



## INTRODUCTION OF THE SINGLE CURRENCY AND INFLATION – THE CASE OF CENTRAL AND EASTERN EUROPEAN COUNTRIES

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### Abstract

The study of price increases in five countries (Slovenia, Slovakia, Estonia, Latvia and Lithuania) aimed to assess the introduction of the single currency (euro) on the rate of HICP inflation in two short-term perspectives: after the first month and after the first year of the introduction of the euro in these countries. The following hypothesis was put forward: prices after the introduction of the euro are contained in the inflation target, that is, there can be no substantial increase, and contrasting views on the issue are only an effect of illusion, that is, the difference between actual and perceived inflation level. The research was carried out using the comparative method. They show that the inflation effect in the euro-adopting countries was clearly convergent with the level of price growth recorded at the same time in other European Union countries, including those already with a single currency. The result is that the reasons for excessive price growth in the short-term perspective should not be sought in connection with the introduction of the euro, but rather explained by e.g. the convergence of business cycles with these euro area countries in which HICP inflation target exceedance was recorded at the same time. There can be also any other conditions that affect price growth in all European countries, regardless of whether they belong to euro area or have its national currencies.

**WPROWADZENIE WSPÓLNEJ WALUTY A INFLACJA – PRZYPADEK KRAJÓW  
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Słowa kluczowe: cel inflacyjny, waluta euro, inflacja.

**A b s t r a k t**

Badanie wzrostu cen w pięciu krajach (Słowenii, Słowacji, Estonii, Łotwie i Litwie) miało na celu ocenę wpływu wprowadzenia wspólnej waluty (euro) na tempo wzrostu inflacji HICP w dwóch krótkoterminowych ujęciach: po pierwszym miesiącu oraz po pierwszym roku od wprowadzenia euro w tych krajach. Przyjęto hipotezę: ceny po wprowadzeniu euro mieszczą się w celu inflacyjnym, to znaczy, że nie może być mowy o ich nadmiernym wzroście, a odmienne opinie na ten temat są jedynie efektem iluzji, czyli wynikają z różnicy między inflacją faktyczną a postrzeganą. Badania prowadzono z wykorzystaniem metody porównawczej (komparatystyki). Wynika z nich, że efekt inflacyjny w krajach przyjmujących euro był wyraźnie zbieżny z poziomem wzrostu cen odnotowanym w tym samym czasie w innych krajach Unii Europejskiej, w tym również w krajach już dysponujących wspólną walutą. Z tego wynika, że przyczyn nadmiernego wzrostu cen w ujęciu krótkoterminowym nie należy szukać w związku z wprowadzeniem wspólnej waluty euro, ale raczej wyjaśniać na przykład zbieżnością cykli koniunkturalnych z grupą krajów strefy euro, w których w tym samym czasie odnotowano inflację HICP przekraczającą cel EBC, lub innymi uwarunkowaniami zwiększającymi wzrost cen we wszystkich krajach europejskich i to niezależnie od tego, czy dysponują one wspólną walutą, czy też wyłącznie walutami narodowymi.

**Introduction**

The European Union reveals the effects of two subsequent stages of economic integration. Historically the first was and still is a common market, the essence of which is to the relatively free flow of labour, capital, goods and services. Although this stage of integration has not revealed all its beneficial effects yet, the next one, i.e. monetary union, was already begun. Among the part of the EU member states – especially those with the euro currency – one can assume two parallel effects revealed, which are a consequence of both subsequent stages of economic integration. It is much easier, both in theoretical and empirical terms, to document the benefits of the country's participation in the common market, while the passage of time does not yet allow for the empirical and full documentation of all the effects resulting from membership in the monetary union. In this situation, the discussion takes place partly in the sphere of theory, while in the empirical approach the illusory, but strongly consolidated and negative price effects prevail. Hence, it is difficult for the objective argumentation ultimately settling this polemic.

