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# Price index for postal and courier services

Documents In this series, documentation, method descriptions, model descriptions and standards are published.

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## Preface

This document is prepared based on the final technical implementation report produced for the Statistical Office of the European Communities (Eurostat) concerning grant contract 44402.2007.004-2007.359 meant to fund the development of the price index for postal and courier services.

Statistics Norway began developing the price index for postal and courier services by the end of 2007. This document intends to give an overview of this process starting by industry description in chapter 1, followed by international experience in chapter 2, sample design in chapter 3, and data collection in chapter 4. Chapter 5 presents methodological overview preceded by distribution of weights in chapter 6. Finally, data editing and results are discussed in chapters 7 and 8 respectively. Aadditional documents that assist better understanding of this document are attached as appendices.

A copy of this document is available in PDF-format at the Statistics Norway's official website <u>http://www.ssb.no/english/publications/</u>.

### Abstract

The surge in prominence of service price indices in recent decades is attributable to increasing contribution of the service sector to GDP on the one hand and the decline of industrial production as a share of GDP on the other. This made it clear that producer price indices have to be complemented by price indices for services to accurately measure the performance of a given economy. As manifestation of this realisation, Eurostat, through the regulation on short term statistics, obliges EU member states and the EEA countries to implement a set of service price indices within stated time frame. The National Accounts Division at Statistics Norway also demands the development of service price indices for more accurate price measurements.

The price index for postal and courier services, NACE Rev. 2-code 53, was developed in compliance with the requirement set by the Statistical Office of the European Community (Eurostat), regulation (EC) No 1158/2005 and amending Council Regulation (EC) No 1165/98 concerning short-term statistics.

The objective of the project has been to develop a service price index for the industry that corresponds methodologically to international recommendations, and meet the National Accounts' needs for detailed price data at product level. Moreover, the index will provide important information about market trends to market agents in the industry.

To meet the aforementioned objectives, the development process was reliant on international documents on the subject and recommendations in conjunction with studying local markets. The questionnaire is developed in close interaction with major market agents. This has been relevant in identifying the peculiarity of services rendered. Consequently, we came up with three questionnaire variants, each focusing on a specified group of services. We also have benefitted from the experience of Statistics Sweden and Statistics Finland in the development of this index.

The survey runs on quarterly basis and questionnaire is sent to a sample of respondents providing postal and courier services. The survey data goes back to the first quarter of 2006 for national postal services while available data begins in 2008 for industries involved in courier activities. The scope of this index is limited to postal and courier activities offered to the business market.

Following the Eurostat requirement, the SPPI on postal and courier activities is produced at a three-digit level. The publication includes a total index at a 2-digit level (NACE Rev. 2-code 53) and two sub-indices for postal services under universal service obligation (NACE Rev. 2-code 53.1) and other postal and courier services (NACE Rev. 2-code 53.2) respectively. The index for postal and courier services was publishes for the first time during the first quarter of 2011 with indices going back to the first quarter of 2006. Indices for courier services for 2006 and 2007 were estimated based on available data national postal services. A quarterly publication of this index appears on Statistics Norway's website together with other indices with in transport and storage at <a href="http://www.ssb.no/tpitralag\_en/">http://www.ssb.no/tpitralag\_en/</a>.

## Contents

Preface	9	3
Abstra	ct	4
1.	The industry	6
2.	International Experience	7
3.	The sample	7
4.	Data collection	8
<b>5.</b> 5.1. 5.2.	Methodology The pricing methods Index calculation	8 8 9
<b>6.</b> 6.1. 6.2. 6.3.	Distribution of weights Postal services under international service obligation (NACE 53.1) Other postal and courier activities (NACE 53.2) Total index (NACE 53)	. <b>10</b> . 11 . 11 . 12
<b>7.</b> 7.1. 7.2.	Data editing Micro-level data editing Macro-level data editing	. <b>12</b> . 12 . 13
<b>8.</b> 8.1. 8.2. 8.3.	Results Evaluation of uncertainty Estimation Publishing	. <b>14</b> . 14 . 16 . 16
Refere	nces	. 17
Append	dix 1: Questionnaire for postal and courier activities under universal service obligation NACE 53.1)	. 18
Appen	dix 2 Questionnaire for other postal and courier activities (NACE 53.2)	. 22
Append	dix 3 Schematic presentation on the construction of the price index for postal and courier services	. 24
List of	figures	. 25
List of	tables	. 26

## 1. The industry

According to the new standard industrial classification (NACE Rev. 2) the postal and courier industry is split into two sub industries as displayed by table 1.1.

