The Receipts Approach to the Collection of Household Expenditure Data

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Abstract

The receipts approach to the collection of household expenditure data consists of allowing Household Expenditure Survey (HES) participants to collect and turn in bar code receipts. This detailed data can then be utilised in a systematic way.

The present paper describes the use of such an approach in the Icelandic HES, analyses the results, and evaluates the main elements of the receipts approach method. This approach was first used in the Icelandic HES in 1995 and has been continuously employed in the HES since 2000. Information gathered in this way now covers nearly one-third of total HES expenditures and approximately 75 per cent of all survey transactions.

HES data of this sort has been the source of the very detailed weights used in calculating the Icelandic CPI. Furthermore, it was the main source for analysing the sudden increase in shopping substitution bias when inflation rose suddenly in Iceland during the second quarter of 2001. This occurrence was analysed with receipts data from the HES. The agenda for future research on the receipts approach is also discussed.

JEL: C43, C81, D11, E31

Keywords: Consumer price index, household expenditure surveys, household budget surveys, receipts approach, scanner data, shopping substitution bias, outlet substitution bias.

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1. Introduction

Taking advantage of the huge amount of available electronic data is becoming an increasingly important task in the field of official statistics, especially in CPI work. The use of data derived from cash receipts collected in the Icelandic HES has enabled more accurate estimates of private household consumption than previous traditional surveys and has provided more comprehensive information on the types and brands of goods purchased, as well as on outlets. This has led to further development in weighting procedures and has facilitated the use of scanner data collected directly from outlets. In this kind of HES each household keeps a diary for two weeks and is permitted to hand in receipts obtained at the point of sale. This paper describes the elements of the method and analyses the use of the resulting data sets.

2. The receipts approach

2.1 Definition of the receipts approach

The receipts approach involves gathering information from the detailed receipts handed over to consumers when they shop and subsequently applying this thorough information for statistical purposes. Such receipts provide precise details not only about the goods bought but also about where the transaction took place, which is a cornerstone of statistics. Moreover, the approach utilises this detailed information for additional purposes. One example of such a purpose is obtaining detailed CPI weights; in fact, this approach cannot be considered fully exploited unless this application receives attention. Countries which allow participants to hand in receipts but do not process them systematically cannot be claimed to be following this approach completely.[2]

2.2 Detailed data from shopping receipts

Retail stores and other merchants give their customers detailed receipts when they shop, which Statistics Iceland then collects in its continuous household expenditure

[2] Israel has collected receipts for a long time for example in its HES 1986-87, as well as in 1992-1993, and in their continuous survey since 1997. Ireland took in some ways advantage of he receipts approach in their 1999 HES.

survey. First applied in 1995[3], the method has since been a part of the continuous HES that started in 2000. The survey cycle in today's continuous HES is three years, meaning that the number of households in the sample for each year is about one-third of what it was in 1995 and that the overall sample for each three-year period is similar in size to that in the 1995 survey. The households participating in 1995 numbered 1375, while in 2000 they numbered 657, in 2001 611, and in 2002 639. Over the three-year survey cycle the total was 1907, so the three year survey cycle has led to a greater number of households participating.

During the two weeks of keeping a diary, survey participants simply collect the receipts, without copying the details on them into the diary books. The total amount purchased in each transaction is recorded in the diary and the receipt then placed into a special pocket in the book.

In the beginning, the main idea was to make participation easier for the households by allowing them to return the receipts with less writing. However, the receipts turned out to be a valuable source of additional information, among other things for improving weights in the consumer price index. "This method allows much more accurate estimates of the composition and quantity of household goods than otherwise would be the case". "The utilisation of this method also enables precise information to be gathered about consumer activities at much lower effort and cost than previous methods and show[s] a link between the goods purchased and the buyer".[4]

2.3 Overview of receipt data

Bar code cash registers have become more common now than they were in 1995. Increased concentration in the Icelandic retail market is one reason for this development, with three retail groups dominating the food market today. Data coverage is analysed by adding up transactions from the receipts and the diaries, and can be viewed by either the number of transactions or of expenditures. In the 1995 survey, 41 per cent of all transactions were gathered from receipts. This number climbed to about 69 per cent in 2000 and reached 74 per cent by 2001 and 77 per cent in 2002. For food and beverages, 53 per cent of the records were of this type in 1995,

[3] This method was first described in the year 1995, when it was pointed out that the receipts created the possibility of measuring expenditures by way of debit and credit cards, since that information is available on the receipts. Guðnason (1995) 173.

[4] Guðnason (1997) 129.

84 per cent in 2000 and around 89 per cent in 2001 and 2002. Receipts covered more than 12 per cent of total household expenditures in the 1995 survey, 26 per cent in the 2000 survey and some 31 per cent in the survey from 2001 and 36 per cent in 2002. The coverage by receipts has increased considerably since 1995, so that receipts now account for nearly one-third of expenditures and approximately 75 per cent of transactions.

2.4 Receipt details

The following information can usually be found on the receipt:

1. *Breakdown* of the total amount and the number of items sold. As a bill from the shop, a receipt always displays the total amount which the customer has to pay. The resulting fact that this data can always be balanced is extremely handy[5], and is carried out by comparing the registered results in the survey database with the total amounts on the receipts. The total expenditures and transactions can be estimated immediately, even before the survey is finalised if necessary.
2. *Name of the outlet*. The outlet hands out the receipt, clarifying the point of sale. Therefore, a detailed share in household expenditures can be measured for each shop. That information is fundamental for data processing and for creating chain weights for the data in the CPI.
3. *Timing and date of the purchase*. These details open up the possibility of mapping consumption behaviour exactly, by showing the day of the week and the time of day that consumers do their shopping.
4. *Description of each item*, along with its quantity, the unit price, and total amount. This information includes package size, brand and in some cases quantity. Fruits and vegetables are often weighed at the cash register, with information about the quantities being provided directly on the receipts. This opens up the possibility of calculating exact quantity weights and even performing nutritional research.
5. *Form of payment*. It is indicated whether the items were paid for by cash, by debit or credit card or by check.

[5] The Icelandic HES is the first survey known to exploit this possibility, balancing one-third of expenditures in this way.