Among the 10 EU Member States that geographically belong to Central and Eastern Europe – half have joined the Euro. If, then, we are going to empirically document the effects of introduction of the euro, there is no better opportunity to do such research in these countries. Literature on the issue provides a comprehensive study, which evaluates a broad spectrum of macroeconomic effects obtained after the adoption of the euro. Most often, it is about demonstrating how much the loss of independence in monetary policy has been compensated, for example, by economic growth, consumption and foreign trade dynamics, improvement of labour market relations, etc. The subject of this research is also inflation, understood as currency purchase stability. This approach has its justification in the expectation of the most objective response on the scale of economic benefits, as well as threats or disadvantages caused by introduction of the single currency (Kotliński, 2016, p. 67-75; Włodarczyk, 2016, p. 559-568).

These studies undoubtedly have cognitive objectives, but their results should also have a utilitarian character. They fit into the discussion about the future of the euro zone in the European Union, and can be helpful in making decisions by successive countries where national currencies still exist. Such discussion is also necessary in relation to Poland. Our country, according to the report of the Robert Schuman Fund, has one of three scenarios to choose from (Gorzelać *et al.*, 2017, p. 5):

- first, a quick political decision to enter the euro zone (by 2020), and then a smooth implementation of the accession process, so that it would be possible to join by 2024-2025;

- second is the lack of a political decision on the adoption of the euro, without specifying the date of the introduction of the euro;

- third is to take a formal decision not to introduce the euro in Poland, which means breaking the EU Treaty and the need to renegotiate the Accession Treaty or leave the European Union.

Prices are one of the key problems in this discussion. There is a perception that the introduction of the single currency is conducive to excessive price increases with this providing a sufficient justification against the introduction of the euro. However, it is worth using research results that can objectify evaluations, including those regarding price increases in countries that have already introduced the euro.

This is an occasion for the passing of time since the introduction of the euro in 5 countries of Central and Eastern Europe took place. These countries are similar to Poland in terms of the level of economic development and time of introducing a market economy. Above mentioned countries at the same time became members of the European Union. In contrast to the 12 EU countries that have already introduced the common currency in circulation in 2002, the above mentioned group of countries is more similar in economic terms. Therefore, there is some possibility that the changes that have occurred in these countries after

the introduction of the single currency may also be revealed in other Central and Eastern European countries, which didn't adopt the single euro currency yet.

The aim of the presented research is to assess the impact of the introduction of the single currency (euro) on the inflation rate in 5 countries of Central and Eastern Europe, which in the years 2007-2015 adopted the common EU currency. The basis of this assessment is the analysis of HICP inflation in two short-term perspectives, the first of which includes inflation after the first month after the introduction of the euro, and the second – the average annual inflation in the first year after adoption of the euro.

During the work the following research hypothesis was formulated: prices after the introduction of the euro are contained in the inflation target, that is, there can be no excessive increase in inflation, and the different opinions on that subject are only an effect of illusion, that is, the difference between actual and perceived inflation level.

The main objective of central banks is to maintain price stability, but this is not the same as zero inflation (Issing, 2003, p. 6-11). The direct inflation target of the European Central Bank is below, but close to 2% of annual HICP inflation. The goal of the National Bank of Poland is to stabilize inflation at the level of 2.5% +/- 1 pp (that is, the range from 1.5% to 3.5%). The inflation targets of most countries implementing the direct inflation targeting strategy fall within the range of 1-3%. A small but positive inflation value is a better target of monetary policy than the stability of the price level (i.e. inflation equal to zero) for three reasons. The first argument is the rigidity of nominal wages and related wage adjustment, price and production adjustments. The low inflation rate enables the smooth functioning of the labour market by allowing a drop in real wages and thus preventing a decline in employment (Akerlof *et al.*, 1996, p. 1-76; Howitt, 2002, p. 125-138).

