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EMMANUEL DHYNE
National Bank of Belgium,
and
Centre de Recherche Warocqué, Université de Mons-Hainaut, belgium

JERZY KONIECZNY
Wilfrid Laurier University, Waterloo, Ont., Canada,
and
The Rimini Centre for Economic Analysis, Rimini, Italy

"TEMPORAL DISTRIBUTION OF PRICE CHANGES: STAGGERING IN THE LARGE AND SYNCHRONIZATION IN THE SMALL"

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Temporal Distribution of Price Changes: Staggering in the Large and Synchronization in the Small.*

Emmanuel Dhyne[&]

Jerzy Konieczny[±]

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Abstract

Temporal distribution of individual price changes is of crucial importance for business cycle theory and for the microfoundations of price adjustment. While it is routinely assumed that price changes are staggered over time, both theory and evidence are ambiguous. We use a large Belgian data set to analyze whether price changes are staggered or synchronized. We find that the more aggregated are the data, the closer is the distribution to perfect staggering. This result holds both for aggregation across goods, and across locations. Our results provide support for Bhaskar's (2002) model of synchronized adjustment within, and staggered adjustment across, industries.

[&] Research Department, National Bank of Belgium, and Centre de Recherche Warocqué, Université de Mons-Hainaut, e-mail: emmanuel.dhyne@nbb.be

[±] Corresponding author, Department of Economics, Wilfrid Laurier University, Waterloo, Ont., Canada, N2L3C5, e-mail: jurek@wlu.ca

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1 Introduction

We analyze the temporal distribution of price changes using a large micro data set which contains individual price information for 65% of Belgian CPI. The data consist of over nine million of price observations and over a million and a half price changes. Based on this data we ask (a) whether price changes are staggered or synchronized and (b) how the temporal pattern is affected as more and more aggregated data are considered.

The first question is motivated by the role of the temporal distribution of price changes in micro-founded models based on nominal rigidities. It is important for several reasons. First, it determines how persistent the effects of monetary shocks on real variables are. When price changes are synchronized, nominal shocks do not create persistent behavior. The effects of the shocks usually last only for as long as prices are fixed. On the other hand, if price changes are staggered, even temporary shocks can have long-lasting effects, as demonstrated some time ago by Fischer (1977) and Taylor (1980) and more recently by Chari, Kehoe and McGrattan (2000) in the presence of real rigidities.

Second, aggregate consistency in state-contingent models requires price changes be uniformly staggered over time (Caplin and Spulber, 1987). Otherwise, the aggregate behavior of the price level differs from the assumed behavior underlying the optimal policies. Several authors analyze conditions under which price changes may be staggered. Price changes converge to the uniform distribution if firms follow randomized strategies to deter storage by speculators (Bénabou, 1989) or if the (s, S) bands differ slightly across firms (Caplin and Spulber, 1987). Sheshinski and Weiss (1992) consider a multi-product monopoly and show that staggering is a likely outcome if prices are strategic substitutes or if the costs of price adjustment are decision costs, rather than menu costs.

Third, despite the fact that both theory and evidence are ambiguous, it is common practice to assume uniform staggering in time-contingent models. Many authors use the assumptions of Taylor (1980), that the proportion of firms changing prices is constant over time, or of Calvo (1983), where each firm has the same probability of changing prices each period. Similarly, in Mankiw and Reis (2002) a constant fraction of firms

become informed about current economic conditions each period. But the staggering of price changes is assumed, rather than derived, from the underlying structure.

The problem with these assumptions is that, as pointed out by Blanchard and Fischer (1989) and by Sheshinski and Weiss (1992), price changes are likely to be synchronized in equilibrium. This is due to strategic complementarity in price adjustment: a firm's optimal price is positively affected by the prices of other firms. As a result, each firm prefers to change its price whenever many other firms do. An equilibrium in which a constant proportion of firms change their prices each period is possible but it is unstable. If more firms decide to adjust in some period (because of, for example, a relative shock), other firms will have an incentive to follow. The uniform distribution of price changes will then collapse and price changes will become synchronized. Sheshinski and Weiss (1992) show, further, that a staggered equilibrium cannot follow a synchronized price change. Staggering can be an equilibrium if firms receive shocks at different times but Blanchard and Fischer (1989) argue that there is little evidence of such shocks.

As to the second question dealt with in this paper, the analysis of the effect of aggregation on the staggering/staggering of price changes allows us to test the competing explanations of the temporal pattern of price changes. Bhaskar (2002) considers a two-level economy which consists of firms and industries. Strategic complementarity in prices is stronger within industries than across industries. In this environment, synchronization within and staggering across industries is a stable Nash equilibrium. Each firm prefers to adjust its prices at the same time as other firms in its industry do. Even when price changes are not synchronized across industries, the firm has no incentive to alter the timing of its price changes. This is because such a change, while synchronizing its adjustment with other industries, de-synchronizes it with its own industry. Bhaskar (2002) shows that, if each firm's probability of price change is a half, there exist equilibria in which firms within each industry synchronize price changes, but industries stagger price changes over time. There is a range around a half of the proportion of industries changing price within which no firm has an incentive to alter its policy. The size of this range depends on the difference in the degree of strategic complementarity

within and across industries. The model implies that staggering should be more pronounced across, than within, industries.

An alternative model of staggering is due to Ball and Cecchetti (1988). The idea is based on incomplete information. Whenever a firm faces uncertainty about the state of its market (level of demand, future costs etc.) it may use prices set by other firms to infer it. It is then beneficial for a firm to delay its adjustment in order to observe other firms' new price. If informational benefits outweigh the strategic complementarity considerations, staggering is a stable equilibrium. Since, generally speaking, more information can be inferred from firms operating in the same than in an unrelated market, the model implies that staggering should be more pronounced within, than across, industries.

Existing empirical results are ambiguous. Cecchetti (1986) reports that prices changes of U.S. magazines are not synchronized. Lach and Tsiddon (1992) analyze the price behavior of two categories of food products (wines and meats) in Israel during a period of rapid inflation (over 60% per year) and conclude that there is no evidence of synchronization. In a subsequent paper based on the same data (Lach and Tsiddon, 1996), they find that price changes of different products within a store are synchronized, while price changes of a given product across stores are staggered. Tommasi (1993) investigates the behavior of food prices in Argentina during a period of very rapid inflation (up to 38% per week) and finds that price changes within stores are staggered. Kashyap (1995) finds little synchronization of price changes across stores for similar products. Dutta *et al.* (1999) report that, in the U.S., a large proportion of prices changes within a store takes place at certain times (early in the week for grocery chains and on Fridays for a drugstore chain). Fisher and Konieczny (2000) find some evidence of synchronization of price changes among Canadian newspapers owned by the same company, but no evidence of synchronization by independent newspapers. Chakrabarti and Scholnick (2005) report within-store synchronization of price changes by Internet booksellers.

A possible explanation of the ambiguity of the existing empirical results is that they have been obtained from limited data sets. As pointed out by Konieczny and Skrzypacz (2006), pricing policies in individual markets are highly idiosyncratic. They

find that the variability of the frequency of adjustment within groups is greater than the variability across groups and conclude that studies based on small data sets may produce misleading results.

Our analysis of the temporal distribution of price changes uses a large data set for Belgium. The data, which have been made available to the National Bank of Belgium by the Belgian Ministry of Economic Affairs, consists of monthly price reports collected for the computation of the Belgian CPI. They include over nine million price observations and over a million and a half price changes for 368 product categories, covering 65% of Belgian CPI.

We start by checking whether price changes in individual product categories are perfectly staggered or perfectly synchronized. The hypothesis of perfect staggering is rejected for 97% or product categories (in CPI weights, 99% of our sample coverage). Furthermore, the distribution of price changes is further from perfect synchronization than from perfect staggering for 95% product categories (in CPI weights, 91% of our sample coverage).

We then turn to the analysis of the impact of aggregation on the temporal pattern of price changes. We conduct several nonparametric tests, considering aggregation in the product space, where the comparison involves different levels of the COICOP groupings (Classification of Individual Consumption by Purpose - an international classification of consumption expenditures), as well as spatial aggregation, by comparing the temporal distribution of price changes in Belgium with the distribution in the three largest cities. We subject the data to a variety of tests, starting from a general comparison and then extracting additional information from the data. The results are clear-cut. We find that the more aggregated are the data, the closer is the price changing pattern to perfect staggering. This result holds both for aggregation across goods, and across locations. Hence our results suggest that Bhaskar's (2002) approach is supported by the data. On the other hand the results are not consistent with the incomplete information story of Ball and Cecchetti (1988).

The structure of the paper is as follows. In the next section we describe the data. In section 3 we ask whether price changes are staggered or synchronized. In section 4 we

explore the impact of product aggregation on the degree of staggering of price changes. In section 5 we investigate the impact of spatial aggregation. Conclusions are in the last section.

2 The Data Set

The data set consists of monthly price reports used by the Belgian Federal Public Services for the computation of the Belgian CPI. The period covered starts in January 1996 and ends in December 2003.[1] We describe the data briefly here; for more details see Aucremanne and Dhyne (2004).

The data set is very extensive. It consists of disaggregated, store level monthly price information for goods and services that constitute around 65% of Belgian CPI.[2] In all, we have 9,078,180 price reports and 1,521,617 price changes for 368 product categories in 65 Belgian cities.

Each price report includes the information on: the date of the report, the store and city code, the product category, packaging and some additional, but fragmentary, information about the product (for instance, the brand). The price used is the price per unit so that promotions in quantities (e.g. 2 units for the price of 1) are treated similarly to price promotions. We define a price trajectory as the sequence of consecutive price reports associated with a particular product (e.g. one bottle of brand X Cola in product category "Soft Drinks") sold in a particular store (e.g. store Y in city Z). Store replacement ends one price trajectory and starts another. The information on the brand of the good within a product category is incomplete and often not reliable and so we chose not to use it; hence some of the price changes may be due to product replacement.

The data include sale prices, except for end-of-season sales. Under Belgian regulations, in product categories where such sales are permitted (mostly clothing,

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1 These data have been used previously by Aucremanne and Dhyne (2004, 2005) and by Cornille (2003). The original database covers the 1989-2003 period. During this period three different definitions of the Belgian CPI were used. In order to keep a homogeneous sample of product categories over time, we restricted the analysis to the observation period of the last price index.

2 The remaining 35% of CPI are products followed centrally by the Federal Public Services (such as housing rents, electricity, gas, telecommunications and insurance) and product categories that are not followed throughout the year (such as seasonal fruits and vegetables, winter and summer fees in a tennis club, etc.).

footwear and electronic goods) the retailer must display the pre-sale price and the percentage reduction. Our data contain the pre-sale prices only. French (Baudry *et al.*, 2004) and Austrian (Baumgarter *et al.*, 2005) evidence suggests that including such sales raises the aggregate frequency of price changes by about 3%.

The average frequency of price changes in our data is 15.3%; the average frequency of price increases is 8.8% and of price decreases is 6.5%. It is similar to the frequency of price changes in other Euro-area countries (Dhyne *et al.*, 2006) but it is lower than the frequency in the US (Bils and Klenow, 2004, and Klenow and Kryvtsov, 2005, report 25% of prices are changed each month, while Nakamura and Steinsson, 2006, report a frequency of price changes of 19%).

In Figure 1 we show the evolution of the average, over all goods, frequency of price changes, price increases and price decreases over the entire observation period. Prior to January 2001, the monthly probability of price changes varies between about 10% and 15%. It then increases to between about 15% and 20%.[3] This temporary increase in the frequency of price changes has been partly attributed to the introduction of the Euro (Cornille, 2003).

3 Are Price Changes Staggered or Synchronized?

Figure 1 suggests that, at the aggregated level, price changes in Belgium are neither perfectly staggered, nor perfectly synchronized. Under perfect staggering the monthly proportion of price changes would be constant over time, but it fluctuates significantly in our sample. The observed pattern is also quite different from the one expected under perfect synchronization. If price changes were perfectly synchronized, the proportion would be either zero or one, but the observed proportion of price changes is never close to these values; in particular, it never exceeds 0.22.

There is no accepted method in the literature of evaluating the degree of staggering/synchronization in the data. For instance, Lach and Tsiddon (1992) assess the degree of price change synchronization using the standard deviation and the serial

[3] The extreme values are 8.7% in November 1997 and 21.9% in March 2002. The values for individual product categories are in the Appendix.

correlation of the monthly frequency of price changes. The degree of staggering/synchronization of price changes can be evaluated by considering cross-sectional dependence in price setting (using cross-sectional dependence tests, such as Pesaran, 2005).

In this paper, we measure the degree of synchronization by the index introduced in Fisher and Konieczny (2000), hereafter the F-K index, which characterizes the temporal behavior of price changes with a single number.[4]

The idea of the Fisher-Konieczny approach is straightforward. Perfect staggering and perfect synchronization are the two extremes of the distribution of price changes over time. The F-K index is based on the comparison of the standard deviation of the monthly proportion of price changes (so doing it is close in spirit to the Lach and Tsiddon, 1992, approach) to the values under the two extremes. When changes are perfectly staggered, the proportion of firms adjusting prices each month is constant, and equal to the average proportion of price changes in the data; the standard deviation of the proportion is then zero. When changes are perfectly synchronized, the monthly proportion of firms changing price in a given month is either equal to one or to zero. The standard deviation of the proportion under that assumption is $\sqrt{F_i(1-F_i)}$, which is the highest possible standard deviation of the proportion in a population where the probability of price change is F_i. The F-K index is defined as the ratio of the actual standard deviation of the proportion of price changes in the data to the maximum value under the assumption of perfect synchronization:

$$FK_i = \sqrt{\frac{\frac{1}{T_i}\sum_{t=1}^{T_i}\left(F_{it}-F_i\right)^2}{F_i(1-F_i)}} \tag{3}$$

where T_i is the number of observations. In the above definition we divide the sum in the numerator by T_i to ensure that the value of the index is between 0 (when price changes are perfectly staggered) and 1 (when price changes are perfectly synchronized). [5]

[4] This approach has become popular recently. It has been used by Aucremanne and Dhyne (2004) for Belgian CPI data, Hoffmann and Kurz-Kim (2006) for German CPI data, Sabatini *et al.* (2005) for Italian PPI data, Veronese *et al.* (2005) for Italian CPI data and by Dhyne *et al.* (2006) for CPI data from 10 European countries. Dias *et al.* (2005) discuss an alternative interpretation of the index.

While it is a common procedure to compute the F-K index for price changes, one interpretation of synchronization is that all firms change their price simultaneously in the same direction. Therefore we also compute the index separately for price increases and for price decreases. The values for individual product categories are given in the Appendix.