The information on the receipts shows how much the customer spends on each visit to a shop. The place where the survey household lives is also known, so this information defines regional shopping patterns. The making of CPI chain weights has benefited significantly from such detailed information. When information from the receipts has been registered in the HES database, the results are balanced and can be extracted for further research on shopping if necessary. The details already enter into producing very detailed weights for the groceries[6] sold in retail stores, but could probably prove useful under still other basic headings.

2.5 Comparison of data from receipts and shops

In 1974 goods were scanned for the first time.[7] Developments have proceeded rapidly since then, so that today the majority of retail sales become scanned data. Upon being bought in a retail outlet, goods are scanned at the point of sale. The buyer obtains a detailed receipt for the transaction, and the scanner data on each sale is captured in the outlet's database.

The consumer's receipt mirrors the information recorded in that database. If all the receipts, whether from private customers or firms, were collected together, they would provide the same result as the sales information available from the retailers. The gigantic amount of scanner data available in shops therefore has its counterpart among households.

Compiling this information on the consumer side reveals what a given person bought. This personal attribute of the data lends it a special value over and above data collected directly from a sales outlet. On the other hand, transactions with other sectors are also available in the outlet's database, so that set of data covers a wider range of transactions than information collected from households.

Since the information on where a good was purchased becomes available as soon as it has been registered in the database, the household expenditures in each shop are constantly available with updating.

2.6 Scanner data from receipts and databases

[6] Groceries (perishable items) are a wide variety of goods sold mainly in chain stores and include food as well as other goods used by households.

[7] Hawkes and Smith (1999) 284.

Receipts data consist of records that appear either as printed receipts given to buyers or as stored scanner data in the seller's database. This information is generated to serve different purposes. The consumer receives information on his or her purchases through the receipt, while the seller receives the same information electronically at the point of sale. In other words, the same basic information may be viewed both from the consumer's side and from the perspective of the seller. Although each type of data includes quantities, values and types of goods, the data from receipts can be connected to a specific type of household, whereas this potential is lacking in sales scanner data.

Another difference lies in the fact that HES data is based on a sample, whereas scanner data reflects an outlet's total sales. These factors have to be taken into consideration when comparisons involve receipts in an HES and the scanner data from shops.

One of the advantages of HES data is that it also extends to goods bought from shops that do not collect scanner data. Even though electronic data records are becoming ever more prevalent, parts of the retail trade gather no scanner data.

Scanner data applies most commonly to the sale of food and beverages. These products, examples of which are coffee, soft drinks and detergents, are relatively homogeneous and may be easy to identify. Classifying numerous other food products, in contrast, can be difficult, and special attention is required regarding data on fresh food. Because retailers often do not use standardised bar codes for meat, fish, vegetables and other fresh foods, it could be easier to use HES information for certain items.

The most common application of scanner data is in the field of marketing, where it is utilised in evaluating market shares. Information from the HES bar code cash receipts makes it possible to calculate the quantities people consume in a manner similar to that of marketing experts. This means that the information from an HES on food consumption can be expressed as quantity vectors rather than value shares and that the results for each homogeneous group can be calculated as unit prices and serve in measuring price changes.

Scanner data of this kind have been used intensively for research in recent years, for example to evaluate the influence of varying sampling methods on price measurement.[8]

The data generally used by some of these research projects is based on point-of-sale information from outlets. As this data comes from sellers and is not connected to specific households, it does not necessarily provide an accurate picture of individual consumption. This is a limitation as regards the HES, but not as regards research on sampling, such as research on item selection, etc.

2.7 Using data from receipts

Research conducted on the 1995 receipts demonstrated that it was feasible to use more detailed weights than before. Comparing results from the receipts and scanner data at the biggest chains during 1995 produced similar results. The principal stores had a considerable market share in 1995 among households living outside the capital city area, despite their activity being concentrated mostly in that area.[9] Today the CPI for groceries is calculated by very detailed chain weights.

In December 2001, the chain weights for groceries were revised, based on the data from receipts collected in the continuous HES for the period of January 2000 to November 2001. Comparing these data to quite detailed monthly sales data for the same period from the biggest retail group led to similar results.

On the basis of these data, weight shares were corrected in December 2001 and again in April 2002 and May 2003, leading to a lowering of the Icelandic CPI.

The balanced totals in the survey database are available at any time, even if the survey is still proceeding and no final results are available, which was the case in 2001.

There is potential for considerable development through this novel, very detailed information, and the next step in its utilisation could be described as follows:

"Further, shopping habits of households as mapped in the HES could be used as a source for weights. This would be done by utilising information on the detailed expenditure of typical customers at each type of outlet. Calculations of the average price change would then be based on the expenditures of different households at the

[8] Haan J, (2001). Haan et al., (1997), Silver, (1995), Reinsdorf, (1996) and Dalén, (1997).
[9] Guðnason (1998) 209.

outlets, so that for each outlet there would be varying indices calculated for the different types of households".[10]

Five types of households are defined in the HES, which would mean that the elementary aggregates for groceries purchased by these households would probably number around 20,000. Such indices would shed light on household cost of living and correct more precisely for biases arising from steady changes in shopping patterns. The present price collection would probably be employed to calculate more elementary aggregates, without any increase in price collection.

3. Utilising receipts data

3.1 Chain weights and receipts

Chain weights comprise nearly 18 per cent of base expenditures in the Icelandic CPI. Three groups of chain stores now dominate the retail market for groceries. In fact, the prices within each chain are very similar, independent of the Icelandic locality, so that now only chain weights are used, and regional weights no longer applied.[11] In calculating the index, the retailers are divided into four groups: Hagar, Kaupás, Samkaup and "Other". Subsequently, each group is divided into its various chains, which now total eleven altogether. Chain-weighting renders calculation of the index simpler, and treating changes in shopping habits becomes easier, especially when one store replaces another. Such chain weights have been demonstrating their utility since 2002.

Data from the continuous HES is incorporated in April of each year. The weight of individual groceries is based on three-year, price-updated average expenditure, calculated as a Lowe index. In April 2004, the weights were based on the HES for the period 2000-2002, while chain weights refer to 2003. The weight results are compared to other sources – mainly detailed turnover information related to VAT.