The second group of arguments against zero inflation is related to the resulting reduction in real interest rate changes (Yates, 2002, p. 24, 25) – nominal interest rates cannot be negative, so with zero inflation real interest rates cannot be negative either. With zero inflation, monetary authorities are not able to create a real negative interest rate (while setting a positive base rate of interest) to stimulate economic activity (Amirault & O'Reilly, 2001, p. 7-17).

The third, often advanced, argument against the zero level of the inflation target is the imperfection of the commonly used measure of inflation (CPI, HICP). Historically, the consumer price index has been built as a measure of changing maintenance costs. The problem is the distortions associated with the introduction of new products to the market, and with qualitative changes. There is a reasonable suspicion that the increase in the value of the typical consumer basket results not from inflation but from the growing standard of living (Kokoszczynski, 2004, p. 122-128).

## Description of the research methodology

The subject of the research is HICP inflation (Harmonized Index of Consumer Prices) in 5 countries (Slovenia – 2007, Slovakia – 2009, Estonia – 2011, Latvia – 2014 and Lithuania – 2015), which adopted the common currency of the euro in years as stated above and in Table 1. HICP inflation is a measure of the average increase in prices of consumer goods and services throughout the year. This indicator is calculated on the basis of the average consumption structure in a given country. In addition to the information function, HICP inflation is an important measure of the effectiveness of the monetary policy of the European Central Bank. This bank implements the Direct Inflation Target Strategy, which assumes that the goal is to achieve, among others price increase “below, but close to 2% of HICP annual inflation”. This means that in any euro area country, the average annual price increase should not exceed 2%. It is also worth noting that the inflation target of the National Bank of Poland amounts to 2.5% and may fluctuate within the range of +/- 1 pp. It follows that the goal of each of these central banks is low and stable, but, nevertheless, a slight increase in prices. In this paper the actual price effects after the introduction of the euro were compared with the ECB's inflation target. If this price effect was close to the ECB target or below, it meant a positive euro effect and the proper implementation of the ECB's monetary policy. However, while HICP inflation exceeded the target, attempts were made to look for the causes of this negative phenomenon.

The experience so far shows that the largest number of discussions, as well as emotionally expressed opinions, in which the negative assessment resulting from the perception of excessive price increase prevails, was formulated in the first phase of the introduction of the single currency (Hobijn *et al.*, 2006, p. 6-19; Marini *et al.*, 2007, p. 3-12; Angelini & Lippi, 2007, p. 2-15). Therefore, the research was conducted in two short-term perspectives: in the first month after the adoption of the euro and after the first year of it. Research in identical calendar years has not been possible. Each of the five countries surveyed, adopted a common currency in a different period. The research covered each time January, i.e. the first month after the adoption of the euro and the first year of the introduction of the single currency. In this way, a comparable phase of adoption of the euro by particular countries was achieved, but at the same time different price factors affected on price growth, which – depending on the study year – could shape inflation differently.

By adopting such a concept of research, we were aware of the fact that in different years in which more countries adopted the euro, external factors with a different impact on price growth may emerge. Thus, it could seemingly distort the results of the research in which the conditions of *ceteris paribus* could not be fully fulfilled. In order to use this fact for greater objectivity of research, it was decided – using the comparative method – to check the results of HICP inflation

in the country introducing the euro against inflation occurring at the same time in the European Union as a whole, as well as in the euro area and in Poland. Presentation of the level of price growth in the country introducing the euro on this background is, next to the ECB's inflation target, an additional argument that in more detached way presents the impact of the euro on price growth.

### **HICP inflation after the introduction of the euro (description and interpretation of results)**

The starting point for empirical research was the assumption adopted before the introduction of the euro into the cash circulation, which predicted that this fact would have a neutral impact on the economy. As a result of the conversion of the national currency into the euro, there is no increase in the money supply in circulation and the purchasing power of the society is not growing. The change of the national currency into the euro is nominal, and thus does not trigger significant economic stimulants of short-term price growth in this way. Therefore, there are no rational premises that could, based on economic considerations, explain the possible process of immediate price growth as a consequence of the adoption of the euro's common currency.

