

Analysis and estimation of the Euro-changeover effect on the price development in Slovakia

Ján Haluška, INFOSTAT Bratislava
František Bernadič, SO SR

Abstract

Since 1 January 2009, the Slovak Republic (SR) has become the 16th Euro-zone member country. The SR complied with the Maastricht criteria in the period of significant growth of the economy, as the real GDP increased by 6.4% in 2008. However, the main development tendency of the Slovak economy during the previous year was the slowdown of the dynamics of its growth. This slowdown was caused by the development of the aggregated demand, the growth of which had been decreasing since the beginning of the previous year and in real terms it fell down in the 4th quarter. The decisive factor of the decrease of aggregated demand at the end of the previous year was the decrease of external demand caused by the global economic crisis.

In 2008, the dynamics of growth of the Slovak economy slowed down, however, the inflation slightly increased - from 2.8% in 2007 up to 4.6% in 2008 (at the average). In this connection, the justified questions might arise, e.g. if, from when and to what extent the development of consumer prices could be influenced also by the preparation for the Euro-changeover or it was affected only by the sole Euro-changeover. This is to say that the impact of the Euro-changeover might appear with a certain advance or it can be shown only after a certain time delay after its introduction. Thus, it is necessary to analyse the price development at the consumer market for a longer time period, not only during a couple of months prior to or after the Euro introduction. The results of analysis and the estimation of the impact of Euro-changeover on the price development in the SR are subject of the submitted paper.

1. Introduction

Within the price statistics it is often very hard to estimate and enumerate the impact of various factors and changes on inflation because usually no sufficient information is available. That is to say that the development of inflation is ultimately the consequence of the impact of changes at the lowest, i.e. at the most detailed level of disaggregation, which are caused by a range of different factors (common, specific, random, systematic etc.).

With respect to the aim of this study we can say that in the course of the certain time period, the impact of some of these factors might possibly overlap with the potential influence of the Euro-changeover, while, at the same time, its role can be reinforced, weakened or neutralised.

In connection to the introduction of Euro in the SR since January 2009 it is therefore problematic to answer unambiguously the questions if, from when and to what extent the development of consumer prices has been influenced already by the preparation for the Euro introduction or by the sole changeover¹. The impact of the Euro introduction could appear also in advance or it might be shown only with a certain delay after its adoption. Thereby it is inevitable to analyse the price development at the consumer market for a longer time period, not only during several months prior to/ or after the Euro-changeover. Having said that, it is obvious that a more detailed analysis of the price development at the consumer market would be useful and a breakdown minimally into two phases would be desirable, i.e. to a time period prior to the Euro introduction (so-called pre-changeover effect) and after its introduction (so-called net-changeover effect and a post-changeover effect)². With respect to the fact that the important milestone in the period prior to the Euro introduction was the date of the declaration of the conversion exchange rate (8 July 2008), it might be also useful to analyse the development of consumer prices in 2008 separately in shorter time intervals, i.e. until the declaration of the conversion rate, i.e. during the 1st half-year of 2008 and after the declaration of the conversion rate, i.e. in the 2nd half-year 2008.

¹ This is related also to the answer on the hypothetical question, how the inflation would develop if the SR did not plan to introduce the Euro.

² The *net-changeover* effect is related to the price development at the consumer market in January 2009, i.e. immediately after the introduction of Euro. Thus, it expresses the immediate impact of the Euro introduction on the change in consumer prices in January 2009 against December 2008.

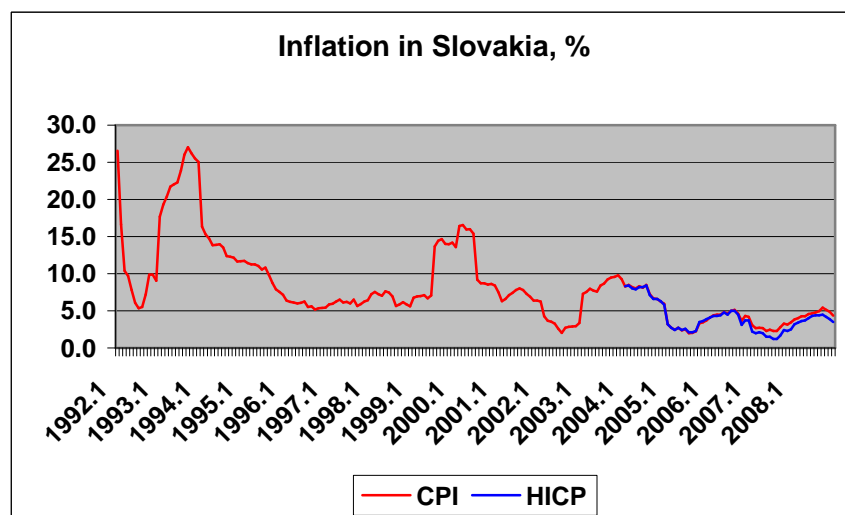
Methodological approach of the analysis and the enumeration of the so-called pre-changeover effect, are presented in the 2nd part of this paper. The approach used and the results of the estimation of the so-called net-changeover and post-changeover effects are subject of the 3rd part of the paper. The complex version of the analysis is to be found in [1].

