

May 2003

Euro-zone annual inflation down to 1.9%

EU15 down to 1.8%

Euro-zone annual inflation fell from 2.1% in April to 1.9% in May¹ 2003, **Eurostat – the Statistical Office of the European Communities in Luxembourg** – reports today. A year earlier the rate was 2.0%.

EU15 annual inflation fell from 2.0% in April to 1.8% in May 2003. A year earlier the rate was 1.8%.

EEA annual inflation was 1.8% in May 2003.

Inflation in Member States

In May 2003, the highest annual rates were recorded in **Ireland** (3.9%), **Portugal** (3.7%) and **Greece** (3.5%); the lowest rates were observed in **Germany** (0.6%), **Belgium** and **Austria** (both 0.9%).

Compared with April 2003, annual inflation fell in twelve Member States, rose in two and remained stable in one Member State. Compared with May 2002, the biggest relative falls were in **Austria** (1.7% to 0.9%), **Germany** (1.1% to 0.6%) and **Finland** (1.8% to 1.1%), and the biggest relative rises were in **Luxembourg** (1.3% to 2.3%), the **United Kingdom** (0.8% to 1.2%) and **France** (1.5% to 1.8%).

Lowest 12-month averages² up to May 2003 were in **Germany** (1.1%), **Belgium** (1.2%) and the **United Kingdom** (1.3%); highest were in **Ireland** (4.6%), **Portugal** (3.9%) and **Greece** (3.7%).

USA and Switzerland

In the **USA** annual inflation fell from 2.2% in April 2003 to 2.1% in May, and in **Switzerland** it fell from 0.7% to 0.4% for the same period. These indices are not strictly comparable with **EU** harmonized indices.

Annual inflation (%) in May 2003 – in ascending order

D	B	A	FIN	UK	F	EU15	Euro-zone	S	DK	L	NL	E	I	EL	P	IRL
0.6	0.9	0.9p	1.1	1.2	1.8p	1.8p	1.9p	2.0	2.1	2.3	2.7p	2.7	2.9p	3.5	3.7	3.9

Inflation rates in %, measured by HICPs

Table 1

	Annual rates					12 Month	Monthly
						Average	rates
	<u>May 03</u> May 02	<u>Apr 03</u> Apr 02	<u>Mar 03</u> Mar 02	<u>Feb 03</u> Feb 02	<u>May 02</u> May 01	<u>May 03-02</u> May 02-01	<u>May 03</u> Apr 03
Belgium	0.9	1.4	1.7	1.6	1.4	1.2	-0.4
Germany	0.6	1.0	1.2	1.2	1.1	1.1	-0.3
Greece	3.5	3.3	3.9	4.2	3.8	3.7	0.5
Spain	2.7	3.2	3.7	3.8	3.7	3.6	-0.1
France	1.8p	1.9	2.6	2.5	1.5	2.0p	0.0p
Ireland	3.9	4.6	4.9	5.1	5.0	4.6	-0.2
Italy	2.9p	3.0	2.9	2.6	2.4	2.8p	0.2p
Luxembourg	2.3	3.0	3.7	3.2	1.3	2.6	-0.2
Netherlands	2.7p	2.5	3.1	3.2	3.8	3.3p	0.0p
Austria	0.9p	1.3r	1.8	1.8	1.7	1.6p	-0.2p
Portugal	3.7	3.7	3.8	4.1	3.4	3.9	0.7
Finland	1.1	1.3	1.9	2.1	1.8	1.6	-0.1
Euro-zone (MUICP)	1.9p	2.1	2.4	2.4	2.0	2.2p	0.0p
Denmark	2.1	2.5	2.8	2.9	1.9	2.5	-0.3
Sweden	2.0	2.3	2.9	3.3	1.7	2.0	-0.1
United Kingdom	1.2	1.5	1.6	1.6	0.8	1.3	0.0
EU15 (EICP)	1.8p	2.0r	2.3	2.3	1.8	2.0p	0.0p
Iceland	1.8	1.9	1.9	1.1	6.0	2.5	-0.1
Norway	1.8	2.5	3.2	4.1	-0.4	2.0	-0.5
EEA (EEAICP)	1.8p	2.0r	2.3	2.3	1.8	2.0p	0.0p