So much for theoretical assumptions. The empirical effects observed in the first year (2002) after adopting the common currency in cash circulation in 12 countries of the European Union slightly verified this view. Practice has shown that a slight price increase takes place, and their primary cause is the desire to obtain additional revenues by some producers and traders. In 2002, the annual HICP inflation rate in the euro area was 2.3%, of which the effects related to the introduction of the euro were assigned from 0.12 to 0.29% (Konopczak & Rozkrut, 2008, p. 3).

Therefore, if we compare this result with the inflation target of the ECB, it is an increase so small that it is difficult to expect that it will be widely perceived. However, it turned out that with the introduction of the single currency, the conviction that this is equal to excessive price increases is growing (Aucremanne *et al.*, 2007, p. 24). In the literature, it was accepted that this fact was perceived as the dispersion of inflation perceived from its actual size or the illusion of the euro (Del Giovane & Sabbatini, 2005, p. 4-54). The observed increase in prices after the introduction of the euro, although not excessive, may be justified by two reasons. The first is related to the fact that each country in the period immediately before entering the euro area is very precisely evaluated, among others from the level of inflation. Exceeding its upper limit, which is 1.5 pp over the arithmetic average of the three EU countries with the lowest inflation, it is threatened with rejection of the application for admission to the monetary union, as it was done in 2007 with Lithuania. After the country is admitted to the euro area, the European Central Bank is responsible for

the effects of monetary policy, what means ECB does not always use instruments of similar effectiveness with which the central bank of the country applying for the adoption of the common currency has previously worked. As a result of such processes, prices could change, however with some delay, and not immediately after the introduction of the euro.

The second interpretation is more convincing, justifying the perception of excessive price increase almost immediately after the introduction of the euro. It has its psychological background and usually concerns goods and services from the low price group, which are purchased with high frequency. In this way, the myth of the euro's influence on excessive price increases is created. Psychologists have called it the "cappuccino effect" in Italy. In France, a similar effect was called the "baguette effect" and in Germany "teuro" (expensive euro), although the general inflation rate in Germany in 2002 was slower than in the previous year (Traut-Mattausch *et al.*, 2004, p. 3; Brachinger, 2006, p. 5; Gorzelak *et al.*, 2017, p. 2).

The awareness of inflation dispersion in reality after the introduction of the euro in 2002 with its perception has moved to the aspiring countries and to those in which the euro was adopted in later years. In some environments, and especially among opponents of progressive integration, it is a certainty that hits a fertile ground and as a deterrent element affects the attitude to the euro area and the entire European Union. It is a very catchy slogan, which – when scaring – can be very effective in limiting social acceptance for European integration in general.

Regardless of the scale of occurrence of this phenomenon, the results on actual inflation in countries that have adopted the euro in recent years should be examined and presented. Relevant data on this topic are summarized in Table 1.

Table 1

Time range of HICP inflation surveys in countries after the adoption of the single euro currency

Country	Inflation after 1 month from the adoption of the euro (in %)	Change in inflation in 1 month since the adoption of the euro (in pp)	Inflation after 1 year from the adoption of the euro (in %)	Change in inflation in 1 year from the adoption of the euro (in pp)	Year adoption of the euro. 1st of January	EU average annual inflation (in %)	Euro area average annual inflation (in %)	Poland average annual inflation (in %)
	1	2	3	4	5	6	7	8
Slovenia	2,8	-0,2	3,8	1,3	2007	2,4	2,1	2,6
Slovakia	2,7	-0,8	0,9	-3,0	2009	1,0	0,3	4,0
Estonia	5,1	-0,3	5,1	2,4	2011	3,1	2,7	3,9
Latvia	0,5	0,9	0,7	0,7	2014	0,5	0,4	0,1
Lithuania	-1,4	-1,3	-0,7	-0,9	2015	0,0	0,0	-0,7

Source: own statement based on Eurostat data: HICP (2015 = 100) – annual data (average index and rate of change) [prc\_hicp\_aaind].