As can be seen from Table A1 in the Appendix, the temporal pattern of price changes as measured by the F-K index varies greatly across product categories but the index is bounded away from both zero and one. For price changes, the index varies from 0.10 (Brie) to 0.88 (single room in a hospital); for price increases from 0.09 (electric bulb) to 0.89 (single room in a hospital) and for price decreases from 0.07 (hamburger in a store) to 0.85 (hourly rate of a plumber).

The large variety of temporal behavior is illustrated in Figure 2 which shows the proportion of price changes for the two extreme cases (Brie and hospital room) as well as for toffees, for which the F-K index is close to our sample median (0.20). For comparison we also include the proportion for all goods.

The F-K index provides a further indication that price changes are closer to perfect staggering than to perfect synchronization. In Figure 3 we plot the cumulative (by CPI weights) distribution of the value of the F-K index for price changes, price increases and price decreases. The weights have been re-scaled so that they sum to 1 in our sample. It is clear that, for individual product categories, the value of the index indicates behavior closer to perfect staggering than to perfect synchronization. For price changes, the median value of the F-K index is 0.20; the value for the 75th percentile is 0.28. It exceeds a half for 25 of the 368 product categories in the sample (slightly below 15% of our sample coverage, in CPI weights). The results for price increases are similar. Price decreases are more staggered: the median value of the index is 0.14, the value for the 75th

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[5] The expression in the numerator is a sample standard deviation so, technically, it should be divided by T_i -1. If the sample formula were used, the value of the index would be in the interval $\left[0, \sqrt{T_i/(T_i-1)}\right]$.

percentile is 0.21 and it exceeds a half for 22 out of the 368 product categories (slightly above 10% of our sample coverage, in CPI weights).[6]

The F-K index is superior to simple measures of standard deviations of the frequency of price changes as it provides a relative measure of synchronization. But it has some drawbacks First, and most important, is the fact that it is not clear how to interpret values between zero and one. As (almost) perfect staggering and (almost) perfect synchronization are ambiguous terms, it is not clear how close to zero (respectively one) should the F-K index be to conclude that data are characterized by (almost) perfect staggering (respectively synchronization). We bypass the problem by complementing our analysis of the F-K index with other statistical procedures to assess (almost) perfect staggering/synchronization and by comparing the values of the index for various goods (or categories of goods).

Second, the value of the F-K index depends on the size of the sample. If the degree of synchronization/staggering varies greatly across goods in a product category, and the sample of goods is small, the computed value of the index may not represent its true value. As the Belgian CPI sample is representative of the monthly price distribution for each individual product categories at the national level[7], the variation in the cross-sectional dimension across product categories should not affect the cross-comparison of the F-K index.

To assess staggering for individual product categories in our data set we use the χ^2 goodness of fit test. The test involves the comparison of the actual number of price changes for the product category at time *t* with the number of changes that would have taken place under perfect staggering.[8]

The results are clear-cut: perfect staggering is rejected at the standard 5% level for almost all goods. For price changes and for price decreases, perfect staggering is rejected

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[6] Aucremanne and Dhyne (2004) compute the values of the F-K index for the January 1989- January 2001 period using the same data set. The results are similar, except for a larger proportion of product categories with a high value of the index. This is due to the fact that they include seasonal goods. Price changes for seasonal goods tend to be more synchronized than for other goods.

[7] See Belgian Ministry of Economic Affairs (1999) for details about the computation of the Belgian CPI.

[8] Since not every product is observed in all time periods, the latter is calculated as the number of prices observed both at time t and t-1 times the average frequency of price changes over the entire observation period for that product category.

for 357 out of 368 products[9]; they constitute, in CPI weights, 99% (97%, respectively) of our sample coverage; for price increases perfect staggering is rejected for all product categories.[10]

The χ^2 goodness of fit test cannot be used to test for perfect synchronization, since, under that assumption, the temporal behavior of the frequency of price changes is deterministic. To evaluate whether the distribution of price changes is closer to perfect staggering or to perfect synchronization, we compare the sums of squares of the observed deviations under the two assumptions. For the case of perfect staggering we compute:

$$RSS_i^1 = \sum_{t=1}^{T_i} (F_{it} - F_i)^2 \tag{1}$$

where F_{it} is the average frequency of price changes for product group i in month t, F_i is the average frequency over the sample and T_i is the number of observations.[11]

For the case of perfect synchronization we first construct, for each product category, an artificial series of T_i numbers equal to zero or to one. The number of ones in the series is obtained by rounding $T_i \cdot F_i$ to the nearest integer. We arrange the numbers in the artificial series in ascending order to obtain $F_{it}^{\{0,1\}}$. We then arrange F_{it} in ascending order to obtain F_{it}^{asc}. This procedure matches the highest values of both series and minimizes RSS_i^2, given by:

$$RSS_i^2 = \sum_{t=1}^{T_i} \left(F_{it}^{asc} - F_i^{\{0,1\}} \right)^2 \tag{2}$$

To illustrate, consider a 10-month period. The numbers are given below:

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[9] For price changes, the assumption of perfect price staggering is not rejected for fresh cod, sole, fillet of fish, skate wing, lettuce, leeks, cauliflower, software, roses, chrysanthemums and carnations. For price decreases, the assumption of perfect price staggering is not rejected for knitting wool, dry cleaning of a shirt, parking spot in a garage, cement, hanging fabric, domestic services, software, swimming pool fee, watch battery replacement, funeral services and passport stamp.

[10] Results for individual product categories are in the Appendix.

[11] In equation (1) the maximum value of T_i is 95 as there are 8 years of data and we cannot determine price changes in January 1996.

T	1	2	3	4	5	6	7	8	9	10
F_{it}	0.16	0.22	0.20	0.14	0.18	0.26	0.24	0.10	0.30	0.20
$F_{it}^{\{0,1\}}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
F_{it}^{asc}	0.10	0.14	0.16	0.18	0.20	0.20	0.22	0.24	0.26	0.30

We have $F_i = 0.2$, RSS_i^1=0.0312 and RSS_i^2=1.3112 and so the temporal distribution of the proportion of price changes in the table is much closer to perfect staggering than to perfect synchronization.

Using this procedure we find that perfect staggering dominates perfect synchronization (i.e. $RSS_i^1 < RSS_i^2$) for 352 product categories out of 368.[12] These 352 products represent, in CPI weights, 91% of our sample coverage. While the procedure does not provide a formal test, it clearly indicates that, for individual product categories, the pattern of price adjustment is closer to perfect staggering than to perfect synchronization. It should be noted that all 16 product categories characterized by a distribution of price changes closer to perfect synchronization are also characterized by a F-K index larger than 0.6.

This preliminary look at the data suggests that price changes at the individual product category level are neither perfectly staggered nor synchronized, but their behavior is much closer to perfect staggering.

4 Staggering of Price Changes at Different Product Aggregation Levels

We now turn to the comparison of the degree of staggering/synchronization of price changes within and across industries.

In order to compare the pattern of price changes within and across industries, we need to define what industries, and industry groupings, are. For this purpose we use the

[12] The 16 product categories for which perfect synchronization dominates perfect staggering are special bread, whole wheat bread, standard and king-size cigarettes, water charge, butane, propane, single bedroom in an hospital, LPGA, Eurosuper RON95, Superplus RON98, construction game (Lego), school lunch and school boarding fees, public health insurance premium and passport stamp.

COICOP (Classification of Individual Consumption by Purpose) groupings – an international four-digit classification of consumption expenditures. This approach allows us to avoid judgments and provides several levels of aggregation. The list of product categories and their COICOP classifications is in the Appendix.

Figure 4 illustrates the impact of aggregation on the cumulative distribution of the F-K index computed for price changes at the product category level (where there are 368 categories), at the COICOP four-digit level (71 groups), at the COICOP two-digit level (11 groups) and the value of the index at the CPI level. The pictures for price increases and for price decreases are similar and are omitted to save space. The more aggregated are data, the smaller are the values of the F-K index, indicating price changes are more staggered. The cumulative distribution of the F-K index for the product category level is entirely to the right (i.e. it stochastically dominates) the distribution at the COICOP four-digit level, which in turn is to the right of the distribution at the COICOP two-digit level. The value of the index at the CPI level (0.075) is lower than the value at the two-digit level for 10 out of 11 industry groupings, which constitute 72% of our sample by CPI weight, and at the four-digit level for 68 out of 71 industry groupings, which constitute 94% of our sample by CPI weight.

We now turn to more formal testing of the effect of aggregation on the staggering of price changes. All tests use Wilcoxon nonparametric approach. We conduct three tests, extracting successively more information from the data. We begin by comparing the distributions of the F-K index at different aggregation levels, using the Wilcoxon Rank Sum. We then use the Wilcoxon Signed Rank test which, unlike the Rank Sum test, takes into account the links between products and product categories at different levels of aggregation. The third set of non-parametric tests involves pairwise comparison of entire monthly price distributions; these use more information than the F-K index based tests as the index summarizes the distribution over the entire period with one number.

We first compare the distributions of the F-K index at different aggregation levels, using the Wilcoxon Rank Sum. We compare the distribution of the F-K index at one level of aggregation (for instance, at the product category level) to the distribution of the F-K index at another level of aggregation (for instance, at the COICOP four-digit level). The

null hypothesis is that the F-K ratios at two different levels of aggregation are the same, against a one sided (in view of Figure 4) alternative that they are lower for the more aggregated data. Test statistics, which have approximate standard normal distribution, are given in Table 1.[13] The results are consistent with the picture of Figure 4: the more aggregated are data, the smaller are the computed values of the F-K index. But, except for the comparisons at the product category level for price decreases, the differences are not statistically significant.

There are two problems with the use of Wilcoxon Rank Sum test that reduce its power and may be responsible for the lack of significance. First, while the test requirements are minimal, the shape of the distribution of the two series should be the same. This requirement is violated in our data. The reason is that, as discussed in detail in Aucremanne and Dhyne (2004), the volume of price data for different goods is often not related to their importance in CPI. As the F-K index varies greatly across product categories, the differences in the volume of price data at different levels of aggregation may affect the values of the Wilcoxon Rank Sum test. In particular, just over a third of all product categories (124 out of 368) are in COICOP 01 "Food and non-alcoholic beverages", while this grouping constitutes only 17% of 1996 CPI basket. The values of the F-K index for COICOP 01 is low (0.06). As a result, the overrepresentation of food and non-alcoholic beverages at the product category level moves the distribution of the F-K index to the left and lowers the value of the test statistics.

The second problem is that the Wilcoxon Rank Sum test does not use all information available in our data, and hence its power is low. Indeed, the test compares the entire distribution of the index at different levels of aggregation, ignoring linkages between product categories and COICOP groupings. This means that, for example, the value of the F-K index for "bread roll" is, at the more aggregated level, compared equally to the value for "breads and cereals" (the COICOP four-digit grouping to which it belongs) and for, say, "motor fuels"(another COICOP four-digit grouping). But both Bhaskar's (2002) and Ball and Cecchetti's (1989) models imply that the comparison should focus on the group of industries that includes the industry in question.

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[13] The results of all three tests for individual product categories are in the Appendix.

Using the Wilcoxon Signed Rank test solves both problems: the Signed-Rank test is robust with respect to differences in the number of products within a given grouping and compares individual markets with the related groups of markets. The test is based on the ranks of the differences between F-K index values at different aggregation levels. The differences are calculated for corresponding groupings. For example, the comparison of the product category level with the COICOP four-digit level uses the difference of the F-K index for "bread roll" and for "breads and cereals", which includes the "bread roll" product category. Similarly, the comparison at the four- and two-digit COICOP levels uses the difference between "breads and cereals" and "food and non-alcoholic beverages".

The data underlying the Wilcoxon Signed Rank test are shown in scatter plots in Figure 5. Each point marks the value of the F-K index for the product-category level and its corresponding four-digit COICOP grouping. Most of the points are below the diagonal, suggesting that the values of the F-K index are lower for the more aggregated data.

Table 2 shows the Wilcoxon Signed Rank statistics. Given the evidence in Figure 5, these are computed for a one sided test. The difference between the distributions of the F-K index is significant at the 1% level in all cases, with the single exception of the comparison between the COICOP two-digit and CPI level for price decreases.

To summarize the results of this second set of tests, we find that the more aggregated are industries, the lower are the values of the F-K index and so the closer is the temporal behavior of price changes to staggering.

Finally, while the Wilcoxon Signed Rank tests use more information than the Wilcoxon Rank Sum tests, they still neglect some important information. Indeed, as the F-K index summarizes the entire temporal price distribution with just one number, comparisons based on the index do not use all information available in the monthly evolutions of the frequency of price changes. To take advantage of the additional information in the data, the third set of non parametric tests is based on pairwise comparison of the entire distributions, for the corresponding categories, of the proportion of price changes at adjacent aggregation levels. The idea is as follows. When price

changes are staggered, the monthly frequencies are close to the average frequency of price changes; while when price changes are synchronized, they are far from the average. The degree of price staggering for one product category/aggregation level can therefore be described by the series of relative deviations of the monthly frequency of price changes from its average.

We use the following measure[14]:

$$B_{it} = \left(F_{it} - F_i\right)^2 / \left[F_i\left(1 - F_i\right)\right]. \tag{4}$$

When price changes are staggered, B_i's are close to zero; when price changes are synchronized, they are far from zero. The B_i's are naturally related to the F-K index as

$$FK_i = \sqrt{\frac{1}{T_i}\sum_{t=1}^{T_i} B_{it}}\ . \tag{5}$$

The Wilcoxon Rank Sum test can be used to compare the distribution of B_i for two adjacent, corresponding levels of aggregation, for example for "bread roll" and for "bread and cereals".[15] We conduct these pairwise tests for individual product categories versus four-digit COICOP categories, for four-digit versus two-digit COICOP categories and for two-digit COICOP versus CPI. For each comparison we conduct the test for price changes, as well as, separately, for price increases and for price decreases. Overall there are 1350 pairwise comparisons. The null hypothesis is that price changes are equally staggered, against the one-sided alternative that there is less staggering at the higher aggregation level.

Below we summarize these pairwise comparisons by reporting the number of cases in which the null hypothesis is rejected at the 5% level in favor of more pronounced staggering in the more aggregated data.[16] The results are for price changes, with results for increases and decreases in brackets. In comparison between product categories and

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[14] A useful property of B_{it} is that it is symmetric for the presence and the absence of price changes in the sense that it treats the same a sector with frequency of price changes equal to f and a sector with frequency equal to 1-f.

[15] We use the Rank Sum test since we focus only on the degree of price change synchronization at two adjacent levels of aggregation, and not on when the high/low proportions of price changes take place. The Signed Rank test imposes the requirement that they be in the same months.

[16] The results for individual product categories and groupings are in the appendix.