At the elementary aggregate level, problems can in some cases rise due to the number of weights increasing considerably through this method and these weights are subject to sampling errors. The relative standard error of the mean in the 2000-2002 survey is 1.1% for total expenditure (was over 3% in the 1995 survey) and 0.5% for food and

[10] Guðnason, Snorrason (1999) 337.

[11] From March 1997 to March 2002, regional indices for groceries were calculated in the CPI, and the CPI total index was weighted regionally.

non alcoholic beverages. For one person households it is 2,9/1,5%. For couples without children it is 2,6/1,4%. For couples with children it is 1,6/0,6%. For single parents it is 2,7/1,5%. For other households it is 2,6/1,5%.

In the compilation of weights, holes appear when no weight exists for a good at a store in the HES and special attention is paid to this. When the classification used is very detailed holes in the weights are bound to expand at the lowest level of the survey. This is especially the case when the market share of smaller stores are low making it more likely for holes to appear at random, and this is commonplace within the meat and fish classes and where strong seasonal patterns emerge.

This means that some adjustments are needed in the weight compilation and is conducted in most cases by averaging the weight of similar basic headings to a greater one.[12] The number of items treated in this way amounts to approximately 13 per cent of the total expenditure on groceries, as of April 2004. In cases amounting altogether to one per cent of weight shares the average weight for all expenditure in the chains was used to figure chain weights.

Another smaller problem that occurs is what might be termed psychological goods. These are goods that are sold in small quantities but are nevertheless always available in the shops. They are called psychological goods here because a consumer not seeing them available in the store might lose confidence of the chain and eventually then turn to other stores.

Although the number of weight shares totalled nearly 4300, approximately 300 had zero weight, reflecting the reality of goods being absent in some chains.

When calculating the elementary indices for groceries in the CPI, the geomean of prices is used for every item under a basic heading. The stages in the calculations are:

1) Within basic heading k, in store j, an unweighted geomean (the elementary aggregate index) is calculated for the price observations, i , as:

   (3.1) $$P_{jk}^{t} = \prod_{i=1}^{n} \left(p_{ijk}^{t} \right)^{1/n} , for\ p_{ijk} > 0$$

   Where

   price observations, i = 1,..,n

   stores, j = 1,..,m

   and basic heading, k = 1,..,h.

[12] Basic heading: Lowest COICOP level that has expenditure weight (subindices). The term is used for instance in the PPP programme.

In the calculations, logarithms are taken on both sides:

(3.1a) $\ln\left(P_{jk}^{t}\right) = 1/n \sum_{i=1}^{n} \ln\left(p_{ijk}^{t}\right)$.

Operations (3.1) and (3.1a) are carried out in the same way for each basic heading in March (the base month) of each year, as well as in the month of calculation.

The following price tables become available after the first step in calculations:

P_{jk}^{t} : Average price for basic heading k, in store j, during the month of calculation.

P_{jk}^{0} : Average price for basic heading k, in store j, during the base period.

2) It is not until this step in calculation that weights are taken into consideration. Stores have a weight share under each of the basic headings, for which $\sum_{j=1}^{m} w_{jk} = q_{k}$. The weight share, w_{jk} , i.e. store j's, weight for basic heading k, and the base expenditure share in the index for basic heading k is signified by q_{k} . Hence $\sum_{k=1}^{h} q_{k}$ is the total expenditure for groceries.

Weighted geomeans P_{jk}^{t} and P_{jk}^{0} are calculated as follows:

(3.2) $\overline{P}_{k}^{t} = \prod_{j=1}^{m} \left(p_{jk}^{t}\right)^{w_{jk} / \sum w_{jk}}$, for $P_{jk}^{t} > 0$.

and $\overline{P}_{k}^{0}$ is calculated the same way.

The logarithm of the ratio of the averages is taken and the equation adjusted to a convenient form as below:

$$\text{Ln}\left(\frac{\overline{P}_{k}^{t}}{\overline{P}_{k}^{0}}\right) = \sum_{j=1}^{m} w_{jk}\left(\ln \overline{P}_{jk}^{t} - \ln \overline{P}_{jk}^{0}\right)$$

The result, $\frac{\overline{P}_k^t}{\overline{P}_k^0}$, presents the price change for basic heading k, from the base period of the index to the month of calculation, and is used for calculating each elementary index, v_k.

The index for groceries is calculated by $\frac{\sum_{k=1}^{h} q_k * \overline{P}_k^t}{\sum_{k=1}^{h} q_k * \overline{P}_k^0}$, i.e. as a Lowe index.

The total number of price quotations entering into these weights lies between 9 and 10 thousand per month, and prices are collected for over 800 items. After about 5500 average prices have been calculated for the stores, they are aggregated under each basic heading, upon which they number 3500. Not only can the items be of different size and make, but items can be included which are only available at one store. The total is weighted in accordance with the share of each store in overall sales under each of the 364 basic headings for groceries.

A special case is following: if every $P_{jk} = 0$ in a chain where $w_{jk} > 0$, then the weight is scaled by transferring it onto the other stores.

If an item is unavailable within a store, the substitution effect is supposed to work so that the consumer searches in the store for another item under the same basic heading. Assuming no such item is available, the customer visits another store and buys the item at the average price of all the other stores where the good is on offer. Through this approach, outlet substitution is allowed for.

When calculating the subindices for groceries, an average figured for all the items available is compared to the average price of the same items during the base period of the index. Thus the number of prices collected differs from month to month; moreover, the average prices used each time also vary. One of the outstanding advantages of this calculation method is that every price, each time it is collected, enters into price measurements. The basic assumption behind this method is that numerous prices underlie each average price calculated. To increase the probability of fulfilling this condition, prices are collected from more than one store within the biggest chain.

The question arises if Iceland is atypical either because of the smallness of the country or the great concentration of retailers. The method to bill costumers with receipts at the point of sale and creating at the same time comparable scanner data is used internationally in most developed countries. Firms are specialising in using the scanner data information for marketing purposes as a source in their work. The situation in Icleand is in a way similar as in these countries although information from the consumers side is used and the receipts approach should therefore render similar results and the success of this method in Iceland show that this can been done practically. The quality of receipts and distribution of retailers differs between countries and the application of the receipts method could therefore be somewhat different.