2. Methodological approach used for the analysis of the price development prior to the Euro introduction

2.1 A comparative analysis of the development of consumer prices in 2008

The inflation in the SR reached its last peak in November 2003, when it had increased by 9.8% as compared to November 2002 (Graph 1). It was more or less regularly decreasing until July/August 2005 when on the yearly basis it stabilised at the level of 2%, what was its historical minimum until now. Since September 2005 the prices had been gradually increasing again and they reached the next peak in August 2006 at the level of 5.1%. Since September 2006 the inflation was repeatedly decreasing and this tendency sustained until August 2007. Subsequently, mainly due to the faster increase of prices of food, it had been increasing once again and its rise culminated in September 2008 at the level of 5.4%. Due to various factors it step-by-step decreased down to 4.4% in December 2008.

Graph 1



The analysis of the development of consumer prices in 2008 is based on investigation of time series properties of fixed-base indices of consumer prices aggregated by the COICOP categories (12 in total) and groups (44 in total)³. Its aim was to find out if these price indices do not show the features of a faster acceleration prior to the declaration of the conversion rate (in the 1st half-year of 2008) or after its declaration (in the 2nd half-year), in respect to the dynamics of their development in the comparable time periods of the previous three years. From the methodological point of view the analytical approach was based on the application of the well-known rule of "three sigma", which in the mathematical statistics is related to the normal distribution. At the level of aggregation of price indices by categories of COICOP we succeeded with the help of the three-sigma rule to identify three categories and within them three groups, which had been showing the indications of the acceleration of the dynamics of growth of prices already since the beginning of 2008. In other words, the price development in these three categories and groups deviated from the tendency in terms of the "three sigma" rule; thus, it did not behave "normally". Concretely, the category food and non-alcoholic beverages (01), transport (07) a hotels, cafés and restaurants (11) or the group food (011), transport services (073) and catering (111) are in question.

³ The time series of these indices have arisen by the aggregation of monthly time series of fixed-base price indices of all representatives of the consumer basket in the SR amounting to more than 700. Owing to the number of representatives the highest share in the consumer basket is formed by the category "Food and non-alcoholic beverages", amounting to 137 representatives.

In terms of "three sigma" rule, the food and non-alcoholic beverages had been showing an acceleration of price growth since January 2008, the latter two categories from February 2008. This result is in line with the Graph 2 (see Annex) picturing the increase of price indices of all 12 COICOP categories in % (including the increase of the total CPI) in the 1st quarter of 2008 against the December of 2007 and for comparison reasons also in the same period of the previous three years. However, it can be seen from the Graph 3 that in the 2nd quarter of 2008 only the prices of food and non-alcoholic beverages grew up much faster as in the same period of the previous three years.

In the 3rd and 4th quarter of 2008, i.e. during the time period after the declaration of the conversion rate, three COICOP categories had been showing also the features of the more significant increase of the dynamics of price growth as compared to the same time period of the three previous years (Graphs 4 and 5). In the 3rd quarter of 2008 the prices of two categories, housing, water, electricity, gas and other fuels (04) and hotels, cafés and restaurants (11) were in question; in the 4th quarter of 2008, only prices of alcoholic beverages and tobacco (02) should be taken into consideration. The prices of alcoholic beverages and tobacco were the only ones that showed the indications of a sharp speeding-up of the month-on-month growth in December 2008 as compared to their growth in the same time period of the previous three years (Graph 6).

Although the prices of several COICOP categories or groups recorded in 2008 (prior to and also after the declaration of the conversion exchange rate) the acceleration of the growth rate, as compared to the same time period in the previous three years, it does not have to mean necessarily that it was the consequence of the preparation for the Euro introduction (in those times). It is true mainly for the prices of food and non-alcoholic beverages because their speeding-up occurred already in September 2007. Furthermore, the acceleration of their growth did not occur only in Slovakia but also in the broader geographical surroundings.

The starting point for the finding if the acceleration of price growth of food and non-alcoholic beverages in the 1st half-year of 2008 was related to the Euro-changeover would be the comparison of their price development in Slovakia and in the relevant foreign countries; the following countries could be considered as relevant for the comparison: EU27, EMU15, the Czech Republic (CR), Poland, Austria and Slovenia⁴. The results of this comparison for two different time periods are graphically pictured in the Graphs 7 and 8.