Source: Eurostat

r: revised

p: provisional

Table 2

Euro-zone MUICP	Weight used in 2003	Annual rates					12 Month	Monthly
							Average	rates
		<u>May 03</u> May 02	<u>Apr 03</u> Apr 02	<u>Mar 03</u> Mar 02	<u>Feb 03</u> Feb 02	<u>May 02</u> May 01	<u>May 03-02</u> May 02-01	<u>May 03</u> Apr 03
00 All-items	1000.0	1.9p	2.1	2.4	2.4	2.0	2.2p	0.0p
01 Food	154.6	1.7p	1.6	1.6	1.3	2.4	1.6p	0.3p
02 Alcohol and tobacco	38.4	5.7p	5.6	5.6	5.6	3.9	4.8p	0.1p
03 Clothing	75.7	1.5p	1.4r	1.1	0.5	2.4	1.5p	0.4p
04 Housing	149.4	2.3p	2.4	3.2	2.8	1.2	1.8p	-0.2p
05 Household equipment	78.9	1.3p	1.3	1.3	1.4	1.7	1.5p	0.2p
06 Health	39.4	2.5p	2.0	2.5	2.6	2.5	2.6p	0.4p
07 Transport	152.8	1.2p	2.0	4.1	4.4	0.6	2.7p	-0.7p
08 Communications	29.0	-0.5p	-0.6	-0.7	-0.8	-0.1	-0.4p	0.0p
09 Recreation and culture	97.1	-0.1p	0.9	0.2	0.5	1.7	0.8p	-0.4p
10 Education	9.2	3.8p	3.8	3.6	3.5	3.9	3.8p	0.0p
11 Hotels and restaurants	95.0	3.1p	3.4	3.3	3.4	4.7	4.1p	0.2p
12 Miscellaneous	80.5	2.8p	2.9r	2.9	2.9	3.0	2.8p	0.2p
All-items excl. energy	917.5	1.9p	2.1	1.9	1.9	2.6	2.2p	0.1p
-excl. energy, FoodAlcTob*	724.5	1.8p	2.0	1.8	1.9	2.5	2.1p	0.1p
-excl. energy, unproc. food	841.7	2.0p	2.2	2.0	2.1	2.6	2.3p	0.1p
-excl. energy, seas. goods	879.8	2.0p	2.1	2.0	2.0	2.5	2.2p	0.1p
-excl. tobacco	977.2	1.7p	1.9	2.3	2.2	2.0	2.1p	0.0p
Energy	82.5	0.7p	2.2	7.5	7.7	-2.8	2.2p	-2.0p
FoodAlcTob*)	193.0	2.5p	2.4	2.3	2.1	2.7	2.2p	0.2p

Source: Eurostat

* FoodAlcTob: Food, alcohol and tobacco

r: revised

p: provisional

BACKGROUND NOTES

Measures of inflation

The *annual rate* measures the price change between the current month and the same month of the previous year. This measure is responsive to recent changes in price levels but can be influenced by one-off effects in either month.

The *12-month average rate*² overcomes this volatility by comparing average Harmonized Indices of Consumer Prices (HICPs) in the latest 12 months to the average of the previous 12 months. This measure is less sensitive to transient changes in prices.

The *monthly rate* compares price levels between the two latest months. Although up-to-date, it can be affected by seasonal and other effects.

HICPs designed for international comparison

HICPs are harmonized inflation figures required under Article 121 of the Treaty of Amsterdam (109j of the Treaty on European Union). They are designed for international comparison of consumer price inflation. The focus is on quality and comparability among the indices of different countries as well as on their relative movements.

Price changes as measured by the HICPs, the Monetary Union Index of Consumer Prices (MUICP), the European Index of Consumer Prices (EICP) and the European Economic Area Index of Consumer Prices (EEAICP) are used as measures of inflation in the Member States, in the euro-zone, in the European Union, and in the European Economic Area.

The MUICP is used by the European Central Bank (ECB) as the indicator for price stability in the euro-zone³.

The Member States' HICPs are supplied by the National Statistical Institutes; the MUICP, EICP and EEAICP are compiled by Eurostat. The HICP is computed as an annual chain index allowing weights to be changed each year. HICP aggregates are calculated as weighted averages of the HICPs using the weights of the countries and sub-indices concerned. The weight of a country is its share of the household final monetary consumption expenditure in the euro-zone total. For the MUICP this is expressed in euro, for the EICP and the EEAICP it is expressed in purchasing power standards. The MUICP is treated as a single entity within the EICP and EEAICP starting from 1999.

Additional information

More information⁴ on HICPs can be obtained from the monthly publication *Statistics in focus, Economy and Finance, Harmonized indices of consumer prices*. About 100 MUICP, EICP, EEAICP and HICP sub-indices with corresponding weights are available on Eurostat's database NewCronos through Eurostat's Data Shop network.

Future release dates

Provisional publication dates for the coming months are:

Index for	MUICP flash estimates	News Release on MUICP, EICP and Member States
June 2003	30 June 2003	16 July 2003
July 2003	31 July 2003	19 August 2003
August 2003	29 August 2003	17 September 2003

1. The MUICP flash estimate for May 2003, published on 2 June 2003, was 1.9%.
2. Measure used to determine price stability in Convergence reports of 1998 and 2000 by the Commission to the Council.
3. See ECB press release, 8 May 2003.
4. For technical notes on HICPs see: Eurostat News Release 21/97, 5 March 1997, *Harmonizing the way EU measures inflation* and Eurostat Memo 8/98, 4 May 1998, *New monetary union index of consumer prices (MUICP)*, Eurostat Memo 02/00, 18 February 2000, *Improved EU Harmonized Index of Consumer Prices: Extended coverage and earlier release dates for the HICP*. Further details can be found in the *Compendium of HICP reference documents – (2/2001/B/5)*. All are available on Eurostat's Internet server.