COICOP four-digit aggregates (e.g. bread rolls compared to "breads and cereals"), the null hypothesis rejected at the 5% level for price changes for 229 (200 for increases, 226 for decreases, respectively) out of 368 product categories, which constitute 56% (51%, 67%, respectively) of our sample by CPI weight. In the comparison of COICOP four-digit categories with their corresponding COICOP two-digit categories (e.g. "breads and cereals" compared with "Food and non-alcoholic beverages"), the null hypothesis is rejected for 47 (44, 44) out of 71 four-digit categories, which constitute 62% (60%, 50%, respectively) of our sample by CPI weight. Finally, in the comparison between COICOP two-digit categories and CPI, the null hypothesis is rejected at the 5% level for price changes for 8 (6, 3) out of 11 COICOP two-digit categories, which constitute 57% (34%, 15%, respectively) of our sample by CPI weight.

We conclude that the results of the 3 sets of non-parametric tests (Wilcoxon Rank Sum and Wilcoxon Signed Rank tests that use the F-K index and Wilcoxon Rank Sum tests on the B_i's) are similar and present a consistent picture. As the level of data aggregation increases, price changes become more staggered. In other words, price changes are staggered in the large and (more) synchronized in the small. These results provide support for the Bhaskar's (2002) model and are inconsistent with the implications of the Ball and Cecchetti's (1989) information-based theory of the staggering of price change.

5 The Effect of Geographic Aggregation

The tests in the previous section were aimed at discriminating between the two competing explanations of the temporal pattern of price changes by looking at the effect of aggregation in the product space. But both the Bhaskar (2002) and the Ball and Cecchetti (1989) models are applicable to defining an industry in a geographic sense, as an aggregate of nearby firms. The strategic complementarity considerations underlying Bhaskar's argument are stronger the closer are firms located to each other. Similarly, in the Ball and Cecchetti story, a firm learns more from prices set by nearby, than by distant, firms. In this section, therefore, we ask how geographic aggregation affects the staggering/synchronization of price changes.

Our data set provides sufficient information to compute the F-K index separately for the three largest Belgian cities: Brussels, Antwerp and Liège. Figure 6 compares the cumulative distribution of the F-K index computed at the product category level for Belgium and for each of the 3 cities. In Figure 7 we show the scatter plot of the F-K index at the product category level for Belgium and for each of the three cities. The data shown in Figures 6 and 7 are the input for the Wilcoxon Rank Sum and for Wilcoxon Signed Rank tests, respectively. Test results are in columns 1, 3 and 5 of Table 3. The null hypothesis is that there is no difference between the value of the index in Belgium and in individual cities, against a one-sided alternative that the value for Belgium is lower than for the three cities.

Figure 7 and test results present a clear and consistent picture: the values of the F-K index are lower at the national level than in smaller geographic areas, and the differences are significant at any standard level using either test.

Does it mean price changes are closer to staggering at the national level than in these cities? Not necessarily. The number of observations used to compute the proportions underlying the F-K index differs significantly between samples. The Belgian sample consists of more than 9,000,000 observations, or an average of around 250 outlets per month per product category. The samples at the city level consist of around 300,000 observations, or on average of only 10 outlets per month per product category. As mentioned above, the value of the F-K index is inversely related to the size of the sample.[17] It was argued in the previous section that this relation did not influenced cross-comparisons of F-K index computed on representative samples. But while the Belgian CPI sample for each product category can surely be considered as representative at the national level, this might not be the case at the local level. Hence the difference in the index may be an artifact of the larger volume of data at the national level.

To check whether the results are driven by differences in sample sizes, we drew a random, stratified sub-sample of 300,000 observations from the Belgian data. The results of the tests for price changes which use the sub-sample are in the second column of Table 3; the results for price increases and decreases are in columns 4 and 6, respectively.

[17] Perfect staggering and perfect synchronization are notable exceptions.

As expected, the values of the Wilcoxon statistics are lower than when the entire data set for Belgium was used. Using the Rank Sum test, for Brussels and Antwerp the values of the F-K index remain significantly higher than for Belgium at any standard significance level, but the results for Liège are not statistically different. Results are similar for price increases and price decreases: the F-K indices remain significantly higher for Brussels and Antwerp than for Belgium while they are not statistically different for Liège, except for price decreases, which are more staggered in Liège than nationally. The results obtained with the Signed Rank test are similar.

Finally, we also conducted Wilcoxon Rank Sum Test using the B_{it} series, comparing the degree of price staggering at the product category level in Belgium with the degree of price staggering of the same product category in Brussels, Antwerp or Liège.[18] Price changes (increases, decreases) are more synchronized in Brussels compared to Belgium for 308 (293, 264, respectively) out of 368 product categories. For Antwerp, the number of product categories characterized by greater synchronization of price changes (increases, decreases) is 326 (325, 245, respectively). For Liège, the respective figures are 284, 285 and 229.[19]

Based on these results, we conclude that the effects of geographic aggregation are similar to the effects of product aggregation, but perhaps are less significant.

6 Conclusions

Using simple nonparametric tests we find that the more aggregated are data, the closer is the behavior of price changes to perfect staggering. This holds both for aggregation in the product space and for geographic aggregation. Hence, while price changes may be synchronized in the small, they are staggered in the large. Our results provide support for Bhaskar's (2002) explanation of staggering of price changes but are inconsistent with the Ball and Cecchetti's (1989) information-based theory.

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[18] These statistics are based on the comparison between the city samples and the full Belgian sample.

[19] In terms of CPI weights, we observe more price change synchronization in Brussels, Antwerp or Liège compared to Belgium for respectively 82%, 84% and 78% of our CPI coverage. Respective figures for price increases are 78%, 88%, 69% and 65%, 62% and 60% for price decreases.

A problem with Bhaskar's (2002) model is that it only provides an existence result: if prices are strategic complements, an equilibrium in which price changes are synchronized within, and staggered across, industries may exist and be stable. But an equilibrium in which price changes are synchronized within and across industries may also exist and be stable. The model does not provide an explanation for how one or the other equilibrium can come about.

There are in our view, two related potential explanations the staggering of price changes across industries and locations. The first, related to Caplin and Spulber (1987) is simply that the timing of price changes is independent across unrelated industries and across separate locations. The second, due to Golosov and Lucas (2003), is that price changes are dominated by relative shocks and these shocks take place at a different time in different industries and in different locations. The empirical implications of the two explanations are quite similar and so distinguishing between them is difficult. A potentially fruitful approach would be to analyze the effect of common shocks (for example an increase in the VAT rate, or the introduction of the Euro) on the synchronization of price changes and the speed at which the temporal distribution of price changes returns to the pre-shock values. The analysis of the reasons for staggering of price changes across products and locations is an interesting topic for future research.

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Table 1

Testing for the effects of product aggregation: Wilcoxon Rank Sum statistics

Level of aggregation		Price changes	Price increases	Price decreases
Less aggregated	More aggregated			
Product category level	COICOP 4-digit	0.33	0.40	2.10
	COICOP 2-digit	1.33	1.20	1.73
COICOP 4-digit	COICOP 2-digit	1.00	0.50	1.20

Note: There are 368 product categories, 71 COICOP four-digit categories and 12 COICOP two-digit categories.

Table 2

Testing for the effects of product aggregation: Wilcoxon Signed Rank Statistics

Level of aggregation		Price changes	Price increases	Price decreases
Less aggregated	More aggregated			
Product category level	COICOP 4-digit	12.5	12.7	12.5
	COICOP 2-digit	14.7	14.0	13.7
	CPI	16.6	16.6	15.5
COICOP 4-digit	COICOP 2-digit	5.2	4.1	4.3
	CPI	7.6	7.0	4.9
COICOP 2-digit	CPI	2.7	2.5	1.0

Table 3

Testing for the effects of geographic aggregation

Wilcoxon Rank Sum Statistics

Test results using		Price changes		Price increases		Price decreases	
		All data	Stratified	All data	Stratified	All data	Stratified
Belgium versus:	Brussels	18.4	5.8	17.5	5.1	19.6	5.4
	Antwerp	19.3	10.0	18.3	9.6	19.7	8.1
	Liège	17.6	-1.1	16.8	-1.1	18.9	-3.2

Wilcoxon Sign Rank Test

Test results using		Price changes		Price increases		Price decreases	
		All data	Stratified	All data	Stratified	All data	Stratified
Belgium versus:	Brussels	16.6	3.3	16.6	2.8	15.9	1.0
	Antwerp	16.5	6.4	16.5	6.3	15.8	4.0
	Liège	16.5	0.4	16.4	0.8	15.5	3.7