From the Graph 7 it is obvious that the prices of food and non-alcoholic beverages (01) increased in Slovakia during the 1st half-year of 2008 remarkably higher as compared to relevant foreign countries. It was the consequence of the faster increase of prices of food (011) and within the framework of them mainly the prices of bread and cereals (0111), oils and fats (0115), fruit (0116) and vegetables (0117). Thus, we can say that the acceleration of the growth of prices of food and non-alcoholic beverages in the 1st half-year of 2008 could be caused to a certain extent also by the expected Euro-changeover in 2009.

It is interesting that while in the relevant foreign countries (except for the CR), the growth of prices of food and non-alcoholic beverages had been ongoing also during the 2nd half-year of 2008, but it was slower than in the 1st half-year of 2008; in both, the Slovak Republic and the Czech Republic these prices fell quite remarkably (Graph 8). Their decrease in Slovakia was related mainly to the fall of prices of the sole food (011) and within this category mainly to the sharp decrease of prices of fruit (0116) and vegetables (0117). However, at the same time, the growth of prices of bread and cereals had been continuing (0111); the same was true for the prices of oil and fats (0115). Nevertheless, in both cases the growth was slower as compared to the 1st half-year of 2008.

Based on the Graphs 9 and 10 it is possible to compare the development of prices of transport services (073) and prices for catering (111) in 2008 in Slovakia and in the relevant foreign countries. The comparison shows that the development of prices of transport services and catering in Slovakia has a common feature, i.e. in the 2nd half-year of 2008 they grew much faster than abroad. In this connection one can say that the speeding-up of prices of transport services and for catering in the 2nd half-year of 2008 could be caused to a certain extent also by the approaching introduction of Euro in 2009.

⁴ In the Graphs 7-10 and Table 1 they are designated by the abbreviations eu, ea, cz, pl, at and si. Comparison is in this case based on the analysis of development of monthly time series of HICP in Slovakia and abroad.

Table 1

Total goods and services	August 2007 – June 2008		August 2007 – December 2007		December 2007– June 2008		June 2008– December 2008		December 2007– December 2008	
	Total change (%)	Average m/m (%)	Total change (%)	Average m/m (%)	Total change (%)	Average m/m (%)	Total change (%)	Average m/m (%)	Total change (%)	Average m/m (%)
hicpieu	4,4	0,43	1,8	0,45	2,5	0,42	-0,3	-0,05	2,2	0,18
hicpiea	4,2	0,41	1,8	0,45	2,3	0,38	-0,7	-0,12	1,6	0,13
hicpisk	4,5	0,44	1,7	0,41	2,8	0,46	0,7	0,12	3,5	0,29
hicpicz	6,0	0,58	1,8	0,45	4,1	0,67	-0,8	-0,13	3,3	0,27
hicpipl	4,6	0,45	2,0	0,50	2,5	0,42	0,7	0,12	3,3	0,27
hicpiat	4,1	0,40	2,0	0,50	2,0	0,33	-0,5	-0,09	1,5	0,12
hicpisi	6,8	0,66	2,5	0,62	4,2	0,68	-2,3	-0,39	1,8	0,15

Based on data in Table 1 and the Graphs 9 and 10 it is possible in the same way to compare the development of prices of all goods and services in total, thus, the total level of consumer prices measured by the HICP, in the SR and in the relevant foreign countries. From this comparison it is obvious that in the 1st half-year of 2008 the total price level increased in the SR more than in the EU27, EMU15, in Austria and in Poland, however, less than in the CR and Slovenia. Although in the 2nd half-year of 2008 its growth remarkably slowed down, except for Slovakia, its growth was recorded only in Poland (by a coincidence the same as in Slovakia) because elsewhere it simply fell down.

However, the fact resulting from Table 1 is decisive, i.e. the yearly increase of the total level of consumer prices in 2008 was in the SR – within the framework of the countries or economic groupings under comparison – the highest. With regard to the fact that during August 2007 until December 2007 the growth of the total price level at the consumer market was in the SR the lowest one⁵, even lower than in the EMU15, we can conclude that the acceleration of its growth in the SR in 2008 was not related only to the speeding-up of the growth of regulated prices but it could be caused to a certain extent also by the expected introduction of Euro in 2009.

