

DISTR.
GENERAL

CES/AC.49/1997/36
4 September 1997

Original: ENGLISH

STATISTICAL COMMISSION and
ECONOMIC COMMISSION FOR EUROPE

INTERNATIONAL LABOUR ORGANIZATION

CONFERENCE OF EUROPEAN STATISTICIANS

Joint ECE/ILO Meeting on consumer price indices
(Geneva, 24-27 November 1997)

Item 5 of the provisional agenda

**THE EFFECTS OF CHANGING METHOD FOR PRICE COLLECTION FOR CLOTHING FROM
QUESTIONNAIRES SEND BY MAIL TO PRICE COLLECTORS VISITING THE OUTLETS¹**

Paper submitted by Statistics Denmark²

I. **Summary**

1. Until April 1995 Statistics Denmark collected prices for clothing by questionnaires send by mail to the outlets. The method of collecting clothing prices by questionnaires, however, caused increasing problems in producing a reliable and representative sample of prices. Especially the clothing index failed to catch the price changes over time and adjustments for quality or model changes were, for a greater part, left over to the outlets.

2. Consequently it was decided to change the method of price collection. Thus, from may 1995 and forward prices for clothing have been collected by interviewers - price collectors - visiting the outlets monthly. At the same time the sample size was considerable increased. The sample of clothing was extended from 125 outlets to 169 outlets and the number of prices collected were increased from 900 to 2.000. In this way the number of prices per elementary aggregate in clothing is increased from 22,5 to 50.

3. With respect to the ability of catching the price changes over time the situation has been significantly improved too, and it is found that the

1 The work with changing method for collecting clothing prices was undertaken by Statistics Denmark in 1995 and financed by Eurostat. The paper is a revised part of a report from Statistics Denmark to Eurostat on this project.

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clothing index now satisfactorily reflects the price movements over the year due to the use of price collectors.

4. In general, it can be concluded, that the sample has been substantially improved and that collecting prices by price collectors provides much better information on the frequent changes in models and prices.

2. Collection of clothing prices by mailed questionnaires

5. Clothing has a weight of 4,75 per cent in the Danish CPI. Until April 1995 Statistics Denmark collected prices for clothing by questionnaires sent by mail to 125 outlets. From these outlets approximately 900 prices were collected monthly, thus on average 7,2 prices per outlet was collected.

6. The 900 prices collected were covering 40 elementary aggregates, that is, on average, 22,5 prices per elementary aggregate.

7. The method of collecting prices via questionnaires caused increasing problems in producing a reliable and representative sample of clothing prices. The (well known) problems can be summarized as:

1. Adjustments for quality changes were subject to the (subjective and sometimes erratic) judgement of the owner or staff of the outlet.

2. Price changes were not fully reported from the outlets. Therefore, the index for clothing failed to catch the price changes.

3. Too late inclusion, if any, of new models, and lack of control with the way in which substitutes were chosen when models changed.

8. Accordingly, since the clothing market is characterized by frequent changes in prices, models and qualities, it was difficult to produce coherent time series.

9. Besides from being unsatisfactorily as such, the decreasing quality of the collected clothing prices made it necessary to use an increasing number of resources in adjusting the collected prices. Usually the adjustments were made by consultation with the outlets by telephone, thereby imposing an additional burden on the outlets in the sample.

3. Collecting clothing prices by price collectors

10. From May 1995 and forward prices for clothing have been collected by price collectors visiting the outlets monthly. The new sample of clothing prices are collected in 25 districts as a stratified sample.

11. The corps of price collectors consists of 60 persons plus reliefs for holidays and in case of absence.

12. Collecting prices for clothing - as characterized by frequent changes in models, qualities and prices - presuppose that the price collectors are in fact able to carry out appropriate adjustments for quality changes etc.

13. Thus, before implementation of the new method of collecting prices by interviewers visiting the outlets, an education of the price collectors were carried out in April and May 1995.

14. The price collectors were introduced to the specific conditions in the clothing market to be able to follow the development in models, qualities and prices. In particular, the price collectors were instructed in valuation and adjustments of quality changes and in choosing the closest substitute when models are changed.

15. Instructions and guidelines were given to secure that a common base for quality adjustment are used by the price collectors, thereby reducing their subjective judgement of the individual price collector. Every price collector is supplied with a guideline on quality adjustments, inclusion of substitute when models change, how to contact the owner (or staff) of the outlets etc.

16. Adjustments for quality changes are made by the price collector, usually after contact with the owner or staff of the outlets or after contact with Statistics Denmark. The same procedure is used when models change and new ones have to be included.