Table 1.1. The postal and courier industry on 2- and 3-digit code\*

-	
Nace Rev. 2	Industry
53	. Postal and courier activities
53.1	. Postal activities under universal service obligation
53.10	Postal activities under universal service obligation
53.2	. Other postal and courier activities
53.20	Other postal and courier activities

\* NACE Rev. 2

The structural business statistics from 2007 shows that the sub industry 53.1 has about 82 per cent of the whole market in terms of turnover, and has a monopoly situation dominated by one large company. The sub industry 53.2, on the other hand, is a highly competitive market with many enterprises of less than 10 employees.

Table 1.2 shows that the sub industry 53.2 is the main cause for the changes in the postal and courier industry from 2002 to 2007. The number of enterprise in the sub industry increased by 67 percent during the period, and that corresponded to about 84 per cent growth in turnover. The new enterprises in the period are mainly small in terms of number of employees.

The industry in total grew by 14 per cent, of which 9 per cent is attributable to sub industry 53.2 while the remaining 5 per cent comes from sub industry 53.1. The later sub industry remained, for the large part, unchanged through out the period characterized by one enterprise dominating the market. This company is a limited liability company, owned by the State. The turnover in the sub industry 53.1 had a 6 per cent increase from the year 2002 to 2007.

Year	53.1 Postal activities u service oblig	under universal ation	53.2 Other postal and courier activities		
-	Number of enterprises	Turnover (NOK million)	Number of enterprises	Turnover (NOK million)	
2002	5	12 042.9	718	1 481.7	
2003	7	12 189.6	749	1 650.8	
2004	9	12 649.6	819	1 517.8	
2005	9	12 756.2	897	2 091.8	
2006	5	12 277.6	1 006	2 444.4	
2007	7	12 701.7	1 196	2 729.6	

Table 1.2. Enterprises and turnover in the postal and courier industry, 2002-2007\*

\*The Structural Business Statistics 2007

The distribution of enterprises across employment levels and the corresponding turnover share is presented in table 1.3. As shown in the table, there were just a few enterprises with more than 249 employees in 2007 in the Norwegian postal and courier industry.

		•
Number of persons employed	Per cent of the enterprises	Per cent of the turnover
Less than 10	97.0	5.1
10-49	1.4	1.1
50-249	1.1	6.7
More than 249	0.5	87.1

Table 1.3. The population structure by number of persons employees, 2007\*

\*The Structural Business Statistics 2007

Table 1.4 lists the activities in the industry according to the CPA 2008. The activities from 53.10.11 to 53.10.13 are included in this SPPI as National Post activities. 53.10.14 is mainly used by the private market, and is covered by the consumer price index. The SPPI also includes 53.20.11 which covers deliveries of letters, parcels, newspapers and periodicals by companies other than national post.

Table 1.4. Activities in the postal and courier industry\*

CPA 2008	Activities
53.10.1	Postal services under universal service obligation
53.10.11	Postal services under universal service obligation related to newspapers and periodicals
53.10.12	Postal services under universal service obligation related to letters
53.10.13	Postal services under universal service obligation related to parcels
53.10.14	Post office counter services
53.10.19	Other postal services under universal service obligation
53.20.1	Other postal and courier services
53.20.11	Multi-modal courier services
53.20.12	Food home delivery services
53.20.19	Other postal and courier services n.e.c.
*004 0000	

°CPA 2208

The characteristics of the activities are stable over time, and price movements and quality changes are easier to measure than in other industries.