One advantage of the small market and the concentration of retailers is that the results can always be confirmed by comparing survey results with information collected directly from retailers as is demonstrated in this paper. There are strong arguments in support for the receipts approach and there is reason to believe that the it can be used in different countries and is as such a proof of the principle. In many cases the situation in a small countries can be similar as it is in closed communities that can be found everywhere.

3.2 Receipts and shopping habits

In the Icelandic CPI, substitution is accounted for in three ways: firstly by using the geometric mean to calculate elementary indices, secondly by allowing for outlet substitution when an item is not available at a particular store, and thirdly by correcting by quality adjustment the shopping substitution bias that has its roots in consumer shopping behaviour.[13] Substitution bias in household shopping has been called outlet substitution bias, though it in fact has more to do with household shopping behaviour than outlet prices. Each type of substitution bias is accounted for separately and no double counting should occur.

The prices of the same or similar goods can vary widely among shops – a fact consumers are always faced with. Consumer price indices measure price changes concerning private consumption at the outlets, whereas in reality the prices should be

[13] Guðnason (2003) 304-308.

measured in the households. The reason that is not done is mainly that sufficient information about the shopping habits of households is normally lacking.
Index prices are calculated with prices measured in the shops, and the average prices are weighted by some type of sales information. If households change their shopping habits, the average prices of the goods they buy change even if the prices of the goods bought in the store remain the same. Accounting for such an effect requires taking this average price change into consideration during price measurement.
In that process, shopping substitution is accounted for by measuring it through household weights. Modifications in shopping patterns are therefore adjusted whenever the shopping habits for each household type change.
In April 2001, inflation climbed steeply in Iceland, with the CPI rising by 7.3 per cent from April to the end of the year, leading to a twelve-month change of 9.4 per cent at that time. In 2002, on the other hand, price changes diminished, with the CPI rising by only 1.4 per cent from the beginning to the end of the year. Since receipt data clearly show how shopping substitution bias is connected to household shopping behaviour, it is interesting to see how such changes are reflected in household shopping habits. The way households behaved in reaction to the abrupt changes regarding inflation is shown by twelve tables in a separate section at the end of this paper.
Changes in the organisation of Icelandic retail shops and rising inflation brought on considerable changes in shopping habits, especially respecting groceries, as consumers transferred their trade to shops where prices were lower. These changes can better be analysed by separating the stores into two sets, low-price stores[14] and other. In 2000 the total amount of groceries bought in the low-price set amounted to 25 per cent. This share rose to 31.5 per cent for 2001. Moreover, the low-price share increased further still during 2002 and 2003, from not quite 38 per cent of the total sales volume in 2002 to over 41 per cent in 2003. Thus the total market share of low-price stores increased by nearly 64 per cent during the overall period. This is a major change, and led to a correction for shopping substitution bias in the Icelandic CPI, which consequently dropped by 0.52 per cent.
The effect of shopping pattern trends on different types of households can be analysed by examining the following categories:

[14] Bónus, Krónan and Nettó chains are defined as low-price stores.

- *One-person households.* The share of their purchases taking place at low-price stores increased in the period of 2000-2002 from over 21 per cent to over 26 per cent. This increase is less than the rise for other household types.
- *Couples without children.* About one-fourth of their shopping was carried out at the low-price end in 2000. Two years later, such couples bought nearly 37 per cent of their groceries at the low-price stores.
- *Couples with children.* These households advanced even farther in this trend. While low-price shopping comprised 25 per cent of their food and beverage purchases in 2000, this portion had risen to nearly 43 per cent in 2002.
- *Single-parent households.* Just under 23 per cent of their shopping was conducted at low-price stores in 2000, but this went up to 37 per cent in the year 2002.
- *Other households.* Low-price shopping initially exceeded 28 per cent of their purchases (highest among the households of that time) but was later to pass 40 per cent in 2002.

This assembly of facts makes clear that shopping behaviour changes during the complete period were substantial. Thanks to the receipts approach, these changes can be closely observed.

3.3 Future development of the receipts approach

The receipts approach is still in its embryonic stage of development. Most countries have receipts available, though to varying extents. The proportion of accessible receipts is the same as that of scanner data. The gigantic amount of data collected at all the points of sale in the world has its counterpart in customer receipts. Collecting HES data from receipts is a more convenient and probably cheaper approach to using these data sets. The following fields are of interest for the future development of this approach.

- *Using receipts to calculate a weighted CPI for groceries in the average household*. For this, data sets would need to be larger than in the yearly Icelandic HES. There are indications that the three-year survey cycle is capable of providing enough data for this purpose. The resulting indices would

be a weighted average of household indices and would raise precision in correcting household shopping biases.

- *Receipts to serve in calculating weights for superlative indices.* Receipts offer the potential of calculating superlative indices. Although the annual HES is insufficient, increasing the sample size each year to the full three-year survey cycle would probably suffice; nevertheless, this question demands further research.
- *Collecting prices through receipts from the HES*. The possibility exists of applying receipts collected in the HES to monthly price measurements. However, while these receipts contain information on prices, the sample would undoubtedly have to be bigger than the size of Iceland's annual HES and the question of time lags in collection also requires further study.
- *Receipts for the collection of continuous information on quantities and nutrition*. Receipts often contain information on the quantity purchased. The detailed item description often enables an assessment of quantity. The same goes for nutritional data: it can be compiled through this information and eventually used for continuous surveys of this kind connected to the HES. The Irish CSO has conducted research on this question regarding the data set from their 1999 HES.[15]

It is obvious that the receipts approach presents a very powerful method for gathering detailed information about household behaviour. Not only that, but these data sets are available everywhere. It is my belief that every statistical office ought to consider the receipts approach for their future statistical work, as it could improve their household statistics significantly.

[15] In a personal communication on 5 December 2003, Kevin McCormack at the Irish CSO describes these possibilities as follows: "It has been recognised that the use of scanner/outlet receipts can play an important part in the detailed categorisation of the expenditure data collected as part of a country's Household Budget Survey (HBS) during a specific period. However, the information recorded on the scanner/outlet receipts may also be used to measure the volume of food items purchased by households in the same period. Thus a HBS can be used as a national nutritional survey (i.e. it can be used to determine the national nutrition profile of households)."

