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A World Free of Poverty



THE WORLD BANK GROUP

Optimisation of number of basic headings and of items

EUROSTAT, Luxembourg

Agenda item n° 1

JOINT WORLD BANK – OECD SEMINAR ON PURCHASING POWER PARITIES

Recent Advances in Methods and Applications

WASHINGTON D.C.

30 January – 2 February 2001

Optimisation of Number of Basic Headings and of Items

INTRODUCTION

1. Since the March 1999 meeting of the United Nations Statistical Commission, ESA'95 applies for National Accounts and de facto COICOP (Classification Of Individual Consumption by Purpose) has been adopted as a national accounts classification for consumer expenditure applying to all national accounts as from 1999, and therefore is now the relevant classification for this part of PPP, starting from the annual results for 1999.

2. During the meeting of the Working Group on Purchasing Power Parities held in Luxembourg on the 16th and 17th March 1998 "Eurostat presented a first simulation of the impact of reducing the number of Basic Headings (BH) from their present level, in line with the proposed COICOP in the European System of Accounts (ESA'95)" (minutes - document PPA 346). This simulation however related to Correction Coefficients¹ and bilateral comparison between Brussels and other service stations.

3. It is clearly desirable to have maximum coherence between COICOP-HBS, COICOP-HICP, COICOP-PPP and the "mother" COICOP contained in ESA'95 and SNA'93. There are important links between the -HBS classification and the -PPP classifications because the -HBS classification sets the level at which consistently calculated expenditure data can be obtained (i.e. the number of BH), although more detailed national accounts information may still be available. Lastly, full consistency with price indices delivered to Eurostat for updating PPPs would be also highly desirable.

4. The necessary switch to the COICOP classification presents a suitable opportunity to review the number of BHs. The Correction Coefficients section within Eurostat introduced the COICOP classification in June 1999, and a reduction in the number of BH from 173 to 84 classes of COICOP was carried out in parallel. However, this was not conclusive for PPP purposes, because the Correction Coefficient calculations use a modified set of the data used for PPP purposes, including different rent parities; use a different source of expenditure weightings; start from a different level of aggregation, and; use a different calculation formula (bilateral Fisher-type as opposed to multilateral EKS). Prices collected for PPP are used for calculation of Correction Coefficients.

5. Two sets of simulations were carried out for the presentation at this WP meeting:

- The first one, presented in part A of this paper, consisted in evaluating carefully what are the differences, in terms of Purchasing Power Standards (PPS) results when using the same data (7 surveys, 1997 up-dated prices) and 3 different classifications: CHGS, COICOP 4 digit (COICOP 4) classification with 199 BH and COICOP 3 digit (COICOP 3) classification –117 BH, also called classes).
- The second one, presented in part B of this paper, consisted in evaluating carefully what are the differences, in terms of PPS results when using a smaller number of items within different surveys (4 surveys were tested), with COICOP 4 and COICOP 3 classifications.

¹ Adjustment factors by which the purchasing power of the salaries of EU officials at various duty stations is equalised to that of the salaries of officials based in Brussels. They are in fact bilateral PPP between the duty station in question and Brussels.

6. The overall aim of all these simulations is to evaluate if an optimisation of number of BH and of items could raise the overall quality of the methodology applied within PPP calculation by:

- ◆ Enhancing the quality of the basic price data collected;
- ◆ Thereof, at the end of the chain, enhancing the quality and reliability of the PPP's statistics produced by Eurostat.

A TRANSITION FROM CHGS TO COICOP AND OPTIMISATION OF USE OF COICOP CLASSIFICATION FOR PPP
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A1 AIMS

7. Under COICOP, final consumption expenditure by private households is broken down into 12 divisions. Each of the 12 divisions is then broken down into 47 sub-groups, which in turn are further broken down into 117 detailed classes. This operation continues until the most detailed level of the classification, referred to as BH. The present COICOP-PPP classification comprises 199 BHs.

8. The BHs have a dual role:

- They constitute the most detailed level possible for which realistic expenditure data (weights) is usually supplied by the countries. The reliability of these data is obviously not as great as at the more aggregated levels, but they give useful information about the structure of expenditure within each country.
- They can be used to single out homogeneous groups of products from which a number of specific products will be selected for price surveys.

9. Data are collected with respect to the BH. On the one hand, expenditure data are derived from the countries' national accounts and on the other hand, a sample of products is determined for which prices are recorded. For each BH, the average of the products' price ratios provides the purchasing power parity. The PPP for the BH are then aggregated at all higher levels of the classification with the help of the expenditure weights. The weights take into account the relative importance of various expenditure categories.

10. Firstly Eurostat carried out simulations for an entire set of surveys to monitor the differences between using CHGS and COICOP classification. As it was already stated in this paper, moving from CHGS to COICOP was definitively decided in 1999. Until now, no simulation has been carried out yet by Eurostat in order to evaluate what it means in terms of results (how similar are the PPP results using CHGS or COICOP classification). This paper illustrates the results of the simulations done within Eurostat.

11. Secondly Eurostat carried out simulations for an entire set of surveys to monitor the differences between using less BH (according to COICOP classification of course, but merging several BH) than with COICOP 4 classification. The main aim was to evaluate if another classification level (COICOP 3 taken as a target) could fit and replace COICOP 4.