17. As a consequence of the much closer contact to the outlets, the selection of models is now continuously renewed, thereby securing that new models with significant sales are taken into the sample. Another significant improvement has been that the price changes, especially in connection with the bargain sales in summer and winter are now much better reflected in the clothing prices collected.

4. The prices indices for clothing before and after change of method of collecting prices

18. At the same time as the method of price collection was changed the sample size was considerably increased. The price collectors now collect clothing prices from 169 outlets. From these outlets approximately 2.000 prices are collected monthly, thus on average 11,8 prices per outlet is collected.

19. The 2.000 prices collected cover 40 elementary aggregates, that is, on average, 50 prices per elementary aggregate. The main results of changing method and increasing the sample size are shown in table 1.

Table 1. Results from changing the method of price collection and increasing the sample from May 1995

	Collecting clothing prices by questionnaires until April 1995	Collecting clothing prices by price collectors from May 1995
Number of outlets	125	169
Number of prices	900	2000
Number elementary of prices per aggregate	22.5	50

Mean absolute percentage change from month to month	2.6	4.3
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Number of outlets and prices are per April 1995 and April 1996, respectively. Mean absolute percentage change from month to month until April 1995 is average for May 1993 - April 1995. For May 1995 it is average for the period May 1995 - April 1996.

20. In addition to the increase of the sample size, the much closer following of prices has significantly increased the ability of the clothing index of catching the price movements. This is illustrated in the figures below.

21. The ability of reflecting the price movements measured as the mean absolute percentage price change from month to month is 4,3 per cent for the period after the change of method of price collection, that is, May 1995 - April 1996, against 2,6 per cent for the period May 1993 - April 1995. This is mainly a result of the fact that the price movements of the bargain sales in the summer and the winter is now at a higher degree caught in the collected prices.

22. The improvements of catching the price movements are in particular found in the prices collected for men's clothing. Here, the mean absolute change from month to month is increased from 1,6 per cent to 4,1 per cent. In comparison, the corresponding increase in the index for women's clothing is from 4,4 per cent to 5,5 per cent.

23. Details on the clothing price indices are shown in the tables 2-4 below.

Figure 1. Price index for clothing (weight = 4.75 pct.)

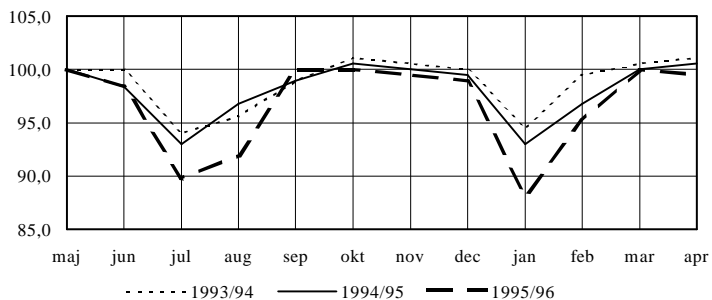


Figure 2. Price index for men's clothing (weight = 1.76 pct.)

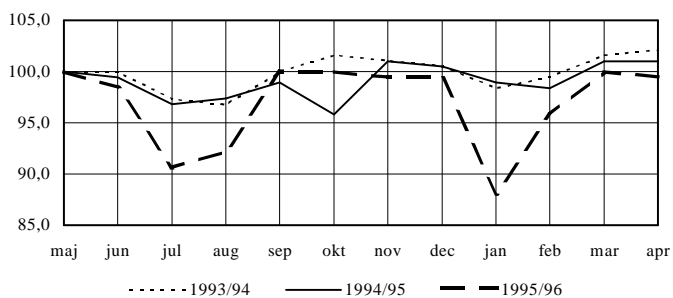


Figure 3. Price index for women's clothing (weight = 2.28 pct.)

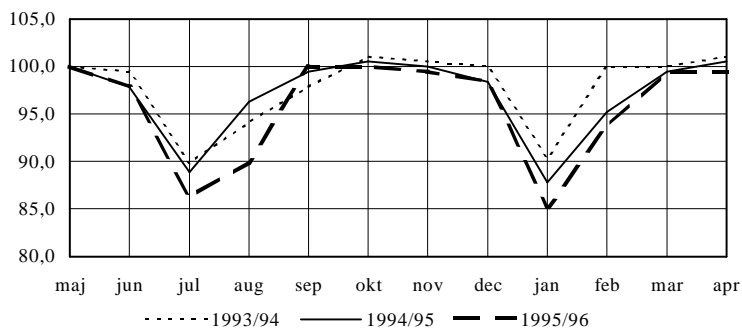


Figure 4. Price index for other clothing (weight = 0.71 pct.)