List of tables

Table 1 Groceries, lowe-price outlets expenditures, 2000-2003, %

COICOP	*Description/Year*	*2000*	*2001*	*2002*	*2003*
0111	*Bread and cereals*	15.1	13.6	13.9	13.3
0112	*Meat*	17.9	18.0	15.4	16.5
0113	*Fish*	2.5	2.5	2.0	2.3
0114	*Milk, cheese and eggs*	17.6	17.1	18.5	18.9
0115	*Oils and fats*	2.4	1.9	2.0	2.0
0116	*Fruit*	4.5	4.5	4.2	4.1
0117	*Vegetables including potatoes*	6.8	6.8	6.1	5.7
0118	*Sugar, jam, chocolate etc.*	7.4	7.4	8.0	7.0
0119	*Food products n.e.c.*	4.4	4.5	5.0	5.0
0121	*Coffee, tea and cocoa*	2.6	2.4	2.4	1.9
0122	*Mineral waters, soft drinks etc.*	7.1	7.0	7.4	7.3
02132	*Light beer and malt*	0.6	1.0	0.9	0.6
022	*Tobacco*	0.4	0.6	0.8	0.4
056	*Non-durable household goods*	4.1	4.4	4.5	4.5
09	*Other recreational items*	0.2	0.5	0.5	0.8
111	*Other catering services*	1.1	0.9	0.9	1.5
121	*Personal care*	5.5	6.9	7.5	6.3
	Food stores not classified	.	.	.	1.2
	Total	100.0	100.0	100.0	100.0
	Food and beverages	88.8	86.8	85.7	84.4
	Other goods	11.2	13.2	14.3	14.5
	Food stores not classified	.	.	.	1.2
	Groceries (perishable items)	100.0	100.0	100.0	100.0

Table 2 Groceries: market shares of low-price expenditures, 2000-2003, %

COICOP	*Description/Year*	*2000*	*2001*	*2002*	*2003*
0111	*Bread and cereals*	28.5	32.0	40.2	42.6
0112	*Meat*	24.7	31.8	37.6	42.6
0113	*Fish*	19.6	26.8	31.8	35.9
0114	*Milk, cheese and eggs*	26.5	33.6	42.5	44.5
0115	*Oils and fats*	33.3	38.4	46.7	51.7
0116	*Fruit*	22.6	28.9	34.8	36.8
0117	*Vegetables including potatoes*	22.9	28.9	36.0	37.4
0118	*Sugar, jam, chocolate etc.*	28.1	32.9	42.2	43.0
0119	*Food products n.e.c.*	20.9	28.0	36.8	35.7
0121	*Coffee, tea and cocoa*	30.4	36.1	43.9	46.4
0122	*Mineral waters, soft drinks etc.*	25.0	32.2	40.9	44.2
021	*Light beer and malt*	28.0	53.5	55.7	46.8
022	*Tobacco*	3.6	8.1	11.9	9.0
05	*Non-durable household goods*	27.6	38.0	44.0	42.3
09	*Other recreational items*	15.7	32.1	42.4	51.4
111	*Other catering services*	13.3	13.8	14.4	29.9
121	*Personal care*	27.5	37.7	43.2	46.7
	Total	24.9	31.5	38.7	41.3
	Food and beverages	25.6	31.8	39.7	42.0
	Other goods	20.8	29.6	34.1	38.8
	Groceries (perishable items)	24.9	31.5	38.7	41.3

Table 3 ***Groceries: one-person households, shares in outlet expenditures, 2000-2002, %***

	Type	*low-price*	*other*	*low-price*	*other*	*low-price*	*other*
COICOP	*Description/Year*	*2000*	*2000*	*2001*	*2001*	*2002*	*2002*
0111	*Bread and cereals*	11.8	11.8	15.9	12.8	10.4	12.5
0112	*Meat*	21.2	15.7	17.7	11.0	15.8	12.8
0113	*Fish*	2.6	3.8	3.1	4.9	1.8	3.2
0114	*Milk, cheese and eggs*	15.6	16.0	14.2	14.3	15.7	14.9
0115	*Oils and fats*	1.6	2.1	1.9	1.5	1.6	1.4
0116	*Fruit*	6.5	4.4	6.3	4.8	4.5	5.5
0117	*Vegetables including potatoes*	6.5	8.0	5.5	8.6	6.4	6.0
0118	*Sugar, jam, chocolate etc.*	10.2	5.2	4.7	4.5	8.4	6.5
0119	*Food products n.e.c.*	5.0	5.7	3.8	5.3	4.5	5.7
0121	*Coffee, tea and cocoa*	2.5	2.4	5.3	1.7	3.9	2.5
0122	*Mineral waters, soft drinks etc.*	6.1	6.6	3.6	7.1	6.8	5.8
02132	*Light beer and malt*	1.2	0.2	0.9	0.5	1.5	0.3
022	*Tobacco*	0.0	5.2	6.8	6.1	5.7	5.8
056	*Non-durable household goods*	3.6	4.1	4.8	4.5	4.4	4.0
09	*Other recreational items*	0.5	0.1	0.1	0.9	0.9	0.0
111	*Other catering services*	0.7	2.7	1.1	5.5	0.8	4.7
121	*Personal care*	4.4	5.7	4.3	6.2	6.9	8.4
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	Food and beverages	90.9	82.0	83.0	76.9	81.3	77.1
	Other goods	9.1	18.0	17.0	23.1	18.7	22.9
	Groceries (perishable items)	100.0	100.0	100.0	100.0	100.0	100.0