A2 WHAT WAS CARRIED OUT

12. The PPP section of the B3 Unit of Eurostat carried out these simulations to show the impact of adopting COICOP-PPP on the calculations. As far as methodology is concerned:

- ❖ Simulations with 7 surveys (durables, clothing, transport, services, other goods and services, food and furniture) and overall average were made;
- ❖ 1997 price data (some data have been updated because some surveys were conducted before 1997) were used, because this is the most recent year for which we have overall statistics at our disposal;
- ❖ Because the data for Cyprus are missing for some surveys, the simulation encompasses only 19 countries [all Member States plus Iceland (ICE), Norway (NOR), Poland (POL) and Switzerland (CH)];
- ❖ As far as weights of BH are concerned, the CHGS weights used were those given by each country for 1997, and the COICOP weights were estimated by Eurostat because exact COICOP weights were not available for 1997 (they are still not yet available for all the countries of the ECP for 1999).

A3 RESULTS

13. Table 1 presents the % differences of PPS obtained using CHGS and COICOP 4².

TABLE 1

	COICOP4/CHGS								
	DURABLE S	CLOTHIN G	TRANSPOR T	SERVICE S	OTHER GOODS	FOOD	FURNITUR E	AVERAGE	
DE	0,6	-2,1	0,1	1,9	0,8	-1,0	3,9	0,2	DE
FR	-1,3	2,2	-0,2	-2,1	0,0	-1,3	1,9	-1,0	FR
IT	-2,1	3,9	-0,9	-4,1	0,2	-0,3	-1,6	-0,7	IT
NL	2,0	-2,4	-0,1	-0,9	-0,6	-1,3	0,4	-1,0	NL
BE	0,9	1,0	-0,9	-1,8	-0,6	-1,0	-10,8	-1,8	BE
LX	-0,4	1,1	-0,5	-1,0	-0,4	0,1	-0,5	-0,1	LX
UK	1,8	0,6	1,0	2,3	-0,3	-1,1	6,4	0,5	UK
IR	2,5	0,0	0,1	2,0	-0,9	-2,6	0,0	-0,3	IR
DK	1,2	-1,2	2,0	4,1	0,4	-2,3	-0,5	0,7	DK
GR	3,3	-1,7	-0,9	-0,7	-0,3	6,3	-18,3	0,7	GR
ES	-0,8	-0,4	-0,3	-2,5	-0,3	1,3	-4,0	-0,7	ES
POR	-0,7	0,4	0,4	-6,4	-0,6	2,1	13,5	0,1	POR
OS	0,5	1,0	-0,7	4,0	-0,6	0,3	-3,5	0,6	OS
CH	0,9	-0,1	-0,4	2,6	0,3	-0,9	-3,6	0,3	CH
SW	-1,0	1,6	0,2	4,0	0,4	1,0	7,0	2,6	SW
SF	-0,5	1,0	0,0	-1,5	0,0	3,3	1,0	0,5	SF
POL	-0,4	-1,4	-0,2	-7,0	1,1	3,8	8,0	1,9	POL
ICE	-6,1	-1,6	0,7	0,4	0,9	-3,6	1,6	0,0	ICE
NOR	0,1	-1,6	0,8	8,1	0,3	-2,2	3,5	1,2	NOR

² Differences over 5 % have been highlighted in bold and are aligned on the right part of the cell (and can be seen in red electronically).

14. Several comments can be made on these results:

- ✓ Most of the differences between CHGS and COICOP 4 are small, if not very small. It should also be remembered that consumption expenditure accounts for some 2/3rds of GDP, so the effect of these differences on the final GDP parities would be also 1/3rd lower;
- ✓ Some surveys (clothing, transport, other goods, food) give better results (smaller differences) than others;
- ✓ In terms of differences, the most problematic results are coming from the “furniture” survey, where rather big differences (more than 10 %) can be observed;
- ✓ Differences for the weighted average of all surveys are generally insignificant;
- ✓ Because those differences were implicitly accepted when replacing CHGS by COICOP classification, the quite big difference for Sweden for “Average” (2,6 %) can be seen as an implicit accepted threshold for the other simulations carried out.

15. Table 2 presents the % differences of PPS using COICOP 3 and COICOP 4³.

TABLE 2

	COICOP3/COICOP4								
	DURABLE S	CLOTHIN G	TRANSPOR T	SERVICE S	OTHER GOODS	FOOD	FURNITUR E	AVERAGE	
DE	-0,9	0,7	0,1	-0,4	1,2	-0,1	-0,3	0,0	DE
FR	0,2	0,0	0,5	-0,6	0,3	-0,8	1,9	-0,2	FR
IT	0,6	-0,2	1,2	-0,5	4,7	0,2	-4,7	0,8	IT
NL	-0,5	0,3	-0,4	-0,6	-1,4	0,4	-2,0	-0,6	NL
BE	-0,6	-0,1	1,3	-0,4	0,3	0,0	0,4	0,0	BE
LX	-0,1	0,4	0,7	0,0	-4,7	-0,6	-1,4	-1,0	LX
UK	0,0	0,8	-3,9	-1,1	-1,5	0,6	-1,5	-0,7	UK
IR	0,0	-1,1	-0,5	0,6	-0,5	3,1	-2,5	0,6	IR
DK	1,0	0,6	-3,4	-0,1	1,5	1,1	0,9	0,3	DK
GR	0,4	-0,3	1,0	1,4	5,3	1,3	0,8	2,1	GR
ES	-0,2	0,7	0,7	1,0	-0,4	3,3	-0,3	0,9	ES
POR	-1,4	2,9	0,6	0,3	-4,9	3,9	-0,9	0,6	POR
OS	-0,8	-1,4	1,9	-0,3	1,3	0,3	1,5	0,2	OS
CH	-0,2	0,4	-0,8	-0,2	-0,8	-2,2	-0,3	-0,9	CH
SW	0,2	-0,5	0,1	2,2	1,8	1,3	-0,3	1,5	SW
SF	0,5	-0,1	1,3	0,2	0,9	0,4	1,8	0,5	SF
POL	0,7	-1,8	1,0	0,0	-5,6	-6,1	1,1	-3,6	POL
ICE	1,0	-2,6	-0,4	-2,7	0,6	-4,1	4,4	-1,6	ICE
NOR	0,2	1,5	-1,0	1,2	2,6	-1,4	1,8	0,4	NOR

³ Differences over 5 % have been highlighted in bold and are aligned on the right part of the cell (and can be seen in red electronically).