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ANNEX

Inflation rates in %, measured by interim HICPs

ACCEDING COUNTRIES

	Annual rates					Monthly rates
	<u>May 03</u> May 02	<u>Apr 03</u> Apr 02	<u>Mar 03</u> Mar 02	<u>Feb 03</u> Feb 02	<u>May 02</u> May 01	<u>May 03</u> Apr 03
Czech Republic	-0.3	-0.4	-0.6	-0.6	2.1	0.0
Estonia	0.7	1.1	2.2	2.2	4.2	-0.2
Cyprus	5.1	5.6	6.3	4.8	2.3	-0.1
Latvia	2.5	2.4	2.2	2.1	2.1	0.2
Lithuania	-0.8	-0.8	-1.0	-1.8	0.7	-0.2
Hungary	3.5	3.9	4.8	4.6	5.5	0.1
Malta	:	:	:	:	:	:
Poland	0.3	0.1r	0.4r	0.4	1.5	0.0
Slovenia	5.6	5.4	6.3	6.4	7.6	0.5
Slovakia	7.8	7.9	8.2	7.7	3.1	0.1

Source: Eurostat

r: revised

: Data not available

ANNEX: EURO CHANGEOVER EFFECTS

The annual average rate of change in the euro-zone HICP was 2.3% in 2002, the same as in 2001.

The largest part of the price increases in 2002 can — according to this latest analysis by Eurostat — be explained by normal inflation patterns and by some special non-euro factors; in particular bad weather, energy prices, and some significant tax increases on tobacco. These factors can explain between 2.01% and 2.18% out of the total of 2.3%. The contribution to the 2.3% total of the changeover to euro notes and coins most likely falls within the range of 0.12% to 0.29%. However, this estimate is subject to some uncertainty given the passage of time and the length of the period analysed.

The most significant part of the total effect took place between December 2001 and January 2002, where the impact is estimated to fall within the range of 0.09% to 0.28% ⁽¹⁾.

While the initial impact of the changeover on price levels seems to have been transient for some expenditure groups, it seems to have been lasting on some others. For the majority of expenditure groups, no impact can be detected.

The euro changeover effects seem most marked in the price changes observed for restaurants & cafes, hairdressers, recreational and sporting services. It also seems likely that there were some effects on food prices in 2002. This Eurostat analysis confirms that consumers experienced significant price increases for some types of goods and services, particularly during the first months of 2002. However the changeover effect cannot be seen as one of the main factors driving inflation in 2002.

The analysis presented here updates and extends Eurostat's previous analyses on the euro changeover effects in the euro-zone HICP. It covers the period since the changeover using the most up-to-date HICP data available ⁽²⁾.

⁽¹⁾ This estimate of the impact in January 2002 is slightly higher compared to the one published earlier. The main reason for this is that the additional data now available has allowed further analysis of the impact of the changeover on food prices. Three previous analyses were published on 28 February 2002 (News Release No 23/2002), 16 May 2002 (News Release No 58/2002) and 17 July 2002 (News Release No 84/2002). In these earlier news releases Eurostat estimated the impact of the euro changeover between December 2001 and January 2002 at up to 0.16 %.

⁽²⁾ Including the revised estimates for Germany released in February and April 2003.

Estimating the impact of the euro changeover

In practice it is not possible for price index compilers to put a precise figure on the impact of the changeover. The best that can be done is to identify a range for the changeover effect.

There is no way to be sure what inflation would have been if the euro changeover had not taken place. Even at the lowest level of detail, there are many factors - regular, irregular, random and systematic ones - which overlap with potential changeover effects, and there are a multitude of potential changeover effects which may amplify each other or cancel out. Furthermore, as the time period is extended beyond the changeover, more price data becomes available for analysis but also there is more opportunity for other effects - not related to changeover - to influence the analysis.

The approach used for this analysis has again been to identify regular and special non-euro factors affecting the HICP in the period covered by the study. In more detail, the approach has been as follows ⁽³⁾:

Eurostat has used statistical techniques to identify those HICP sub-indices showing a price change which is outside what the past data would predict, and then compared them with the price development in non-euro-zone countries. The predicted price changes were adjusted where the price development in non-euro-zone countries historically have been similar to the euro-zone price development.

The approach used identifies:

- expenditure groups (sub-indices) showing only typical price movements in the period covered by the study,
- expenditure groups with unusual price movements which could be explained by special non-euro factors, and
- the remainder, a "grey zone" of expenditure groups that was considered "likely" or "most likely" to have been affected by the euro changeover.
- Within this "grey zone" the expenditure groups were divided into those "most likely" and those "likely" to have been affected by the changeover. The former then gives a lower bound for the impact of the changeover, while the latter gives an upper bound.

