

Costs of Adopting a Common European Currency. Analysis in Terms of the Optimum Currency Areas Theory

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Abstract. *This analysis presents a theoretical approach of the possible costs related to a national economy which desires to be part of a monetary union. The analysis is made in terms of the classical optimum currency areas theory, which represents the basis of the monetary union process. The objective of this theory was to make a monetary union possible. This theory shows that the countries can obtain net benefits as a result of having a common currency, thus being able to avoid the possible adjustment problems. As a matter of fact, its great merit is that it identified certain properties of the countries being part of a monetary union, these properties representing real alternative tools for losing the independence of the monetary policy.*

Keywords: the classical optimum currency areas theory; monetary union; asymmetric shocks.

JEL Codes: F15, F36.

REL Codes: 8M, 20H.

Introduction

Although the problem of the monetary unions is more present than ever, both for the developed countries which have already joined the Euro Zone, and also for the less developed states which are preparing to meet the criteria for being accepted, this topic has been put forward for a long time in the economic literature. Thus, the classical optimum currency areas theory – a theory which represents the basis of the monetary union term, has come out in 1961 in an article presented by Robert Mundell (who is considered to be „the father” of the theory referring to the optimum currency areas). The objective of this theory was to make a monetary union possible.

The optimum currency areas (*OCA*) theory is based on the above mentioned Robert Mundell’s contribution (1961), although the problem has been reviewed and added by many other economists, such as Robert McKinnon (1963), Peter Kenen (1969) etc. The *OCA* theory makes researches referring the costs and the benefits related to adopting a common currency, being mainly focused on costs, their minimization depending on certain conditions which are characteristic to the economies of the member countries (the criteria related to the optimum currency areas).

The benefits refer especially to the import of credibility of the monetary union’s central bank, which lowers the inflationary expectations and, inherently, the level of inflation. The costs are, first of all, related to the effects of giving up the independence of the monetary policy and the mechanism of the exchange rate, as tools for adjusting the possible asymmetric shocks among the members of the monetary union. The lower the need to adjust the rate of exchange, the lower costs for taking part to the monetary union, and thus the monetary integration is favorable for the members. The theory shows that the countries may obtain net benefits as a result of having a common currency, thus being able to avoid the possible adjustment problems.

Costs of adopting a common European currency

The main problem in the case of the monetary unions is related to the costs of this process. Adopting a common currency brings several benefits, but these benefits must be higher than the costs. As for the costs, the most important of them are placed at a macroeconomic level and they occur as a result of giving up the independence of the monetary policy.

At a *microeconomic* level, we may identify two main costs. The first category refers to the operational costs, which are necessary for adjusting the systems to the new currency. The second category is represented by strategic challenges which consist in re-defining competition and in the occurrence of specific risks. Such risks may be caused by an unfavorable rate of a country

which joins the monetary union. The mentioned economy may join the union with a depreciated currency, thus discovering an increasing competition, and also pressures on prices through expensive imports, or with an appreciated currency and with the risks of losing competition until adjustments are performed by means of other tools (for example, joining the Euro Zone with a too high rate of exchange would determine a lower competition of the exports, and this will negatively affect the process of economic growth; on the contrary, a rate of exchange for which the currency would be depreciated in relation to Euro would generate the increase of inflation).

As we have previously mentioned, the most important costs of joining a monetary union are encountered at a macroeconomic level. Generally, at this level, the costs occur as a result of the fact that, when taking part to a monetary union, the countries lose important tools of the economic policy, respectively those which are specific to the monetary policy, namely the handling of the interest charge and of the exchange rate. These costs are felt if the asymmetric shocks occur. What does it actually involve? The central bank can no longer change the exchange rate of its own currency and it cannot determine the quantity of national currency in economy; moreover, the member states will influence more or less the process of making decisions, depending on several factors, and this situation may be perceived as a negative one for the states with a lower influence.

The extent of the costs related to losing the tools of economic policy depends on the differences among the countries. In case these differences are encountered both in the economic structure, and also in the legal and institutional systems, those economies should have alternatives to the monetary tools in order to adjust the shocks. What is important to know is which the nature and the probability of the asymmetric shocks are and also what alternative tools could be used in the absence of the exchange rate or of the interest charge (Socol and Socol, 2007).