16. Several comments can be made on these results:

- ✓ Most of the differences between COICOP 3 and COICOP 4 are small, if not very small;
- ✓ Some surveys (clothing, transport, other goods, food) give better results (smaller differences) than others, but the overall picture is that those differences are much smaller than those of the previous comparison in Table 1 (CHGS/COICOP 4);
- ✓ The implicit accepted threshold for the other simulations is never exceeded, except for “Average” for Poland (3,6, which is 38 % more than the threshold of 2,6, but which is still quite reasonable).

17. Because weights used for COICOP are only estimated, Eurostat carried out simulations using only the data for the 8 countries which had delivered in February the exact 1998 COICOP weights. With the exact COICOP based weights, the differences are about the same, as shown in Table 3.

TABLE 3

Average (7 Surveys) 8 countries only PPS differences in %		
	COICOP 4 / CHGS	COICOP 3 / COICOP 4
DE	1,4	-0,5
NL	0,9	-2,7
ES	-1,0	-2,0
OS	0,8	-1,6
SW	1,5	1,5
SF	0,3	1,8
POL	-3,1	2,5
ICE	-0,6	1,5

A4 CONCLUSION ON THE CHANGE FROM CHGS TO COICOP

18. The simulations made by Eurostat demonstrate that the migration from CHGS to COICOP have very small consequence on the PPP results. Taking 1997 data for all surveys and calculating the differences between the 2 classifications gives a good idea of what is acceptable (because implicitly accepted) when moving from one methodology to another (threshold). The simulations carried out with less BHs (117 BHs - COICOP 3) show that the results obtained are also very close to those resulting from the use of the present number of BH (199 BHs – COICOP 4).

B OPTIMISATION OF NUMBER OF ITEMS PRICED IN THE SURVEYS

B1 AIM

19. In the present situation, each survey used several hundred carefully defined items in order to calculate PPPs. With the implementation of the ECP reform, pre-survey work leads to a smaller number of items for each of the 3 group countries (N, C and S) but because overlap is not perfect, to an even bigger total number of items than before. This situation can be noticed comparing “Furniture 1996” and “Furniture 1999” surveys: 445 items in 1996, 795 items in 1999.

20. The number of items whose prices are collected varies substantially from one BH to another:

- More items are priced for BH where the price dispersion is known to be wider than average, in order to increase the reliability of the average BH;
- More items are priced for BH which have a relatively high weight, due to their greater impact on final results.

21. Because the number of items has a direct influence of the workload on NSIs, Group Leaders and Eurostat, it is important to ensure that no more items are priced in the surveys than necessary to ensure sufficiently accurate results.

22. The main aim of this exercise is to improve the quality of the PPP, because when working with fewer items, number of price collected or/and outlets visited can be indeed increased. Moreover, the fewer the items, the more carefully can they be selected and specified.

23. Eurostat carried out simulations for 4 surveys to monitor the differences between using fewer items (according to COICOP 4 and COICOP 3). The main aim was to evaluate the effect on the overall results using substantially fewer items.

B2 WHAT WAS CARRIED OUT

24. Eurostat carried out these simulations to show the impact of using fewer items within several test surveys. As far as methodology is concerned:

- ❖ Simulations with 4 surveys were done: “Clothing 1997” (chosen because clothing will be next survey in 2000) , “Other goods and services 1996” (chosen because it is the most heterogeneous survey and had the least good results in the previous simulation), “Furniture 1996” and “Furniture 1999” (chosen because “Furniture 1999” was the last survey for which we have a full set of data);
- ❖ 1997 price data were used except for “Furniture 1999” where 1999 data were used;
- ❖ Because the data for Cyprus are missing for some surveys, the simulation encompasses only 19 countries [all Member States plus Iceland (ICE), Norway (NOR), Poland (POL) and Switzerland (CH)];
- ❖ As far as weights of BH are concerned, the COICOP weights were estimated by Eurostat for 1997 and were used for the 4 surveys;
- ❖ For each of the 4 surveys, Eurostat made simulations using COICOP 4 and COICOP 3 retaining consecutively 70 %, 50 % and 30 % of the items. Tables 4 to 11 hereafter present for each survey and for each classification the number of items retained.

TABLE 4

OTHER GOODS SIMULATION COICOP 4 classification							
No.	Code BH	Name of BH	number of items 100 %	number of items 70 %	number of items 50 %	number of items 30 %	
1	05.6.1.1	Household cleaning supplies	74	42	29	13	
2	05.6.1.2	Other non-durable household articles	42	30	18	9	
3	05.6.2.2	Laundry and dry-cleaning	5	5	5	4	
4	09.5.4.0	Stationery and drawing materials	22	18	13	7	
5	11.1.1.1	Restaurant services whatever the type of establishment	6	6	5	3	
6	11.1.1.2	Pubs, bars, cafés, tea rooms and the like	8	8	5	4	
7	11.1.1.3	Other catering services	3	3	3	3	
8	11.1.2.0	Canteens	3	3	3	3	
9	11.2.0.1	Hotels, boarding houses and the like	7	7	7	4	
10	11.2.0.2	Other accommodation services	4	4	4	4	
11	12.1.1.1	Services of hairdressers and the like for men	3	3	3	3	
12	12.1.1.2	Services of hairdressers and the like for women	3	3	3	3	
13	12.1.2.0	Electric appliances for personal care	22	18	12	6	
14	12.1.3.0	Other appliances, articles and products for personal care	83	43	30	14	
15	12.3.1.0	Jewelry, clocks and watches	12	12	9	6	
16	12.3.2.1	Travel goods and other carriers of personal effects	5	5	5	4	
17	12.3.2.2	Other personal effects n.e.c.	33	22	13	8	
18	12.7.0.0	Other services n.e.c.	8	8	5	5	
TOTAL			343	240	172	103	
ITEMS TAKEN OUT FROM PREVIOUS COLUMN					103	68	69