Figure 1

Frequency of Price Changes, 01/1996 – 12/2003

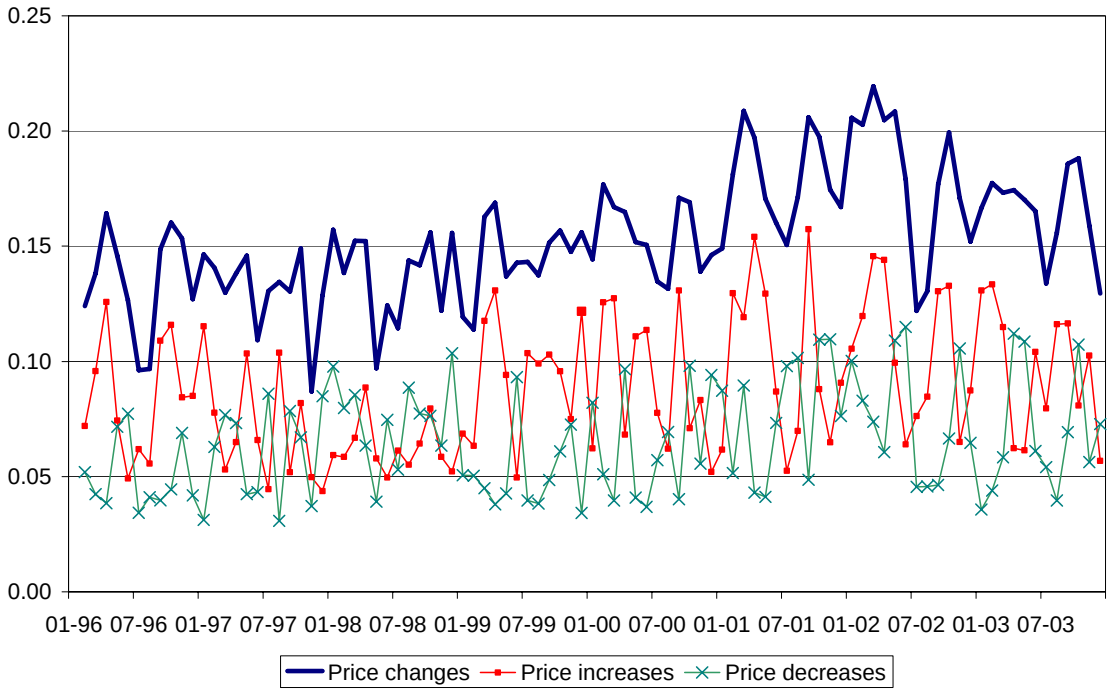


Figure 2

Frequency of price changes for selected product categories

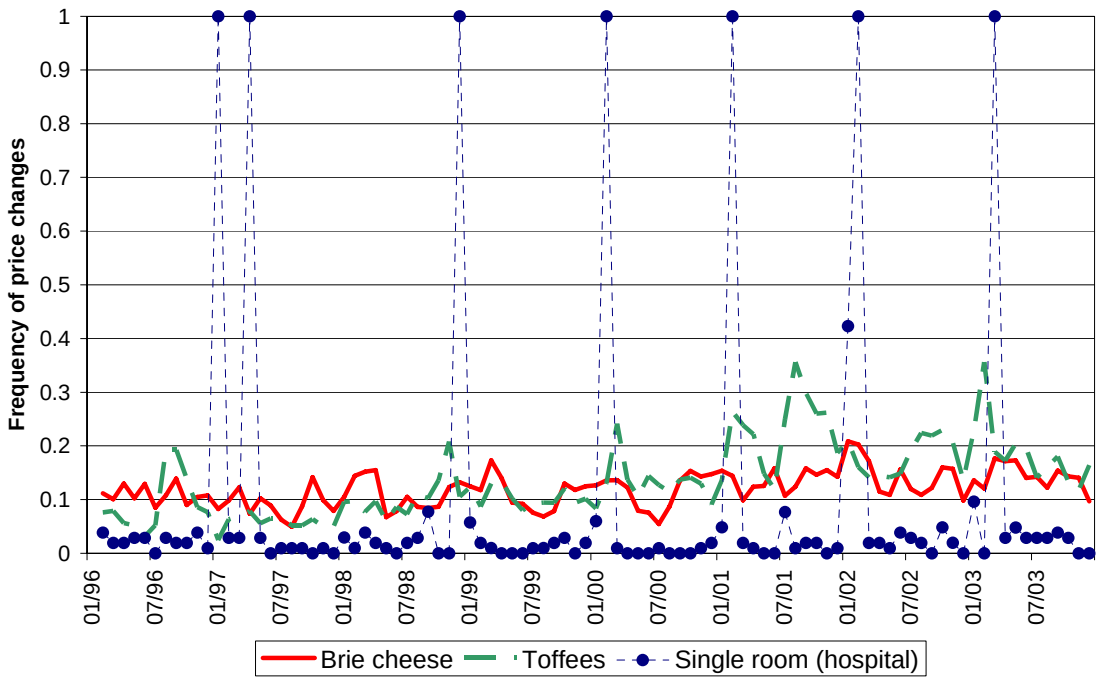


Figure 3

Distribution of the F-K Index in Belgian CPI

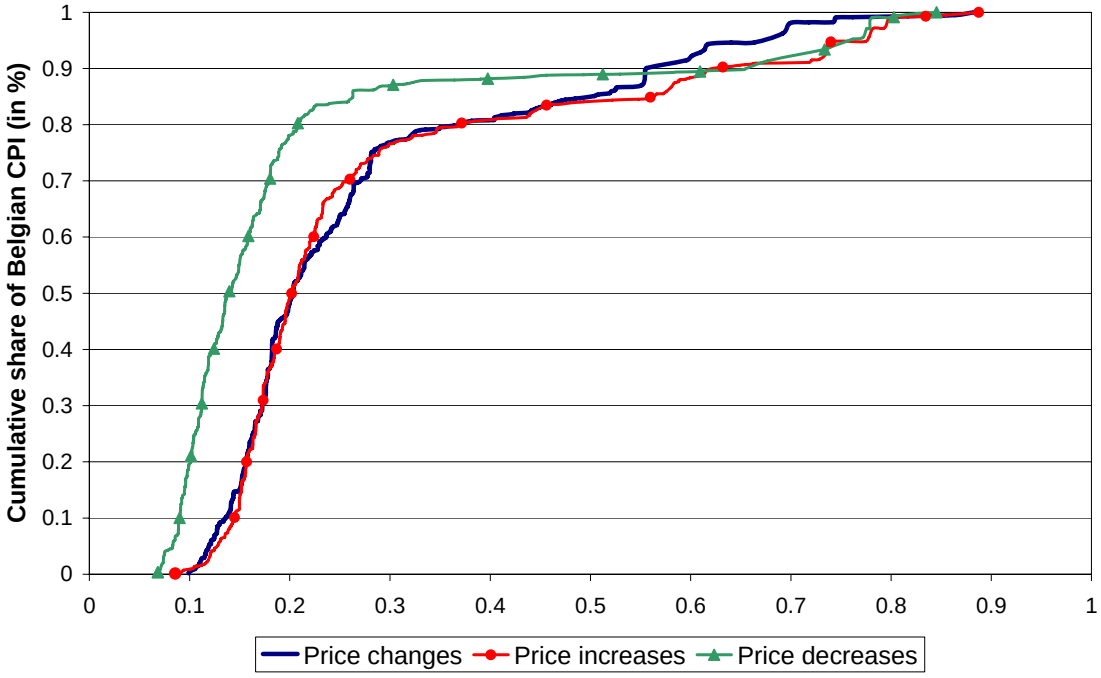


Figure 4

Distribution of the F-K Index by Aggregation Level

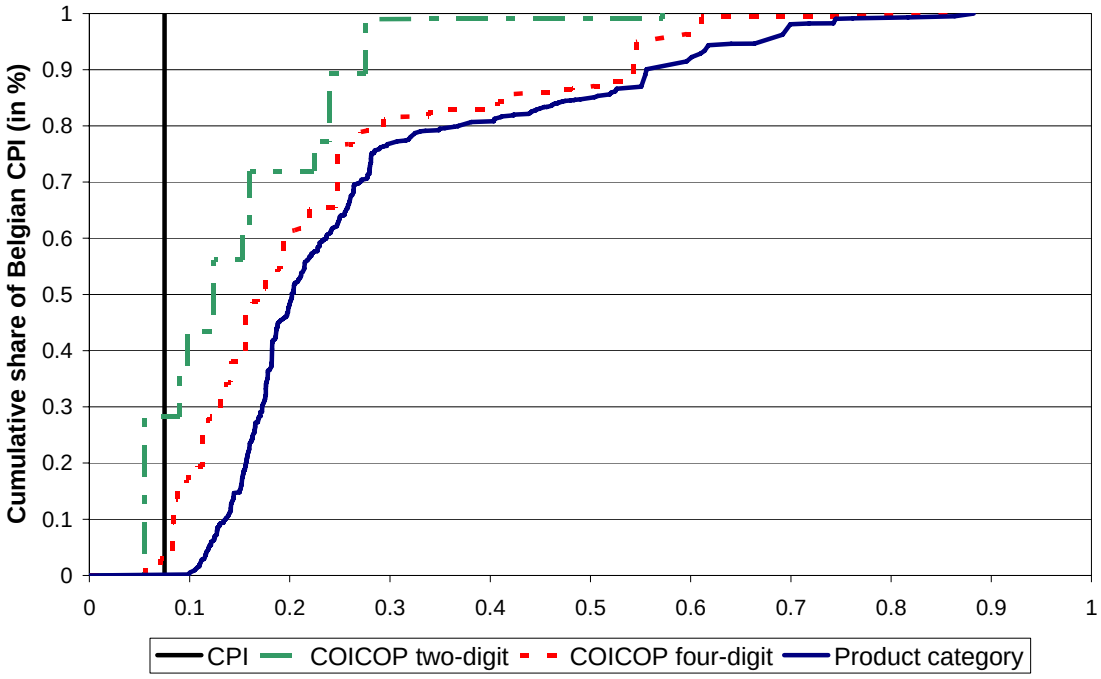


Figure 5

Scatter plots of the F-K index of price changes (full sample)

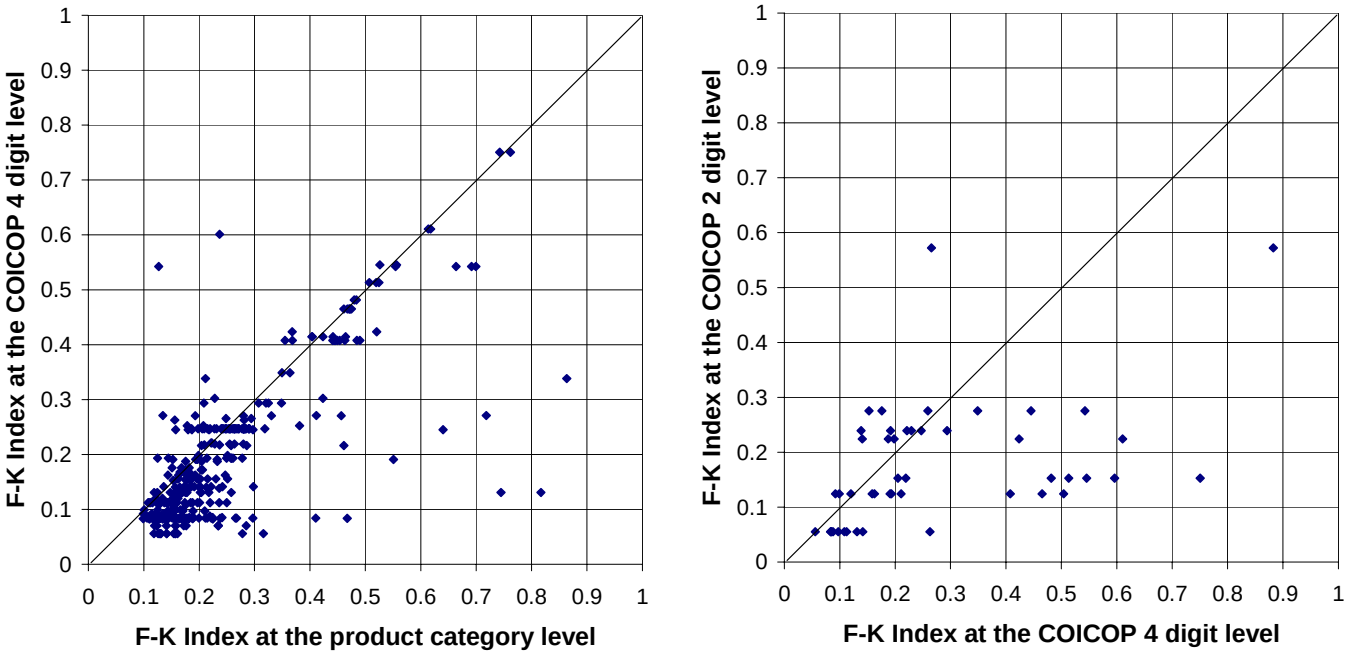
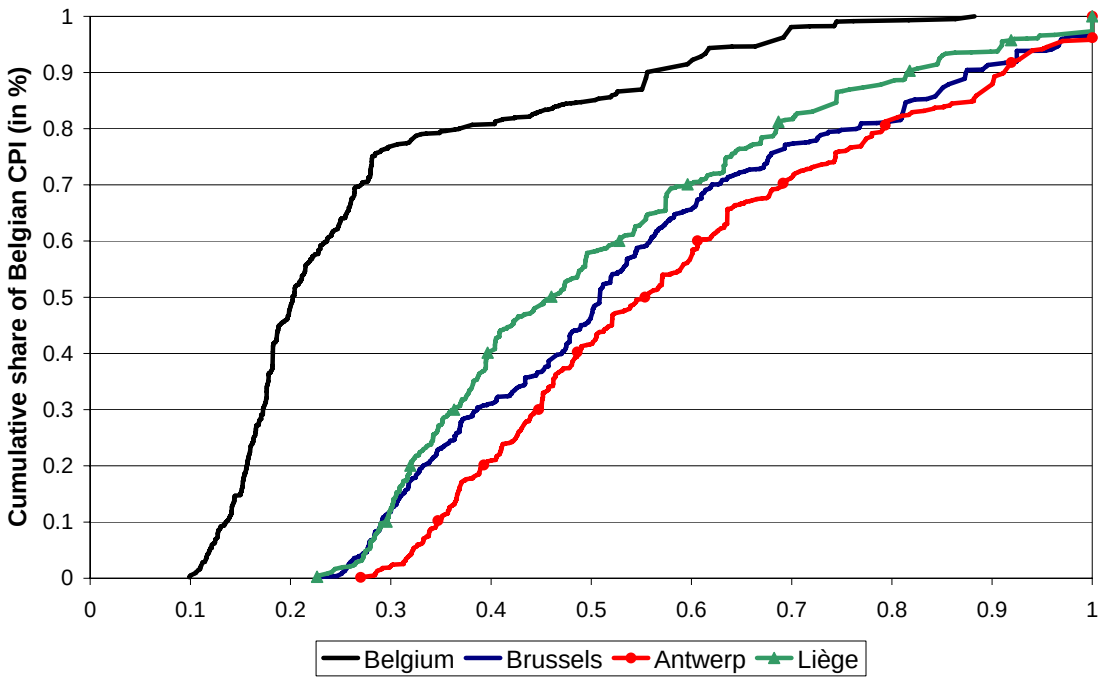


Figure 6

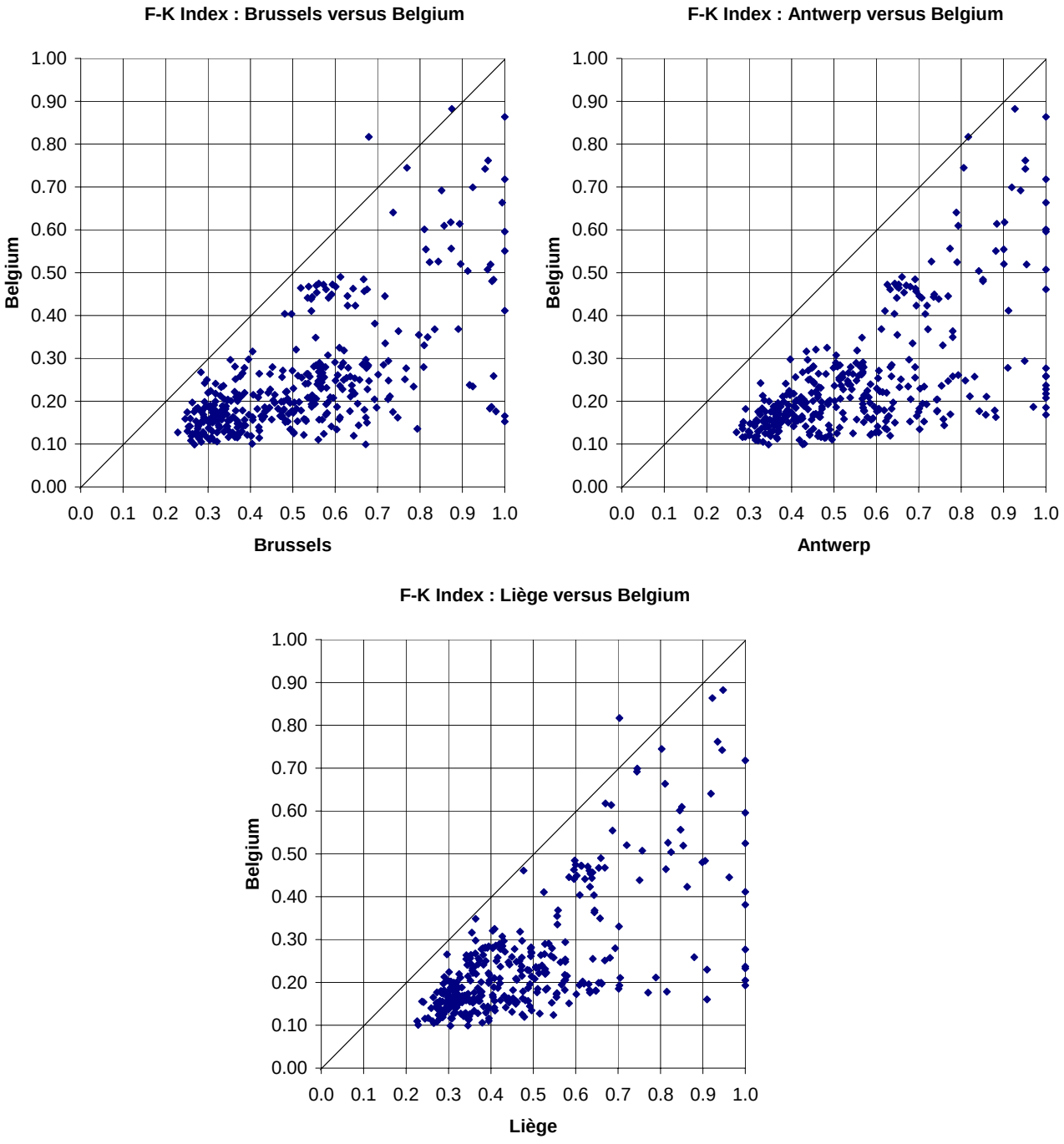
Distribution of the F-K index – Belgium versus 3 main Belgian cities



Note: Belgian CPI weights are used at the local level.

Figure 7

Scatter plots of the F-K index: Belgium versus 3 main Belgian cities



Appendix:

Adjustment frequency and F-K index for product categories.

Description of the table:

Freq: the average frequency of price changes (increases, decreases).

F-K index: the value of the Fisher-Konieczny index.

Wilc1: a "+" indicates that price changes (increases, decreases) at the product category level are significantly less staggered than price changes (increases, decreases) at the corresponding COICOP four-digit level.

Wilc2: a "+" indicates that price changes (increases, decreases) at the product category or the COICOP four-digit level are significantly less staggered than price changes (increases, decreases) at the corresponding COICOP two-digit level.

Wilc3: a "+" indicates that price changes (increases, decreases) at the product category or the COICOP four- or two-digit level are significantly less staggered than price changes (increases, decreases) at the CPI level

Note: The results in the Wilc 1-3 columns use the B_{it} based Wilcoxon Rank Sum Test, at the 5% level.