The figures presented in column 1 of Table 1 show that in the first three countries (Slovenia, Slovakia and Estonia), HICP inflation in the first month after the introduction of the euro was higher than the ECB's inflation target. A particularly large difference, which means even a significant increase in prices was recorded in Estonia. The inflation target of the ECB was exceeded even more than 2.5 times. However, there are two countries (Latvia and Lithuania), where the price change has not even approached the upper limit of 2%, and in the other country it was even negative, which is not a positive phenomenon, but it is certainly not an excessive price increase.

The results of annual inflation are slightly more favourable. The data presented in column 3 of Table 1 shows that, in turn, three countries – Slovakia and again Latvia and Lithuania – reached inflation well below the ECB's inflation target. It means that in the first year after the adoption of the euro, prices in these two first countries grew slower than the assumed inflation target, and in Lithuania, as in the first month – although a smaller, but still falling prices were recorded. However, there are two countries where the price increase in the first year of the euro's common currency exceeded the inflation target. A particularly large difference occurred again in Estonia.

Data from table 1 also show other regularities, which can be explained by the fact that in two countries (Latvia and Lithuania) price changes in both the 1 month and 1 year period were safely below the threshold set by the ECB inflation target. In two countries, the exact opposite result was recorded (Slovenia and Estonia), while in Slovakia the effect was mixed. If the data obtained in these five countries are compared with the results in columns 6 and 7, it turns out that some relationships can be found between the level of inflation in the entire European Union, the entire euro area and price effects in the studied countries. The most favourable results in the European Union, the euro area as well as in Poland were recorded in 2014 and 2015. In these two years, the euro was also introduced in Latvia and Lithuania. In turn, the two years that are least favourable in terms of inflation in Europe (columns 6 and 7) are in 2011 and 2007, i.e. when the euro was introduced in Estonia and in Slovenia. The year 2009 – as shown by the results in column 6 and 7 turned out to be relatively average from all the analysed years. Perhaps for this reason also an average result was obtained in Slovakia.

The association of facts alone does not explain the causes of the phenomenon yet, therefore it is necessary to focus on the search for conditions that may cause diversification of inflation and do not result solely from the adoption of the single euro currency. One of such factors may be the level of business cycles synchronization. The essence of the economic integration process is the growing range of interconnected economies of member countries. Intensification of trade exchange, flow of labour and capital are factors conducive to the convergence of fluctuations in economic activity. The economic situation in individual countries depends on the economic situation in the partner countries both in the periods

of dynamic recovery (expansion) and the slowdown in economic activity (recession). Inflation is pro-cyclical and belongs to so called lagged variables. Hence, the similarity of fluctuations in inflation rates is correlated with the similarity of business cycles. The results of comparative studies of synchronization of economic cycles in 4 countries: Poland, Estonia, Slovakia and Slovenia with the business cycle of the euro area (12 countries in which the common currency in circulation has been in force since 2002) indicate that Estonia and Slovenia are characterized by the greatest correlation, while Poland appear slightly smaller correlation and the smallest took place in Slovakia (Kotliński & Warżała, 2013, p. 49).

The results of these studies may partly explain the cause of excessive price growth after the introduction of the euro in Estonia and Slovenia. The convergence of business cycles with the group of countries (the eurozone), in which HICP inflation exceeded of the ECB's inflation target, may have a greater impact on the rate of price growth than the very introduction of the euro. Perhaps the referenced studies – also at least partially – explain the mixed reaction in Slovakia. Unfortunately, there are no studies in which Latvia and Lithuania have been evaluated similarly.