## 2. International Experience

The development process began at the end of 2007. In the beginning, to lay the ground work, we focused on getting an overview of the various activities within the industry and the national accounts' needs as well as exploring international experience on the subject.

International work on postal and courier services and recommendations on SPPI development were helpful in examining appropriate methodologies and different kinds of data sources. Questionnaires from Sweden and Finland on the industry have also been instrumental in designing a suitable questionnaire for sub industry 53.2.

## 3. The sample

The statistical unit in this survey is the enterprise and the sample is selected based on turnover and employment as a selection criteria.

In the sub industry 53.1 the sample consists of one large enterprise with approximately 100 per cent of the market share. The sub industry 53.2, on the other hand, is composed of many small companies, and the industry is exposed to rapid changes in population. We have chosen to use a cut-off threshold that includes all the enterprises with more than 9 persons employed. This gives a more stable sample, and will lower the response burden on small enterprises. The sample in this sub industry consists of 34 enterprises.

Table 2.1 tries to summarize the relevance of sample units by emphasizing on the percentage share of sample turnover to industry turnover. The sample covers about 95 per cent of the market in terms of turnover. The information is collected from the structural business statistics of 2007.

 Table 2.1.
 The sample's market share in the postal and courier industry, 2007\*

NACE Rev. 2	Number of enterprises	Per cent of the market share
53	36	95
53.1	1	100
53.2	35	71

\*The Structural Business Statistics 2007

## 4. Data collection

The services for which we intend to collect prices are deliveries directed to businesses, that is business-to-business (B2B) services. Two questionnaires are designed for this purpose; one for each of the sub industry (NACE 53.1 and 53.2). The questionnaires were developed in close cooperation with major units in the market. List prices related to letter, newspaper and periodicals delivery are also collected directly from the website of the national postal authority

The survey is primarily web based, and respondents are asked to define standard deliveries to be priced at the start of their participation. These services will then be re-priced for successive quarters. In addition, information on turnover is collected once every year during the first quarter.

Every quarter, respondents are informed about the upcoming survey and are provided with a username and password for logging in. The questionnaire is posted by the end of each quarter with two weeks deadline. Respondents that haven't returned the questionnaire by the deadline are given a postal reminder together with a one-week extension of the deadline. If the questionnaire still isn't returned, the respondent is given a fine and a one-week final extension. The fine comes into force following the deadline of the final extension.

Reported data is automatically uploaded in to Dynarev, part of ISEE (Integrated System for Editing and Estimation) dedicated to dynamic editing of data. Dynarev is used to store data and micro level data editing.

Appendix 1 and Appendix 2 show the questionnaires for the sub industry 53.1 and the sub industry 53.2. The questionnaires are for the first quarter where we also ask about the services share of turnover. Together with the questionnaires there is guidance on how to complete the forms. In the questionnaire for other postal and courier activities (Appendix 2) the respondents choose up to four different kinds of delivery; newspapers/periodicals, letters, parcels and other.

# 5. Methodology

#### 5.1. The pricing methods

In postal activities under universal service obligation (53.1) *direct use of prices of repeated services* are used in the survey. Real transaction prices are collected by questionnaires on services related to parcels, where discounts are reflected in the prices. On services related to letters, newspapers and periodicals where there is less use of discounts, list prices are collected directly from the industry's website. Adjustments are made in cases where value added tax happens to be part of the listed price.

The price components or in other words, factors affecting price determination in the sub industry 53.1 can be summed up in to:

- Kind of delivery
- Size
- Destination (tariff zones)
- Speed

In other postal and courier activities (53.2) Statistics Norway asks for *contract prices* in the questionnaires. The price factors pertinent to this sub industry 53.2 are:

- Kind of delivery
- Client
- Time
- Speed
- Destination
- Means of transportation
- Size

Not all the factors are relevant for each delivery. The respondents are asked to report factors that are relevant for the service they have chosen as representative of their activity. Respondents then reprise the same service in succeeding periods.