TABLE 5

OTHER GOODS SIMULATION COICOP 3 classification							
No.	Code BH	Name of BH	number of items 100 %	number of items 70 %	number of items 50 %	number of items 30 %	
1	05.6.1	Non-durable household goods	116	72	47	22	
2	05.6.2	Domestic services and household services	5	5	5	4	
3	09.5.4	Stationery and drawing materials	22	18	13	7	
4	11.1.1	Restaurants, cafés and the like	17	17	13	10	
5	11.1.2	Canteens	3	3	3	3	
6	11.2.0	Accommodation services	11	11	11	8	
7	12.1.1	Hairdressing salons and personal grooming establishments	6	6	6	6	
8	12.1.2	Electric appliances for personal care	22	18	12	6	
9	12.1.3	Other appliances, articles and products for personal care	83	43	30	14	
10	12.3.1	Jewelry, clocks and watches	12	12	9	6	
11	12.3.2	Other personal effects	38	27	18	12	
12	12.7.0	Other services n.e.c.	8	8	5	5	
TOTAL			343	240	172	103	
ITEMS TAKEN OUT FROM PREVIOUS COLUMN					103	68	69

TABLE 6

FURNITURE 1997 SIMULATION COICOP 4 classification						
No.	Code BH	Name of BH	number of items 100 %	number of items 70 %	number of items 50 %	number of items 30 %
1	5.1.1.1	Kitchen furniture	45	32	22	12
2	5.1.1.2	Bedroom furniture	48	33	24	13
3	5.1.1.3	Living-room and dining-room furniture	41	28	20	12
4	5.1.1.4	Other furniture and furnishings	35	24	17	10
5	5.1.2.0	Carpets and other floor coverings	30	21	15	9
6	5.1.3.0	Repair of furniture, furnishings and floor coverings	4	4	4	4
7	5.2.0.0	Household textiles	3	3	3	3
8	5.4.0.1	Glassware and ceramic ware for households, offices and decoration	83	58	41	25
9	5.4.0.2	Cutlery, flatware and silverware	24	16	12	7
10	5.4.0.3	Non-electric kitchen utensils and household articles	68	48	34	20
11	5.5.2.1	Small electric accessories	31	22	15	9
12	5.5.2.2	Hand tools, garden tools and other miscellaneous accessories	33	23	16	10
TOTAL			445	312	223	134
ITEMS TAKEN OUT FROM PREVIOUS COLUMN				133	89	89

TABLE 7

FURNITURE 1997 SIMULATION COICOP 3 classification						
No.	Code BH	Name of BH	number of items 100 %	number of items 70 %	number of items 50 %	number of items 30 %
1	5.1.1	Furniture and furnishings	169	117	83	47
2	5.1.2	Carpets and other floor coverings	30	21	15	9
3	5.1.3	Repair of furniture, furnishings and floor coverings	4	4	4	4
4	5.2.0	Household textiles	3	3	3	3
5	5.4.0	Glassware, tableware and household utensils	175	122	87	52
6	5.5.2	Small tools and miscellaneous accessories	64	45	31	19
TOTAL			445	312	223	134
ITEMS TAKEN OUT FROM PREVIOUS COLUMN				133	89	89

TABLE 8

FURNITURE 1999 SIMULATION COICOP 4 classification						
No.	Code BH	Name of BH	number of items 100 %	number of items 70 %	number of items 50 %	number of items 30 %
1	5.1.1.1	Kitchen furniture	88	61	44	26
2	5.1.1.2	Bedroom furniture	90	64	45	27
3	5.1.1.3	Living-room and dining-room furniture	58	40	29	17
4	5.1.1.4	Other furniture and furnishings	70	49	35	21
5	5.1.2.0	Carpets and other floor coverings	45	32	22	13
6	5.1.3.0	Repair of furniture, furnishings and floor coverings	6	6	6	5
7	5.2.0.0	Household textiles	0	0	0	0
8	5.4.0.1	Glassware and ceramic ware for households, offices and decoration	133	93	65	39
9	5.4.0.2	Cutlery, flatware and silverware	44	30	22	13
10	5.4.0.3	Non-electric kitchen utensils and household articles	127	88	63	38
11	5.5.2.1	Small electric accessories	50	35	25	15
12	5.5.2.2	Hand tools, garden tools and other miscellaneous accessories	84	59	42	25
TOTAL			795	557	398	239
ITEMS TAKEN OUT FROM PREVIOUS COLUMN				238	159	159

TABLE 9

FURNITURE 1999 SIMULATION COICOP 3 classification						
No.	Code BH	Name of BH	number of items 100 %	number of items 70 %	number of items 50 %	number of items 30 %
1	5.1.1	Furniture and furnishings	306	214	153	91
2	5.1.2	Carpets and other floor coverings	45	32	22	13
3	5.1.3	Repair of furniture, furnishings and floor coverings	6	6	6	5
4	5.2.0	Household textiles	0	0	0	0
5	5.4.0	Glassware, tableware and household utensils	304	211	150	90
6	5.5.2	Small tools and miscellaneous accessories	134	94	67	40
TOTAL			795	557	398	239
ITEMS TAKEN OUT FROM PREVIOUS COLUMN				238	159	159