Product category	COICOP	Price changes					Price increases					Price decreases				
		Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Food and non-alcoholic beverages	**01.0.0.0**	**20.4**	**5.5**				**11.3**	**6.3**				**9.1**	**4**			
Bread and cereals	*01.1.1.0*	*8.8*	*13.1*		+	+	*5.5*	*14.9*		+		*3.4*	*5.7*			
Rice	01.1.1.1	17.3	12.4	+	+	+	8.8	11.2		+		8.5	10.7	+	+	
Baking flour	01.1.1.2	13.6	14.8	+	+	+	7	15.4	+	+		6.6	12.6	+	+	
Spaghetti	01.1.1.3	20.5	17.5	+	+	+	10.5	20	+	+	+	10.1	16.4	+	+	+
Bread roll	01.1.1.4	2.6	17.8	+	+	+	2.3	17.7	+	+		0.4	8.9	+	+	
Raisin bread	01.1.1.4	3.7	25.8	+	+	+	2.9	21.4	+	+	+	0.8	21.5	+	+	
Special bread	01.1.1.4	2.3	81.7	+	+	+	2.2	83.5	+	+	+	0.1	9.5	+	+	
Whole wheat bread	01.1.1.4	2.6	74.5	+	+	+	2.4	77.8	+	+	+	0.2	7.2	+	+	
Biscuits	01.1.1.5	19.9	21.8	+	+	+	12	24.8	+	+	+	7.9	16.4	+	+	+
Speculoos	01.1.1.5	15.7	20.2	+	+	+	9.6	22.1	+	+	+	6.1	13.6	+	+	
Coffee cake	01.1.1.5	4	16.9	+	+	+	3.5	16.8	+	+	+	0.5	9.5	+	+	
Éclair	01.1.1.5	4.3	17.7	+	+	+	3.6	18	+	+	+	0.7	7.9	+	+	
Carré glace	01.1.1.5	4.6	16.8	+	+	+	3.8	16.6	+	+	+	0.8	8.8	+	+	
Swiss cake	01.1.1.5	3.5	16.3	+	+	+	2.9	15.6	+	+		0.6	8.3	+	+	
Belgian waffle	01.1.1.5	9.6	11.9	+	+	+	5.2	10.4		+		4.3	13.9	+	+	
Rice pudding	01.1.1.5	5.5	16.9	+	+	+	4.3	16.8	+	+		1.2	8.5	+	+	
Cornflakes	01.1.1.6	18.2	15.6	+	+	+	9.7	19.6	+	+	+	8.6	14.9	+	+	+
Fresh pizza	01.1.1.6	10.1	16.4	+	+	+	5.1	15.7	+	+		5	16.3	+	+	
Instant cream	01.1.1.6	15.2	16.8	+	+	+	8.4	18.7	+	+	+	6.7	16.1	+	+	+
Meat	*01.1.2.0*	*12.7*	*11.2*		+		*7.7*	*13.2*		+		*5*	*5*			
Meat, cooking quality	01.1.2.1	8.4	14.3	+	+	+	5.6	15.7	+	+	+	2.9	9.5	+	+	
Meat for carbonnade	01.1.2.1	13.6	14.1	+	+	+	8.2	15.2	+	+	+	5.4	10.4	+	+	
Roast beef	01.1.2.1	13.4	15.3	+	+	+	8.1	18.2	+	+	+	5.3	9.3	+	+	
Beefsteak	01.1.2.1	12.5	14.1	+	+	+	7.6	15	+	+		4.9	9.8	+	+	
Sirloin	01.1.2.1	15.8	15.9	+	+	+	9.6	19.3	+	+	+	6.2	10.4	+	+	
Roast veal	01.1.2.2	11	13	+	+	+	7.5	14.1	+	+		3.6	10.2	+	+	
Pork chop (filet)	01.1.2.3	18	25	+	+	+	10.4	32.2	+	+	+	7.7	20.3	+	+	+
Pork rib	01.1.2.3	18.4	23.6	+	+	+	10.7	30.7	+	+	+	7.6	19.1	+	+	+
Roast ham	01.1.2.3	17.3	22	+	+	+	9.9	29.8	+	+	+	7.4	15.9	+	+	+
Leg of lamb	01.1.2.4	15.9	15.4	+	+	+	9.3	17	+	+		6.6	10.4	+	+	
Chicken, roasting	01.1.2.5	15	11.6		+	+	8.7	14.6		+		6.3	8.4	+	+	
Turkey fillet	01.1.2.5	15.5	11		+	+	8.8	12.9		+		6.7	7.5	+	+	
Rabbit	01.1.2.6	24.5	13.7	+	+	+	13.6	18.2	+	+	+	10.9	12.4	+	+	
Boiled ham	01.1.2.7	15.1	15.6	+	+	+	9.3	19.3	+	+		5.8	7.6	+	+	
Pork and beef sausage	01.1.2.7	9.6	17.4	+	+	+	6.4	19.3	+	+		3.3	7.5	+	+	
Bacon	01.1.2.7	11.3	18.5	+	+	+	7.4	22.1	+	+		3.8	10.2	+	+	
Ham	01.1.2.7	12.5	16	+	+	+	7.6	19.5	+	+		4.9	8.6	+	+	
Ham sausage	01.1.2.7	9.5	15.4	+	+	+	6	17.5	+	+		3.5	8	+	+	
Country paté	01.1.2.7	9.4	12.8	+	+	+	6	14.3		+		3.3	7	+	+	
Black pudding	01.1.2.7	9.5	14.4	+	+	+	6.2	15.5	+	+		3.3	7.4	+	+	
Steak tartare	01.1.2.8	12.6	12.4	+	+	+	7.7	14.6	+	+		5	9.8	+	+	
Ground meat	01.1.2.8	13.5	18.8	+	+	+	8.4	22.7	+	+		5.1	10.3	+	+	
Frankfurters	01.1.2.8	16.9	20.1	+	+	+	9.5	22.5	+	+	+	7.5	16	+	+	+
Sausage	01.1.2.8	12.3	19.7	+	+	+	7.7	24.4	+	+		4.5	9.2	+	+	
Meat salad	01.1.2.8	6.9	11.2	+	+	+	4.5	12		+		2.4	8.9	+	+	
Hamburger	01.1.2.8	9	10.8		+		5.7	12.8		+		3.3	6.8	+	+	
Fish and seafood	*01.1.3.0*	*40.1*	*5.6*				*21.4*	*9.5*		+		*18.7*	*9.1*		+	
Fresh cod	01.1.3.1	72.1	11.8	+	+	+	38.8	20.9	+	+	+	33.3	22.4	+	+	+

		Price changes					Price increases					Price decreases				
Product category	COICOP	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Sole	01.1.3.1	76.1	15.7	+	+	+	39.4	30.6	+	+	+	36.7	30.3	+	+	+
Fillet of fish	01.1.3.1	73.6	12.6	+	+	+	38.7	28.9	+	+	+	34.9	29.8	+	+	+
Plaice	01.1.3.1	61	14.2	+	+	+	32.7	20.2	+	+	+	28.3	20.6	+	+	+
Skate (wing)	01.1.3.1	68.5	15.4	+	+	+	35.6	22.6	+	+	+	32.9	21.7	+	+	+
Rainbow trout	01.1.3.1	35.6	15.7	+	+	+	18.8	16.7	+	+		16.8	13.4	+	+	
Pink salmon	01.1.3.1	46.9	12.9	+	+	+	24	15.4	+	+	+	22.9	11.4	+	+	
Shrimp	01.1.3.1	48.4	27.8	+	+	+	25.5	37.9	+	+	+	22.8	36.4	+	+	+
Prawns	01.1.3.1	24.8	13.1	+	+	+	13.9	14.5	+	+		10.9	10.7		+	
Cod filet (frozen)	01.1.3.2	9.9	31.6	+	+	+	6.3	34.6	+	+	+	3.6	17.5	+	+	+
Fishcakes	01.1.3.2	13.9	20.4	+	+	+	8	24.2	+	+	+	6	13.3	+	+	
Smoked salmon	01.1.3.3	17.5	13	+	+	+	8.7	11.8		+		8.7	12.1		+	
Tinned tuna	01.1.3.4	19	14.1	+	+	+	10.5	17.1	+	+	+	8.5	11	+	+	
Tinned sardines	01.1.3.4	9.5	16.1	+	+	+	5.7	15.7	+	+		3.8	15.9	+	+	+
Milk, cheese and eggs	*01.1.4.0*	*14.7*	*8.3*		+		*8.3*	*8.7*		+		*6.4*	*7.2*		+	
Pasteurized milk	01.1.4.1	11.5	16.9	+	+	+	6.8	18.9	+	+		4.6	11.8	+	+	
Low-fat yoghurt	01.1.4.1	14.9	18.8	+	+	+	8.7	20.6	+	+	+	6.2	13.5	+	+	
Partially-skimmed milk	01.1.4.1	13.2	17.6	+	+	+	7.6	19.7	+	+		5.6	14.2	+	+	
Whipped cream	01.1.4.1	10.7	11.6	+	+	+	6.4	12.6	+	+		4.4	9.9	+	+	
Full-fat fruit yoghurt	01.1.4.1	14.5	16.5	+	+	+	7.9	15.2	+	+	+	6.5	13.3	+	+	+
Cheese (Edam type)	01.1.4.2	11.1	12.7	+	+	+	7.2	15	+	+		3.9	9.2	+	+	
Cheese (Gouda type)	01.1.4.2	15.6	12	+	+	+	8.8	12.1	+	+		6.8	9.7	+	+	
Emmentaler	01.1.4.2	13.3	11.6	+	+	+	7.7	11.2	+	+		5.6	11.2	+	+	
Low-fat white cheese	01.1.4.2	17.5	14.2	+	+	+	8.4	15.2	+	+	+	9.1	17.9	+	+	+
Brie	01.1.4.2	12	9.9	+	+	+	6.2	9.3	+	+		5.8	8.9	+	+	
Camembert	01.1.4.2	19.3	14	+	+	+	9.4	13.1	+	+		9.9	12.5	+	+	
Processed Gruyere	01.1.4.2	14.6	15.5	+	+	+	8.3	17.4	+	+	+	6.4	10.9	+	+	
Eggs	01.1.4.3	29	18.2	+	+	+	16.6	24.2	+	+	+	12.4	22.3	+	+	+
Oils and fats	*01.1.5.0*	*17.8*	*9.7*		+		*9.9*	*12.4*		+		*7.9*	*7.4*		+	
Butter	01.1.5.1	13.8	14.3	+	+	+	8.1	16.6		+		5.7	10.3	+	+	
Margarine (standard)	01.1.5.2	20.7	18.9	+	+	+	11.2	22.4	+	+	+	9.5	17.1	+	+	
Margarine (super)	01.1.5.2	18.1	21	+	+	+	10.3	23.9	+	+	+	7.8	16.1	+	+	+
Diet margarine	01.1.5.2	22.6	17.1	+	+	+	11.8	20	+	+	+	10.8	15.5	+	+	
Minarine	01.1.5.2	21.4	15.5	+	+	+	11.3	19.7	+	+	+	10.1	10.3	+	+	
Corn oil	01.1.5.3	20.7	15.3	+	+	+	11.7	17.1	+	+	+	9.1	17.2	+	+	+
Groundnut oil	01.1.5.3	19.4	15.5	+	+	+	10.3	19	+	+	+	9.1	13.3	+	+	+
Fruits	*01.1.6.0*	*50.6*	*8.5*		+	+	*27.1*	*12.4*		+		*23.5*	*13.5*		+	+
Oranges	01.1.6.1	61.6	18.2	+	+	+	32.9	27	+	+	+	28.7	26.3	+	+	+
Bananas	01.1.6.1	58.1	22.4	+	+	+	30.7	32.2	+	+	+	27.4	25.9	+	+	+
Apples, Golden, imported	01.1.6.1	54.9	21.1	+	+	+	29.9	24.3	+	+	+	25.1	31.3	+	+	+
Apples, Granny Smith	01.1.6.1	56.1	22.2	+	+	+	30.8	30.4	+	+	+	25.4	31.7	+	+	+
Lemons	01.1.6.1	50	15	+	+	+	26	15.7		+		24	14.7		+	+
White grapefruit	01.1.6.1	58.7	14.1	+	+	+	30.8	20.3	+	+	+	27.9	20.8	+	+	+
Apples, Jonagold type	01.1.6.1	63.5	24.1	+	+	+	34.3	29.9	+	+	+	29.2	33.3	+	+	+
Kiwis	01.1.6.1	53.1	19	+	+	+	28.5	23	+	+	+	24.5	20.8	+	+	+
Tinned pineapple slices	01.1.6.3	15	11.9	+	+	+	8.8	14		+	+	6.2	10		+	
Tinned apricot halves	01.1.6.3	11.6	11		+	+	6.7	13.6		+		4.9	9.9		+	

		Price changes					Price increases					Price decreases				
Product category	COICOP	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Vegetables	*01.1.7.0*	*49*	*8.4*		+	+	*24.6*	*11.5*		+		*24.4*	*13.8*		+	+
Lettuce	01.1.7.1	99.1	11.6		+	+	49.7	65.5	+	+	+	49.4	65.5	+	+	+
Greenhouse tomatoes	01.1.7.1	88.9	20	+	+	+	45.2	57.5	+	+	+	43.7	58.1	+	+	+
Leeks	01.1.7.1	98.2	11.6	+	+	+	45.8	58.7	+	+	+	52.3	58.7	+	+	+
Carrots	01.1.7.1	56.7	26.8	+	+	+	30	39.1	+	+	+	26.8	39	+	+	+
Onions	01.1.7.1	46.2	29.7	+	+	+	24.1	36.6	+	+	+	22.1	39	+	+	+
White mushrooms	01.1.7.1	26.7	16.5	+	+	+	14.1	15.6		+		12.7	12.7		+	
Cauliflower	01.1.7.1	99.6	10.6		+		49.5	49.3	+	+	+	50.1	49.3	+	+	+
Paprika pepper	01.1.7.1	85.2	18.7	+	+	+	44.9	52.3	+	+	+	40.2	53	+	+	+
White beans with tomato sauce	01.1.7.3	12.1	15.2	+	+	+	6.7	14.5		+		5.4	13.2		+	+
Tinned tomatoes, peeled	01.1.7.3	11.3	17.3	+	+	+	7	17.8	+	+	+	4.3	14.6		+	
Tinned peas	01.1.7.3	11.5	13	+	+	+	6.7	14.4		+		4.8	11.8		+	
Vegetables for soup, frozen	01.1.7.4	7.7	13.6	+	+	+	4.5	14.4		+		3.2	10.8		+	
Spinach, frozen	01.1.7.4	9	26.5	+	+	+	5.4	26.4	+	+	+	3.7	16.3		+	+
Potatoes	01.1.7.5	60.4	41.1	+	+	+	26.6	48.3	+	+	+	33.8	45.6	+	+	+
French fries. frozen	01.1.7.5	12.5	18	+	+	+	6.9	19.1		+		5.6	16.1		+	
Potato chips	01.1.7.5	15.9	21.4	+	+	+	8.3	16.6	+	+	+	7.6	16.1		+	+
Sugar, jam, honey, chocolate and confectionery	*01.1.8.0*	*16.7*	*14.1*		+	+	*9.3*	*14.4*		+		*7.4*	*10.4*		+	
Sugar	01.1.8.1	7.9	29.8	+	+	+	5.3	33.4	+	+	+	2.6	18.8		+	
Crystallized sugar	01.1.8.1	6.8	18.6		+	+	4	21.7		+		2.8	11.9		+	
Four fruit jam	01.1.8.2	16.7	13.6		+	+	9	13.1		+		7.8	13.4		+	
Milk chocolate	01.1.8.3	21.7	24.2	+	+	+	11.7	26.9	+	+	+	10	17.1	+	+	+
Dark chocolate	01.1.8.3	27.5	19.1		+	+	14.4	23.3	+	+	+	13.1	18.2	+	+	+
Toffees	01.1.8.3	13.6	20.2	+	+	+	8.4	21	+	+	+	5.3	12.7		+	+
Ice cream	01.1.8.3	14.7	22.2	+	+	+	8	23.2	+	+	+	6.7	18.1	+	+	+
Nut chocolate paste	01.1.8.3	13.7	18.3	+	+	+	7.5	16.5	+	+	+	6.2	13.7		+	
Candy bar	01.1.8.3	11.6	17.3		+	+	7.1	19.6	+	+	+	4.5	12.7		+	
Other food products	*01.1.9.0*	*20.2*	*10.8*		+	+	*11*	*11.5*		+		*9.2*	*9.7*		+	
Mustard	01.1.9.0	13.7	17.6	+	+	+	7.7	19.2	+	+	+	6	15.2	+	+	+
Tomato soup	01.1.9.0	22.1	15.2	+	+	+	12.3	16.5	+	+		9.9	15.1	+	+	+
Mayonnaise	01.1.9.0	22	12.7		+	+	11.7	14	+	+	+	10.3	15.6	+	+	+
Coffee, tea and cocoa	*01.2.1.0*	*28.3*	*26.3*		+	+	*13.7*	*32.9*		+	+	*14.7*	*27.1*		+	+
Coffee, beans or ground	01.2.1.0	29.4	28.1		+	+	14.3	34.7		+	+	15.2	29		+	+
Instant coffee	01.2.1.0	16.5	15.6		+	+	7	18.2		+		9.5	17.8		+	+
Mineral water, soft drinks, fruit and vegetable juice	*01.2.2.0*	*13.4*	*8.8*		+	+	*7.7*	*9*		+		*5.7*	*5.9*		+	
Mineral water	01.2.2.1	7.9	15	+	+	+	4.5	13.8	+	+		3.4	11.5	+	+	
Still water	01.2.2.1	15	15.1	+	+	+	8.5	15.6	+	+	+	6.5	12.9	+	+	
Fruit juice	01.2.2.2	16.2	10.5		+	+	8.6	12.1	+	+		7.5	10.3	+	+	
Lemon tea	01.2.2.2	15.3	11.7		+	+	8.5	12.9		+		6.8	10.4	+	+	
White soda	01.2.2.2	7	12.8		+	+	4.4	13.6	+	+		2.6	9.3	+	+	
Cola soda	01.2.2.2	15.2	21.9	+	+	+	9.9	26.1	+	+	+	5.2	11.3	+	+	