#### 5.2. Index calculation

Indices are calculated by assigning weights to individual or groups of price items, with weights determining the relative relevance of an item in the overall index. Statistics Norway has developed a standardized IT-system (ISEE – Integrated System for Editing and Estimation), and this index will be calculated according to the same main principles as the other SPPIs using ISEE

The lowest level in the hierarchy of index estimation is the elementary index. An elementary index, an unweighted price relative, is calculated as the geometric average of price relatives. This formula is also known as the *Jevons index* and is denoted by:

$$I_{i}^{0,t} = \left(\prod_{j}^{ni} p_{ij}^{t} / p_{ij}^{0}\right)^{\frac{1}{ni}} = \exp\left(\frac{1}{ni} \sum_{j}^{ni} \log I_{ij}^{0,t}\right)$$
[1]

Where  $I_i^{0,t}$  is the elementary index for service *i* between period 0 and *t*.

The elementary index is then aggregated by use of weights. A price index is basically the product of a mathematical formula which brings together information on individual prices and allows them to be compared in a meaningful way. This is achieved by assigning weights to each price item, which reflect the importance of the item in the index being calculated. For postal and courier services, this transformation is carried out using the Laspeyres index formula.

The general form of the Laspeyres formula is:

$$L_{i} = \frac{\sum_{i=1}^{n} p_{i}^{t} q_{i}^{0}}{\sum_{i=1}^{n} p_{i}^{0} q_{i}^{0}}$$
[2]

 $L_i$  = Laspeyres price index

$$p_i^0$$
,  $p_i^t$  = prices in period 0 (base period) and t (current period) respectively

 $q_i^0$  = quantity in period 0 (base period)

This is known as the "expenditure aggregate" form of the index. Substituting the current price by notation [2] and rearranging the Laspeyres formula we arrive at [3].

$$p_{i}^{t} = \frac{p_{i}^{t}}{p_{i}^{0}} * p_{i}^{0}$$

$$L_{i} = \sum_{i=1}^{n} \left( \frac{p_{i}^{0} q_{i}^{0}}{\sum_{i=1}^{n} p_{i}^{0} q_{i}^{0}} \right) \frac{p_{i}^{t}}{p_{i}^{0}}$$
[4]

Further, Let  $w_i$  denote the weight share of an elementary group *i*.

$$w_{i} = \frac{p_{i}^{0} q_{i}^{0}}{\sum_{i=1}^{n} p_{i}^{0} q_{i}^{0}}$$
 Where  $w_{i} > 0$  and  
$$\sum_{i=1}^{M} w_{i} = 1$$
 [5]

Rewriting equation [3] we arrive at equation 5 which states that an index at a given level of aggregation is the sum of price relatives weighted by their respective expenditure shares.

$$L_{i} = \sum_{i} w_{i} I_{i}^{0,t} = \sum_{i} \frac{p_{i}^{0} q_{i}^{0}}{\sum_{i} p_{i}^{0} q_{i}^{0}} \left(\frac{p_{i}^{t}}{p_{i}^{0}}\right) \qquad = \frac{\sum_{i=1}^{n} p_{i}^{t} q_{i}^{0}}{\sum_{i=1}^{n} p_{i}^{0} q_{i}^{0}}$$
[6]

In practice, the formula we use deviates from the stricter definition of Laspeyres formula. Statistics Norway calls the derivative of Laspeyres index adapted to our practical use an L-type index. Lapeyres index requires that weights and base price belong to the same period as noted by equation [6], but this cannot be maintained for practical reasons. Expenditure shares are obtained on annual basis while base prices are of quarterly nature.

The use of this formula assumes, through fixed base weights, "inelastic demand".

## 6. Distribution of weights

When combining various gods or services with different market structures (demand function) in to a common denominator (index), the role of weighting becomes vital. By attaching weights to a certain good or service, we demonstrate the relevance of that particular item in the market.

Information on weight components is collected through the survey once a year. Respondents are asked to report enterprises turnover emanating from post and courier activities as well as the distribution of turnover between the services. Depending on this information we define weight groups, in such a way that reflects the market share of the units in the sample and the individual services they render. In combining the two sub industries in to a single total index, we use their turnover share obtained from the Structural Business Statistics. The index for postal and courier services is published at sub industry level (NACE 53.1 and NACE 53.2). Accordingly, two sets of weight components are calculated for each sub index. Homogeneity with in the weight groups is considered in determining the composition of the groups. Appendix 3 presents a schematic description of the aggregation process.

