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ANALYTICAL TABLES FOR THE COMPLETE HOUSEHOLD FINAL CONSUMPTION EXPENDITURES

Paper submitted by the Statistical Office of Estonia¹

INTRODUCTION

1. Eurostat presented analytical tables for the first time in 1999 in the framework of Phare Activity, which concentrated on the Household Final Consumption Expenditures (HFCE). The aim was to significantly improve the basis of HFCE estimates and thereby national accounts data in Acceding Countries.
2. Estimation techniques and methods used for HFCE calculations varied a lot between countries; quite often estimates were not transparent and also not comparable between countries. Eurostat's project on HFCE in 1997 pointed out that Acceding Countries should concentrate more on really independent and complete HFCE estimates. In many countries there was a need to build up a better and systematic approach for HFCE calculations and a possible solution proposed by Eurostat was to introduce a set of analytical tables for regular estimation process.
3. Not all countries were able to complete the whole set of tables in the first project according to given guidelines, nevertheless, it was a very important exercise for all

¹ Paper prepared by Annika Laarmaa and Pille Palojärv.

participants and some countries decided to introduce the new system to their national accounts estimates after this project.

THE SET OF ANALYTICAL TABLES FOR THE HFCE ESTIMATES²

4. The system of analytical tables takes into consideration the compliance with the following criteria to ensure reliable HFCE estimates:

- the reliability of basic data and calculation methods;
- the estimation of really independent HFCE figures (independent estimates for all commodities in as much detail as possible and from as many sources as possible);
- the systematic estimation methods, which clearly identify the various steps of estimates and adjustments made;
- conceptual compliance with ESA95.

5. In the framework of this system HFCE estimates are compiled using the “best” available data source for each COICOP item using a “bottom-up” approach. Data sources used for estimates can be very different for each commodity. Irrespective of the data source used, all estimates are obtained in a very systematic way where all steps starting from raw data until the published figures are clearly identified.

6. Albeit at first, the system of analytical tables might look complicated, voluminous and difficult to follow, it gives users the freedom to customize it according to country-specific situations – to include additional rows according to the breakdown used in the estimation process (e.g. separate lines for goods and services) and columns (e.g. for hidden economy). Also, the level of COICOP detail is chosen by each user according to the requirements of ESA95 and data sources available.

TABLES INCLUDED IN THE SET OF ANALYTICAL TABLES

7. The set of analytical tables consists of the following tables:

- Table 1 – Conversion of HBS data for National Account purposes (by COICOP);
- Table 1A – Conversion of HBS data for National Account purposes – Adjustments for definitions and concepts (by COICOP);
- Table 2 – Conversion of retail sales data for National Account purposes (by COICOP);
- Table 2 A – Conversion of retail sales data for National Account purposes – Adjustment for definitions and concepts (by COICOP);
- Table 3 – Conversion of data from other sources than HBS and retail sales for National Account purposes (by COICOP);
- Table 3A – Conversion of data from other sources than HBS and retail sales for National Account purposes (by COICOP);
- Table 4 – Commodity Flow estimates (by CPA);
- Table 4A – Transformation of Commodity Flow estimates (by CPA) and to COICOP;
- Table 5 – Summary table – final estimate of HFCE.

8. In general, for each COICOP item, at least two independent estimates should be

² More detailed description of analytical tables is available in the paper written by Mr. Ralf Hein, Non-Financial National Accounts Activities with the Accession Countries, Analytical tables for the Project on Private Household Consumption, Activity A1, 1999.

obtained and finally shown in table 5, which summarizes the results derived in previous tables. Thus, it is not necessary to have estimates for all COICOP groups in all tables.

9. Table 1 is used to convert Household Budget Survey (HBS) raw data to HFCE estimates. The first column is used to gross up HBS raw data to the total population living in households. These data do not include data about income in kind, consumption of own produced goods, wages and salaries in kind, etc. as they are shown in a separate table. The next column shows the adjustments made to the figures in the previous column because of differential non-response. Column 3 shows expenditures of persons living in institutions as defined in ESA95. Column 4 contains results from table 1A where differences in concepts and definitions between HBS and NA are taken into consideration (see a more detailed description below). As many countries are also estimating illegal goods and services, column 5 is for including those in HFCE estimates. Column 6 presents the final HBS based figures by national concept. To obtain estimates by domestic concept (column 9), residents' households expenditures in the rest of the world are excluded and non-residents expenditure on the domestic territory are included.

10. Table 1A shows the adjustments made for definitions and concepts to be in compliance with requirements of ESA95. Separate columns are used to estimate consumption of households' own production, wages and salaries in kind, imputed rents, insurance services, clothing and food in the armed forces, also gifts and transfers, licenses and fees, etc. Adjustments to HBS data in total are presented in the first column and also in table 1 of column 4. Tables 2A and 3A have the same structure, but are compiled using the domestic concept while table 1A is compiled according to the national concept.