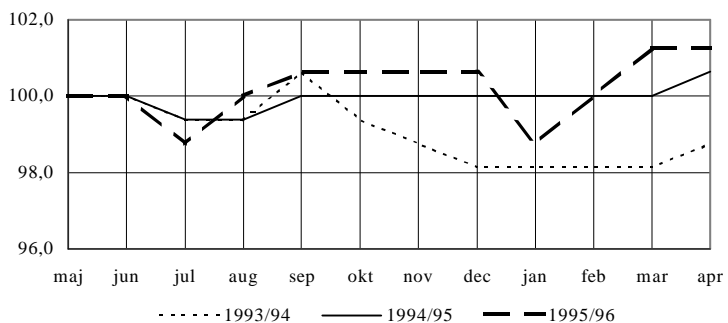


Table 2. Price indices for clothing

Price index for clothing, may 1993 - april 1996 (weight = 4,75pct.)

	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	SD	MAPC
1993/94	100,0	100,0	94,0	95,6	98,9	101,1	100,5	100,0	94,5	99,5	100,5	101,1	2,5	2,4
1994/95	100,0	98,4	93,0	96,8	98,9	100,5	100,0	99,5	93,0	96,8	100,0	100,5	2,6	2,8
1995/96	100,0	98,4	89,8	91,9	100,0	100,0	99,5	98,9	88,2	95,2	100,0	99,5	4,2	4,3

Price index for men's clothing, may 1993 - april 1996 (weight=1,76 pct.)

	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	SD	MAPC
1993/94	100,0	100,0	97,3	96,8	100,0	101,6	101,1	100,5	98,4	99,5	101,6	102,2	1,6	1,4
1994/95	100,0	99,5	96,8	97,4	98,9	95,8	101,1	100,5	98,9	98,4	101,1	101,1	1,7	1,8
1995/96	100,0	98,4	90,6	92,2	100,0	100,0	99,5	99,5	88,0	95,8	100,0	99,5	4,1	4,1

Price index for women's clothing, may 1993 - april 1996 (weight = 2,28 pct.)

	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	SD	MAPC
1993/94	100,0	99,5	89,8	94,1	97,9	101,1	100,5	100,0	90,4	100,0	100,0	101,1	3,9	4,1
1994/95	100,0	97,9	88,8	96,3	99,5	100,5	100,0	98,4	87,8	95,2	99,5	100,5	4,2	4,6
1995/96	100,0	97,9	86,2	89,9	100,0	100,0	99,5	98,4	85,2	93,7	99,5	99,5	5,4	5,5

Price index for other clothing, may 1993 - april 1996 (weight = 0,71 pct.)

	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	SD	MAPC
1993/94	100,0	100,0	99,4	99,4	100,6	99,4	98,8	98,1	98,1	98,1	98,1	98,8	0,8	0,5
1994/95	100,0	100,0	99,4	99,4	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,6	0,3	0,2
1995/96	100,0	100,0	98,8	100,0	100,6	100,6	100,6	100,6	98,8	100,0	101,3	101,3	0,7	0,7

SD: Standard deviation; MAPC: Mean absolute percentage change from month to month.

Table 3. Price indices for elementary aggregates for clothing. May 1994 - April 1995 (May 1994 = 100)