Possible euro changeover effects have been estimated by forecasting, other things being equal, 2002 price developments on the basis of past price developments. This gives an "expected price development". The difference between the expected and the actual price development, measured by the euro-zone HICP, is regarded as an unusual price change. Unusual price changes which could not be plausibly explained by other regular or exceptional factors were attributed to the euro, expressed in terms of inflation rate points.

The estimated euro effect on the monthly rate of change for a particular sub-index is thus the difference between the actual and the expected rate of change multiplied by the corresponding expenditure weight.

The individual contributions of particular expenditure groups (sub-indices) are roughly additive so that they sum up to the overall euro changeover effect.

Euro changeover effects in 2002

Following the approach outlined above, a large majority of expenditure groups, corresponding to around 54% of the total weight of the HICP, do not show any unusual price developments with a significant effect on the all-items index during 2002. That is, the price movements were either in line with the expected range or the deviations were so small that they have no effect on the all-items index.

⁽³⁾ In its three earlier studies Eurostat also highlighted the HICP sub-indices showing the highest growth rates during the changeover period since the HICP began in 1995, see footnote 1.

Expenditure groups accounting for further 20% of the total weight show irregular price movements – but ones that can be explained by special non-euro factors. For example, no direct link to the euro changeover can be found for the energy sector where volatile prices result from external factors. The price movements for package holidays and travel by air seem to be the result of rising energy prices and additional security measures following September 11 rather than the result of the changeover to the euro. Tobacco prices were affected by significant tax changes in early 2002 (and again in early 2003).

The remaining expenditure groups, the “grey zone”, account for about 26% of the total weight.

Likely euro-effects

The expenditure groups within the “grey zone” show significant price movements beyond what past performance would indicate. However, some of these expenditure groups have an irregular pattern of past changes, show only smooth changes during 2001 and 2002, or show no unusual price change between December 2001 and January 2002. Although the price development for these expenditure groups do not necessarily match an expected euro changeover pattern, there are no other obvious non-euro factors that could explain the observed price behaviour. Therefore, they are considered as likely to have been affected by the changeover to the euro.

Many food items including bread, fruit, vegetables, and beer, as well as some services including maintenance and repair of cars and accommodation services dominate this group.

The expenditure groups with a likely effect include both items where an effect in early 2002 quickly disappeared and items where the initial effect was smaller than the estimated effect at the end of 2002. The impact in total was up to 0.19 rate points between December 2001 and January 2002. The persistent effect was slightly lower: the impact on the annual average rate of change between 2001 and 2002 was up to 0.17 rate points.

Most likely euro-effects

What remains is a number of expenditure groups where the changeover could most likely explain the price changes between December 2001 and January 2002 in most euro-zone countries.

These product groups can be primarily found within the services sector, in particular restaurants and cafes, and ‘small shop services’ such as hairdressers, various repair and cleaning services, and recreational, cultural and sporting services.

The impact from these expenditure groups was up to 0.09 rate points between December 2001 and January 2002. The persistent effect was slightly higher: the impact from these product groups is up to 0.12 rate points on the annual average rate of change between 2001 and 2002.

Setting an upper and lower bound for the impact

Adding together the “likely” and “most likely” effects gives an upper bound for the euro changeover effect of 0.29 rate points on the annual average rate of change between 2001 and 2002. The impact from the expenditure groups considered “most likely” to have been affected by the changeover gives a lower bound of 0.12 rate points. The impact of the euro changeover is thus likely to fall between the range of 0.12 to 0.29 rate points when comparing the average of 2002 with 2001.

Most of the impact seems to have taken place between December 2001 and January 2002 where the impact is likely to have fallen between 0.09 and 0.28 rate points.

Analysis by expenditure group

Several services may be said to be the main source of euro induced price increases. They make up all of the expenditure groups considered “most likely” where their contribution is 0.12 rate points to the annual average rate of change. Services also contribute to the category “likely” adding 0.03 rate points to the upper bound.

The food sector is also considered a “likely” source of euro induced price increases. However, the picture is less clear because most of the unusual price changes, might also be explained by the outbreaks of BSE and foot and mouth disease, and by higher transport costs following from higher energy prices. Exceptionally bad weather played certainly a significant role for fruit and vegetables in early 2002. Nevertheless, as a result of a systematic comparison with non-euro-zone countries, some of these unusual price changes are now attributed to the “likely” category, particularly in the immediate period after the changeover. Their contribution to the upper bound was estimated as 0.13 rate points to the annual average rate.