# 6.1. Postal services under international service obligation (NACE 53.1)

A-two-step aggregation is involved in arriving at the index for this sub industry. The sub industry is subdivided in to two service categories, namely: parcel delivery, and post and other deliveries. The service categories are further subdivided by service types.

At the bottom, Jevons index (geometric mean) is calculated by service type to generate a service index. The service indices are then aggregated in to indices by service category using the services turnover share as weights. Finally, the service categories are aggregated to the index for the sub industry using their respective turnover shares as weights. A matrix on the weight distribution for the sub industry is presented in table 6.1.1 below.

Table 6.1.1. Weight share matrix for NACE 53.1

	Parcel post				Post & c	<b>T</b> . ( )		
	Door-to- door	Service package	Business package express	Cash on delivery	Newspapers & periodicals	Post	Advertise- ment	Iotai
Weight share	12.3%	8.86 %	2.89 %	0.61 %	16.03 %	36.9 %	22.5 %	100 %
Sub total Percentage of		24.64	%		7	5.36 %		100 %
NACE 53	10.0 %	7.18 %	2.34 %	0.49 %	13.00 %	29.9 %	18.20 %	81.1%

#### 6.2. Other postal and courier activities (NACE 53.2)

Index calculation for this sub industry involves aggregation on two levels; one by service type and another by strata. The units with in the sub industry are grouped in to three strata depending on an enterprise's turnover size. A stratum is classified as small for units with turnover (in Norwegian kroner) of less than or equal to 10 million, medium for turnover between 10 million and 50 million, and big for turnover more than 50 million per annum. Let's denote equation [7] as:

$$L_{ij} = \sum_{i} w_{ij} I_{ij}$$
<sup>[7]</sup>

Where  $L_{ij}$ ,  $w_{ij}$  and  $I_{ij}$  respectively represent the sub index, the weight share and the elementary index for service *i* belonging to stratum *j*.  $w_{ij}$  is calculated here as stratum *j*'s turnover share of service *i*. The elementary indices are aggregated in to sub indices by service type for a given stratum. The strata indices are, in turn, aggregated in to total index by weighting them together with their turnover share as in equation [8].

$$L = \sum_{j} w_{j} L_{ij}$$
<sup>[8]</sup>

Where L is the highest index aggregate for NACE 53.2 while  $W_j$  is the weight share of of a given stratum.

Figure 6.2.1 below is a matrix showing the distribution of weights between the different weight groups with in the sub industry.

Table 6.2.1. Weight share matrix for NACE 53.2

	Small	Medium	Big	Total
Newspapers &				
periodicals	2,95 %	18,54 %	65,92 %	87,41 %
Parcel	0,38 %	2,42 %	8,61 %	11,42 %
Other delivery	0,04 %	0,25 %	0,88 %	1,17 %
Sub total	3,37 %	21,21 %	75,42 %	100 %
As % of Nace 53	0,64 %	4,01 %	14,25 %	18,90 %

#### 6.3. Total index (NACE 53)

The total index is an aggregate of the indices for the sub industries NACE 53.1 and NACE 53.2. The sub industries are aggregated in to total index by using the sub industries' turnover share as weights. The turnover share is obtained from the Structural Business Statistics and its distribution between the two sub industries is depicted by the pie chart in figure 6.3.1





NACE 53.1, being the largest sub industry, constitutes over 81 % of the weight component. The remaining 18.9 per cent comes from NACE 53.2.