	maj-94	jun-94	jul-94	aug-94	sep-94	okt-94	nov-94	dec-94	jan-95	feb-95	mar-95	apr-95	SD	MAPC
Parca-coat, men	100,0	100,0	99,1	98,8	99,9	100,7	100,7	100,7	100,1	98,1	102,2	103,0	1,3	1,0
Pea Jacket	100,0	90,7	89,8	100,0	99,0	98,1	97,2	96,3	95,4	94,5	93,6	92,3	3,3	2,7
Suit	100,0	100,0	95,6	92,7	99,2	104,6	104,4	104,2	102,2	102,3	104,5	104,3	3,7	2,2
Trousers 65% polyeste	100,0	100,1	95,1	93,4	97,9	108,9	108,9	108,7	106,1	107,1	109,9	109,7	5,8	2,7
Trousers 55% polyeste	100,0	99,8	95,8	94,7	97,9	101,0	100,9	100,7	97,6	98,7	102,2	102,1	2,3	1,9
Jeans, men	100,0	97,5	91,5	99,6	103,6	103,6	103,6	103,0	95,2	95,1	111,0	111,0	5,7	4,2
Jacket, tweed, 100%	100,0	99,8	94,3	94,3	99,2	105,3	105,1	104,7	99,9	100,3	106,6	106,8	4,2	2,6
Shirt, single coler , polyest.	100,0	99,6	95,5	93,7	97,2	104,2	104,4	104,0	101,7	101,9	106,0	105,5	3,8	2,2
Underwear, cotton	100,0	99,7	99,1	98,6	99,8	101,2	101,4	101,9	101,8	100,6	102,2	102,2	1,2	0,7
Socks, wool	100,0	99,8	99,8	99,5	99,2	99,0	98,7	98,4	98,2	96,9	97,9	97,6	0,9	0,4
Pullover, wool	100,0	100,1	96,2	95,9	99,9	103,3	102,8	102,6	99,7	100,8	103,8	105,2	2,7	1,9
Working clothes	100,0	100,0	100,0	100,3	100,3	100,4	100,4	100,4	100,4	100,4	100,4	103,2	0,8	0,3
Track suit, no.40	100,0	100,0	100,0	101,2	102,7	102,7	102,7	100,3	101,4	95,1	95,1	95,1	2,8	1,1
Shorts, size 16 years	100,0	100,0	100,0	100,0	100,0	100,0	100,0	98,9	98,3	98,3	98,3	99,1	0,7	0,2
Parca-coat, women	100,0	100,0	99,1	98,8	99,9	100,7	100,7	100,7	100,1	98,1	102,2	103,0	1,3	1,0
Light coat, tetoron	100,0	97,9	85,9	94,3	109,1	109,0	108,0	105,0	91,4	109,5	122,5	121,3	10,7	8,1
Reefer	100,0	100,8	99,5	116,4	122,6	129,1	144,3	152,1	152,6	146,7	146,9	237,5	36,1	10,3
Coatdress, cotton	100,0	96,1	82,3	90,9	110,8	113,4	113,3	112,1	95,6	101,6	118,9	123,3	11,8	8,7
Sweater dress	100,0	94,7	80,0	91,5	112,6	118,4	117,8	114,4	93,4	113,0	133,5	137,8	16,7	11,6
Skirt	100,0	96,5	83,4	93,6	111,1	115,3	115,4	112,6	90,2	114,6	136,9	137,5	16,3	11,0
Slacks	100,0	96,5	83,5	92,7	111,9	114,7	113,8	112,2	94,3	101,6	125,1	127,4	12,9	9,3
Jeans, women	100,0	97,5	91,5	99,6	103,6	103,6	103,6	103,0	95,2	95,1	111,0	111,0	5,7	4,2
Shirtblouse	100,0	98,3	82,9	98,8	116,5	121,9	121,8	118,2	96,6	113,3	153,2	157,6	21,4	12,3
Trousers, lady, cotton	100,0	100,0	100,3	100,3	100,3	100,4	100,5	100,7	101,1	101,4	101,4	101,7	0,5	0,1
Slip	100,0	100,0	99,7	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,3	0,1	0,1
Tights	100,0	100,4	100,4	100,4	100,6	100,9	101,1	101,3	101,2	101,5	101,5	101,5	0,5	0,2
Socks	100,0	100,0	100,0	100,0	100,0	100,0	100,3	100,3	100,4	100,3	100,3	100,3	0,2	0,0
Jumper or cardigan, wool	100,0	97,5	94,9	94,1	97,5	96,7	95,9	95,1	94,4	93,6	92,8	92,1	2,2	1,4
Jumper or cardigan, acr.	100,0	97,8	97,8	100,4	100,4	100,4	100,4	100,4	100,4	100,4	100,4	100,4	0,9	0,4
Other clothings*	100,0	100,0	99,4	99,4	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,6	0,3	0,2
Mean													2,6	2,8

* Includes 11 smaller elementary aggregates

SD: Standard deviation; MAPC: Mean absolute percentage change from month to month.