TABLE 10

CLOTHING 1997 SIMULATION COICOP 4 classification							
No.	Code H	Name of BH	number of items 100 %	number of items 70 %	number of items 50 %	number of items 30 %	
1	311,0	Clothing materials	4	4	4	4	
2	312,1	Men's clothing	84	57	41	20	
3	312,2	Women's clothing	64	44	31	16	
4	312,3	Children's clothing	24	16	12	6	
5	312,4	Infant's clothing	15	10	7	5	
6	313,0	Other articles of clothing and clothing accessories	19	13	9	5	
7	314,0	Cleaning, repair and hire of clothing	6	6	5	5	
8	321,1	Men's footwear	13	9	6	5	
9	321,2	Women's footwear	11	8	5	4	
10	321,3	Children's and infant's footwear	8	6	5	5	
11	322,0	Repair and hire of footwear	2	2	2	2	
12	520,0	Household textiles	33	23	15	8	
TOTAL			283	198	142	85	
ITEMS TAKEN OUT FROM PREVIOUS COLUMN					85	56	57

TABLE 11

CLOTHING 1997 SIMULATION COICOP 3 classification							
No.	Code BH	Name of BH	number of items 100 %	number of items 70 %	number of items 50 %	number of items 30 %	
1	3.1.1	Clothing materials	4	4	4	4	
2	3.1.2	Garments	187	127	91	47	
3	3.1.3	Other articles of clothing and clothing accessories	19	13	9	5	
4	3.1.4	Cleaning, repair and hire of clothing	6	6	5	5	
5	3.2.1	Shoes and other footwear	32	23	16	14	
6	3.2.2	Repair and hire of footwear	2	2	2	2	
7	5.2.0	Household textiles	33	23	15	8	
TOTAL			283	198	142	85	
ITEMS TAKEN OUT FROM PREVIOUS COLUMN					85	56	57

❖ Two ways of deleting items were used:

- For all the 3 simulations (70, 50 and 30 %), items were deleted by reference to the item code. This method differs from a “random” method because we used a pre-defined tool. Lets take the “Furniture 1999” survey, the BH “Cutlery, flatware and silverware” (5.4.0.2 in COICOP 4 classification). In this survey, 44 items were priced for this BH. In table 12, we can see what are the items deleted at which level (14 items were deleted to reach 70 % items retained, 8 others to reach 50 % items retained and 9 others to reach 30 % items retained). At the end of the deleting process, we can easily identify the 13 items not deleted within the 44 items of the survey.

TABLE 12

ITEM CODE	DEFINITION OF ITEM	STATUS
540.2aaza	Coffee-spoon -	not deleted
540.2aazb	Coffee-spoon -	deleted only with 30 %
540.2abza	Soup-ladle -	not deleted
540.2abza1c	Soup-ladle / brands	deleted at 70 %
540.2abzb	Soup-ladle -	deleted only with 30 %
540.2abzb1s	Soup-ladle -brand: Metaltex	deleted at 50 %
540.2abzb2s	Soup-ladle -brand: Brabantia	deleted at 50 %
540.2abzb3s	Soup-ladle -brand: Leifheit	deleted at 70 %
540.2abzc	Soup-ladle -	not deleted
540.2abzc1c	Soup-ladle / brands	deleted at 50 %
540.2abzc1s	Soup-ladle -thick handle with hollow in the middle	deleted at 70 %
540.2acaa	Carving-knife - FISKARS -	deleted at 50 %
540.2acba	Carving-knife- PRESTIGE -	not deleted
540.2acca	Carving knife - RICHARDSON -	deleted only with 30 %
540.2acza	Carving-knife - punched	deleted only with 30 %
540.2acza1c	Carving-knife - forged steel	deleted at 70 %
540.2acza1n	Carving-knife - forged	deleted at 70 %
540.2acza1s	Carving-knife -not forged blade	deleted at 50 %
540.2acza2c	Carving-knife - forged steel / brands	deleted at 70 %
540.2acza2s	Carving-knife -forged blade	deleted at 70 %
540.2adaa	Bread knife - FISKARS -	not deleted
540.2adba	Bread knife - RICHARDSON -	deleted only with 30 %
540.2adca	Bread knife - ZWILLING (J.A. HENCKELS)-	deleted only with 30 %
540.2adza	Bread knife -	deleted only with 30 %
540.2adza1c	Bread knife - brands	deleted at 70 %
540.2aeza	KITCHEN KNIFE -	not deleted
540.2afaa	Table setting - HABITAT -	not deleted
540.2afba	Table setting - IKEA -	deleted only with 30 %
540.2afbb	Table setting - IKEA -	deleted at 50 %
540.2afca	Cutlery set - TRAMONTINA -	not deleted
540.2afza	Cutlery -	not deleted
540.2afza1c	Cutlery - brands	deleted at 70 %
540.2afzb	Cutlery set -	not deleted
540.2agaa	Knife - VILLEROY & BOCH -	deleted at 50 %
540.2agaa1c	Knife - VILLEROY & BOCH / gold pl.parts	deleted at 70 %
540.2agaa1n	Knife - VILLEROY & BOCH with gold	deleted at 70 %
540.2agaa1s	Knife - VILLEROY & BOCH -without gold plated parts	deleted at 70 %
540.2agaa2s	Knife - VILLEROY & BOCH -with gold plated parts	deleted at 50 %
540.2agba	Knife - WMF -	not deleted
540.2agza	Knife -	deleted only with 30 %
540.2agza1c	Knife - brands/model	deleted at 70 %
540.2ahza	Chrome plated scissors -	not deleted
540.2ahza1s	Chrome plated scissors - brand PEDRINI or SOLINGEN	deleted at 70 %
540.2baza	Grinding of a kitchen knife	not deleted

In this table, item 540.2aaza was always kept in the simulation, item 540.2aazb was retained in the 70 % and in the 50 % simulations but was deleted in the 30 % simulation, item 540.2abzalc was deleted in the first simulation and so also in the other simulations.