Product category	COICOP	Price changes					Price increases					Price decreases				
		Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Alcoholic beverages and tobacco	**02.0.0.0**	**14**	**22.4**			**+**	**9.9**	**25.7**			**+**	**4**	**6.2**			
Beer	*02.1.1.0*	*16.5*	*19.8*			+	*9.6*	*23.3*			+	*6.8*	*11.6*		+	
Table beer	02.1.1.0	14.6	25.1	+	+	+	9.6	28.1	+		+	5	14.6	+	+	+
Lager	02.1.1.0	16.6	19.9			+	9.6	23.3			+	6.9	11.9		+	
Wine	*02.1.2.0*	*13.8*	*14.1*			+	*8.3*	*17*				*5.5*	*8.2*		+	
Red wine	02.1.2.0	7.4	20	+		+	5.1	23.3	+			2.3	13.7		+	
Port	02.1.2.0	22.6	15.7			+	12.7	20.1	+		+	9.9	13.3	+	+	
Vermouth	02.1.2.0	23.6	21.3	+	+	+	13.4	26.6	+		+	10.2	19.8	+	+	+
Beaujolais Village, most recent vintage	02.1.2.0	11.2	16.5	+		+	7	18.5	+		+	4.2	13.5	+	+	
Val de Loire wine, Muscadet	02.1.2.0	13	17.6	+		+	7.9	19.1	+		+	5.1	13.3	+	+	
Spirits	*02.1.3.0*	*20.9*	*18.8*			+	*11.9*	*20.9*				*9.1*	*18.3*		+	+
Whisky	02.1.3.0	22.9	17.6	+		+	12	20.8			+	10.9	18.4		+	+
Liqueur	02.1.3.0	21.6	23.3	+		+	13	25.1	+		+	8.6	24.9	+	+	+
Gin (64 proof minimum)	02.1.3.0	17	20.5			+	9.7	24.5	+		+	7.3	17.4		+	+
Cigarettes	*02.2.1.0*	*11.7*	*61.1*		+	+	*11.6*	*61.1*		+	+	*0.1*	*14.1*			
Standard cigarettes	02.2.1.0	11.6	61.8		+	+	11.5	61.8		+	+	0	7.4			
King-size cigarettes	02.2.1.0	11.9	61.4		+	+	11.8	61.2		+	+	0.1	26.3	+		
Other tobacco products	*02.2.2.0*	*9.9*	*42.4*		+	+	*9.7*	*42.5*		+	+	*0.2*	*8.5*			
Cigarillos	02.2.2.0	8.2	36.8		+	+	7.9	37.5		+	+	0.4	19.2	+	+	
Tobacco	02.2.2.0	10.5	52	+	+	+	10.4	52.2	+	+	+	0.1	7.1			
Clothing and footwear	**03.0.0.0**	**3.8**	**24**			**+**	**2.6**	**19**			**+**	**1.2**	**14.7**			
Clothing materials	*03.1.1.0*	*3*	*23*			+	*2.5*	*22.1*		+	+	*0.4*	*11.6*			
Dress fabric	03.1.1.0	3	23			+	2.5	22.1		+	+	0.4	11.6			
Garments	*03.1.2.0*	*3.7*	*24.7*			+	*2.4*	*19*			+	*1.3*	*15.9*			+
Swimsuit	03.1.2.1	2.5	22.8			+	1.7	20.2				0.9	13.1			
Men's jogging suit	03.1.2.1	3.4	21.5			+	2.2	16.8			+	1.1	14.9			
Women's jogging suit	03.1.2.1	3.5	20.9			+	2.3	16.5			+	1.2	15		+	+
Wool suit	03.1.2.2	3.9	29.1	+	+	+	2.6	22	+	+	+	1.4	21.1	+	+	+
Women's coat	03.1.2.2	4.1	31.8	+	+	+	2.4	25.2	+	+	+	1.7	21.1	+	+	+
Men's pullover	03.1.2.2	4.1	28	+	+	+	2.5	20.2	+	+	+	1.6	20.7	+	+	+
Women's pullover	03.1.2.2	4	26	+		+	2.7	19.6			+	1.3	19	+	+	+
Men's jacket	03.1.2.2	4.6	28.2	+	+	+	3.2	22.5	+	+	+	1.4	19.2	+	+	+
Children's jacket (age six)	03.1.2.2	3.4	25.5	+		+	1.8	19.8			+	1.6	18.8	+	+	+
Women's suit	03.1.2.2	4.6	28.1	+	+	+	2.7	21.6			+	1.8	18.9	+	+	+
Women's raincoat	03.1.2.2	4.1	26.9	+	+	+	2.5	20.9	+	+	+	1.6	19.1	+	+	+
Girls' shirt (age six)	03.1.2.2	3.2	24.1	+		+	1.8	19.8			+	1.4	15.6	+	+	+
Boys' pants (age six)	03.1.2.2	3.5	27.1	+		+	2	21.1			+	1.5	17.7	+	+	+
Childrens' sweater (age six)	03.1.2.2	3.8	27.2	+	+	+	2.3	22.4			+	1.5	17.1	+	+	+
Wool suit, min. 30% wool	03.1.2.2	3.9	29	+	+	+	2.5	21.5	+	+	+	1.4	21	+	+	+
Wool blazer, min. 30% wool	03.1.2.2	4.3	28	+	+	+	2.9	21.5	+	+	+	1.4	19.9	+	+	+

		Price changes					Price increases					Price decreases				
Product category	COICOP	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Pants, casual, velvet	03.1.2.2	3.6	28.9	+		+	2.3	22.6			+	1.4	18.9	+	+	+
Jeans, size 50	03.1.2.2	3.6	26.4	+		+	2.3	20.6			+	1.3	17	+	+	+
Dress pants, min. 30% wool	03.1.2.2	3.6	28.1	+		+	2.3	21.8			+	1.4	18.7	+	+	+
Raincoat, min. 30% wool	03.1.2.2	3.4	26.6	+		+	2.2	21.7			+	1.2	17.2		+	+
Long-sleeved dress	03.1.2.2	2.8	25			+	1.6	19.5			+	1.1	17		+	+
Short-sleeved dress	03.1.2.2	2.8	27.7			+	1.6	21.6			+	1.3	18.3	+	+	+
Skirt, min. 30% wool	03.1.2.2	4	28	+		+	2.4	21.5			+	1.6	19.5	+	+	+
Pants, min. 30% wool	03.1.2.2	4.2	28.4	+	+	+	2.6	22.8	+	+	+	1.6	18.1	+	+	+
Jeans, size 38-40	03.1.2.2	3.6	25.6			+	2.5	20.9			+	1.1	15.8			+
Men's leather jacket	03.1.2.2	3.8	26.2	+		+	2.1	20.9			+	1.7	18.3	+	+	+
Women's leather jacket	03.1.2.2	3.5	25.4	+		+	1.9	20.3			+	1.6	17.1	+	+	+
Men's anorak	03.1.2.2	3.6	27.9	+		+	2.3	23.3			+	1.3	16.9	+	+	+
Women's anorak	03.1.2.2	3.7	28.4	+		+	2.1	21.8			+	1.5	20	+	+	+
Men's shirt	03.1.2.3	3.6	26.3	+		+	2.6	22.4	+	+	+	1	15.1			
Women's shirt	03.1.2.3	4.1	26.4	+	+	+	2.7	20.3	+	+	+	1.4	18.1	+	+	+
Men's socks	03.1.2.3	3	22			+	2.3	19			+	0.8	13.2			
Men's T-shirt	03.1.2.3	2.7	24.4			+	1.7	19.7			+	1	15.7			
Women's T-shirt	03.1.2.3	2.7	25.6			+	1.7	20.8			+	1	16			
Pajama, large	03.1.2.3	3.1	23.1			+	2	17.3			+	1.1	17			+
Singlet, size 51	03.1.2.3	3.2	19.8			+	2.5	18.2			+	0.7	10.4			
Underwear, size 51	03.1.2.3	3.3	20.6			+	2.6	18.3	+	+	+	0.7	12.3			
Nightdress with sleeves	03.1.2.3	3.1	24.8			+	2.1	18.9			+	1.1	17.3			
Panties mini/midi-medium	03.1.2.3	3.7	24.2			+	3.1	22.7	+	+	+	0.6	11.6			
Lycra tights	03.1.2.3	3.2	18.6			+	2.4	17.2			+	0.7	11.2			
Under-wired bra	03.1.2.3	4	24			+	3.3	22	+	+	+	0.7	12.1			
Infants' anorak (nine-month)	03.1.2.4	3.3	24.8			+	1.9	20.2			+	1.4	16.7	+	+	+
Other articles of clothing and clothing accessories	*03.1.3.0*	*1.8*	*13.8*			+	*1.6*	*14.4*				*0.2*	*7.4*			
Knitting wool	03.1.3.0	1.5	16.5			+	1.3	17.2				0.2	9.5	+		
Zip fastener	03.1.3.0	2.5	23.6	+		+	2.3	24.5	+		+	0.2	12.3			
Cleaning, repair and rental of clothing	*03.1.4.0*	*3.7*	*19.1*			+	*3.5*	*18.4*				*0.2*	*7.6*			
Dry cleaning, shirt	03.1.4.0	3.2	19.4			+	3	18.8				0.2	8.3			
Dry cleaning, suit	03.1.4.0	4.1	19.7			+	4	18.8				0.2	10.6			
Dry cleaning, raincoat	03.1.4.0	3.5	19.6			+	3.3	19				0.3	9.6	+		
Shoes and other footwear	*03.2.1.0*	*4.4*	*29.4*		+	+	*3.3*	*26.2*		+	+	*1*	*14.9*			
Tennis shoes	03.2.1.1	3.1	20.9			+	2.1	17.9			+	1	12.8	+		
Men's shoes	03.2.1.2	4.5	30.7	+	+	+	3.6	27.7	+	+	+	0.8	15.8			
Women's shoes	03.2.1.3	4.9	32.5		+	+	3.8	29.1		+	+	1.1	17.7	+		+
Women's boots	03.2.1.3	3.5	34.9		+	+	2.2	30.4		+	+	1.3	19.8	+	+	+
Boys' shoes	03.2.1.4	4.3	32.1		+	+	3.4	28.9	+	+	+	1	17.1			+
Repair and rental of footwear	*03.2.2.0*	*3.9*	*22.1*			+	*3.3*	*18.2*			+	*0.6*	*21.8*			
Resoling of men's shoes	03.2.2.0	3.7	22.1			+	3.2	18			+	0.6	22.5			