Only few expenditure groups within the non-energy industrial goods show unusual price changes that may be linked to the euro changeover. Generally, these effects tend to be rather small. Particular attention was paid to clothing. Clothing prices seem to have risen unexpectedly outside the regular sales periods, but price reductions within sales periods seem to have been stronger than before. The total effect seems thus close to neutral. Non-energy industrial goods altogether contributed up to 0.01 rate points to the annual average rate.

In summary the effects are shown in table 1 by expenditure group:

**Table 1: Estimates of the impact of the changeover by expenditure group ⁽⁴⁾
(Inflation rate points)**

		Jan-02 Dec-01	1Q-02 4Q-01	2002 2001
	Most likely effects			
	Services			
941	Recreational and sporting services	0.01	0.01	0.02
10X0	Pre-primary and primary, secondary, post-secondary education	0.01	0.01	0.01
1111	Restaurants, cafés and the like	0.06	0.07	0.08
1211	Hairdressing salons and personal grooming establishments	0.01	0.01	0.01
	Total: Most likely effects	0.09	0.10	0.12
	Likely effects			
	Services			
444	Other services relating to the dwelling n.e.c.	0.00	0.00	-0.01
723	Maintenance and repair of personal transport equipment	0.01	0.01	0.02
1120	Accommodation services	0.02	0.03	0.02
	Other services	0.01	0.00	0.00
	Subtotal for services	0.04	0.04	0.03
	Food			
111	Bread and cereals	0.02	0.03	0.05
113	Fish	0.00	0.02	0.02
114	Milk, cheese and eggs	0.03	0.03	0.02
116	Fruit	0.04	0.05	0.04
117	Vegetables	0.04	0.00	0.00
118	Sugar, jam, honey, chocolate and confectionery	0.00	-0.01	-0.01
119	Food products n.e.c.	0.00	0.00	0.01
213	Beer	0.00	0.00	0.01
	Other food stuff	0.00	0.00	0.00
	Subtotal for food	0.13	0.12	0.13
	Non-energy industrial goods			
933	Gardens, plants and flowers	0.01	0.01	0.01
	Other non-energy industrial goods	0.01	0.01	0.00
	Subtotal for non-energy industrial goods	0.02	0.02	0.01
	Total: Likely effects	0.19	0.18	0.17
	Range			
	Low bound (most likely effects)	0.09	0.10	0.12
	Upper bound (likely + most likely effects)	0.28	0.28	0.29

⁽⁴⁾ The estimates are shown to two decimal places. Eurostat has applied several different statistical models which can give small variations in the estimates but which all point to the same expenditure groups.

The following conclusions may be drawn from these estimates:

- Firstly, it seems that most of the effect happened immediately at the time of the changeover, i.e. between December 2001 and January 2002.
- Secondly, although these estimates are small if compared to the overall inflation rate, changeover effects are clearly observable at the detailed level and these latest estimates are slightly higher than earlier estimates by Eurostat.
- Thirdly, it seems that the euro changeover effect persisted throughout 2002 for some expenditure groups, in particular for services that are produced and sold locally such as restaurants and cafes, hairdressers, and some recreational services.

Table 2 below shows the annual average rates of change in 2002 for the euro-zone and some non euro-zone countries (DK, S, UK and CH), for some sub-indices selected among those which are likely or most likely to have been affected by the euro changeover.

While Table 2 shows that even outside the euro-zone some significant price changes also occurred for the sub-indices concerned, it does not show whether these rates of change were exceptional or not. It also demonstrates that it is only by looking at comprehensive price statistics that the full picture may be seen.

**Table 2: Comparison with non euro-zone countries
(Annual average rate of change 2002 on 2001 in %)**

		DK	S	UK	CH(*)	Euro-zone
	All-items index	2.4	2.0	1.3	0.6	2.3
	Most likely					
	Services					
941	Recreational and sporting services	1.5	1.9	2.6	0.9	4.3
10X0	Pre-primary and primary, secondary, post-secondary education	6.4	-26.7	5.7	1.3	4.0
1111	Restaurants, cafés and the like	2.0	4.4	3.3	2.6	4.7
1211	Hairdressing salons and personal grooming establishments	4.7	3.5	5.1	1.7	3.9
	Likely					
	Services					
444	Other services relating to the dwelling n.e.c.	31.6	2.9	N/A	N/A	2.9
723	Maintenance and repair of personal transport equipment	5.1	7.5	5.5	2.1	4.0
1120	Accommodation services	4.2	2.6	3.6	4.0	4.9
	Food					
111	Bread and cereals	3.0	2.7	0.9	1.1	3.0
113	Fish	4.5	10.7	2.9	3.8	4.2
114	Milk, cheese and eggs	3.5	4.5	1.1	0.9	2.8
116	Fruit	2.6	4.9	1.2	4.9	5.3
117	Vegetables	3.8	4.1	-0.8	4.2	6.0
118	Sugar, jam, honey, chocolate and confectionery	3.0	3.4	2.1	2.0	2.3
119	Food products n.e.c.	3.6	2.4	1.0	1.9	2.6
213	Beer	-2.9	1.6	-0.7	2.5	2.5
	Non-energy industrial goods					
933	Gardens, plants and flowers	0.4	1.4	-1.4	2.7	2.5
(*) National CPI, not strictly comparable with HICP. N/A: Not available.						

