General public and professional economists do not always necessarily agree on the underlying reasons for a price rise and inflation. Consumers may sometimes perceive a price rise differently from the situation observed in statistical surveys. This article gives an overview of the actual causes of a price rise upon the introduction of the euro and compares them to the reasons for price rise fears. The article also compares phenomena that accompanied cash exchange in the old Member States to what could be expected to happen in Estonia during the euro changeover.

PRICE RISE FEARS IN THE EURO AREA IN THE LIGHT OF THE EURO CHANGEOVER AND THE POTENTIAL REALISATION OF SUCH FEARS IN ESTONIA

Raoul Lättemäe

When the euro was introduced in 2002 a lot of people in the euro area were worried about a possible price hike. According to statistics the actual price rise in the euro area arising from the euro changeover was relatively small.[1]

Price Rise Related to the Euro Changeover and Fears in the Euro Area

Eurostat compared the price rise in the euro area and that in the non-euro area EU Member States and analysed price rise factors which had their impact during the changeover period yet which were not directly related to the changeover (e.g. energy prices, seasonality, climate). According to this analysis the price rise did not accelerate in early 2002 so much because of the introduction of the euro but due to other factors. This is expressed by the fact that the price rise picked up also in Denmark and the United Kingdom in early 2002, both being EU Member States that did not change over to the euro (see Figure 1).

A more detailed analysis of statistics shows that the impact of the price rise related to the changeover differed across goods and services. According to Eurostat, prices of about 54% of the goods groups followed their regular movement during the euro changeover

[1] Eurostat news release 69/2003 Annex: Euro Changeover Effects, 18 June 2003.

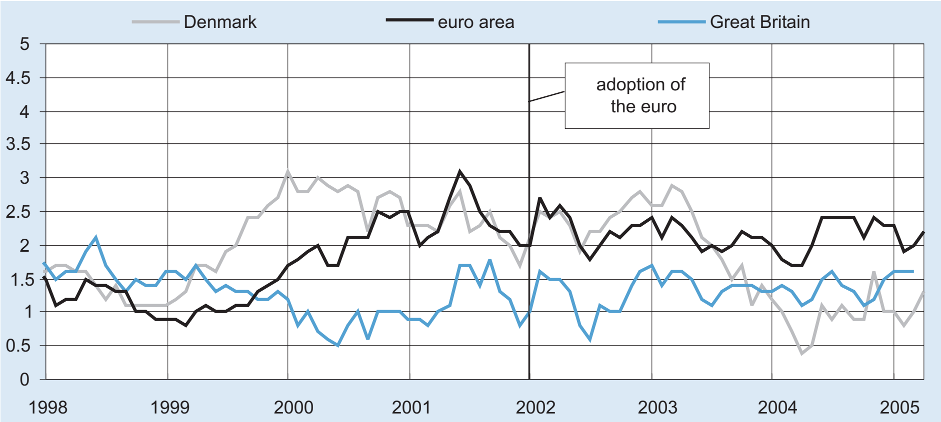

Figure 1. Annual price rise in the euro area and the non-euro area EU Member States

(from December 2001 to January 2002). Price movements in about 20% of goods groups could be reasoned by other factors (e.g. by changes in excise in case of alcohol and tobacco, a generally higher price rise of food following a poor year in agriculture, etc.). The changeover to the euro probably had an impact on the prices of nearly 26% of goods groups. Price rise was most apparent in case of restaurants and cafés, hairdressers and beauty parlours, i.e. the services of mainly local providers (see Figure 2). However, the changeover may have brought about a price decrease in certain goods groups because of greater price transparency. That is, when people argue whether the changeover generated a considerable price rise or not, quite often some people talk about the prices of single products and others about the overall price level.