2.2 Estimation of the pre-changeover effect

According to the harmonised methodology, the consumer prices increased in EMU15 by 3.28% at the average in 2008, i. e. by 1.14 percentage points (hereinafter PPs) more as compared to 2007. In Slovakia, their growth according to the harmonised methodology accelerated from 1.89% in 2007 to 3.93% in 2008, i.e. by 2.04 PPs; thus, as compared to EMU15, the fastening of the growth of consumer prices in Slovakia was higher by 0.90 PPs at the average in 2008. Regarding the fact that the contribution of the growth of regulated prices to the acceleration of the growth of consumer prices in 2008 represented in the SR 0.79 PPs⁶, the remaining 0.11 PPs represent the so-called pre-changeover effect, thus, the contribution of other, closely not specified, factors influencing the inflation. In this connection we can assume that mainly the impact related to the preparation for the Euro-changeover was in question. That is to say that in our opinion the inflation growth in 2008 was not significantly influenced by the demand factors in the SR.

If the growth of regulated prices in 2008 was excluded, the increase of consumer prices in the SR would fasten according to the harmonised methodology from 1.89% in 2007 up to 3.14% in 2008, i.e. by 1.25 PPs. It is obvious that if the impact of regulated prices on the growth of consumers prices was excluded in the same way in the EMU15 (and due to the exactness of the comparison it would be desirable), the acceleration of their growth in the SR against the EMU15 would be higher than 0.11 PPs (1.25 - 1.14 = 0.11) in 2008. The presented estimate being 0.11 PPs, which can be attributed to

⁵ Whereas the increase of prices of food and non-alcoholic beverages had started in Slovakia already in September 2007 and was ongoing until June 2008, the Table 1 contains also their total change in the given period, furthermore, the change recorded until the end of 2007 and their change in 2008. For each of the five periods always both, the total and their average month-on-month, changes are presented.

⁶ According to the harmonised methodology the regulated prices in the SR increased by 4.91% at the average in 2008, what was by 2.89 PPs more than in 2007. The share of items with regulated prices in the total number of items in the consumer basket was 27.31% in 2008. Thus, the contribution of the growth of regulated prices to the increase of the harmonised inflation was 0.79 PPs (2.89 x 0.2731 = 0.79) in 2008.

the influence related to the preparation for the Euro introduction, should be considered as the minimum or, better to say, as the estimate of the bottom level of this impact⁷.

3. Methodological approach used for the analysis of the price development after the Euro introduction

3.1 Analysis of the development of consumer prices in January 2009 and the enumeration of the net changeover effect

The development of the total level of consumer prices during 1993-2008 had been characterised by the fact that its month-on-month increase in January was each year usually the highest one and prevailingly it remarkably overcame 1%. Nevertheless, in January 2009 the growth of the total price level slowed significantly down because as compared to December 2008 it grew up by only 0.4%, what was historically its lowest increase in January, if measured at the month-on-month base. It was related to the slowdown of the growth of core inflation and the regulated prices⁸.

In the broader connection, it was the consequence of the global financial and economic crisis, which was the decisive reason for the moderation of the pressure on the price increase, generally from the demand side but also from the supply side, not only in the SR but also in the relevant abroad. This can be evidenced by the substantially deeper month-on-month decreases of HICP in January 2009 as compared to their decreases in January 2008 in EU27 (-0.7% vs. -0.2%), in EMU16 (-0.9% vs. -0.4%) and in Austria (-0.6% vs. -0.3%); furthermore, by the remarkably lower increases of HICP in January 2009 as compared to the increase in January 2008 in Slovakia (+0.4% vs. +1.2%), in the CR (+1.5% vs. +3.5%), in Poland (+0.4% vs. +0.5%) and in Slovenia, in which the HICP in January 2009 on monthly basis decreased (-0.3%), while in January 2008 it slightly increased (+0.1%)

From the Graph 11 it is obvious that owing to the COICOP structure mainly two categories, "Clothing and footwear" and "Transport", contributed to the month-on-month decrease of the total CPI level in Slovakia - from 1.3% in January 2008 down to 0.4% in January 2009⁹. At the same time, in the highest frequency category "Food and non-alcoholic beverages", but also in other categories, the slowdown of price growth occurred on the year-on-year basis. Only the following two categories were the exceptions: "Health" and "Education", in which the price growth in January 2009 conversely accelerated. However, those are categories, which according to the number of representatives in the consumer basket belong to the smallest ones.

For the estimation of the net-changeover effect, the analysis of the time series of fixed-base CPIs aggregated by COICOP categories and groups was used as the starting point. At the aggregated level of price indices by categories of COICOP it was not possible by using the three-sigma rule to identify any category, which would in January 2009 show certain features of an inappropriate acceleration of growth of prices as compared to their growth during 2005 - 2008. Such features of price growth were found out only in one COICOP group in January 2009, concretely tobacco (022). However, the main reason, due to which the price growth cannot be considered as normal, was not the introduction of Euro but rather the administrative increase of excise tax on tobacco and cigarettes valid from the beginning of this year.