Euro changeover effects in 2003

As has been shown above, the euro changeover had a marked effect on prices for some expenditure groups, mainly in early 2002. It seems that the price development of late 2002 has continued at the expected rate in the first part of 2003 for most expenditure groups, and it is not possible to identify any unusual price changes that can be directly related to the euro-change over.

Furthermore, given the passage of time and the length of the period analysed it becomes even more difficult to evaluate whether a change in the pattern of price movements should be attributed to the euro changeover or to other factors.

Euro changeover effects in 2001

The euro changeover may also have influenced prices and inflation before notes and coins came into circulation on 1 January 2002. For example, large producers could, in anticipation of the euro, have adjusted prices upward in some countries and downward in other countries in order to remove traditional price differentials. Also, when retailers changed their prices during 2001 some will have taken the opportunity to move at that time to more "psychologically attractive" euro prices.

Eurostat has analysed the HICP data for 2001 using the same approach it applied to the data for 2002. Although there is clear evidence of a large number of unusual price changes beyond those which past development would have predicted, it is difficult to link them directly to the expected pre-euro effects in the relatively aggregate data available to Eurostat. A large part of the inflationary developments seen in the HICP data during 2001 could be explained by normal inflation patterns combined with some important effects which seem most likely to be unrelated to the euro changeover.

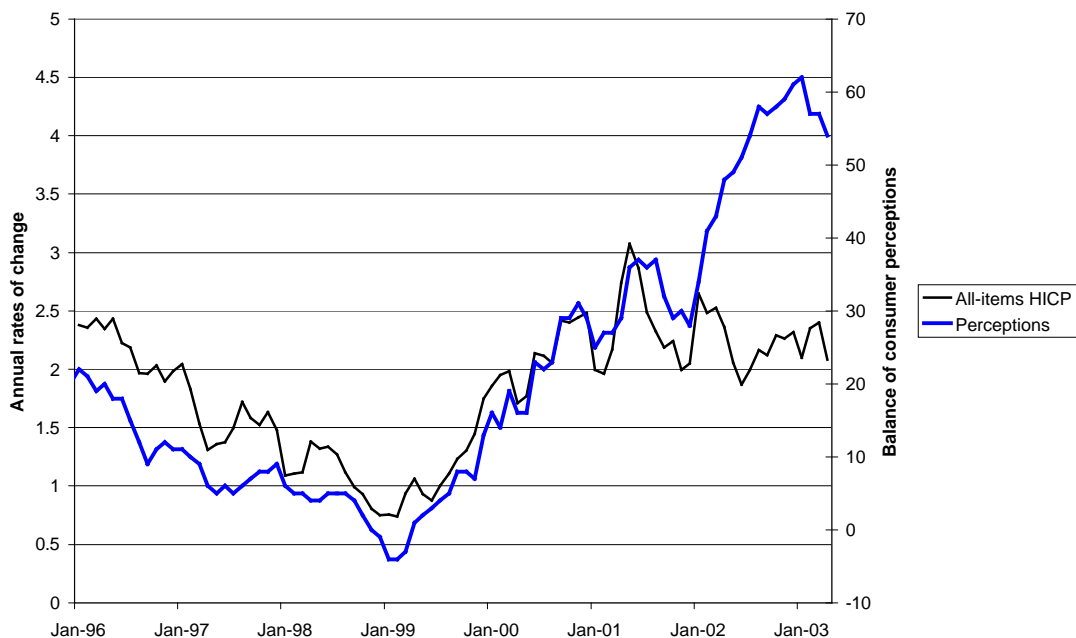
Prices, in particular in the food sector, rose significantly in the first half of 2001. Most of these price changes seem to be related to non-euro factors and similar price movements can be seen in some non-euro countries. BSE, foot and mouth disease, a difficult wheat harvest in northern Europe, and some other factors all affected prices. The unusual price changes in the food sector added as much as 0.5 rate points to inflation in 2001. Eurostat's analysis of possible pre-euro effects in 2001 gives no conclusive answers. It is only on the basis of detailed micro-data, which is not available to Eurostat, that parts of this question could be answered

Several euro-zone national statistical institutes have conducted their own special studies of the possible impact of the euro changeover on inflation rates in 2001, some based on analyses of detailed micro-data. Studies for some countries indicate that there probably was a changeover impact in the latter part of 2001, though generally it seemed to have been smaller than in 2002. Some references for these studies are given at the end of this note.

Headline inflation and consumer perceptions in the euro-zone in 2002

For many years there has been a close and straightforward statistical relationship between the balance of consumer perceptions of inflation in the euro-zone ⁽⁵⁾ and the all-items HICP. The close relationship between the two clearly broke down in 2002, with the introduction of euro notes and coins.