The particularities or the criteria identified by the optimum currency areas theory represent conditions which should be met by the states which desire to be members to a favorable monetary union. The existence of these conditions makes the occurrence of the asymmetric shocks less probable or, in case of occurrence of such shocks, it provides efficient adjustment tools. In other words, the costs increase when shocks of the demand or of the offer occur, and they affect the economies which take part to the monetary union in a different manner, when there are different preferences for unemployment and inflation, or legal differences, or differences between the rates of growth, or when the adjustment mechanisms are not operational (there are no systems for adjusting the shocks, the institutions of the labor market operate in a different manner, or there are still differences among the fiscal systems). We will continue with the presentation of three of them, which are considered to be significant in the economic literature (for a detailed analysis, see de Grauwe, 2007).

A. The occurrence of the symmetric shocks

Let us take two countries (X and Y), which are member to a monetary union. For various reasons, the aggregate demand (AD) in country X may reach a high level in a different manner if compared to the aggregate demand in country Y. For example, a shock in demand determines a decrease of the aggregate demand in X and an increase of the aggregate demand in Y. In order to illustrate the effects of different changes in the aggregate demand, we will use the aggregate demand – aggregate offer analysis model (AD-AS) (de Grauwe, 2003).

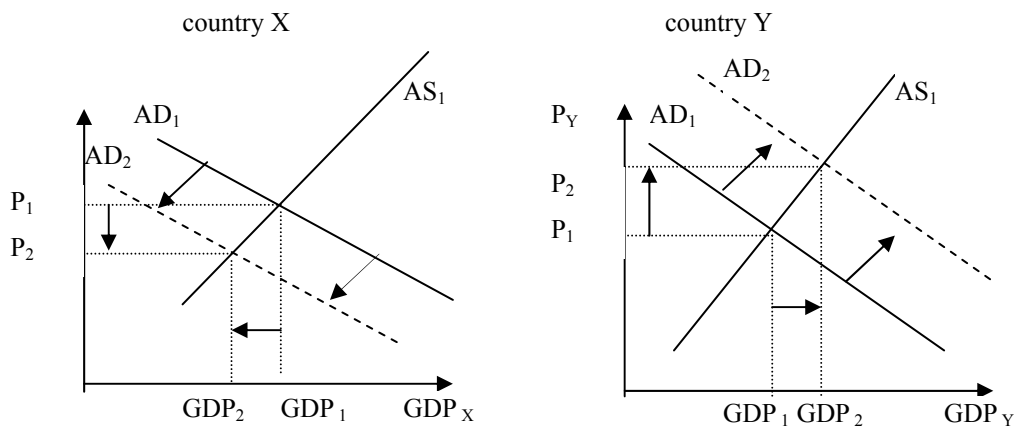


Figure 1. Changes in the aggregate demand

An asymmetric evolution of the aggregate demand would determine different consequences in X if compared to Y. Thus, a decrease of the aggregate demand in country X from AD_1 to AD_2 will determine the decrease of the real output, and this will inherently determine the decrease of the employment level (the increase of unemployment). Within a short time, country X will encounter the situation of “twin deficits” (the presence of the budget deficit at the same time with the current account deficit) (Figure 1). Budget deficit, as the economy of country X is now entering a recession period, and this requires additional budget expenses (for example, the budget expenses for stimulating the increase of the output or additional costs with the unemployed persons). Current account deficit, as the national output decreases, but the consumers’ costs are not decreasing to the same extent; as a result, the additional domestic demand will be satisfied by means of additional imports. The decrease of the aggregate demand in country X determines a decrease of the national output, and also a decrease of prices (deflation). The level to which the prices decrease, respectively the level of the real output, depends on the slope of the curve for the aggregate offer (its elasticity) (Socol and Socol, 2007).

In country Y, an increase of the aggregate demand is equal to an increase of the real output and, inherently, an increase of the employment degree (decrease of unemployment). Unlike X, Y will record a budget surplus and, also, a current account surplus. The increase of the demand stimulates the increase of the output, on the one hand, and also the increase of prices (inflation). We can notice that a shock of the demand creates different problems to the two countries. In the absence of the possibility to use the rate of exchange⁽¹⁾, an automatic balance of the two countries' economies is possible if the wages in X and in Y are flexible, and the labor movement is high⁽²⁾.

Why flexible wages? In country X the stimulation of the aggregate offer is necessary now; if wages were flexible enough, the unemployed persons would accept wages which are lower than the previous ones, and this would allow the producer to increase his output and, at the same time, with a lower cost with wages, he will be able to lower the selling price; the decrease of prices determines the increase of demand for the Romanian products, as they gain competitiveness. In Y, the increase of output supposes an increase of labor demand, and this will result in an increase of wages and prices. The external demand for its products will lower, as they lose their competitiveness while prices get increased.