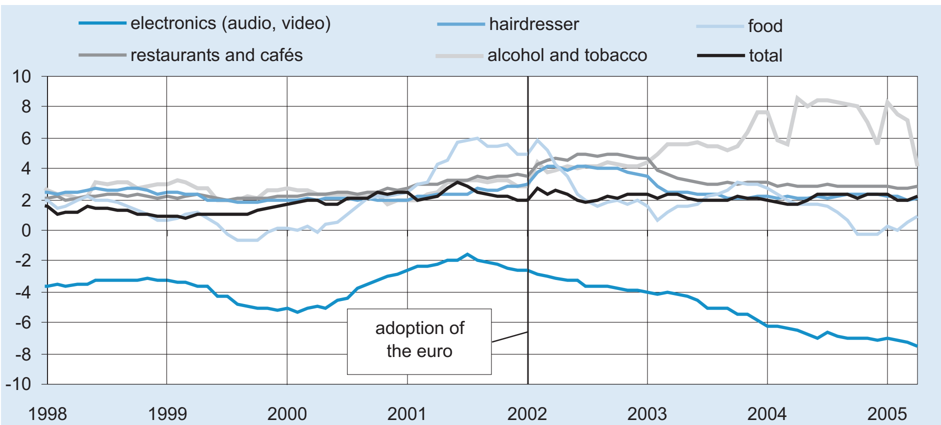

Figure 2. Price rise in the euro area by different goods groups

There are several reasons for a slight price rise accompanying the changeover. They are mostly related to how an average company can manage expenses arising from the changeover.

On markets with perfect competition where the price equals marginal cost borne to supply the product, fixed (single) expenses arising from the euro changeover would not affect prices at all. On the other hand, where the company's pricing strategy rests on expenses, a temporary price rise during the depreciation period is likely to occur. After writing off the expenses, the previous price level should be resumed. Experience gained from the introduction of the euro shows that the related extent of the price rise depends on the strength of competition in trade. The price rise was lower in smaller shops and those countries where retail trade concentration was lower. A temporary price pressure may arise depending on the companies' pricing policies but there is no ground for a rise in prices in the long term.

The primary direct expenses that retail companies must bear due to the euro changeover are related to price developments and replacement of price tags (the so-called menu costs), training of employees, accounting in several currencies during the period of parallel circulation, and, when necessary, purchase of new software. Apart from direct one-off expenses there are factors that may cause a one-off or permanent price rise despite the expenses. A temporary price rise could be caused by **money illusion**, but more permanent changes in the price levels are caused by **psychological pricing** largely used nowadays. There are four reasons for a temporary price rise: menu costs, other expenses directly related to the euro changeover, psychological pricing, and money illusion.

Menu costs

Economic theory defines menu costs as costs directly related to the price change process. In the light of the euro changeover, these include the development of new prices, printing new price tags and remuneration of extra working hours for changing the price tags.

While the majority of retail companies usually change prices more often than once a year (a survey carried out in Italy which was based on an analysis of price developments of 750,000 product articles in 1996–2003 showed that normally an article's price changes every 9–11 months[2]; similar surveys in Belgium showed changes in every 6–10 months[3]), it can be expected that, at least partly, a regular change in pricing might be timed for the changeover period. The regular change in prices and replacement of tags might be scheduled to the changeover period so that it would coincide with the transition to euro prices. Thus the menu costs directly related to the changeover actually decrease for the company but consumers perceive that the prices changed because the currency changed. The use of such strategy is definitely more complicated the more the media and public at large take interest in the price changes.

Experience of the euro area shows that within the period following the changeover the prices of more goods than usual were actually adjusted.

[2] Veronese, G., Fabian, S., Gattulli, A., Sabbatini, R. *Consumer Price Behaviour in Italy. Evidence from Micro CPI Data*, ECB Working Paper No 449, March 2005.

[3] Aucremanne, L., Druant, M. *Price-setting behaviour in Belgium: what can be learned from an ad hoc survey?* ECB Working Paper No 448, March 2005; Aucremanne, L., Dhyne, E. *Time-dependent versus state-dependent pricing: a panel data approach to the determinants of Belgian consumer price changes*, ECB Working Paper No 462, March 2005.

Other expenses directly related to the euro changeover

There are also other costs that retail companies and service providers bear in addition to direct expenses of changing the price tags or menu costs. One of the largest expense items is purchasing new software or updating the software in use (IT costs). The software in use should allow accounting in at least two currencies in parallel for the business to run smoothly, especially during the period of parallel circulation. A critical issue here is accounting the costs related to potential software replacement. If efforts are made to depreciate them in a very short period, a temporary price rise might follow. In case software purchases are regarded as a long-term investment and expensed during the period of use of the software, then its effect on prices is almost negligible.