Chart 1: HICP and consumer perceptions



Some, among many possible factors ⁽⁶⁾ which might explain this divergence, are analysed below.

⁽⁵⁾ Conducted each month by the Commission, DG ECFIN. Consumers are asked: "How do you think that consumer prices have developed over the last 12 months? They have:

- 1 risen a lot
- 2 risen moderately
- 3 risen slightly
- 4 stayed about the same
- 5 fallen
- 9 don't know."

⁽⁶⁾ Among other factors are, for example, the possible implications for consumers' perceptions of using approximate conversion rates are discussed in "La conversione approssimata dei prezzi in euro nelle valute nazionali e l'inflazione percepita dai consumatori", published in "Rapporto trimestrale ISAE", January 2003, pp. 118-120. In that analysis it is argued that by using natural approximate conversion rates consumers would tend, on average, to gain the impression that inflation was higher than it in fact was.

A snowball effect

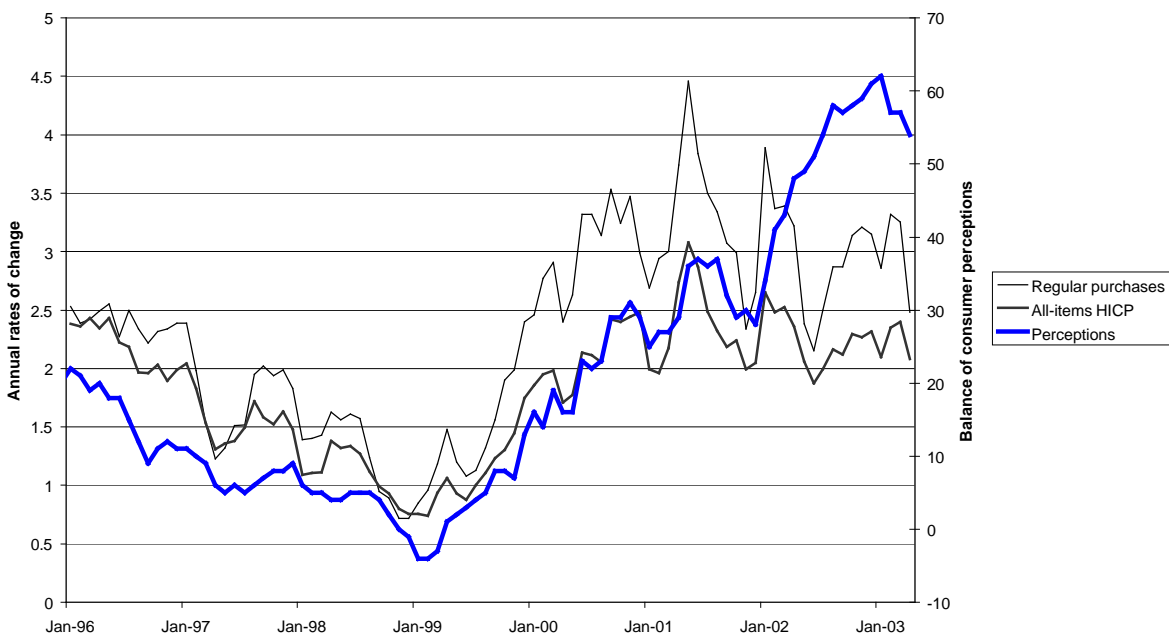
Consumers are well informed about actual price changes from their own experience. As well as taking their own personal experience into account, an event as important as the changeover will have meant that consumers were also very well aware of price increases reported in the official statistics and in the media. Every reported increase in the official inflation rate can thus have a cumulative or snowball effect on consumer perceptions. In practice, Eurostat's analysis shows that it is possible to establish a very close relationship between the all-items HICP and consumer perceptions during 2002, and for the earlier years, by estimating the change in perceptions each month as a function of the previous level of the index plus the change in the all items HICP in the current month. This can be seen as giving some support to the hypothesis of a snowball effect.

The role of regular purchases

Complementary to the hypothesis of a snowball effect, it could be expected that consumers form their own views of inflation by paying the most attention to their most frequent purchases (e.g. daily or weekly food purchases).

Eurostat has constructed an index including a number of frequently purchased items such as food products, petrol, transport by train and bus, newspapers and magazines, restaurants and cafes, and hairdressers. Prices for frequently purchase items have risen faster than the all-items index since mid 1999.