11. Table 2 is used to transfer retail sales (RS) data to the HFCE estimates. The first column contains raw RS data from the branch statistics. Adjustments done for non-observed RS by national accountants (not by branch statisticians) are shown in column 2. All purchases that should be treated as intermediate consumption or gross fixed capital formation are inserted in column 3. Adjustments for sales not covered by the retail trade system are in column 4. The next column specifies adjustments for definitions and concepts as defined in table 2A. In addition, the table for RS data contains a separate column for illegal goods and services. Column 7 shows the final RS based figures including all adjustments by domestic concept. This figure is adjusted with tourist expenditures to obtain a national concept.

12. Although HBS and retail sales are the main bases used for HFCE estimates, many different data sources can be used for estimates. Therefore, first the source and concept (whether national or domestic) are identified in column B of table 3. The rest of table 3 is similar to the table used for the retail sales. Finally HFCE estimates based on other sources than HBS and retail sales accordingly are obtained by national and domestic concept.

13. A separate table is created for the Commodity Flow estimates. The aim of table 4 is not to illustrate how basic data are transferred to national accounts figures, but to show how data on supply (at purchasers' prices) are compiled and how the supply coefficient and HFCE are derived by national concept for each commodity. In general, commodity flow estimates are

done using the CPA classification and therefore, it is necessary to transform these estimates into COICOP. Table 4A can be used for this purpose.

14. Columns 1 to 4 of the summary table 5 contain HFCE estimates derived from tables 1 to 4 by domestic concept. Based on these figures, the best estimate for each COICOP item is chosen. In general, the best estimate is one of the results based on HBS, RS, commodity flow or other sources, but it can also be a compromise estimate. Column 6 shows the number that is actually used and published. Separate columns are for resident households' expenditure in the rest of the world and for non-residents expenditure on the economic territory. The last column contains HFCE figures by national concept.

ESTONIAN EXPERIENCE WITH THE FRAMEWORK OF ANALYTICAL TABLES

15. Estonia has been using analytical tables since the Eurostat project on HFCE estimates in 1999. The systematic tabular approach is used for annual and also for quarterly estimates. It gives a possibility to use the same framework for all HFCE estimates and so ensures better quality of results used in national accounts.

16. Currently the Statistical Office of Estonia (SOE) is compiling all tables except for the commodity flow method. Supply-use tables were published for the first time for the year 1997, but no commodity flow table was made for this year and the first commodity flow table will be compiled at the beginning of next year when the supply-use table for the year 2000 becomes available.

17. For the HFCE estimates, SOE uses a bottom-up approach. The HFCE estimates are broken down by 110 commodity groups and annual data are published at 3-digit level of COICOP. For each item at least two independent estimates are obtained, in many cases there are also three independent estimates from which the best estimate is chosen. In Estonia the best estimate equals the estimate finally used in the national accounts as currently no reconciliation adjustment are done.

18. To describe each step of estimates and all exhaustiveness adjustments better, SOE has made some changes in the tables. The following columns are added to standard tables:

- Table 1 – consumption of occasional and temporary activities;
- Table 2 – sales from intentionally non-registered units;
- Table 3 - purchases of goods and services other than for HFCE; non-observed sales from other sources than HBS and RS.

19. In the initial version of analytical tables, no distinction was made between goods and services within a COICOP Division. Additional lines for goods and services were added to have better comparability between different data sources. Experts gave the same recommendation within the framework of the last Eurostat project on HFCE for Acceding Countries.

20. In table 1 only data from the HBS are used. Data are available at 7-digit COICOP level, but calculations are done at 4-digit COICOP. Adjustments for definitions and concepts

are based on special estimates, but also data from HBS and agricultural accounts are used for this purpose.

21. For table 2, the main source is EKOMAR (A Comprehensive Annual Enterprise Report), which includes the turnover of retail and wholesale trade, services and motorway shops by NACE activities. As the data about retail sales turnover are not very detailed the information from HBS is used to allocate EKOMARs' raw data to COICOP groups.
22. Table 3 contains data from very different sources – Macroeconomic Division estimations for rentals, lotteries, use of illegal goods and services, environmental statistics data for water supply, sewerage and refuse collection; consumption of electricity, gas and other fuels from energy statistics, and other retail sales data like restaurants, hotels, insurance, financial services (banks, post offices).
23. All HFCE estimates by domestic concept for each COICOP items are included in the summary table 5. It gives a comprehensive review how the best estimate is chosen on the basis of results derived from different sources. In most cases the best estimate is also actually used in national accounts.
24. The decision about the best estimate for each item is quite a complicated procedure. In general, the best estimate for food, non-alcoholic beverages and different services (cleaning, repair and hire of clothing and footwear, health services, services for the recreation and culture, education) is derived from HBS-based calculations. For those commodity groups, HBS is considered to be a better source as it provides more detailed information compared to the available data from EKOMAR and, therefore, less adjustment on the basic data is needed for using them for HFCE estimates.
25. At the same time EKOMAR is used as the best source to estimate purchases of different goods, for example; alcoholic beverages, tobacco, clothing and footwear, furnishing and household equipment, etc. Results based on other sources (Table 3) are considered to be the best estimate in the case of special estimates (e.g. rentals) or from basic statistics except retail sales (e.g. energy statistics for fuel consumption, environment data for miscellaneous services related to housing).
26. In the case where the best estimate chosen significantly differs from the results derived from other sources raw data are supplementary inspected and additional information (e.g. more detailed comparison with data from production side) is gathered before the final decision is made.
27. The following paragraph gives an example of how results are compared and analysed using the set of analytical tables. Restaurants and hotels (see table 6) is one of the COICOP groups for which 3 independent estimates are obtained. The estimates shown in table 6 are for the year 2001. The first column contains HBS based estimate (2931.7 million kroons), which is obtained when HBS raw data are grossed up to the whole population and adjusted for wages and salaries in kind and tips. The RS based estimate (2886.7 million kroons) is calculated using data from EKOMAR and adjusted for intermediate consumption, wages and salaries in kind and also for tips. The third estimate (3359.1 million kroons) is based on output for restaurants and hotels, which is obtained from the estimate for the production side. This estimate is adjusted to exclude intermediate consumption.