While trading companies and service providers are directly involved in the withdrawal of currency from circulation, they also need a larger supply of cash than usual during the period of parallel circulation.[4] This, in turn, increases running operating expenses over a short period. Another expense item is staff training – learning to recognise the new currency, instructions for cash management in two currencies in parallel, presentation of new software, and so on.

In general it may be assumed based on the euro area experience that the direct expenses related to the changeover, even though small ones, were passed on to prices in the long run. However, this was considered a small and temporary impact in the euro area.

Psychological pricing

Psychological pricing is a modern marketing tool based on the fact that consumers need to choose among thousands of different goods when doing daily shopping. Given the extensive range of goods, consumers cannot possibly remember or compare all prices.

Psychological pricing presumes that consumers rather ignore the last numbers on the price tags in order to simplify price comparisons rather than rounding them to a suitable number. When the consumer's decision follows the above rule, the merchant gains maximum profit for prices ending in nine. Namely, according to psychological pricing growth in demand is higher if the price drops by one kroon from one hundred to ninety-nine kroons, as opposed to cases where the price is lowered from 99 to 98 or from 101 to 100 kroons. Given the above, retailers do not change prices (according to changes in costs) on a current basis but less frequently, until a new attractive price is attained. There is also a reverse psychological impact: the price ending in nine is related to something cheap, and that ending in a zero indicates something expensive; therefore in case of luxury goods prices ending in a zero might prove more expedient.

[4] During the parallel circulation period merchants and service providers accept euros as well as the national currency whereas, whenever possible, they should return the change in euros only.

Even though psychological pricing might involve the risk that prices are rounded upward to a new attractive price, some prices are likely to drop because of a change in the accounting base. Moreover, under tight competition and in the case an attractive price is not achieved upon accounting in euros, psychological pricing may temporarily be given up.

The actual experience of the euro area only partly confirms the use of psychological pricing, e.g. the Belgian experience (1 EUR = 40.3399 BEF) shows that rounding to a new attractive level had a neutral impact in about 80% of cases after the changeover to the euro. However, in the rest of the cases prices were still rounded upward.

Money illusion

Money illusion means that if the increase or decrease in the amount of disposable money consumers have equals the extent of price changes, this creates an illusion as if their purchasing power has increased or decreased. Money illusion mostly occurs when consumers incorrectly calculate the so-called reference price, which serves as a basis for calculating the relative price of each single item.

A suitable reference price upon a stable price level is the currency in circulation as consumers quite well perceive the relative purchasing power of the given currency. When a new currency unit is introduced the previous reference price disappears, it may take long to get used to new prices, and simplified conversion of the old reference price might lead to faulty conclusions.

For instance, consumers are likely to simplify their calculations by rounding the exchange rate of the euro and their previous national currency. For Estonia the exchange rate is 15.6466 EEK = 1 EUR. Should the Estonian consumers use a more simple rate of 1 EUR = 15 EEK for the calculation of a reference price, they might overestimate their actual purchasing power because such a price in kroons seems less expensive than it actually is when using the correct exchange rate. The euro area experience does not fully support such an inflationary impact. A survey was conducted in the euro area before the euro changeover inquiring what the conversion rate of the euro and the national currency was (responses within ±1% error rate were considered correct). The results showed that about 80% of the population knew the actual conversion rate of the euro.

Thus, it could be concluded that price changes which might arise from the changeover are related to imperfect markets and irrational behaviour of consumers. If markets' operations were optimal and consumers behaved rationally, there would be no need to worry about the changeover causing changes in prices. Under perfect competition any trading company trying to raise prices would lose their market share at once, while they could not lower prices in the longer term either due to their own expenses. Monopolies ruling a market need not change prices as their price optimum in euros and the current national currency is equivalent under other equal conditions.

Another important issue accompanying the euro changeover is that an unusually wide discrepancy occurred between the official statistics and consumers' inflation perception

– the population's perception of the price rise was actually much higher (see Figure 3). However, major differences can be noticed across countries. The growth of perceived inflation was not so high in Belgium, France, Austria and Finland. It was initially lower in Greece, Spain, Ireland and Italy, but grew then and remained above the euro area average for a long time. In the rest of the countries it was temporarily higher than the actual level.

Five factors contributed to more inadequate inflation perception by consumers.