The rationale for this procedure is that items were deleted according to their code (the longer code, the sooner deleted) because longer code means that the item is very close to another one and usually is specific to a region or some countries only.

- For the 30 % simulation only, a different method was used (“smarter” and less “random”), retaining the items which have the more numerous prices and asterisks within each BH (COICOP 4 BH). In the same example, this leads to table 13:

TABLE 13

ITEM CODE	DEFINITION OF ITEM	POSITION NOT FILLED out of 38 positions	STATUS
540.2aaza	Coffee-spoon -	1	not deleted
540.2aazb	Coffee-spoon -	27	deleted
540.2abza	Soup-ladle -	18	not deleted
540.2abza1c	Soup-ladle / brands	31	deleted
540.2abzb	Soup-ladle -	28	deleted
540.2abzb1s	Soup-ladle -brand: Metaltex	34	deleted
540.2abzb2s	Soup-ladle -brand: Brabantia	34	deleted
540.2abzb3s	Soup-ladle -brand: Leifheit	30	deleted
540.2abzc	Soup-ladle -	3	not deleted
540.2abzc1c	Soup-ladle / brands	28	deleted
540.2abzc1s	Soup-ladle -thick handle with hollow in the middle	38	deleted
540.2acaa	Carving-knife - FISKARS -	30	deleted
540.2acba	Carving-knife- PRESTIGE -	37	deleted
540.2acca	Carving knife - RICHARDSON -	32	deleted
540.2acza	Carving-knife - punched	16	not deleted
540.2acza1c	Carving-knife - forged steel	28	deleted
540.2acza1n	Carving-knife - forged	26	not deleted
540.2acza1s	Carving-knife -not forged blade	30	deleted
540.2acza2c	Carving-knife - forged steel / brands	32	deleted
540.2acza2s	Carving-knife -forged blade	32	deleted
540.2adaa	Bread knife - FISKARS -	27	deleted
540.2adba	Bread knife - RICHARDSON -	32	deleted
540.2adca	Bread knife - ZWILLING (J.A. HENCKELS)-	26	not deleted
540.2adza	Bread knife -	3	not deleted
540.2adza1c	Bread knife - brands	29	deleted
540.2aeza	KITCHEN KNIFE -	28	deleted
540.2afaa	Table setting - HABITAT -	35	deleted
540.2afba	Table setting - IKEA -	15	not deleted
540.2afbb	Table setting - IKEA -	33	deleted
540.2afca	Cutlery set - TRAMONTINA -	37	deleted
540.2afza	Cutlery -	13	not deleted
540.2afza1c	Cutlery - brands	31	deleted
540.2afzb	Cutlery set -	31	deleted
540.2agaa	Knife - VILLEROY & BOCH -	22	not deleted
540.2agaa1c	Knife - VILLEROY & BOCH / gold pl.parts	30	deleted
540.2agaa1n	Knife - VILLEROY & BOCH with gold	37	deleted
540.2agaa1s	Knife - VILLEROY & BOCH -without gold plated parts	32	deleted
540.2agaa2s	Knife - VILLEROY & BOCH -with gold plated parts	34	deleted
540.2agba	Knife - WMF -	26	deleted
540.2agza	Knife -	17	not deleted
540.2agza1c	Knife - brands/modell	35	deleted
540.2ahza	Chrome plated scissors -	18	not deleted
540.2ahza1s	Chrome plated scissors - brand PEDRINI or SOLINGEN	35	deleted
540.2baza	Grinding of a kitchen knife	16	not deleted

Prices are collected for a maximum number of 19 countries. Some of these prices are characterised by an asterisk, which leads to a maximum number of 38 positions for each item. For item 540.2aaza one of these 38 positions is not filled. This is illustrated by “1” in column 3 of Table 13. The last column shows that this item was retained and “not deleted” for this exercise. Item 540.2aazb (with “27” positions not filled) was deleted. In fact, the 13 items with the smaller number (meaning the more priced items, between “1” and “26”) were retained. This method is “smarter” because we are sure to calculate PPP using the maximum number of prices and with the best overlap between countries.

B3 RESULTS

25. Table 14 and 15 present the % differences of PPS, using COICOP 4 and COICOP 3 classification, according to the different simulations⁴.