## 7. Data editing

To ensure that the data collected is a true manifestation of market behaviour, the data has to satisfy certain guidelines set for quality assurance purposes. Statistics Norway carries out standardized data editing procedures when estimating price indices. These procedures can be summarized to two types:

- 1. Micro-level data editing
- 2. Macro-level data editing/statistical controls

#### 7.1. Micro-level data editing

Micro-level editing begins automatically when data is uploaded in to Dynarev. Here data is checked, based on pre defined sets of controls, for logical errors and passivity with respect to proceeding periods. The main controls outlined in Dynarev for this index can be summarized as follows:

- Value compared to previous period: This function controls for the relative change of a given value/price against some period in the past. The reference period against which current values are compared against, is often set to the previous quarter or the same quarter a year earlier. If values tend to swing unrealistically, respondents are contacted for verification.
- **Passivity control**: This control works by comparing several periods in a row (five quarters is often used), and gives back a warning if the price remained unchanged through out the period.

In addition, the data is manually edited for missing values and other logical errors.

#### 7.2. Macro-level data editing

Macro level editing implies that we control for price observations that constitute strongest effect on the calculated indices. The data is treated collectively as a data set, and not individually by respondent or observation per se. The data set is fed in to an application called *Pris* which generates index estimates and statistical controls. *Pris* is an application developed by Statistics Norway (SSB) to serve as a system for editing and estimation of price indices. It is part of a wider system known as Integrated System for Editing and Estimation (ISEE).

Running *Pris* generates a set of statistical controls which are relevant in detecting outliers, and influential observations. The prominent ones of these controls are Rstudent, Dffits, HB and price-plot function.

**<u>Rstudent</u>** also known as studentized residual is a standardized (with constant variance) residual resulting from regressing current price on the base price. This technique is important in detecting outliers. The example presented in table 6.2.1 below shows Rstudent estimates. Ref-rstudent refers to the reference or boundary against which an absolute value of the statistic estimate is compared to. Absolute values of estimates exceeding the ref-rstudent are marked as outliers.

Table 7.2.1.	Statistical	estimates	for	Rstudent	contro
--------------	-------------	-----------	-----	----------	--------

Weight share	Base price	Respondent ID	Current price	Weight groups	Studentized residual without current Obs	Ref- rstudent
0,005568	. 32 022	9760XXXXX	31 050	53.200;LITEN;AB	-5,8047	2
0,005568	. 32 022	9760XXXXX	31 050	53.200;LITEN;AB	-5,8047	2
0,005568	. 117 742	9894XXXXX	126 529	53.200;LITEN;AB	7,75167	2

**Dffits** is a diagnostic meant to show how influential a point is in an index estimate when regressing current price with respect to base price. It is an estimate showing the change in the predicted value for a point, obtained when that point is left out of the regression.

An output of Dffits estimates that *Pris* generates would look like table 6.2.2. Ref. Ref-Dffits is the reference point and Dffits estimates (in absolute value) exceeding Ref-Dffits are marked as critical values and hence appears in the table.

Table 7.2.2. Statistical estimates for Dffits control

Weight share	Base price	Respondent ID	Current price	Weight groups	Standard Influence on predicted value	Ref-Dffits
0,005568	32 022	9760XXXXX	31 050	53.200;LITEN;AB	-0,88619	0,119737
0,005568	32 022	9760XXXXX	31 050	53.200;LITEN;AB	-0,88619	0,119737
0,005568	117 742	9894XXXXX	126 529	53.200;LITEN;AB	5,17067	0,119737

**<u>Price-plot</u>** is a graph and hence a visual aid and helps to detect extreme values and abnormal trends. It is obtained by plotting the base price against the current prices on an X-Y axis.

**<u>HB</u>** is a non parametric control and tries to detect abnormal price changes. This type of control requires a subjective judgment based on Index (industry) specific knowledge.

## 8. Results

In this section we will discuss the results, and the statistics resulting from the index estimation process. The index is estimated using *Pris* on a survey data beginning with the first quarter of 2008. Since the base year is set to 2006 for all our SPPI's, indices for the quarters in 2006 and 2007 had to be estimated. This part will be dealt with in section 8.2 below.