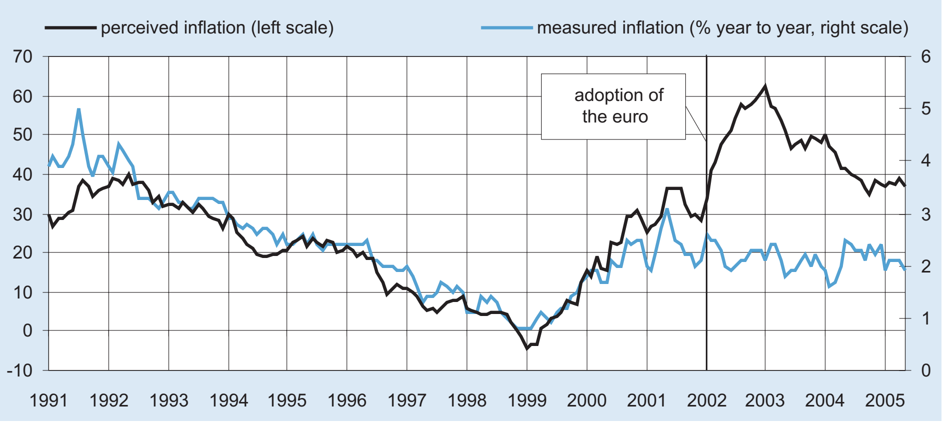

Figure 3. Inflation perception in the euro area

Source: European Commission[5]

The "snowball effect"

Consumers normally know the prices that affect them directly. The media attention concerning price changes increased in the course of introducing the new currency and media coverage of the price rises had a major impact on consumers, boosting the perception of a price rise. Consumers felt as if goods indeed became more expensive.

The price rise was higher for goods purchased more frequently

Consumers normally pay more attention to the prices of goods they consume daily (food, fuel, public transport, newspapers, haircuts). Prices of those goods groups grew faster in the euro area as a whole, which means that inflation was higher in case of cheaper and more frequently purchased goods upon the euro changeover than the general price index. However, statistics does not reveal any price rises in times for such goods either – the rise was higher by just a few percentage points compared to the non-euro area EU Member States; partly, this rise can be explained by other factors, e.g. the rise in food prices was faster during the cash exchange period due to poor crops in the previous year.

[5] European Commission, COM(2002) 747, p. 19 (http://europa.eu.int/eur-lex/en/com/cnc/2002/com2002_0747en01.pdf).

Effects of rounding

People tend to calculate in the old traditional currency for some time after the changeover in order to compare old and new prices. Therefore consumers convert new prices into the old currency when shopping. Presumably, consumers simplify their calculations by rounding the conversion rate of the euro and their previous national currency. Such rounded prices seem either cheaper or more expensive than the ones calculated on the basis of the true conversion rate. Most surveys do not lend support to such extensive effect in the euro area as majority of the population was fairly well informed about the conversion rate of the euro and the old currency.

Lack of information

The euro area experience shows that the perception of a price rise was higher in the countries were the population was less informed about the introduction of the euro (see Figure 4). In Finland, where 75% of the population thought they were rather well informed, the inflation perception was the lowest. In Greece, where just 42% of the population thought they were informed well enough, the perception was the highest.

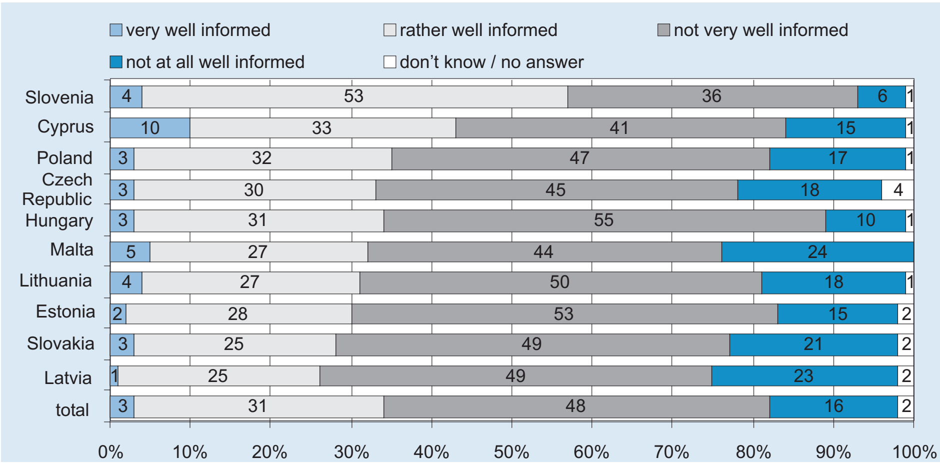

Figure 4. Population's awareness of the euro

Source: Eurobarometer, October 2004

Ignorance

The population's awareness may also be interpreted differently on the basis of the given statistics: lower inflation was perceived in the countries where the introduction of the euro was considered natural and where people did not see any related inconveniences