Product category	COICOP	Price changes					Price increases					Price decreases				
		Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Resoling of women's shoes	03.2.2.0	4	22.3			+	3.4	18.6			+	0.6	21.6	+		
Housing, water, gas and electricity	**04.0.0.0**	**25.1**	**15.3**			**+**	**14.7**	**27.3**			**+**	**10.4**	**30.1**			**+**
Other rentals	*04.1.2.0*	*3.3*	*20.5*		*+*	*+*	*3.3*	*20.5*			*+*	*0*	*10.1*			
Parking spot in a garage	04.1.2.0	3.3	20.5		+	+	3.3	20.5			+	0	10.1			
Materials for maintenance and repair of dwelling	*04.3.1.0*	*5.4*	*21.9*		*+*	*+*	*4.6*	*22.4*			*+*	*0.8*	*7.9*			
Oil-based paint	04.3.1.0	6.3	28	+	+	+	5.5	28.4	+		+	0.8	13.5	+		
Cement	04.3.1.0	5.5	22.8	+	+	+	4.9	23.7	+		+	0.7	9.5	+		
Water-based paint	04.3.1.0	6.4	26.4	+	+	+	5.4	26.6	+		+	1	11.4			
Glass, 4 mm	04.3.1.0	3.3	25.5		+	+	2.7	26			+	0.6	15	+		
Services for maintenance and repair of dwelling	*04.3.2.0*	*4.8*	*51.3*		*+*	*+*	*4*	*28.9*			*+*	*0.9*	*80.7*			
Hourly wage, electrician	04.3.2.0	4.6	50.7		+	+	3.7	27.6			+	0.8	77.2			
Hourly wage, plumber	04.3.2.0	4.9	52.5		+	+	3.9	29.6			+	1	84.5	+		+
Hourly wage, painter	04.3.2.0	5.1	51.9		+	+	4.3	31.8			+	0.8	80.6			
Water supply	*04.4.3.0*	*5.2*	*59.6*		*+*	*+*	*4.2*	*45.6*			*+*	*1.1*	*67.7*			*+*
Water charge	04.4.3.0	5.2	59.6		+	+	4.2	45.6			+	1.1	67.7			+
Gas	*04.5.2.0*	*76.8*	*75*		*+*	*+*	*43.6*	*74.4*		*+*	*+*	*33.1*	*74.1*		*+*	*+*
Butane	04.5.2.2	75.7	74.2		+	+	42.1	80.8		+	+	33.6	79.8		+	+
Propane	04.5.2.2	77.2	76.2		+	+	44.4	79.4		+	+	32.9	80.3		+	+
Liquid fuels	*04.5.3.0*	*80.4*	*54.6*		*+*	*+*	*43.4*	*73*		*+*	*+*	*36.9*	*75.1*		*+*	*+*
Gasoline, 1000-2000 litres	04.5.3.0	80.8	52.6		+	+	43.8	72.1		+	+	37	74		+	+
Gasoline, 2000+ litres	04.5.3.0	80.2	55.6		+	+	43.3	73.5		+	+	36.9	75.6		+	+
Solid fuels	*04.5.4.0*	*16.1*	*48.2*		*+*	*+*	*9.1*	*43.8*			*+*	*7*	*61*			*+*
Anthracite 12/22	04.5.4.0	16.1	48		+	+	9.1	43.6			+	7	60.9			+
Anthracite 20/30	04.5.4.0	16	48.4		+	+	9	44.1			+	7	61.1			+
Furnishing and maintenance of housing	**05.0.0.0**	**5.2**	**12.4**			**+**	**3.4**	**12.2**				**1.8**	**6.9**			
Furniture and furnishings	*05.1.1.0*	*3.1*	*19.3*		*+*	*+*	*2.2*	*16.7*		*+*	*+*	*0.9*	*10.9*		*+*	
Living-room furniture set	05.1.1.0	3.1	26.1	+	+	+	2.5	22	+	+	+	0.6	18	+	+	
Wall cabinet, washroom	05.1.1.0	2.5	27.8		+	+	1.3	25.3		+		1.1	20.7	+	+	
Dining room oak furniture	05.1.1.1	3.2	24.9	+	+	+	2.7	22.7	+	+	+	0.5	14.3	+	+	
Kitchen element, 200x50	05.1.1.1	2.7	21.4		+	+	2	18.5	+	+	+	0.7	14.6	+	+	
Bed, slatted base	05.1.1.1	4.1	25.8	+	+	+	3.1	22.6	+	+	+	1.1	18.9	+	+	
Modern bedroom furniture	05.1.1.1	3.8	25.8	+	+	+	3	23.3	+	+	+	0.8	14.9	+	+	
Fluorescent light bulb	05.1.1.2	2.9	12.5		+	+	1.7	12.5		+		1.2	9.9			
Halogen desk lamp	05.1.1.2	2.8	14.4		+	+	1.3	14.4		+		1.5	11.4	+	+	
Carpets and other floor coverings	*05.1.2.0*	*4.1*	*21.1*		*+*	*+*	*3.3*	*19.6*		*+*	*+*	*0.8*	*12.5*		*+*	
PVC covering	05.1.2.0	4.1	21.1		+	+	3.3	19.6		+	+	0.8	12.5		+	
Household textiles	*05.2.1.0*	*3.4*	*16.3*			*+*	*2.6*	*14.6*				*0.8*	*7.8*			
PU soft mattress	05.2.1.0	4	24.7	+	+	+	3.1	23.4	+	+	+	0.9	13	+	+	
Synthetic quilt	05.2.1.0	3.3	17.9	+	+	+	2.2	15.4		+		1.1	11.6	+	+	

		Price changes					Price increases					Price decreases				
Product category	COICOP	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Quilt sheets	05.2.1.0	3.2	18.5	+	+	+	2.4	16	+	+	+	0.9	10.8	+	+	
Bed sheet	05.2.1.0	3.1	18.2	+	+	+	2.1	15.2		+		1	12.1	+	+	
Towel	05.2.1.0	2.6	14.4		+	+	1.9	13.5		+		0.8	9.8	+	+	
Hanging fabric	05.2.1.0	4	19.3	+	+	+	3.5	18.4	+	+		0.5	9	+	+	
Bathroom set	05.2.1.0	3.7	16.3	+	+	+	2.7	14.4	+	+		1	10.3	+	+	
Curtain fabric	05.2.1.0	3.1	18.7	+	+	+	2.5	18.4	+	+	+	0.6	9	+	+	
Major household appliances, electric and other	*05.3.1.0*	*5.9*	*40.8*		+	+	*3.5*	*49.6*		+	+	*2.4*	*13.6*		+	
Oil heater	05.3.1.1	5.6	36.8	+	+	+	4.6	35.4	+	+	+	1	25.7		+	
Gas cooker	05.3.1.1	4.9	48.5	+	+	+	3.3	57.2		+	+	1.6	13.2		+	+
Electric cooker	05.3.1.1	5.5	46.3	+	+	+	3.2	58.4		+	+	2.3	14.7		+	+
Natural gas heater	05.3.1.1	5.7	35.5	+	+	+	4.9	33.2	+	+	+	0.8	23.7		+	
Electric radiator	05.3.1.1	4.8	49	+	+	+	3.1	59.5		+	+	1.7	13.9		+	
Duo thermal fridge	05.3.1.2	6	44.9	+	+	+	3.5	56		+	+	2.6	15.6		+	+
Tumble dryer	05.3.1.2	5.9	45.4	+	+	+	3.4	56.1		+	+	2.5	15.3		+	+
Microwave oven	05.3.1.2	6.2	44.4	+	+	+	3.1	58.8		+	+	3.1	15.9	+	+	+
Upright freezer, 250-300 L	05.3.1.2	6.1	44.6	+	+	+	3.7	54.8	+	+	+	2.4	14.9	+	+	+
Electric washing machine	05.3.1.2	6.4	44.1		+	+	3.4	56.6		+	+	3	15.8	+	+	+
Small household appliances, electric	*05.3.2.0*	*5.5*	*46.5*		+	+	*3.3*	*57.6*		+	+	*2.2*	*13.4*		+	
Electric fryer	05.3.2.0	5.3	47		+	+	3.5	55.8		+	+	1.9	15		+	+
Food processor	05.3.2.0	5.4	47.2		+	+	3.2	58.5		+	+	2.2	13.5		+	
Electric coffee machine	05.3.2.0	5.4	47.2		+	+	3.2	58.1		+	+	2.2	16		+	+
Cylinder vacuum cleaner	05.3.2.0	5.7	46.1		+	+	3.2	58.8		+	+	2.5	15		+	+
Steam iron, 1200 W	05.3.2.0	5.5	46.8		+	+	3.5	55.8		+	+	2	14.7		+	+
Toaster, 800 W	05.3.2.0	5.2	47.5		+	+	3.1	59		+	+	2.1	13.6		+	
Repair of household appliances	*05.3.3.0*	*4.9*	*50.4*		+	+	*3.9*	*26.2*		+	+	*1*	*76.2*		+	+
Repair of central heating	05.3.3.0	4.9	50.4		+	+	3.9	26.2		+	+	1	76.2		+	+
Glassware, tableware and household utensils	*05.4.1.0*	*3.4*	*12*			+	*2.4*	*11*				*1*	*6.6*		+	
Stainless steel pan	05.4.1.0	3.6	15.3	+	+	+	2.8	15.1	+	+	+	0.9	8.9		+	
Cup and saucer	05.4.1.0	3	13.4		+	+	2.2	13		+		0.8	9.2		+	
Glass cooking dish, 2 L	05.4.1.0	3.4	16.2		+	+	2.4	16.1		+		1	10.5		+	
Plastic garbage can, 12 L	05.4.1.0	3	12.1			+	2.2	11.7		+		0.8	8.6		+	
Frying pan	05.4.1.0	4.4	15.7	+	+	+	3	14.3	+	+	+	1.4	10.1		+	
Major tools and equipment	*05.5.1.0*	*4.6*	*15.9*		+	+	*2.6*	*14.2*		+		*2*	*11.1*		+	
Electric drill	05.5.1.0	4.6	15.9		+	+	2.6	14.2		+		2	11.1		+	
Small tools and miscellaneous accessories	*05.5.2.0*	*3.9*	*9.2*			+	*2.2*	*7.4*				*1.8*	*7*		+	
Electric bulb	05.5.2.0	3.1	9.9			+	1.6	8.6				1.6	8.4		+	
Hammer	05.5.2.0	3.4	12.1	+	+	+	2.6	10.7	+			0.8	10.5	+	+	
Dry battery	05.5.2.0	4.2	11.4			+	3.4	11.6	+	+		0.7	9		+	
Energy efficient light bulb	05.5.2.0	5.4	13.6	+	+	+	1.6	10				3.8	12.8	+	+	
Garden shears	05.5.2.0	3	15	+	+	+	2	12.1	+	+		1	12.3	+	+	

Product category	COICOP	Price changes					Price increases					Price decreases				
		Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Non-durable household goods	*05.6.1.0*	*13*	*9.9*			+	*7.4*	*10.9*				*5.7*	*7.5*			
Dish towel	05.6.1.0	4.3	10.1			+	2.6	9.4				1.7	8.3	+	+	
Coffee filters	05.6.1.0	14.1	15.7	+	+	+	7.8	18.6	+	+	+	6.3	13.3	+	+	+
Phosphate-free liquid detergent	05.6.1.1	12.3	15.4	+	+	+	6.2	15.6		+		6.1	14.9	+	+	
Liquid general purpose cleaner	05.6.1.1	11.5	15	+		+	5.7	15				5.9	15.1	+	+	
Liquid soap	05.6.1.1	14.6	12.5			+	7.7	13.2				6.9	10.4	+	+	
Powder detergent	05.6.1.1	16.5	17.1	+	+	+	9.8	19.6	+	+	+	6.8	13.5	+	+	
Wax polish	05.6.1.2	9	16.6	+	+	+	5.5	14.9	+	+	+	3.5	14.2	+	+	
Domestic and household services	*05.6.2.0*	*3.5*	*19.1*		+	+	*3.2*	*14*		+		*0.3*	*37.6*		+	
Laundromat	05.6.2.1	2.6	23.3		+	+	2.1	21.2		+		0.5	14.2	+	+	
Domestic service	05.6.2.2	3.5	15.3		+	+	3.5	15.2		+	+	0	9.1			
Maintenance of central heating system	05.6.2.3	3.8	55.1	+	+	+	2.7	21.2	+	+	+	1.1	82.6	+	+	+
Health care expenses	**06.0.0.0**	**6.4**	**57.2**			**+**	**5.8**	**58.5**			**+**	**0.6**	**15.1**			
Therapeutic appliances and equipment	*06.2.1.0*	*2.9*	*26.6*			+	*2*	*23.1*			+	*0.9*	*20.9*		+	
Spherical glasses	06.2.1.0	3	29.4			+	2.2	27.9	+		+	0.8	21.4		+	
Torus glasses	06.2.1.0	2.8	24.8			+	1.8	20.7			+	1	21.3	+	+	
Hospital services	*06.4.1.0*	*9.5*	*88.2*		+	+	*9.2*	*88.7*		+	+	*0.3*	*19.7*			
Single bedroom	06.4.1.0	9.5	88.2		+	+	9.2	88.7		+	+	0.3	19.7			
Transport	**07.0.0.0**	**46**	**27.5**			**+**	**24.3**	**45.7**			**+**	**21.7**	**44.9**			**+**
Motorcycles	*07.1.2.0*	*6.1*	*44.5*			+	*4.6*	*38.3*			+	*1.5*	*28.4*			+
Lightweight motorcycle	07.1.2.0	6.1	44.5			+	4.6	38.3			+	1.5	28.4			+
Bicycles	*07.1.3.0*	*5.1*	*34.9*			+	*4*	*33.9*			+	*1.1*	*13.1*			
Women's bicycle, city	07.1.3.0	5.1	35			+	4	34.4			+	1.1	13.4	+		
Children's bicycle, 24"	07.1.3.0	5	36.4			+	4	35.1			+	1	15.3			
Spare parts and accessories for personal transport equipment	*07.2.1.0*	*5.6*	*15.3*			+	*3.2*	*13.3*				*2.4*	*10.3*			
Spark plug	07.2.1.0	3.8	15.3			+	2.9	13.9				0.9	9.5			
Car tire, 175/70/13	07.2.1.0	7.3	17.6			+	3.4	16	+			3.9	14	+		+
Fuels and lubricants for personal transport equipment	*07.2.2.0*	*75.7*	*54.3*		+	+	*38.8*	*69.5*		+	+	*36.9*	*66.2*		+	+
Diesel for cars	07.2.2.1	78.4	55.5		+	+	40.1	74		+	+	38.3	73.4	+	+	+
LPGA	07.2.2.1	69	66.4	+	+	+	37.5	77.4	+	+	+	31.6	77.9		+	+
Eurosuper (RON 95)	07.2.2.1	75.8	69.2	+	+	+	38.5	78.2		+	+	37.4	77.6	+	+	+
Superplus (RON 98)	07.2.2.1	75.3	69.9	+	+	+	38.9	79.8	+	+	+	36.4	78.1	+	+	+
Engine oil	07.2.2.2	4.3	12.7			+	3.6	11.3				0.7	9.7			
Maintenance and repair of personal transport equipment	*07.2.3.0*	*4.8*	*17.6*			+	*4.5*	*16.7*				*0.2*	*10.4*			
Car wash	07.2.3.0	2.8	16.8			+	2.6	16.5				0.2	12	+		