Why high labor movement? The country X encounters problems related to the increase of unemployment now. If labor were mobile, then the unemployed persons from X could migrate in Y, where the labor demand is excessive. The level of the expenses lowers, and the current account deficit gets decreased. In Y, wages get decreased, as a result of the increase in labor offer; inflation lowers.

Thus, if the two conditions were met, then the balance between the two economies could be "automatically" obtained. In case one of the two conditions is not practically achieved, then the adjustment of the shock in terms of demand can be exclusively obtained by means of the relative increase of prices in Y (a higher inflation) if compared to X, so that the products of the country X could become competitive. As a result of the increase in exports, the aggregate demand will get increased in X. Thus, the problems of unemployment and of current account deficit could be solved. Y can solve the problem of inflation, by promoting restrictive monetary and fiscal policies, but it will not solve the problem of the excessive current account.

In order to lower the excessive current account a higher and higher inflation is necessary. As X and the Euro Zone constitute a monetary union, it gives up the possibility to use the rate of exchange for adjusting the shock of the demand (by depreciation). As a consequence, the problems related to unemployment and to current account deficit can only be solved by means of deflation. Such a problem – inflation or current account unbalance – can be solved by means of re-assessment of rate between the currency in country Y and

the currency in country X. Thus, by depreciating the currency in country X, the aggregate demand gets increased in this country, while it gets decreased in Y; in X, the problem of unemployment will be solved, while in Y the inflationary pressures will thus be avoided; in both countries, the problem of the current account deficit/excess will be solved (de Grauwe, 2007).

B. Different preferences of the countries for inflation and unemployment

A possible cost of introducing a common currency is determined by the fact that the countries may have different preferences with reference to inflation – some of the countries have a higher adversity towards inflation than others.

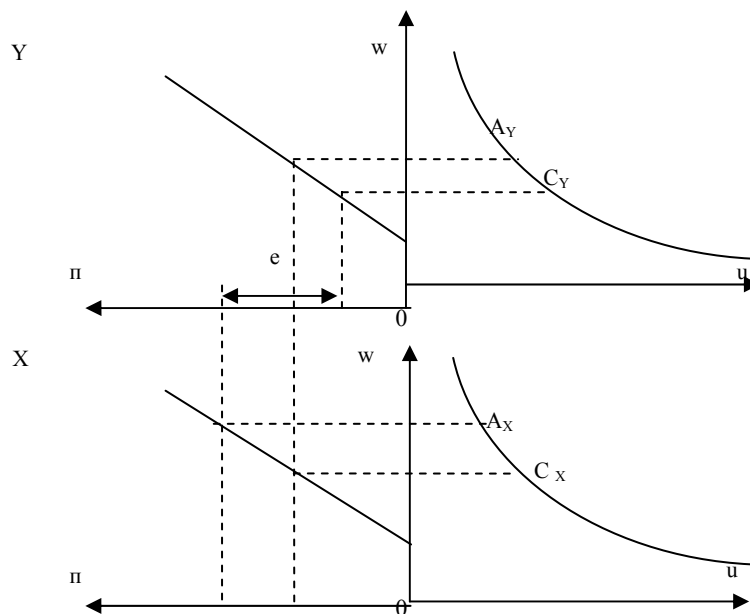


Figure 2. *The choice inflation-unemployment on a short term*

Figure 2 (the right side) presents the Phillips curves for a country Y and a country X. The following analysis is only valid when the Phillips curve on a short term is stable (the governments may choose between a higher inflation and a lower unemployment, for example; at present, the critiques referring to the stability of the Phillips curve are known and accepted; according to them, when the inflationary expectations are getting increased, the Phillips curve are moving upwards, and the authorities can no longer choose various inflation-unemployment combinations). The vertical axis shows *the rate of change referring to wages (w)*, and the horizontal axis shows *the rate of unemployment (u)* (Socol and Socol, 2007).

Figure 3 (the left side) presents the relation between the changes of the wages and the changes of the prices, this relation being written as it follows:

$$w^* = \Pi^* + q^* \quad (1)$$

where,

w^* = the rate of wages increase;

Π^* = the inflation rate;

q^* = the growth rate of labor productivity.