Table 4 ***Groceries: one-person households, market shares, 2000-2002, %***

	Type	*low-price*	*other*	*low-price*	*other*	*low-price*	*other*
	Description/Year	*2000*	*2000*	*2001*	*2001*	*2002*	*2002*
0111	*Bread and cereals*	21.0	79.0	31.9	68.1	22.9	77.1
0112	*Meat*	26.4	73.6	37.7	62.3	30.5	69.5
0113	*Fish*	15.4	84.6	19.2	80.8	16.9	83.1
0114	*Milk, cheese and eggs*	20.5	79.5	27.1	72.9	27.5	72.5
0115	*Oils and fats*	16.7	83.3	33.3	66.7	29.9	70.1
0116	*Fruit*	28.2	71.8	32.9	67.1	22.9	77.1
0117	*Vegetables including potatoes*	17.8	82.2	19.4	80.6	27.8	72.2
0118	*Sugar, jam, chocolate etc.*	34.3	65.7	28.1	71.9	31.5	68.5
0119	*Food products n.e.c.*	19.1	80.9	21.2	78.8	22.0	78.0
0121	*Coffee, tea and cocoa*	21.7	78.3	54.5	45.5	35.6	64.4
0122	*Mineral waters, soft drinks etc.*	19.8	80.2	15.9	84.1	29.4	70.6
02132	*Light beer and malt*	57.7	42.3	38.9	61.1	65.2	34.8
022	*Tobacco*	0.0	100.0	29.5	70.5	26.0	74.0
056	*Non-durable household goods*	18.9	81.1	28.6	71.4	28.2	71.8
09	*Other recreational items*	46.8	53.2	4.5	95.5	91.3	8.7
111	*Other catering services*	6.1	93.9	7.0	93.0	5.7	94.3
121	*Personal care*	17.1	82.9	20.6	79.4	22.7	77.3
	Total	21.0	79.0	27.3	72.7	26.4	73.6
	Food and beverages	22.8	77.2	28.8	71.2	27.4	72.6
	Other goods	12.0	88.0	21.7	78.3	22.6	77.4
	Groceries (perishable items)	21.0	79.0	27.3	72.7	26.4	73.6

Table 5 Groceries: couples without children, shares in outlet expenditures, 2000-2002, %

	Type	low-price	other	low-price	other	low-price	other
COICOP	Description/Year	2000	2000	2001	2001	2002	2002
0111	Bread and cereals	12.4	10.2	11.5	11.8	10.7	13.3
0112	Meat	17.7	20.4	17.2	22.5	18.8	18.3
0113	Fish	3.4	4.9	3.2	4.1	3.3	3.5
0114	Milk, cheese and eggs	19.8	16.1	18.7	14.5	16.2	17.5
0115	Oils and fats	3.2	1.7	2.4	1.6	2.6	1.7
0116	Fruit	5.9	7.0	6.3	6.5	5.1	5.5
0117	Vegetables including potatoes	6.9	8.1	7.5	8.9	7.7	6.6
0118	Sugar, jam, chocolate etc.	7.0	6.2	6.7	6.6	9.0	8.1
0119	Food products n.e.c.	4.0	5.1	4.0	4.5	4.9	4.7
0121	Coffee, tea and cocoa	3.5	2.6	3.5	2.2	3.1	1.9
0122	Mineral waters, soft drinks etc.	4.4	5.2	6.8	4.7	5.9	5.6
02132	Light beer and malt	0.9	0.9	1.2	0.5	1.2	0.7
022	Tobacco	0.0	1.6	1.2	1.9	0.1	1.7
056	Non-durable household goods	5.6	4.0	4.6	3.2	4.9	3.5
09	Other recreational items	0.2	1.6	0.6	0.5	1.1	0.7
111	Other catering services	0.5	2.7	0.3	2.4	0.8	2.1
121	Personal care	4.6	1.8	4.2	3.6	4.5	4.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	Food and beverages	89.1	88.4	89.1	88.5	88.6	87.5
	Other goods	10.9	11.6	10.9	11.5	11.4	12.5
	Groceries (perishable items)	100.0	100.0	100.0	100.0	100.0	100.0

Table 6 Groceries: couples without children, market shares, 2000-2002, %

	Type	low-price	other	low-price	other	low-price	other
COICOP	Description/Year	2000	2000	2001	2001	2002	2002
0111	Bread and cereals	28.8	71.2	27.7	72.3	32.3	67.7
0112	Meat	22.3	77.7	23.1	76.9	37.7	62.3
0113	Fish	18.6	81.4	23.3	76.7	35.6	64.4
0114	Milk, cheese and eggs	28.9	71.1	33.5	66.5	35.4	64.6
0115	Oils and fats	38.5	61.5	37.1	62.9	47.3	52.7
0116	Fruit	21.9	78.1	27.7	72.3	35.2	64.8
0117	Vegetables including potatoes	22.0	78.0	24.9	75.1	40.6	59.4
0118	Sugar, jam, chocolate etc.	27.4	72.6	28.6	71.4	39.7	60.3
0119	Food products n.e.c.	20.9	79.1	25.6	74.4	38.0	62.0
0121	Coffee, tea and cocoa	31.0	69.0	38.5	61.5	49.1	50.9
0122	Mineral waters, soft drinks etc.	21.9	78.1	35.9	64.1	38.2	61.8
02132	Light beer and malt	24.5	75.5	47.2	52.8	51.8	48.2
022	Tobacco	1.0	99.0	20.0	80.0	2.5	97.5
056	Non-durable household goods	31.8	68.2	36.1	63.9	45.0	55.0
09	Other recreational items	3.4	96.6	31.5	68.5	49.4	50.6
111	Other catering services	6.3	93.7	5.2	94.8	17.7	82.3
121	Personal care	46.0	54.0	31.6	68.4	37.4	62.6
	Total	24.9	75.1	28.2	71.8	37.1	62.9
	Food and beverages	25.1	74.9	28.3	71.7	37.4	62.6
	Other goods	23.8	76.2	27.1	72.9	35.0	65.0
	Groceries (perishable items)	24.9	75.1	28.2	71.8	37.1	62.9

Table 7 Groceries: couples with children, shares in outlet expenditures, 2000-2002, %