(Finland, Austria). On the other hand, in the countries where people mostly considered it inconvenient (Greece), the negative attitude transferred into the perceived inflation.

All factors accelerating inflation perception imply the necessity to inform the public and gain their trust. It should be noted, in regard to the euro changeover, that price fears were not even across the euro area. Nearly half of the euro area population considered it possible that retail companies would use the confusion of consumers upon euro changeover and raise prices. Many trading companies and service providers foresaw a different risk: the changeover might involve difficulties in price adjustments even when it has to be carried out independent of the euro changeover because of a growing transparency of prices, enhanced attention of the media and consumers, and the expected smaller seasonal purchase pressure at the beginning of the year. It should also be noted that, on the one hand, people were talking about a large price rise related to the euro, but on the other hand there were serious arguments over the potential deflation risk.

Apart from the so-called one-off factors, the overall euro area economic environment during the changeover period should be considered. In the late 1990s the euro area saw a fairly low inflation rate that picked up at the beginning of the current decade rising above the political target of the euro area (2% or lower inflation rate), which forced the European Central Bank to raise the interest rate (see Figure 1). Thus it is likely that a shift in the inflation perception of the euro area consumers partly reflects a general price development of the current decade and not the factors directly related to the euro.

Conclusions in the Estonian context

The changeover to the euro cash in Estonia will evidently take place on 1 January 2007. Estonia is now facing the question whether the changeover will bring along a considerable price rise. According to the Eurobarometer survey conducted in October 2004[6] about 54% of the Estonian population feared a rise in prices.

Neither economic theory nor the euro area experience serve as a basis for believing that the introduction of the euro would bring along a major price hike in Estonia. According to international surveys 9% of prices change every month with 7% of prices increasing, and it is only natural that the prices of certain goods would rise also in Estonia in January 2007. A logical assumption is that, similar to the euro area, some of the regular price changes might be timed for the changeover period because of the menu costs in Estonia as well. Expense arguments might also have a more significant impact on the prices of some goods and services.

Economic theory as well as the euro area experience show that the tighter the competition on the market, the less likely the euro-related price rise is. Given that Estonia is a well operating market economy (indirectly reflected also by Estonia's very high indicators in various economic indices which are often higher than those of the old EU Member

[6] Eurobarometer: Introduction of the Euro in New Member States, EOS Gallup Europe, October 2004 (http://europa.eu.int/comm/public_opinion/flash/flash165b_en.pdf).

States), the euro changeover will not have a crucial inflationary impact on the Estonian price level as a whole. Similar to Finland, most of the Estonian retail sector is engaged in large chains. Therefore the pressure stemming from the price rise should be smaller here compared to countries where small shops prevail.

All in all, this means that the current inflation forecasts of Eesti Pank do not expect an abnormal deceleration or acceleration of price rise during the cash exchange period. According to the current base forecasts the Estonian inflation rate should remain at a slightly lower level in 2006 and 2007 than today. No forecasts expect a considerable change in the inflation rate in 2007 compared to 2006.

On the basis of the euro area experience it cannot be ruled out that the Estonian population might perceive the rise in prices higher than the actual price growth when joining the euro area. The EU accession experience in Estonia shows that due to large media attention as well as expected changes, consumers' inflation fears grew before the accession (see Figure 5). After the accession there was an increase in the number of these consumers who felt that prices really did rise faster. However, as the accession only brought along a one-off price rise for some single goods, fears disappeared quite fast in Estonia. Thus, the possible price rise accompanying the euro changeover is most probably a one-off and temporary event.