*Pris* estimates an index by combining price data and information on the distribution of weights. Results are then presented in SAS-output form as a price development between the base price and the current price. To be meaningful, the price change in a given spot is chained to the index level prior to the base price and then normalized with respect to the base year. One such index, i.e. a chained and normalized index for post and courier services is presented in figure 8.1. As shown by the graph, the index for NACE 53.2 has generally been growing steadily and at a greater rate relative to NACE 53.1 which has been growing modestly. The total index for the industry has been following a closer track of the index for NACE 53.1 as expected. 81.1 per cent of the weight component comes from the sub industry as displayed by figure 6.3.1.



Figure 8.1. Service price index for postal and courier services

Apart from index estimates, the index estimation process generates a set of statistics which are vital in measuring the uncertainty related to our estimates.

#### 8.1. Evaluation of uncertainty

We employ stochastic approach to index numbers, which treats each price change as an estimate of some common price change. To be precise, the logarithm of each price relative,  $\ln(P_i^{\ 1}/P_i^{\ 0})$ , is an unbiased estimate of the logarithm of the price change between periods 0 and 1 noted as:

 $\ln\left(\frac{P_i^i}{p_i^0}\right) = \beta + \varepsilon; i = 1, 2, ..., n, \text{ where } \beta \text{ is the logarithm of price change and } \varepsilon \text{ the}$ 

independently distributed stochastic error term with zero mean. The advantage of

this approach is that it helps us to quantify uncertainty and measure the reliability of our estimates.

Estimates for standard deviation, variance and coefficient of variation (CV) are generated from *Pris*. Figure 8.1.1 and 8.1.2 below present the mean index values for NACE 53.1 and NACE 53.2 respectively plotted against their upper (UB) and lower (LB) boundaries of the indices for a 95 per cent confidence level. The region between the upper and lower boundaries represents the interval with in which the true index would lie in 95 per cent of the cases in repeated sampling.

Figure 8.1.1. Confidence interval of index estimates for NACE 53.1 (95 per cent confidence level)



For a 95 per cent confidence interval, the true value seems condensed around the mean and the estimates appear to be robust for NACE 53.2. The same can also be said about NACE 53.1 although the dispersion was a little wider in 2009.





#### 8.2. Estimation

The Council Regulation of European Union concerning short term statistics requires that the first reference period for transmission of the output price variable is not later than the first quarter of 2006. Hence, since our survey data for the sub industry 53.2 (Other postal and courier activities) begins from the 1<sup>st</sup> quarter of 2008, an index for the remaining periods has to be estimated such that the index series starts from the first quarter of 2006. The estimation is done by running a simple linear regression, with an indeks for sub industry 53.1 as regressand. Estimation of an index backwards requires, however, a certain precaution. If an index has more than one weight groups, estimating an index at the highest aggregate (for example through regression) in the hierarchy violates the equality that an index is the weighted sum of its sub indices. Simply stated, the identity  $I_{tot} \equiv I_a.w_a + I_b.W_b$  would be violated for:

Itot: Totalindeks

I<sub>a</sub>: Sub index for product A I<sub>b</sub>: Sub index for product B

W<sub>a</sub>: Weight share for product A

W<sub>b</sub>: Weight share for product B

To avoid this anomaly, estimates are generated for elementary aggregates at the bottom of the aggregation hierarchy. These estimates are then aggregated upwards by multiplying with their respective weight components.

#### 8.3. Publishing

The objective of developing this index is primarily to comply with Eurostat regulations on short term statistics as well to be used for deflationary purposes in Statistics Norway's national accounts. The index is published nationally within 60 days after the termination of the relevant quarter. The index appears on Statistics Norway's website along side the indices for industries with in transport and storage at <u>http://www.ssb.no/english/subjects/08/02/20/tpitralag\_en/</u>. The results are also reported to Eurostat not later than a day after the national publication.

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COMMISSION REGULATION (EC) No 472/2008 implementing Council Regulation (EC) No 1165/98

## Appendix 1:

# Questionnaire for postal and courier activities under universal service obligation NACE 53.1)

Prices and turnover on national delivery of parcels for business clients. 1st quarter of 2009

#### What was the total turnover in the enterprise in 2008?

Total turnover

What was the share of turnover for each sending (per cent) in 2008? Sending 1

Sending 2

Sending 3

Extra services

#### Part 1. What are the prices on "Sending 1" (VAT excl.), NOK?

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Size					
Unit of measure					
Price per unit of measure last quarter					
Price per unit of measure this quarter					

Do you have any comments on "Sending 1"?