The significant deviations of the development of fixed-base price indices in January 2009 from the development in terms of normal distribution by using the three-sigma rule were identified only at the level of particular representatives of the consumer basket. In this connection we have to say that according to the three sigma rule all those prices were a priori excluded from the analysis, which in January 2009 increased against December 2008 due to administrative measures, i.e. regulated prices of cigarettes, prices related to housing and prices of medicines.

⁷ If EUROSTAT provided us with the required information on the development of the regulated prices in EMU15 in 2008, it would be possible to make the estimate of the pre-changeover effect in a more precise way.

⁸ While in January 2008 the core inflation or the regulated prices had increased on the monthly basis by 1.1% or 2.0% respectively, in January 2009 they increased only by 0.3% or 0.5% respectively.

⁹ From the given two categories, the "Transport" had a remarkable stronger impact on the slowdown of growth of the total price level, although owing to the number of representatives in the consumer basket it was a less numerous category than the „Clothing and footwear“. That is to say that prices in the "Transport" category showed a turning point from increase (by 1.7% in January 2008) to decrease (by -1% in January 2009), while in the category "Clothing and footwear" only the moderation of the slowdown of the price decrease occurred in the same time period (from -1.2% down to -0.4%).

Despite the reduction mentioned above, it was found out that in total 17 representatives of the consumer basket recorded such price development in January 2009, which could not be accepted as normal in accordance to the three-sigma rule as compared to their price development in 2005-2008. We suppose that this could be treated as the consequence of the Euro introduction. At the same time one has to add, that while for 16 from the identified 17 representatives the introduction of Euro was an incentive for the price growth in January 2009 against December 2008, for one representative (the printout from the rap sheet) it was conversely the reason for the price decrease on a month-on-month basis.

The month-on-month changes in prices (increase or decrease) of the given 17 representatives of the consumer basket in January 2009 formed the base for the enumeration of the net changeover effect, i.e. the contribution of the Euro introduction to the growth of the total price level in January 2009. This contribution is given by the sum of contributions resulting from the price increase of the particular 16 representatives of the consumer basket, which should be modified (reduced) by the impact of the fall in prices for the printout of the rap sheet¹⁰. Based on the mentioned approach and taking into account the weights of particular 17 representatives in the consumer basket, we obtained an estimate according to which the so-called net-changeover effect represents 0.12 PPs¹¹.

3.2 Analysis of the development of consumer prices during February - April 2009 and the enumeration of the post changeover effect

The slowdown of the dynamics of growth of the total level of consumer prices, which had been characteristic for the development of Slovak economy in January 2009, intensified during the next three months. That is to say that in February the consumer prices increased month-on-month only by 0.1%, in March and April they recorded even a decrease by 0.2% and 0.1% respectively. Thus, from January until April 2009 the total price level increased against December 2008 cumulatively only by 0.2%, what represents its historically lowest increase during the first 4 months of the year. During 1993-2008 its cumulated increase from January up to April had been usually achieving 2% and more.

The fall of inflation in the consumer market during first 4 months of this year was primarily the consequence of the slowdown of the dynamics of growth of core inflation and regulated prices. Due to already mentioned absence of any vivid incentives for the price growth, from both, the demand and the supply sides, during January–April those prices, which might influence the development of core inflation, did not grow on a month-on-month basis at all. In other words, in a cumulative form they recorded a zero increase (against December 2008). On the other hand, the cumulated month-on-month increase of regulated prices represented 0.7% in the same time period. For comparison reasons it can be said that during the first four months of the previous year the cumulated increases of these two main price categories achieved 2.1% and 2.7% respectively (as compared to December 2007).

Due to the fact that the decrease of inflation from the beginning of this year is observable not only in Slovakia but also in relevant foreign countries, it can be said that it has become an accompanying phenomenon of the global economic crisis. It can be evidenced by the development of HICP in Slovakia and in the relevant abroad (except for Poland).

The cumulated month-on-month increase of HICP for the first four months was nearly everywhere lower than in the same period of the previous year, what is obvious from its comparison within the EU27 (0.6% vs. 1.6%), in EMU16 (0.3% vs. 1.3%), in Austria (0.3% vs. 0.4%), in Slovenia (1.5% vs. 2.2%), in the CR (1.7% vs. 3.8%) and in Slovakia (0.0% vs. 2.1%), while only in Poland it was conversely higher (3.0% vs. 1.8%). At the same time, this comparison shows that the dynamics of growth of consumer prices was during the first 4 months of this year the lowest in Slovakia, because the HICP as compared to other HICPs mentioned above recorded unambiguously the lowest, even zero, cumulated increase (against the December 2008).