TABLE 14

4 SURVEYS – SIMULATION COICOP 4																	
PPS differences with 100 % items																	
	70%				50%				30%				30% “smart”				
	OTHER GOODS	FURNITURE	FURNITURE	CLOTHING	OTHER GOODS	FURNITURE	FURNITURE	CLOTHING	OTHER GOODS	FURNITURE	FURNITURE	CLOTHING	OTHER GOODS	FURNITURE	FURNITURE	CLOTHING	
DE	0,8	-0,3	1,1	-0,9	2,2	0,3	1,5	-2,2	-0,7	1,5	1,6	0,2	1,2	0,8	-1,0	0,3	DE
FR	-0,2	1,9	-0,9	-0,5	-3,0	3,3	-2,3	-0,3	0,1	3,5	1,7	-2,7	-3,1	-3,2	0,6	-1,7	FR
IT	0,1	0,5	0,4	0,1	-0,7	-0,7	-1,3	1,7	7,1	-14,3	-8,6	2,4	-3,2	4,7	-1,8	-0,7	IT
NL	0,1	-0,2	-1,1	-1,3	1,1	0,3	0,6	-1,7	0,4	-3,0	5,8	-1,3	-3,5	0,8	0,8	3,6	NL
BE	0,0	-0,6	-2,7	1,2	2,8	0,3	-4,5	2,4	2,1	3,0	-8,7	-1,6	-4,2	-1,1	1,6	0,7	BE
LX	0,1	1,2	-1,5	0,8	0,1	-0,5	0,2	0,4	-2,1	1,3	-1,8	-0,2	1,6	3,1	1,1	5,6	LX
UK	0,2	-0,6	1,1	-1,0	-1,6	-0,1	1,2	-1,5	-5,5	9,0	3,9	-3,7	1,7	-1,6	0,0	2,1	UK
IR	-1,2	-0,6	-1,4	-0,8	6,5	-2,7	-0,1	-1,6	3,8	-14,3	5,3	-3,3	20,6	1,5	1,9	1,6	IR
DK	0,7	-0,1	1,5	2,4	1,2	2,7	1,4	0,9	0,0	8,0	0,6	-0,1	-4,6	-1,5	-3,0	-5,2	DK
GR	-0,5	0,0	-2,3	-0,9	2,6	-0,6	-3,4	-0,6	3,0	-1,5	-3,0	2,8	1,6	0,6	4,7	0,2	GR
ES	0,1	0,8	3,2	-0,9	-1,1	-0,7	4,2	0,1	1,6	-3,9	3,1	3,6	-2,6	-2,2	-3,3	0,8	ES
POR	-0,1	0,0	2,7	1,1	-2,2	0,1	5,7	2,9	-0,2	-6,6	14,1	8,0	-6,7	-0,9	-2,9	-2,2	POR
OS	0,6	-0,1	-1,0	1,2	-1,0	2,4	-4,8	-1,3	-0,1	4,2	-6,2	-1,6	0,1	-1,5	1,4	2,8	OS
CH	0,6	2,0	0,2	-0,3	-0,2	6,1	-0,3	0,2	2,3	8,8	-0,6	-1,5	5,2	-1,8	-0,8	1,3	CH
SW	0,3	-3,1	1,1	1,8	-0,5	-5,2	1,2	0,4	-3,4	-7,1	-2,0	-1,1	-1,0	3,5	-1,3	1,1	SW
SF	-0,3	-1,4	1,3	0,8	-1,4	-0,4	4,1	3,5	1,1	3,5	2,1	4,5	0,9	1,5	0,1	-0,9	SF
POL	-1,7	0,8	-2,3	-1,6	-1,2	-0,6	-2,4	1,0	-6,6	8,7	-8,2	5,6	0,2	-1,3	3,4	-5,7	POL
ICE	0,3	-1,6	-0,3	-0,4	-1,2	-5,1	0,5	-2,2	-0,1	-2,4	1,0	-3,6	0,0	0,6	-0,5	-0,7	ICE
NOR	0,2	1,6	1,3	-0,6	-2,0	1,8	-0,8	-1,9	-1,8	6,3	2,9	-5,2	-1,4	-1,5	-0,6	-2,4	NOR

⁴ Differences over 5 % have been highlighted in bold and are aligned on the right part of the cell (and can be seen in red electronically). ANNEXES 2 to 5 present the full picture of all results according to each of the 4 surveys.