	Type	*low-price*	*other*	*low-price*	*other*	*low-price*	*other*
COICOP	*Description/Year*	*2000*	*2000*	*2001*	*2001*	*2002*	*2002*
0111	*Bread and cereals*	15.7	13.2	14.2	13.9	15.2	13.1
0112	*Meat*	16.9	17.4	17.7	16.9	14.4	16.6
0113	*Fish*	1.9	3.0	2.0	2.7	1.9	2.2
0114	*Milk, cheese and eggs*	17.6	17.0	17.5	16.3	19.5	16.2
0115	*Oils and fats*	2.3	1.5	1.9	1.4	1.9	1.6
0116	*Fruit*	4.4	5.0	4.0	4.8	3.9	4.4
0117	*Vegetables including potatoes*	6.9	7.4	6.2	7.5	5.6	7.2
0118	*Sugar, jam, chocolate etc.*	7.2	6.7	8.2	7.4	7.8	6.6
0119	*Food products n.e.c.*	4.7	5.4	4.6	5.5	5.1	5.7
0121	*Coffee, tea and cocoa*	2.3	1.7	2.0	1.8	2.1	1.7
0122	*Mineral waters, soft drinks etc.*	7.5	7.2	7.0	7.5	7.5	7.2
02132	*Light beer and malt*	0.5	0.3	0.9	0.4	0.7	0.4
022	*Tobacco*	0.4	2.9	0.2	2.7	0.3	3.0
056	*Non-durable household goods*	4.0	3.8	4.1	3.2	4.3	3.7
09	*Other recreational items*	0.2	0.4	0.4	0.4	0.1	0.4
111	*Other catering services*	1.2	1.9	0.9	2.1	0.9	3.0
121	*Personal care*	6.3	5.3	8.0	5.7	8.6	6.9
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	Food and beverages	87.8	85.8	86.3	86.0	85.7	83.0
	Other goods	12.2	14.2	13.7	14.0	14.3	17.0
	Groceries (perishable items)	100.0	100.0	100.0	100.0	100.0	100.0

Table 8 Groceries: couples with children, market shares, 2000-2002, %

	Type	*low-price*	*other*	*low-price*	*other*	*low-price*	*other*
COICOP	*Description/Year*	*2000*	*2000*	*2001*	*2001*	*2002*	*2002*
0111	*Bread and cereals*	28.2	71.8	33.1	66.9	45.4	54.6
0112	*Meat*	24.4	75.6	33.7	66.3	38.5	61.5
0113	*Fish*	16.9	83.1	26.6	73.4	38.4	61.6
0114	*Milk, cheese and eggs*	25.7	74.3	34.1	65.9	46.5	53.5
0115	*Oils and fats*	32.9	67.1	39.8	60.2	47.1	52.9
0116	*Fruit*	22.8	77.2	28.8	71.2	39.0	61.0
0117	*Vegetables including potatoes*	23.7	76.3	28.6	71.4	36.0	64.0
0118	*Sugar, jam, chocolate etc.*	26.3	73.7	35.1	64.9	46.0	54.0
0119	*Food products n.e.c.*	22.5	77.5	29.1	70.9	39.1	60.9
0121	*Coffee, tea and cocoa*	30.9	69.1	35.8	64.2	47.1	52.9
0122	*Mineral waters, soft drinks etc.*	25.9	74.1	31.1	68.9	42.7	57.3
02132	*Light beer and malt*	32.6	67.4	50.8	49.2	56.3	43.7
022	*Tobacco*	4.5	95.5	3.7	96.3	5.8	94.2
056	*Non-durable household goods*	26.1	73.9	38.4	61.6	45.9	54.1
09	*Other recreational items*	15.9	84.1	35.2	64.8	16.8	83.2
111	*Other catering services*	17.7	82.3	17.4	82.6	18.3	81.7
121	*Personal care*	28.4	71.6	40.7	59.3	47.3	52.7
	Total	24.9	75.1	32.6	67.4	41.8	58.2
	Food and beverages	25.4	74.6	32.7	67.3	42.6	57.4
	Other goods	22.2	77.8	32.1	67.9	37.6	62.4
	Groceries (perishable items)	24.9	75.1	32.6	67.4	41.8	58.2

Table 9 Groceries: single-parent households, shares in outlet expenditures, 2000-2002, %

	Type	*low-price*	*other*	*low-price*	*other*	*low-price*	*other*
COICOP	*Description/Year*	*2000*	*2000*	*2001*	*2001*	*2002*	*2002*
0111	*Bread and cereals*	14.6	14.7	13.6	15.4	14.8	14.2
0112	*Meat*	10.7	13.5	17.4	11.8	13.3	14.7
0113	*Fish*	3.1	2.9	2.5	2.2	0.9	2.8
0114	*Milk, cheese and eggs*	16.5	16.0	15.7	14.6	18.8	13.5
0115	*Oils and fats*	2.1	1.4	1.6	1.7	1.8	1.1
0116	*Fruit*	2.1	5.2	5.3	6.6	3.4	5.4
0117	*Vegetables including potatoes*	6.1	6.9	6.8	7.5	5.6	6.8
0118	*Sugar, jam, chocolate etc.*	7.7	6.1	6.1	5.8	6.6	8.7
0119	*Food products n.e.c.*	3.9	6.0	3.7	5.6	5.6	4.9
0121	*Coffee, tea and cocoa*	2.8	1.4	1.8	1.4	1.7	2.1
0122	*Mineral waters, soft drinks etc.*	8.5	8.2	9.0	9.2	10.7	9.4
02132	*Light beer and malt*	0.4	0.5	0.6	0.3	0.9	1.8
022	*Tobacco*	2.9	4.3	0.0	5.2	1.6	3.0
056	*Non-durable household goods*	6.1	3.9	4.5	4.3	4.9	6.1
09	*Other recreational items*	0.8	0.4	0.2	0.3	0.9	1.7
111	*Other catering services*	2.0	3.5	2.6	3.4	1.5	1.7
121	*Personal care*	9.8	5.2	8.6	4.6	6.8	2.3
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	Food and beverages	78.4	82.7	84.1	82.2	84.3	85.2
	Other goods	21.6	17.3	15.9	17.8	15.7	14.8
	Groceries (perishable items)	100.0	100.0	100.0	100.0	100.0	100.0