From the Graph 12 it is clear that the fall in prices recorded in categories "Food and non-alcoholic beverages" and „Transport" (due to the decrease of prices of oil in the world market) has contributed to a decisive extent to the substantial fall of the month-on-month increase of the total CPI level in Slovakia - from 2.2% during January-April 2008 down to 0.2% during January-April 2009. That is to

¹⁰ The month-on-month decrease of the price for the printout of rap sheet in January 2009 can be considered as the influence of the Euro introduction because it was the consequence of rounding of this price downwards after its recalculation from SKK by the conversion rate.

¹¹ The presented estimate corresponds to the bottom interval boundary (0.12-0.19 PPs), which was published in March 2009 by the National Bank of Slovakia within the framework of the *net-changeover* effect [2].

say that in these two categories the prices during the first 4 months of this year decreased on a month-on-month basis cumulatively by 0.6% or 2.1% (against December 2008), while in the same time period of the previous year they conversely remarkably increased, i.e. by 4.0% or 2.0% (against December 2007). It can be added that the decrease in prices was recorded also in the category "Clothing and footwear" and was comparable with their decrease during the first 4 months in the last three years.

At the same time it should be noticed that the regulated prices related to housing, with the highest weight in the consumer basket, have recorded a remarkably lower cumulated increase as compared to previous three years. The slowdown of price growth during January-April of this year occurred also in the majority of other COICOP categories, except for the two of them, concretely "Education" and "Miscellaneous goods and services", which have recorded a slight price increase, while in the same time period in the previous year their prices moderately fell down.

The time series of fixed-base CPIs for February until April 2009 aggregated by the COICOP categories and groups were used as the starting point for the enumeration of the so-called post-changeover effect. In respect to the results of analysis of the development of CPIs during February-April, which have already been presented, it is not surprising that at the given levels of aggregation of price indices it was not possible to identify by the means of three sigma rule any category or group, which would show during February-April 2009 the features of any excessive price growth as compared to the years 2005-2008. However, such features in the price development during February – April 2009 were identified neither at the level of particular representatives of the consumer basket nor in the price development of those 17 representatives of consumer basket which were the starting point for the estimation of the so-called net-changeover effect. To conclude, we can say that the introduction of Euro had not led to a rise of the post-changeover effect during February-April 2009.

4. Conclusion

Due to the inflation criterion, the price development at the consumer market in Slovakia was not only to a higher extent monitored in the previous year but the Slovak government adopted also strict legislative measures in order to prevent the speculative or unreasoned increase of consumer prices of goods and services in connection to the introduction of Euro. It is indisputable that the unambiguous answer to the question – if (from when and to what extent) the development of consumer prices was influenced already by the preparation for the introduction of euro or only by the sole changeover – is very difficult. Despite that, the analysis being worked out has tried to provide the reader with a complex answer. It is a complex answer because it provides the enumeration of the *pre-changeover* effect, which was related to the time period prior to the Euro changeover, together with the estimation of both, the *net-changeover* and *post-changeover*, effects being related to the period after the Euro introduction.

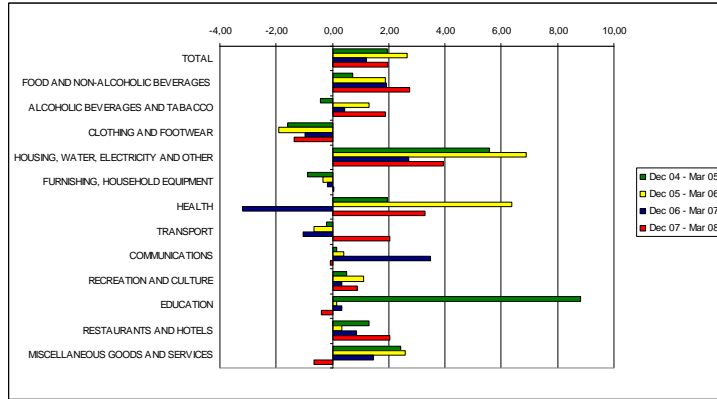
The monthly time series of CPIs and HICPs in Slovakia and the relevant foreign countries were used as the starting point for the estimation of all three effects, which were analysed by using mathematical and statistical methods. From the results of analysis it can be concluded that the Euro introduction was very likely the factor, which had contributed to the inflation growth already in 2008 and subsequently in January 2009. However, in the next three months, i.e. from February until April 2009, the euro changeover did not represent any significant determinant for the acceleration of price growth at the consumer market and did not lead to the generation of the so-called post-changeover effect. Rather conversely, it suppressed the price increase and thus contributed to the inflation decrease.