TABLE 15

4 SURVEYS – SIMULATION COICOP 3																	
PPS differences with 100 % items																	
	70%				50%				30%				30% “smart”				
	OTHER GOODS	FURNITURE	FURNITURE	CLOTHING	OTHER GOODS	FURNITURE	FURNITURE	CLOTHING	OTHER GOODS	FURNITURE	FURNITURE	CLOTHING	OTHER GOODS	FURNITURE	FURNITURE	CLOTHING	
DE	0,5	0,0	0,4	-0,9	1,6	-0,6	4,9	-1,5	1,8	1,9	5,8	1,0	2,1	0,8	0,1	-0,8	DE
FR	-0,2	0,9	-0,7	-0,5	-2,9	2,5	-3,2	-0,4	-0,4	1,1	0,6	-2,1	-3,5	-1,4	-1,0	-2,6	FR
IT	-0,5	-0,1	-0,3	0,1	-1,6	-1,6	-1,6	1,2	6,4	-8,7	-5,8	3,4	-2,8	4,2	-1,8	-0,1	IT
NL	0,0	0,3	-0,7	-1,6	1,1	-0,4	2,9	-2,3	0,6	-2,3	6,0	-4,1	-3,4	1,1	-0,5	2,2	NL
BE	-0,1	-0,7	-1,9	1,3	2,6	0,7	-3,5	1,9	1,7	3,2	-6,2	-1,8	-4,2	-2,2	-1,2	2,1	BE
LX	0,0	1,4	0,0	0,4	0,7	-0,6	2,2	0,7	-3,1	4,5	-1,3	-0,4	1,2	5,8	0,2	5,1	LX
UK	-0,2	-0,4	1,0	-1,1	-0,8	3,4	2,4	-1,9	1,2	10,3	5,8	-3,3	3,8	-2,8	0,9	1,2	UK
IR	-0,9	-0,8	-0,2	-0,6	5,7	-2,5	0,9	-1,9	3,9	-13,2	6,3	-3,1	16,7	0,9	1,0	0,7	IR
DK	0,8	1,0	0,8	1,8	0,4	3,5	-0,2	0,8	-1,4	9,5	-0,1	-0,6	-6,0	-1,7	-1,0	-2,5	DK
GR	-0,6	0,4	-0,5	-0,8	3,7	0,5	-3,8	0,3	2,2	3,5	-4,2	2,8	2,1	-0,8	2,8	-0,3	GR
ES	-0,2	0,8	0,6	-0,7	-0,3	-0,6	0,6	1,1	2,6	-1,2	-0,9	4,5	-0,5	-1,3	-0,7	0,2	ES
POR	-0,1	0,8	2,2	2,1	0,2	2,0	4,6	3,9	1,6	-5,3	14,3	10,7	-5,1	-1,3	0,3	-1,1	POR
OS	0,6	-0,1	-0,6	0,8	-1,7	0,4	-2,8	-1,3	-1,8	2,1	-6,5	-0,2	0,2	-1,4	0,2	3,8	OS
CH	0,5	1,2	0,2	-0,6	0,4	4,0	0,3	-0,2	2,1	5,9	-1,4	-2,1	4,9	0,1	-0,5	0,5	CH
SW	0,3	-2,5	1,0	1,8	-3,0	-4,9	0,4	0,5	-6,3	-10,3	-0,9	-1,0	-0,9	0,1	0,0	2,8	SW
SF	-0,3	-1,3	0,4	0,6	-2,6	-1,4	2,4	2,8	-2,9	1,3	-1,3	4,0	0,2	0,0	0,4	0,0	SF
POL	-0,1	1,3	-2,1	-1,9	3,1	2,6	-3,2	-0,6	-0,2	4,2	-8,0	-0,3	-1,3	-0,9	0,7	-7,7	POL
ICE	0,4	-2,8	-0,1	0,7	-2,3	-6,5	-0,8	-0,5	-2,2	-8,1	-1,1	-0,4	-0,1	2,2	-0,2	-0,1	ICE
NOR	0,2	0,8	0,8	-0,8	-3,8	0,2	-1,9	-2,2	-4,9	5,5	1,8	-5,7	-1,4	-1,0	0,5	-2,9	NOR

26. For the survey “Other goods and services” the results for Ireland must be disregarded because for 3 BHs Irish data are missing, leading to inaccurate and unreliable results for this country and for this survey.

27. Several comments can be made on these results:

- ✓ Differences in PPS using 70 % of the items are really minuscule;
- ✓ Differences in PPS using 50 % of the items are very small;
- ✓ Differences in PPS using 30 % of the items are somewhat bigger with the “item code” method but are much smaller when considering the “smart” method. The best example to evaluate the “qualitative jump” between the “item code” and the “smart” method used for 30 % of the items retained is “Furniture 1999”, according to both COICOP 4 and COICOP 3. Results are mediocre using the “item code” method, excellent using the “smart” method (i.e. according to COICOP 4, differences for NL go from 5.8 to 0.8, in case of BE from –8.7 to 1.6, in case of POR from 14.1 to –2.9; according to COICOP 3, in case of DE from 5.8 to 0.1, in case of IR from 6.3 to 1.0, in case of POR from 14.3 to 0.3, in case of POL from –8.0 to 0.7). **This leads also to the conclusion that the better the overlap, the more accurate the results, and that overlap is something more important than coverage (number of items).**

B4 CONCLUSIONS

28. Eurostat is committed to improving the quality of PPP results. The tendency over many years has been to increase the number of items covered in the surveys, on the implicit assumption that the greater the coverage, the more accurate the results.

There is, however, a counter-argument. Given that resources are limited, the more items to be covered the less time is available for correct pricing of each item. We thus reached the situation of having often-doubtful average prices for a very large number of items. This has been justified, sometimes, by maintaining that errors at low levels of aggregation will tend to cancel out at the higher levels. While there may be some truth in this, it cannot be proved. It also raises the question of why have so many products and so many BHs if the results at the lower level are indefensible.

The simulations presented in this paper show for the first time that reducing the number of products covered in the surveys by a very large amount has a generally insignificant effect on the overall PPS. The simulation results cannot tell us whether the PPS calculated with fewer items are more or less “accurate” than the previous results: all they can do is to show that they do not differ much.

29. However, there is one way in which improved accuracy can be guaranteed. If the total resources allocated to the consumer price surveys remains unchanged but the number of items is significantly reduced, then more effort can be made to improve the quality -and hence accuracy and probably also timeliness- of the final results.

To give some examples:

- ◆ Fewer items means that more time can be spent in selecting those items and in specifying them (i.e. the pre-survey work can be better focussed) – **“less but better”**;
- ◆ Fewer items implies less translation of specifications, which can lead to better and faster translation;
- ◆ Fewer items means that the price surveyors will have more time to familiarise themselves with the definitions, and hence have a better chance of identifying the correct products in the shops;
- ◆ Fewer items means that with the same resources more prices can be collected and more outlets can be surveyed;
- ◆ Fewer items means that there is less checking to be done, by the NSIs, by the Group Leaders, and by Eurostat.

30. The Working Party is invited to:

- Take note and comment on the results presented in this paper;
- Agree that the first survey of 2001 (01-1 Food) may be conducted according to COICOP 3 basis;
- Agree to optimise the list of items leading to a significant reduction of items, coupled with better specified products and services with more overlaps and more prices per item;
- Express that intensive pre-survey work is a *sine qua non* pre-condition to achieve these goals;
- Agree that this procedure should lead to an improvement of the quality of the overall PPP.