Table 10 Groceries: single-parent households, market shares, 2000-2002, %

	Type	*low-price*	*other*	*low-price*	*other*	*low-price*	*other*
COICOP	*Description/Year*	*2000*	*2000*	*2001*	*2001*	*2002*	*2002*
0111	*Bread and cereals*	22.6	77.4	34.6	65.4	38.6	61.4
0112	*Meat*	18.9	81.1	47.0	53.0	35.2	64.8
0113	*Fish*	23.8	76.2	40.5	59.5	16.6	83.4
0114	*Milk, cheese and eggs*	23.2	76.8	39.2	60.8	45.7	54.3
0115	*Oils and fats*	30.1	69.9	36.1	63.9	51.2	48.8
0116	*Fruit*	10.4	89.6	32.8	67.2	27.9	72.1
0117	*Vegetables including potatoes*	20.4	79.6	35.2	64.8	33.1	66.9
0118	*Sugar, jam, chocolate etc.*	27.2	72.8	38.7	61.3	31.3	68.7
0119	*Food products n.e.c.*	15.9	84.1	28.8	71.2	40.7	59.3
0121	*Coffee, tea and cocoa*	36.5	63.5	43.7	56.3	32.2	67.8
0122	*Mineral waters, soft drinks etc.*	23.2	76.8	37.2	62.8	40.6	59.4
02132	*Light beer and malt*	18.2	81.8	52.2	47.8	24.1	75.9
022	*Tobacco*	16.1	83.9	0.0	100.0	24.2	75.8
056	*Non-durable household goods*	31.5	68.5	38.9	61.1	32.7	67.3
09	*Other recreational items*	39.1	60.9	28.2	71.8	24.0	76.0
111	*Other catering services*	14.4	85.6	31.8	68.2	34.2	65.8
121	*Personal care*	35.6	64.4	52.9	47.1	64.0	36.0
	Total	22.6	77.4	37.6	62.4	37.5	62.5
	Food and beverages	21.7	78.3	38.1	61.9	37.3	62.7
	Other goods	26.8	73.2	35.0	65.0	38.9	61.1
	Groceries (perishable items)	22.6	77.4	37.6	62.4	37.5	62.5

Table 11 Groceries: other households, shares in outlet expenditures, 2000-2002, %

	Type	*low-price*	*other*	*low-price*	*other*	*low-price*	*other*
COICOP	*Description/Year*	*2000*	*2000*	*2001*	*2001*	*2002*	*2002*
0111	*Bread and cereals*	15.8	11.5	13.6	12.1	13.5	12.0
0112	*Meat*	20.2	21.0	18.3	19.2	17.1	16.8
0113	*Fish*	3.1	3.9	4.2	3.8	1.9	3.4
0114	*Milk, cheese and eggs*	15.6	14.0	14.4	15.0	18.3	15.3
0115	*Oils and fats*	2.1	1.2	2.0	1.8	2.0	1.4
0116	*Fruit*	4.3	5.7	4.6	5.1	4.2	4.7
0117	*Vegetables including potatoes*	6.8	7.9	7.9	6.5	6.2	6.5
0118	*Sugar, jam, chocolate etc.*	8.9	5.8	6.5	7.5	8.0	5.6
0119	*Food products n.e.c.*	3.6	5.8	5.0	5.5	4.3	5.0
0121	*Coffee, tea and cocoa*	2.6	2.2	2.5	2.6	2.3	2.1
0122	*Mineral waters, soft drinks etc.*	8.0	7.3	6.9	5.9	7.0	5.6
02132	*Light beer and malt*	0.6	0.9	1.0	0.2	1.3	1.7
022	*Tobacco*	0.7	2.3	0.2	3.5	0.6	5.3
056	*Non-durable household goods*	3.4	3.0	4.8	2.9	5.2	5.8
09	*Other recreational items*	0.0	0.3	1.2	0.5	0.1	0.6
111	*Other catering services*	0.7	2.7	0.7	2.7	1.9	3.5
121	*Personal care*	3.7	4.5	6.2	5.2	6.0	4.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	Food and beverages	91.5	87.1	87.0	85.2	86.2	80.1
	Other goods	8.5	12.9	13.0	14.8	13.8	19.9
	Groceries (perishable items)	100.0	100.0	100.0	100.0	100.0	100.0

Table 12 Groceries: other households, market shares, 2000-2002, %

	Type	*low-price*	*other*	*low-price*	*other*	*low-price*	*other*
COICOP	*Description/Year*	*2000*	*2000*	*2001*	*2001*	*2002*	*2002*
0111	*Bread and cereals*	35.3	64.7	36.3	63.7	43.9	56.1
0112	*Meat*	27.7	72.3	32.4	67.6	41.4	58.6
0113	*Fish*	23.9	76.1	35.9	64.1	27.9	72.1
0114	*Milk, cheese and eggs*	30.8	69.2	32.7	67.3	45.3	54.7
0115	*Oils and fats*	39.9	60.1	35.7	64.3	50.6	49.4
0116	*Fruit*	23.1	76.9	31.4	68.6	37.8	62.2
0117	*Vegetables including potatoes*	25.7	74.3	38.2	61.8	39.8	60.2
0118	*Sugar, jam, chocolate etc.*	38.0	62.0	30.2	69.8	49.7	50.3
0119	*Food products n.e.c.*	19.8	80.2	31.3	68.7	37.2	62.8
0121	*Coffee, tea and cocoa*	32.8	67.2	33.0	67.0	43.6	56.4
0122	*Mineral waters, soft drinks etc.*	30.3	69.7	37.0	63.0	46.8	53.2
02132	*Light beer and malt*	19.4	80.6	75.0	25.0	35.0	65.0
022	*Tobacco*	10.7	89.3	2.9	97.1	7.6	92.4
056	*Non-durable household goods*	31.2	68.8	45.4	54.6	38.4	61.6
09	*Other recreational items*	4.7	95.3	53.7	46.3	6.5	93.5
111	*Other catering services*	8.9	91.1	11.1	88.9	27.6	72.4
121	*Personal care*	24.6	75.4	37.4	62.6	46.9	53.1
	Total	28.5	71.5	33.5	66.5	41.0	59.0
	Food and beverages	29.5	70.5	34.0	66.0	42.7	57.3
	Other goods	20.8	79.2	30.7	69.3	32.5	67.5
	Groceries (perishable items)	28.5	71.5	33.5	66.5	41.0	59.0

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