Table 4. Price indices for elementary aggregates for clothing. May 1995 - April 1996 (May 1995 = 100)

	maj-95	jun-95	jul-95	aug-95	sep-95	okt-95	nov-95	dec-95	jan-96	feb-96	mar-96	apr-96	SD	MAPC
Parca-coat, men	100,0	98,2	88,6	88,4	105,0	104,9	104,8	104,5	88,4	100,1	107,7	107,1	7,1	6,2
Pea Jacket	100,0	98,9	90,9	93,5	104,6	104,3	103,7	102,5	86,4	91,3	107,5	107,6	6,8	5,9
Suit	100,0	97,9	86,8	86,3	102,9	102,7	102,3	101,9	84,7	95,6	104,7	104,7	7,2	6,7
Trousers 65% polyeste	100,0	98,3	86,9	90,2	105,9	105,7	104,9	104,5	91,3	99,8	105,5	105,5	6,6	5,8
Trousers 55% polyeste	100,0	99,0	83,8	86,7	105,7	105,1	104,9	104,7	87,8	101,6	108,1	108,1	8,3	7,4
Jeans, men	100,0	99,0	93,5	95,2	102,0	101,8	101,8	99,9	89,3	96,2	102,0	101,1	3,9	3,9
Jacket, tweed, 100%	100,0	97,3	86,0	85,8	107,6	107,2	107,1	106,6	91,0	100,9	109,9	109,2	8,5	6,9
Shirt, single coler , polyest.	100,0	98,9	90,0	91,5	102,8	102,4	101,8	101,3	90,3	99,5	106,7	106,2	5,5	4,9
Underwear, cotton	100,0	100,3	99,1	99,2	102,1	103,1	103,5	104,7	104,4	104,2	104,4	104,4	2,1	0,7
Socks, wool	100,0	100,0	100,0	99,8	101,0	101,4	101,5	101,6	100,3	101,9	102,1	101,6	0,8	0,5
Pullover, wool	100,0	97,3	90,2	94,1	107,2	106,7	106,6	105,8	88,1	96,9	112,3	110,4	7,6	6,7
Working clothes	100,0	99,1	98,2	97,4	96,5	95,7	94,8	94,0	93,2	92,4	91,5	91,3	2,8	0,8
Track suit, no.40	100,0	93,8	88,3	88,3	88,3	88,3	88,3	88,3	88,3	88,3	88,3	88,3	3,5	1,1
Shorts, size 16 years	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	97,8	97,8	97,8	97,2	1,1	0,3
Parca-coat, women	100,0	95,4	78,3	82,0	103,2	103,2	102,9	100,4	82,4	86,3	98,2	97,6	8,9	8,4
Light coat, tetoron	100,0	94,5	77,7	86,0	107,2	106,7	106,5	103,7	81,2	100,9	117,7	115,9	12,2	11,5
Reefer	100,0	94,8	85,7	90,6	103,1	102,9	102,9	101,4	84,8	91,1	91,0	91,1	6,6	5,4
Coatdress, cotton	100,0	98,6	79,9	86,9	103,4	102,9	102,3	102,8	81,4	94,8	106,8	106,7	9,0	9,1
Sweater dress	100,0	96,8	80,6	85,6	105,4	105,2	104,4	102,6	81,6	98,9	112,6	112,5	10,5	9,8
Skirt	100,0	97,5	80,2	86,1	104,3	103,9	103,2	102,5	81,4	96,7	109,5	109,5	9,7	9,4
Slacks	100,0	98,4	81,8	86,4	107,0	106,4	105,6	105,3	87,1	96,8	106,8	106,8	8,8	8,0
Jeans, women	100,0	99,0	93,5	95,2	102,0	101,8	101,8	99,9	89,3	96,2	102,0	101,1	3,9	3,9
Shirtblouse	100,0	98,3	86,2	88,8	105,7	105,5	104,9	104,1	88,1	99,9	116,6	116,5	9,5	7,6
Trousers, lady, cotton	100,0	100,1	99,5	99,2	100,7	100,0	99,8	99,7	97,9	99,1	99,0	99,0	0,7	0,6
Slip	100,0	100,0	100,0	99,6	99,6	96,9	96,9	98,2	97,6	97,6	97,1	97,4	1,3	0,5
Tights	100,0	99,8	97,7	97,4	97,6	97,2	96,9	96,5	95,8	95,2	96,2	95,8	1,4	0,6
Socks	100,0	100,0	97,5	97,4	98,9	99,1	99,1	99,1	98,4	97,2	97,9	97,9	0,9	0,6
Jumper or cardigan, wool	100,0	96,5	81,4	90,9	115,3	114,9	114,7	112,8	96,0	108,5	123,5	122,2	12,6	9,3
Jumper or cardigan, acr.	100,0	96,5	81,4	90,9	115,3	114,9	114,7	112,8	96,0	108,5	123,5	122,2	12,6	9,3
Other clothings*	100,0	100,0	98,8	100,0	100,6	100,6	100,6	100,6	98,8	100,0	101,3	101,3	0,8	0,7
Mean													4,2	4,3

* Includes 11 smaller elementary aggregates

SD: Standard deviation; MAPC: Mean absolute percentage change from month to month.