References

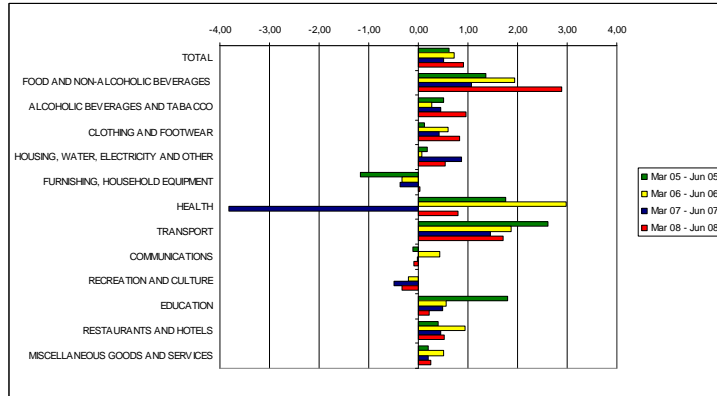
1. Haluška, J., Olexa, M.: *Analýza a kvantifikácia zavedenia eura na cenový vývoj v SR*. INFOSTAT, júl 2009.
2. *Vplyv zavedenia eura na infláciu v Slovenskej republike v januári 2009*. NBS, marec 2009.

Annex

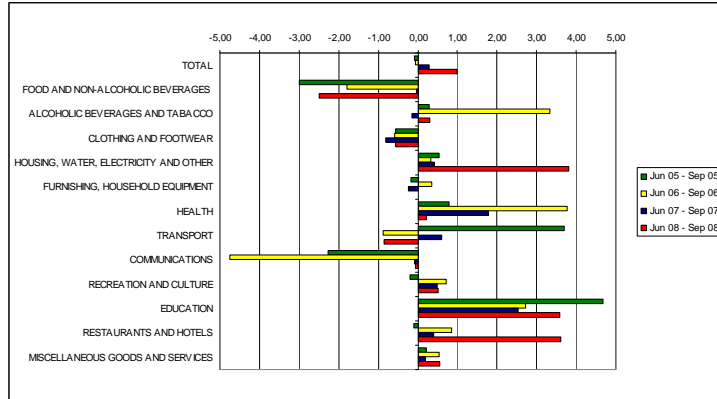
Graph 2 Price changes in March vs December, %



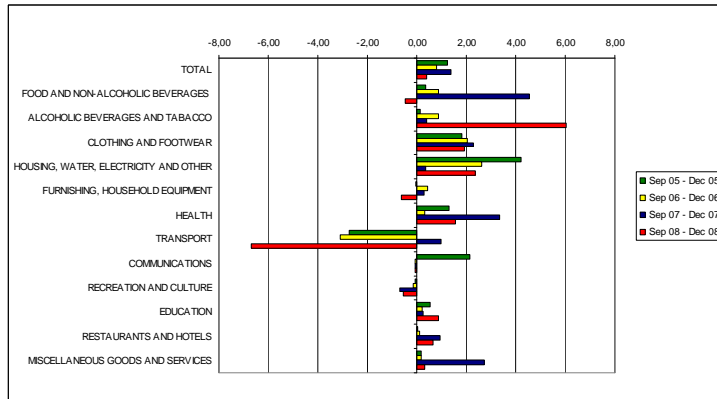
Graph 3 Price changes in June vs March, %



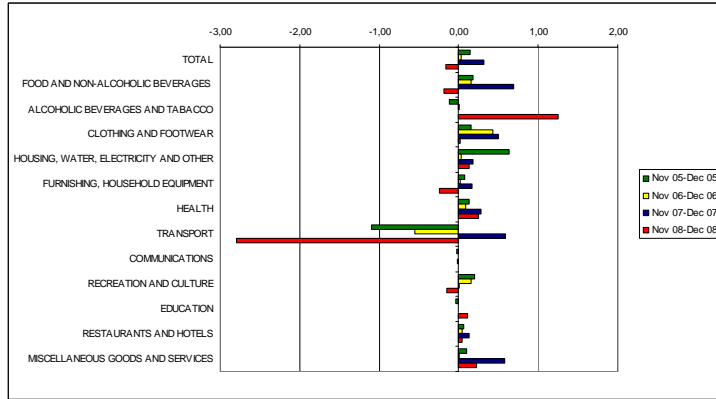
Graph 4 Price changes in September vs June, %