## **Summary and conclusions**

1. Based on the obtained results, the existence of cause and effect relationships between the introduction of the single euro and excessive price increases cannot be confirmed. In the first month after the introduction of the euro, the prices increased above the inflation target in three countries (Slovenia – 2.8%, Slovakia – 2.7% and Estonia – 5.1%), while in two countries HICP inflation was below the target (Latvia – 0.5% and Lithuania – minus 1.4%).

2. In the studies taking into account HICP annual inflation, the effect was reversed, i.e. in three countries the price increase was in the inflation target (Slovakia – 0.9%, Latvia – 0.7% and Lithuania – minus 0.7%), while in two countries the price growth was above the target (Slovenia – 2.8% and Estonia – 5.1%). There is, therefore no convincing evidence that with the introduction of the single euro in the short period there is an excessive increase in prices.

3. Comparative research shows that there is a correlation between the level of inflation in the European Union and the euro area and the price effects in the five CEE countries that have introduced the euro. The most favourable results in the European Union, in the euro area and in Poland were recorded in 2014 and 2015. In these two years, the euro was also introduced in Latvia and Lithuania. It can therefore be concluded that if the euro is introduced at the same time when in other European countries inflation was at a relatively low level and was in the inflation target, the price increase in the euro-adopting country was also relatively low and didn't exceed the ECB inflation target.

4. The presented research shows that the inflationary effect in the countries hosting the euro common currency was clearly convergent with the level of price growth in other European Union countries, including those that already have a single currency. Almost exactly the same HICP inflation (maybe except for 2009) was noted in Poland. This entails that the reasons for excessive price increases should not be sought in connection with the introduction of the single euro currency, but rather associated with other conditions that affect price growth in all European countries, regardless of whether they have a single currency or only national currencies.

5. From the available studies, which at least partially explain the reason for the excessive price growth after the introduction of the euro in Estonia and Slovenia, the convergence of business cycles with a group of European countries where at the same time the HICP inflation exceeded the ECB inflation target, may be the most probable cause. Perhaps this is the right direction of research, which may bring us closer to the answer to the bothering question about excessive price growth in the short term in the country after the introduction of the euro. It is also possible to explain the reason for inflation effects in the other three countries included in the study of price growth after the adoption of the euro.

6. Poland is among the five countries of Central and Eastern Europe, member states of the European Union, which still have national currencies. Admittedly, there is no obligation to state the date of the future of participation in the euro area, but it is a matter of time when it may turn out that silence in this matter (as it is currently practiced in Poland) will have a similar effect to the official decision not to accept the single currency. The consequence of such an attitude is the explicit exclusion of the first option, namely making a quick decision that will allow the adoption of the euro in 2024-2025. Regardless of the solution chosen and without indicating which of them is the most advantageous for Poland, it is the duty of scientists to examine the economic consequences, including the perceived and particularly irritable problem of excessive price increases as a result of the introduction of the single currency.

7. The applicative nature of the presented research may be particularly important due to the fact that one of the practical effects of the introduction of the single currency is the perception of it as a factor causing an excessive increase in prices. For this reason, it seems necessary to distinguish between rational and expected price increases, i.e. levels close to or below the ECB's inflation target ("below, but close to 2% of HICP annual inflation") and excessive price increases, i.e. HICP inflation exceeding this target.

8. Official results of research conducted in 12 EU countries that adopted the euro in cash circulation in 2002 confirm a clear discrepancy between perceived inflation and actual inflation. In Poland, it is also a widely accepted argument against the adoption of the single currency. If empirical studies confirm that in essence it is only or as much illusion, then the causes of this phenomenon should

be searched for and actions should be taken to minimize or completely eliminate its negative effects. However, if the introduction of the euro is accompanied by an excessive price increase (which is not tantamount to the existence of a cause and effect relationship), then the actual reasons for excessive inflation should be sought. The theory precludes the direct impact of adopting the single euro currency on short-term – excessive price increases.

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