As regards perception and expectations of Estonian consumers it must be pointed out that they normally perceive inflation considerably higher than it really is. According to the surveys of the Estonian Institute of Economic Research (EKI; see Figure 5) and Saar Poll (see figure 6) it is no rare occasion that the price rise is perceived to be higher by 10% or even more. Our past might explain that with its high inflation rates and low income level contributing to a more perceptible price increase. It might be that the price rise in certain fields (e.g. electricity, public transport) is more apparent than a more modest price rise of some goods

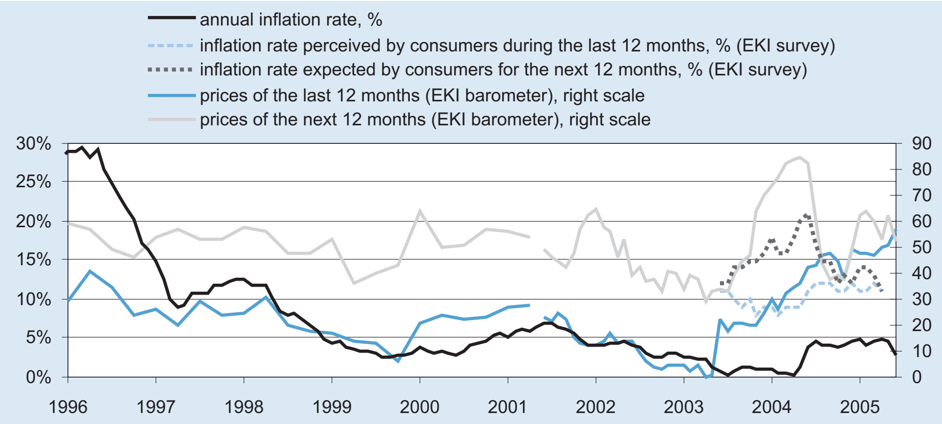

Figure 5. Annual consumer price inflation in Estonia (%) and inflation expectations of consumers

Source: Estonian Institute of Economic Research (EKI)

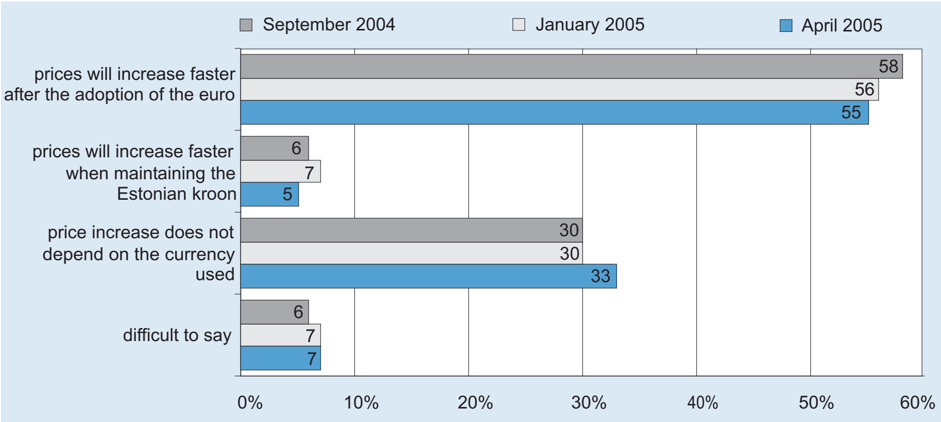

Figure 6. Price rise expectations in Estonia

Source: Saar Poll

in the basket of goods and services or even a price decrease (e.g. electronics, air fares or communication services). **It is important that even though the population perceives the inflation level higher than it actually is, the change in the inflation rate perceived by consumers before and after the EU accession corresponds to the actual inflation dynamics fairly precisely. Thus we could assume that a change in the inflation rate perceived by consumers need not differ much from the actual inflation dynamics upon the introduction of the euro.**

Conclusions

In the light of economic research and opinion polls it appears that people fear inflation accompanying the euro changeover. The reasons are mostly psychological but it does not decrease the need for their serious consideration and dissemination of unbiased and relevant information on price rise issues.

Given the euro area experience, the euro changeover need not necessarily bring along crucial price rise or inflation acceleration. Changes will be mainly apparent in prices of everyday goods.

It is important to remember that consumers very carefully follow changes in the prices of everyday commodities and fail to notice changes in the prices of more expensive goods. The information campaign during the changeover should take this fact into account. Both the actual and perceived price rise issues are the smaller the more rational approach consumers take and the more they react to unjustified price rises.