28. For restaurants and hotels the best estimate chosen and used in national accounts is derived from other sources (adjusted gross output). This also secures that estimates included in the expenditure and production sides are in compliance. The estimate based on HBS data is not used because of the tendency to underestimate such kind of consumption in HBS. The best estimate is obtained using the domestic concept and is then adjusted for tourist expenditures in order to have estimates by national accounts (321 1.6 million kroons) as well.

29. SOE has worked with analytical tables for 5 years already and has fully introduced them to national accounts estimates. The systematic tabular approach has helped to build up a system for HFCE where estimation really independent and complies with ESA95 requirements. In this framework it is easy to follow each step of calculation and all additional adjustments added to raw data. These tables are a good basis for compiling supply and use tables and especially valuable for VAT Own Resources base calculation.

Table 1 Conversion of HBS data for NA purposes (by COICOP)

	Purchases of goods and services - HBS raw data, grossed up	Adjustments for differential non-response	Population adjustments	Adjustments for definitions and concepts (see table 1A)	Consumption - nat. conc. - of illegally produced (or imported) goods and services	PHC - nat. concept - after all adjustments (before reconciliation)	Residents households expenditure in the rest of the world	Non-residents expenditure on the economic territory	PHC dom. conc. - after all adjustments (before reconciliation)
A	1	2	3	4	5	6=1+2+3+4+5	7	8	9=6-7+8
01 Food and non-alcoholic beverages									
01.1 Food									
01.2 Non-alcoholic beverages									
etc.									
Total									

Table 1 A Conversion of HBS data for NA purposes (by COICOP)
Adjustments for definitions and concepts (national concept)

	Adjustments to HBS based data for definitions and concepts, total	of which						
		Consumption of households own production	Goods and services received as wages and salaries in kind by employees	Other adjustments for NA concepts	of which imputed rents, insurance serv., clothing and food in the armed forces	gifts and transfers in kind from abroad (net)	licenses and fees	Others
A	1=2+3+4	2	3	4=5+6+7+8	5	6	7	8
01 Food and non-alcoholic beverages								
01.1 Food								
01.2 Non-alcoholic beverages								
etc.								
Total								

Conversion of data from sources other than HBS or retail sales for NA purposes (by COICOP)

Table 3

	Source, national (NC) or domestic (DC) concept	Purchases of goods and services - other sources - raw data	Adjustm. for non-observed components	Adjustm. for definitions and concepts (see table 3A)	Consumpt. - dom. conc. - of illegally produced (or imported) goods and services	PHC - dom. conc. - after all adjustments (before reconcil.)	Residents households expenditure in the rest of the world	Non-residents expenditure on the economic territory	PHC - nat. conc. - after all adjustments (before reconcil.)
A	B	1	2	3	4	5	6	7	8
01 Food and non-alcoholic beverages									
01.1 Food									
01.2 Non-alcoholic beverages									
etc.									
Total									

Conversion of data from sources other than HBS or retail sales for NA purposes (by COICOP)
Adjustments for definitions and concepts (domestic concept)

Table 3A

(do not complete the table if there is no difference to Table 1A or 2A)

	Adjustments to basic data for definitions and concepts, total	of which						
		Production for own final consumption	Goods and services received as income in kind by employees	Other adjustments for NA concepts	of which imputed rents, insurance serv., clothing and food in the armed forces	gifts and transfers in kind from abroad (net)	licenses and fees	Others
A	1=2+3+4	2	3	4=5+6+7+8	5	6	7	8
01 Food and non-alcoholic beverages								
01.1 Food								
01.2 Non-alcoholic beverages								
etc.								
Total								

Table 5

**Summary table - final estimate of PHC
(domestic concept)**

	PHC - domestic concept							Residents households expenditure in the rest of the world	Non-residents expenditure on the economic territory	PHC - nat.conc. NA estimate actually used (absolute size)
	HBS based estimates	Retail sales based estimates	Commodity Flow based estimates	PHC estimates based on other sources	Best estimate - before reconciliation	NA estimate actually used (absolute size)	Col. 6 expressed as % of col. 5			
A	1	2	3	4	5	6	7=6/5	8	9	10=6+8-9
01 Food and non-alcoholic beverages										
01.1 Food										
01.2 Non-alcoholic beverages										
etc.										
Total										