*
<b>•</b>

NOK

Part 2. What are the prices on "Sending 2" (VAT excl.), NOK						
-	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	
Size						
Unit of measure						
Price per unit of measure last quarter						
Price per unit of measure this quarter						

Do you have any comments on "Sending 2"?

		-
. <b>€</b>		le l

#### Part 3. What are the prices on "Sending 3" (VAT excl.), NOK

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Size Unit of measure					
Price per unit of measure this quarter					
Do you have any comments on "Sending 3	?				
4					

#### Part 4. Give prices on up to three extra services (VAT excl.)

	Extra service 1	Extra service 2	Extra service 3
Name			
Unit of measure			
Price per unit of measure last quarter			

Price index for postal and courier services			Documents 31/201	
Price per unit of measure this quarter				
How many minutes did you use to complete	the questionnaire?			

minutts

Do you have any comments or suggestions for improvements in the questionnaire?



Thank you!

# Appendix 2

## Questionnaire for other postal and courier activities (NACE 53.2)

**Prices and turnover share on postal and courier activities for business clients. 1**<sup>st</sup> **quarter of 2009** (53.2 Other postal and courier activities)

**1.** What are the prices (VAT excl.) and share of turnover on representative deliveries in your enterprise? (First time: Describe up to six deliveries.)

	Sending 1	Sending 2	Sending 3
Kind of delivery	Velg type	Velg type	Velg type
Client (name)			
Take delivery (e.g. the clients office)			
Destination/delivery place			
Time of delivery (e.g. in the morning, weekend)			
Speed of delivery (e.g. number of hours/days)			
Means of transportation (e.g car, bicycle)			
Size			
Unit measure (e.g. per piece, km)			
Price per unit the last quarter	NOK	NOK	NOK
Price per unit this quarter	NOK	NOK	NOK
Share of turnover (per cent)			

Price i	ndex	for	postal	and	courier	services
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	Sending 4	Sending 5	Sending 6
Kind of delivery	Velg type	Velg type	Velg type
Client (name)			
Take delivery (e.g. the clients office)			
Destination/delivery place			
Time of delivery (e.g. in the morning, weekend)			
Speed of delivery (e.g. number of hours/days)			
Means of transportation (e.g car, bicycle)			
Size			
Unit measure (e.g. per piece, km)			
Price per unit the last quarter	NOK	NOK	NOK
Price per unit this quarter	NOK	NOK	NOK
Share of turnover (per cent)			

2. How many minutes did you use to complete the questionnaire?

minutes

D	o you have any	comments or	suggestions	for improv	vements in th	ne questionnaire?
	- j j		00	- F		1

	-	
	_	

Thank you!

# Appendix 3

# Schematic presentation on the construction of the price index for postal and courier services



*N.B. Stratum weight: The enterprise's turnover share is grouped in to three strata depending on turnover size* 

# List of figures

6.3.1.	Weight distribution between the sub industries	12
8.1.	Service price index for postal and courier services	14
8.1.1.	Confidence interval of index estimates for NACE 53.1 (95 per cent confidence level)	15
8.1.2.	Confidence interval of index estimates for NACE 53.2 (95 per cent confidence level)	15

# List of tables

Table 1.1.	The postal and courier industry on 2- and 3-digit code*	6
Table 1.2.	Enterprises and turnover in the postal and courier industry, 2002-2007*	6
Table 1.3.	The population structure by number of persons employees, 2007*	7
Table 1.4.	Activities in the postal and courier industry*	7
Table 2.1.	The sample's market share in the postal and courier industry, 2007*	8
Table 6.1.1.	Weight share matrix for NACE 53.1	11
Table 6.2.1.	Weight share matrix for NACE 53.2	12
Table 7.2.1.	Statistical estimates for Rstudent control	13
Table 7.2.2.	Statistical estimates fro Dffits control	13