation rate.

Revision of established index figures does not occur.

The HICP is calculated since January 1995. There is full comparability over time.

4.2 Comparability between groups

The CPI measures the average price trend using the same method for all subcategories included in the CPI. There is full comparability of price trends between the categories.

4.3 Coherence with other statistics

The CPI can be used in several contexts to deflate, for example, the National Accounts and the Service industry statistics. Comparisons of price trends for producer and import prices are difficult for several reasons.

B.5 Accessibility and Clarity

5.1 Dissemination forms

The following dissemination forms for the CPI, NPI and HICP are available on Statistics Sweden's website www.scb.se:

- Sweden's Statistical Databases
- Statistical Report 14: Consumer Price Index, monthly.
- Statistics Sweden Press information (issued at the same time with the monthly Statistical Report)
- Economic "flash statistics"
- 24/7 answering service with data on the most recent CPI and price base amount.
- Statistics Sweden Indicators.

5.2 Presentation

Text, tables and figures.

5.3 Documentation

Dalén, J. (2001): *Urvalsosäkerheter för olika tidshorisonter i KPI*. Statistics Sweden, not published (in Swedish only)

Dalén, J. and Ohlsson, E. (1995): *Variance Estimation in the Swedish Consumer Price Index*. Journal of Business and Economic Statistics, Vol. 13, No. 3, 347–356

Dalén, J.: *The Swedish Consumer Price Index - major features,*

Norberg, A. (2004). "*Comparison of Variance Estimators for the Consumer Price Index*" 8th Ottawa Group Meeting - Helsinki - 23-25 August 2004

Nilsson, H., Ribe, M. and Norberg, A. (2008) "Variansberäkningar KPI" Project report, SCB, 2008-04-10 (in Swedish only)

Ringqvist, M. (1993): *Att mäta inflationen : om konsumentprisindex*. Norstedts Juridik AB, Stockholm.

The basis for the CPI, etc.: 1952 års indexkommittés betänkande (SOU 1953:23) Konsumentprisindex; Prop. 1954:1, bilaga 2;Statsutskottets utlåtande 1954:13; Riksdagens skr 1954:92;

1955 års bostadsindexutrednings betänkande Bostadsposten i konsumentprisindex; (in Swedish only)

Commissioning of Statistics Sweden to calculate the Consumer Price Index etc., His Majesty's:(Ministry of Finance) decision of 28 June 1962.

Proposal to Parliament; Riksdagens revisorers förslag angående konsumentprisindex (Förs. 1991/92:16) (in Swedish only)

PM och protokoll från nämnden för konsumentprisindex (in Swedish only)

SM PR 15: Konsumentprisindextal 1914 -2005 (in Swedish only)

Konsumentprisindex: Betänkande från utredningen om översyn av konsumentprisindex SOU 1999:124 (in Swedish only)

The Swedish Consumer Price Index, A handbook of methods, http://www.scb.se/statistik/PR/PR0101/handbok.pdf

5.4 Access to microdata

Materials regarding interview surveys and store samples are stored in an SQL database. In the case of centrally collected prices, material is partly stored in an SQL database and partly stored in Excel files. Statistics Sweden conducts special processing of the material on a commission basis. The lowest reporting level is the product category stratum according to the YM1 index table.

5.5 Information services

- Statistics Sweden's Statistics Service, opening hours weekdays CET 09.00-12.00, 13.00-16.30, tel +46 8 506 948 01.
- Email: internpriser@scb.se
- 24/7 answering service with data on the most recent CPI and price base amount.
- See also under *Section 5.1 Dissemination forms*.