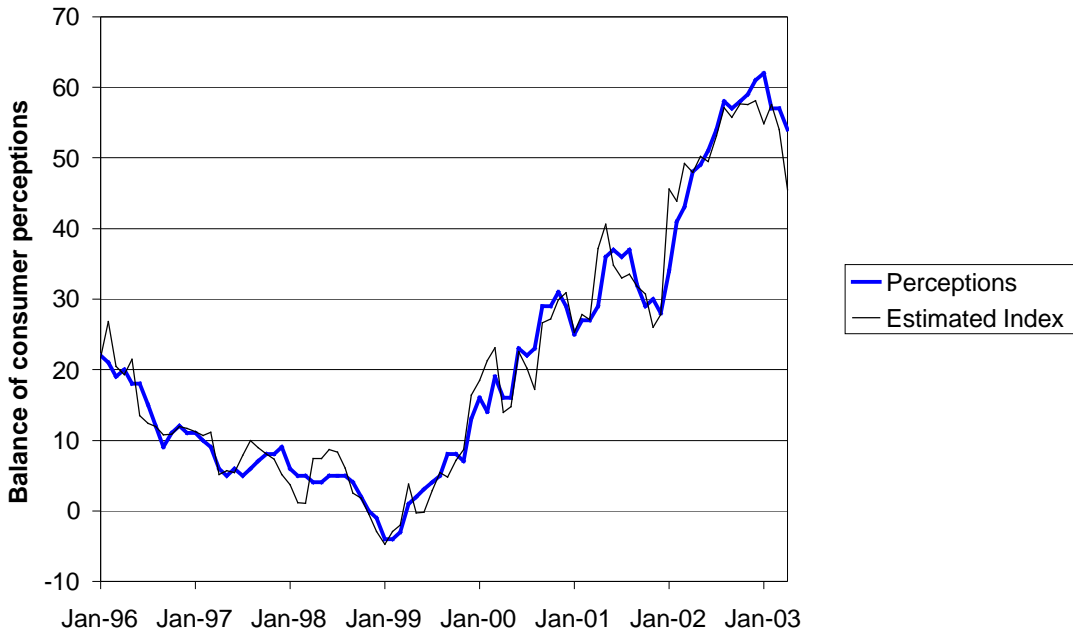
Chart 2: HICP, regular purchases and consumer perceptions



Higher than average price increases for frequent purchases may explain up to a half of the drift between the all-items HICP and the index of consumer perceptions. They do not therefore explain in full the discrepancy. If there are price increases for regular low cost purchases, but similar price increases are not seen for some more expensive goods, then the index of consumer perceptions could be expected to rise somewhat faster than the all-items HICP.

Another way to look at the role of regular purchases is to ask which types of expenditure do consumers seem to have paid most attention to in different time periods. Eurostat has analysed this by estimating from HICP data which types of purchases, with which weights, would best fit the index of consumer perceptions.

Chart 3: Estimated index and consumer perceptions



Eurostat's analyses on this question show that the data give some support to the hypothesis that consumers may have paid more attention to the prices of regular purchases, and paid less attention to the prices for less frequent, more expensive, purchases. The divergence between the index of consumer perceptions and the all-items HICP since early 2002 can be viewed as a consequence of euro changeover induced price increases and the significant price increases for alcohol and tobacco.

References to some studies on the impact of the euro changeover in euro-zone Member States

Austria

<http://www.statistik.at/>

Belgium

<http://www.nbb.be/sg/Fr/Produits/publication/Pdf/reveco/0602fr.pdf>
<http://www.nbb.be/sg/En/Contact/pdf/cp060302e.pdf>

Finland

http://www.vn.fi/vm/english/press_releases/eurorounding.pdf
http://tilastokeskus.fi/tk/tp_tied/tiedotteet/v2002/039hins.html
http://tilastokeskus.fi/tk/tp_tied/tiedotteet/v2002/039hine.html

France

<http://www.euro.gouv.fr/zoomentre2/index.htm>
http://www.insee.fr/fr/ffc/docs_ffc/IP837.pdf
http://www.insee.fr/fr/indicateur/analys_conj/archives/décembre2002.pdf

Germany

http://www.destatis.de/themen/d/thm_preise.htm

Ireland

<http://www.forfas.ie/publications/cc-pricing-eurozone/PWC-Forfas.pdf>

Italy

<http://www.istat.it/Comunicati/Fuori-cale/allegati/Monitoragg/monitortris.pdf>

Luxembourg

http://www.statec.lu/html_fr/presse/stn37_02.html
http://www.statec.lu/html_fr/presse/stn06_03.html

Netherlands

<http://www.cbs.nl/en/publications/articles/webmagazine/2002/0905k.htm>
<http://www.cbs.nl/nl/publicaties/artikelen/algemeen/webmagazine/artikelen/2002/0905k.htm>
<http://www.cbs.nl/nl/publicaties/artikelen/macro-economie/prijzen/consumentenprijzen/index.htm>
<http://www.cbs.nl/en/publications/articles/macro-economics/consumerprices/consumerprices.htm>

Portugal

http://www.ine.pt/prodserv/estudos/ficha.asp?x_estudoid=267&x_ver_site=en#
http://www.ine.pt/prodserv/estudos/ficha.asp?x_estudoid=267#