		Price changes					Price increases					Price decreases				
Product category	COICOP	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Hourly wage for a garage mechanic	07.2.3.0	5	18.2			+	4.8	17.4				0.2	11.3	+		
Wheel balancing	07.2.3.0	2.8	15.1			+	2.1	14.1				0.8	10.2			
Passenger transport by road	*07.3.2.0*	*2.4*	*25.9*			+	*2.3*	*24.9*			+	*0.2*	*13.6*			
Taxi	07.3.2.2	2.4	25.9			+	2.3	24.9			+	0.2	13.6			
Communications	**08.0.0.0**	**12.3**	**33.5**			**+**	**5**	**46.7**			**+**	**7.4**	**21.5**			**+**
Telephone and fax equipment	*08.1.2.0*	*12.3*	*33.5*			+	*5*	*46.7*			+	*7.4*	*21.5*			+
Fax machine	08.1.2.0	12.3	33.5			+	5	46.7			+	7.4	21.5			+
Leisure and culture	**09.0.0.0**	**10.3**	**9**				**5.3**	**11.5**				**5**	**6.3**			
Equipment for the reception, recording and reproduction of sound and pictures	*09.1.1.0*	*7.1*	*41.5*		+	+	*2.5*	*65.2*		+		*4.6*	*16.6*		+	+
Compact hi-fi system	09.1.1.0	6.8	42.3		+	+	2.6	64	+	+	+	4.2	16.4		+	+
CD player	09.1.1.0	5.4	46.4		+	+	2.4	66.4		+		3	16.7		+	+
Radio cassette CD player	09.1.1.0	6.3	44.1		+	+	2.4	66.2		+	+	3.8	16.8		+	+
Color TV, 70 cm	09.1.1.0	7.8	40.4		+	+	2.7	63.2		+	+	5.1	18		+	+
VCR, four-head	09.1.1.0	7.7	40.4		+	+	2	71.8		+		5.7	18.3		+	+
Photographic and cinematographic equipment and optical instruments	*09.1.2.0*	*6*	*43.8*		+	+	*2.5*	*64.8*		+		*3.4*	*15.3*		+	+
Camera, zoom 35-70	09.1.2.0	6	43.8		+	+	2.5	64.8		+		3.4	15.3		+	+
Information processing equipment	*09.1.3.0*	*15.6*	*27.1*		+	+	*5.8*	*40.5*		+	+	*9.8*	*17*		+	+
Calculator	09.1.3.0	6.4	45.7	+	+	+	3.5	56.4		+	+	2.9	21.8		+	+
Inkjet printer	09.1.3.0	19	28		+	+	6.1	43.9	+	+	+	12.9	20.3		+	+
LaserJet printer	09.1.3.0	13.9	33		+	+	5.9	44	+	+	+	8	22.6		+	+
Software	09.1.3.0	8.7	19.3		+	+	4.7	20.2	+	+	+	4	18.2		+	+
Other major durables for recreation and culture	*09.1.4.0*	*2.7*	*18.3*		+	+	*1.6*	*15.6*		+	+	*1.1*	*15.9*		+	+
Table tennis set	09.1.4.0	2.7	18.3		+	+	1.6	15.6		+	+	1.1	15.9		+	+
Games, toys and hobbies	*09.1.5.0*	*5.3*	*24.5*		+	+	*3.1*	*20.7*		+		*2.3*	*24*		+	+
Tennis balls	09.1.5.0	2.7	15.7		+	+	1.3	12.4		+		1.4	12.7		+	
Construction game (Lego)	09.1.5.0	6.4	64	+	+	+	3.3	59.9	+	+	+	3.1	65.3	+	+	+
Toy car	09.1.5.0	2.6	18.7		+	+	1.9	16.5	+	+	+	0.8	10.6		+	
Scrabble	09.1.5.0	7.9	29.7	+	+	+	4.7	19.7	+	+	+	3.2	32.3	+	+	+
Football	09.1.5.0	2.5	18		+	+	1.3	14.7		+		1.2	13.5		+	
Computer game	09.1.5.0	8.2	21.8		+	+	4.3	17.8	+	+	+	3.9	21.1		+	+
Recording media	*09.1.6.0*	*10.1*	*8.2*				*4.7*	*7.3*				*5.4*	*7*			
Compact disc	09.1.6.0	23.9	13.4	+	+	+	12.5	12.2	+	+		11.4	11.1	+	+	
Chromium tape	09.1.6.0	4	11	+	+	+	1.1	9.2	+	+		2.9	9.6	+	+	
Blank videotape	09.1.6.0	5.5	12.1	+	+	+	2	10.5	+	+		3.5	11.1	+	+	
Color film, 135-24	09.1.6.0	2.7	14.4	+	+	+	1.6	13.1	+	+		1.1	10.2	+	+	
Educational CD-ROM	09.1.6.0	9.5	22.5	+	+	+	4.3	20.4	+	+	+	5.1	20.7	+	+	+

		Price changes					Price increases					Price decreases				
Product category	COICOP	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Gardens, plants and flowers	*09.1.7.0*	*32*	*7*				*16.7*	*19.9*		+	+	*15.3*	*18.4*		+	+
Roses	09.1.7.1	69.7	15.8	+	+	+	35.9	40.5	+	+	+	33.8	43.4	+	+	+
Chrysanthemums	09.1.7.1	61.9	14.1	+	+	+	31.7	38.3	+	+	+	30.2	39.8	+	+	+
Freesia	09.1.7.1	55.6	15.7	+	+	+	28.5	26.7		+	+	27.1	25.8	+	+	+
Carnations, high quality	09.1.7.1	54.3	12	+	+	+	27.8	23.1		+	+	26.5	22.3		+	+
Kalanchoe	09.1.7.2	12.2	12.4	+	+	+	6.4	13.8		+		5.8	11.2		+	
Ficcus	09.1.7.2	4.9	17.2	+	+	+	3.7	16.3		+	+	1.2	11.3		+	
Azalea	09.1.7.2	15.2	23.4	+	+	+	8.3	20		+	+	6.9	17		+	+
Dracaena	09.1.7.2	4	17.7	+	+	+	2.7	16.8		+		1.3	12.1		+	
Cyclamen	09.1.7.2	14.8	23.4	+	+	+	7.9	20		+	+	6.9	16.2		+	+
Flower bulbs	09.1.7.3	2.7	28.5	+	+	+	1.9	26.5		+	+	0.8	17.4		+	
Pets and related products	*09.1.8.0*	*15.3*	*13*		+	+	*7.4*	*14.2*		+		*7.8*	*12.9*		+	
Dog food	09.1.8.0	14.6	16.6		+	+	6.6	17		+	+	8	17.1		+	+
Cat food	09.1.8.0	15.9	15.6		+	+	8.2	17.3		+	+	7.7	14.9		+	+
Repair of audio-visual, photographic and information processing equipment	*09.1.9.0*	*3.2*	*19.4*		+	+	*3*	*19.1*		+	+	*0.2*	*10.6*		+	
Hourly wage for electric technician	09.1.9.0	3.2	19.4		+	+	3	19.1		+	+	0.2	10.6		+	
Recreational and sport services	*09.2.1.0*	*2*	*27.7*		+	+	*1.9*	*27.1*		+	+	*0.2*	*11.1*			
Swimming pool fee	09.2.1.0	2	27.7		+	+	1.9	27.1		+	+	0.2	11.1			
Cultural services	*09.2.2.0*	*3.3*	*25.3*		+	+	*2.5*	*25.1*		+	+	*0.9*	*14.1*		+	
Annual cable subscription	09.2.2.0	3.9	38.1	+	+	+	3.1	37.2	+	+	+	0.8	22.1	+	+	+
Videotape rental	09.2.2.0	1.6	20.8		+	+	1.1	21		+		0.5	14.6		+	
Photo prints (10 x 15) (24)	09.2.2.0	3	17.8		+	+	1.8	16.6		+		1.1	11.5		+	
Books	*09.3.1.0*	*3.5*	*21.6*		+	+	*2.8*	*18.4*		+	+	*0.7*	*14.5*		+	
Dictionary, French-Dutch, Dutch-French	09.3.1.0	3.4	28.6	+	+	+	2.2	23.2		+	+	1.2	21.1	+	+	+
Novel	09.3.1.0	3.1	20.4		+	+	2.8	19		+	+	0.4	10.9		+	
Dictionary	09.3.1.0	6.7	46.1	+	+	+	3.1	32.3	+	+	+	3.6	51.2	+	+	+
Comic book	09.3.1.0	4.3	25.8	+	+	+	3.5	25.6	+	+	+	0.9	12.9	+	+	
Stationery and drawing materials	*09.3.4.0*	*5.1*	*21.8*		+	+	*3.5*	*17.4*		+	+	*1.6*	*16.1*		+	
Pen	09.3.4.0	4.2	20.9		+	+	3.1	19		+	+	1.2	13.6		+	
Loose-leaf notebook	09.3.4.0	5.6	23.7		+	+	3.8	18.7		+	+	1.8	18.8		+	
Hotels, cafés and restaurants	**11.0.0.0**	**3.3**	**16**			**+**	**2.9**	**15**				**0.4**	**7.6**			
Restaurants, cafés and similar establishments	*11.1.1.0*	*3.2*	*15.5*			+	*2.8*	*14.2*				*0.4*	*8.1*			
Steak and french fries	11.1.1.1	3.4	17.6			+	3.1	16.3				0.4	9.6	+	+	
Lunch	11.1.1.1	2.7	17.8			+	2.3	16.6				0.4	11.2	+	+	
Self-service meal	11.1.1.1	3	18.7	+	+	+	2.4	17.3	+	+	+	0.6	17.5	+	+	
Pepper steak	11.1.1.1	3.5	18.2	+		+	3.1	17.7	+			0.3	9	+	+	
Sole meunière	11.1.1.1	4.1	16	+		+	3.5	15				0.7	10.1	+	+	

		Price changes					Price increases					Price decreases				
Product category	COICOP	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
French fries	11.1.1.2	2.9	25.1	+	+	+	2.8	24	+	+	+	0.1	13.1			
Hot dog	11.1.1.2	2.2	18.5			+	2.1	17.4				0.1	12.3			
French bread sandwich	11.1.1.2	2.3	16.3			+	2.1	15.5				0.2	9.9	+	+	
Cheeseburger	11.1.1.2	2.7	23	+	+	+	2.1	16.3	+	+		0.6	26.4	+	+	
Glass of beer	11.1.1.3	3.3	21.5	+	+	+	3.2	20.9	+	+	+	0.1	9.1	+	+	
Cola	11.1.1.3	3.1	19.9	+	+	+	2.9	18.2	+	+	+	0.2	12.5	+	+	
Mineral water	11.1.1.3	3	19.7	+	+	+	2.9	18.2	+	+	+	0.1	12.4			
Aperitif	11.1.1.3	2.9	19.9	+	+	+	2.8	18.7	+	+		0.2	10.4	+	+	
Special beer	11.1.1.3	3.2	20.2	+	+	+	2.9	18.4	+	+	+	0.3	11.5	+	+	
Espresso	11.1.1.3	2.9	19.6	+	+	+	2.7	18.6	+	+	+	0.2	10.8	+	+	
Canteens	*11.1.2.0*	*3.2*	*61*		+	+	*2.9*	*58.3*		+	+	*0.3*	*20.8*		+	
School lunch	11.1.2.0	3.2	61		+	+	2.9	58.3		+	+	0.3	20.8		+	
Accommodation services	*11.2.1.0*	*4.8*	*33.8*		+	+	*4.5*	*34*		+	+	*0.3*	*8.8*		+	
School boarding fees	11.2.1.0	7.1	86.4	+	+	+	7	85.5	+	+	+	0.1	14.9		+	
Hotel room	11.2.1.0	3.7	21.1		+	+	3.3	19.9		+	+	0.4	10.9	+	+	
Miscellaneous goods and services	**12.0.0.0**	**6.7**	**9.8**				**4.5**	**9.9**				**2.2**	**4.7**			
Hairdressing salons and personal grooming establishments	*12.1.1.0*	*3.2*	*16.8*		+	+	*2.9*	*15.4*		+		*0.3*	*9.7*		+	
Men's haircut	12.1.1.1	2.9	18.1		+	+	2.6	16.7		+		0.3	10.8	+	+	
Women's hairdressing	12.1.1.2	3.1	17.3		+	+	2.8	15.7		+		0.3	11.9		+	
Permanent wave	12.1.1.2	3.6	16.5		+	+	3.3	15.8		+		0.3	9.1	+	+	
Appliances, articles and products for personal care	*12.1.2.0*	*12.8*	*8.4*				*7.5*	*8.5*				*5.3*	*6.5*		+	
Soap	12.1.2.1	12.8	12.7	+	+	+	6.8	15	+	+		5.9	9.9	+	+	
Toothpaste	12.1.2.1	16.1	13	+	+	+	8.4	13.5	+	+		7.7	12.4	+	+	
Eau de cologne	12.1.2.1	4.7	23.8	+	+	+	3.8	25	+	+	+	0.9	13.2	+	+	
Aftershave	12.1.2.1	11.9	15.7	+	+	+	6.8	16	+	+		5.1	12.7	+	+	
Face cream	12.1.2.1	8.9	16.2	+	+	+	6	15.3	+	+	+	2.9	10.2	+	+	
Hair spray	12.1.2.1	15.7	14	+	+	+	9	15.8	+	+	+	6.7	11.8	+	+	
Nail polish	12.1.2.1	9.2	13.9	+	+	+	6.8	14.6	+	+	+	2.4	8.9	+	+	
Toilet paper	12.1.2.2	15.6	13.9	+	+	+	8.3	16.3	+	+	+	7.3	12	+	+	
Diapers	12.1.2.2	15	17.7	+	+	+	8.9	19.9	+	+	+	6.1	17.9	+	+	+
Tampon	12.1.2.2	20.2	15.8	+	+	+	10.7	17.9	+	+	+	9.5	15.8	+	+	+
Electric shaver	12.1.2.3	5.4	46.7	+	+	+	3.3	57.3	+	+	+	2.1	14.7	+	+	+
Jewellery, clocks and watches	*12.2.1.0*	*3.1*	*17.2*		+	+	*2.1*	*17.2*				*1*	*12.4*		+	
Quartz watch	12.2.1.0	2.1	20.4	+	+	+	1.2	19.1		+		0.9	15.3		+	
Watch battery replacement	12.2.1.0	1.8	20.6		+	+	1.7	20.9	+	+		0.2	8.3		+	
Gold wedding ring	12.2.1.0	3.8	17.5		+	+	2.5	17.8				1.3	14.3		+	
Other personal items	*12.2.2.0*	*4.2*	*30.2*		+	+	*3.4*	*29.4*		+	+	*0.9*	*17.8*		+	
Wallet	12.2.2.0	3.5	22.8		+	+	3	20.8		+	+	0.5	14.3		+	
Suitcase	12.2.2.0	5	42.3	+	+	+	3.7	43.6	+	+	+	1.2	24	+	+	

		Price changes					Price increases					Price decreases				
Product category	COICOP	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3	Freq	F-K Index	Wilc1	Wilc2	Wilc3
Health Insurance	*12.4.3.0*	*3.1*	*60.1*		+	+	*2.9*	*58*		+	+	*0.1*	*16.3*		+	
Public health insurance premium	12.4.3.0	3.1	60.1		+	+	2.9	58		+	+	0.1	16.3		+	
Other services ..	*12.6.1.0*	*3*	*27.1*		+	+	*2.8*	*27*		+	+	*0.2*	*7.2*		+	
Funeral	12.6.1.0	3.6	23.7		+	+	3.5	23.3		+	+	0.1	11.7			
Photocopy	12.6.1.0	0.9	13.5		+	+	0.6	11.5				0.3	11.6	+	+	
Cremation	12.6.1.0	3.7	41.1	+	+	+	3.6	40.9	+	+	+	0.1	13.6		+	
Passport stamp	12.6.1.0	4.2	71.8	+	+	+	4	72.9	+	+	+	0.1	13.2		+	
Total CPI		**15.3**	**7.5**				**8.8**	**10.3**				**6.5**	**9.5**			