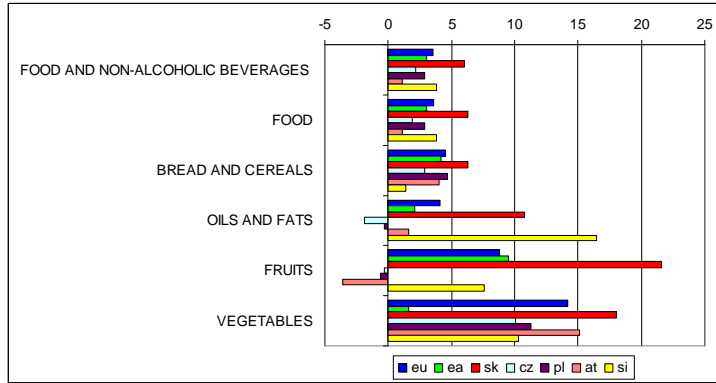
Graph 5 Price changes in December vs September, %



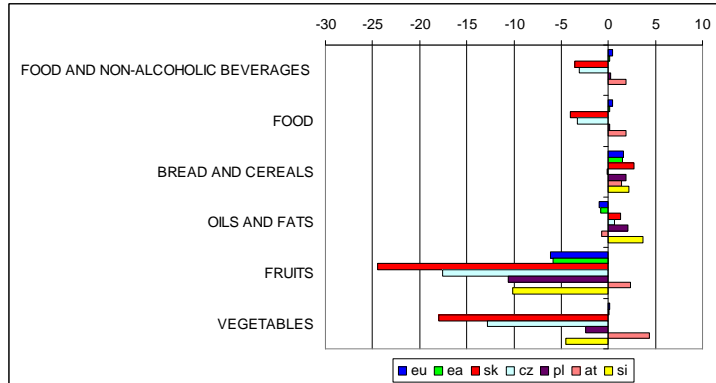
Graph 6 Price changes in December vs November, %



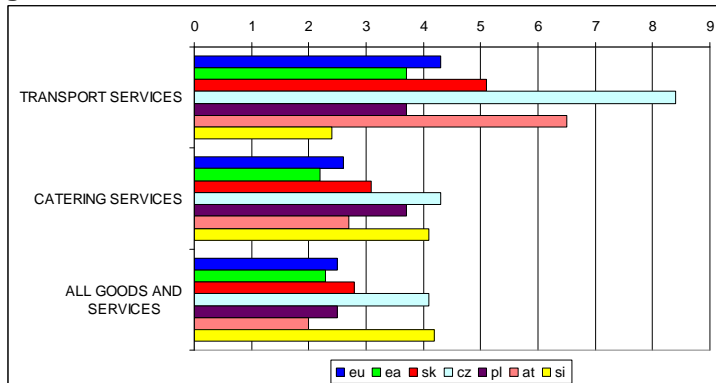
Graph 7 Price changes in June 2008 vs December 2007, %



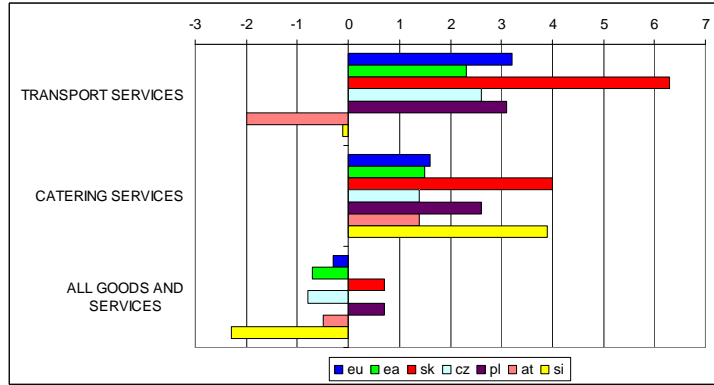
Graph 8 Price changes in December 2008 vs June 2008, %



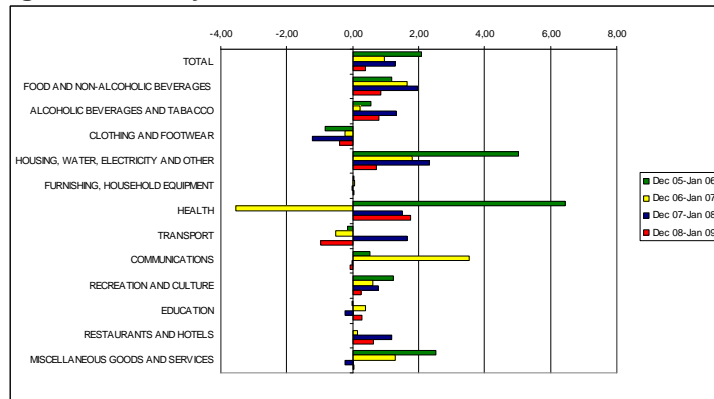
Graph 9 Price changes in June 2008 vs December 2007, %



Graph 10 Price changes in December 2008 vs June 2008, %



Graph 11 Price changes in January vs December, %



Graph 12 Price changes in April vs December, %