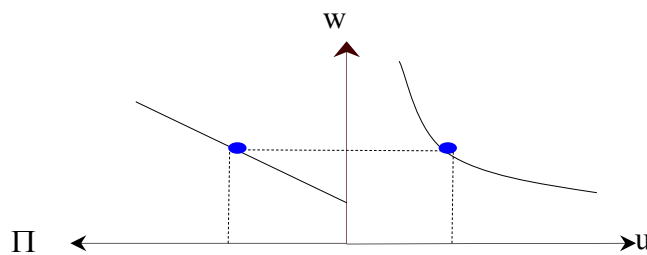


Figure 3. *The relation between the changes of the wages and the changes of the prices*

According to relation (1), we may write as it follows:

$$W_Y^* = \Pi_Y^* + q_Y^* \quad (2)$$

$$W_X^* = \Pi_X^* + q_X^* \quad (3)$$

Moreover, according to the purchasing power parity (PPP) theory, between X and Y we may write the following relation:

$$e^* = \Pi_X^* - \Pi_Y^* \quad (4)$$

where

e^* = the depreciation rate of currency x in relation to currency y.

Relation (4) shows that, when the inflation rate is higher in X than in Y, in order not to lose the products competitiveness, the country X should depreciate its currency (x) in relation to the currency y. But if X and Y constitute a monetary union, then the rate of exchange can no longer be used as a policy tool; as a result, $e^* = 0$, and this means that the inflation rate in Y and in X should be equal.

In case the inflation rate in X is higher than in Y, under the terms of a fixed rate of exchange, the products of the country X lose their competitiveness. We assume that the countries Y and X have different preferences for inflation and unemployment (Figure 2). X chooses to be placed in point C_X , while Y chooses the combination which is specific to point A_Y ; thus, X prefers a lower unemployment and a higher inflation, while Y chooses the reverse combination, namely a lower inflation with a higher cost for unemployment. The cost of a monetary union between X and Y consists in the fact that both X and Y should

accept other inflation-unemployment combinations, respectively the placement in other points of the Phillips curve, even though they are less suitable. As long as the inflation rates are different, a fixed rate of exchange between the currency x and the currency y is not sustainable.

In order to keep the fixed rate of exchange between the currency x and the currency y, the inflation rates in the two areas should be equal ($e^* = 0$). Thus, X is moving on the Phillips curve up to point A_X , while Y should choose point C_Y . In this way, W_Y^* increases, and W_X^* decreases; according to relation (1), Π_Y^* will increase in Y, and Π_X^* will decrease, and thus the inflation rates in the two areas will become equal (Socol and Socol, 2007).

According to the economic theory, the Phillips curve is vertical on a long term (Figure 4), and the intersection between the Phillips curve on a long term and the horizontal axis represents the natural rate of unemployment. In other words, on a long term, unemployment is determined by the natural rate of unemployment and it depends on inflation, and the authorities can no longer choose between inflation and unemployment. Thus, *on a long term*, in the case of a monetary union, X and Y can equalize their inflation rates by establishing a fixed rate of exchange between currency x and y, without any costs in terms of unemployment; taking into account the fact that, at least on a short term, the inflation-unemployment trade-off exists, we may say that, for the countries recording high inflation rates, joining a monetary union suppose, *on a short term*, the acceptance of a higher unemployment.

Thus, we may draw the conclusion that the differences among the countries regarding the preferences for inflation and unemployment do not constitute a major obstacle in achieving a monetary union, as, on a long term, the authorities cannot choose an optimum combination between inflation and unemployment.

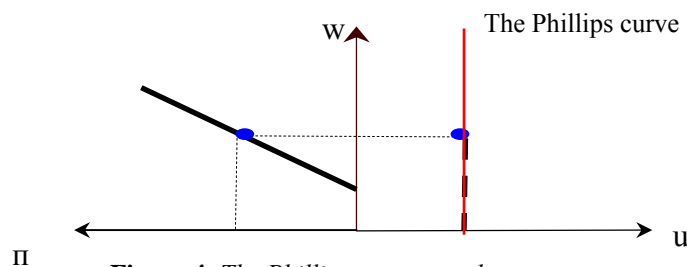


Figure 4. The Phillips curve on a long term

Another possible cost occurred as a result of introducing a common currency is given by the possible productivity differences among the countries which are members to the monetary union. We assume that the productivity rate (q^*) is higher in Y than in X (Figure 5).

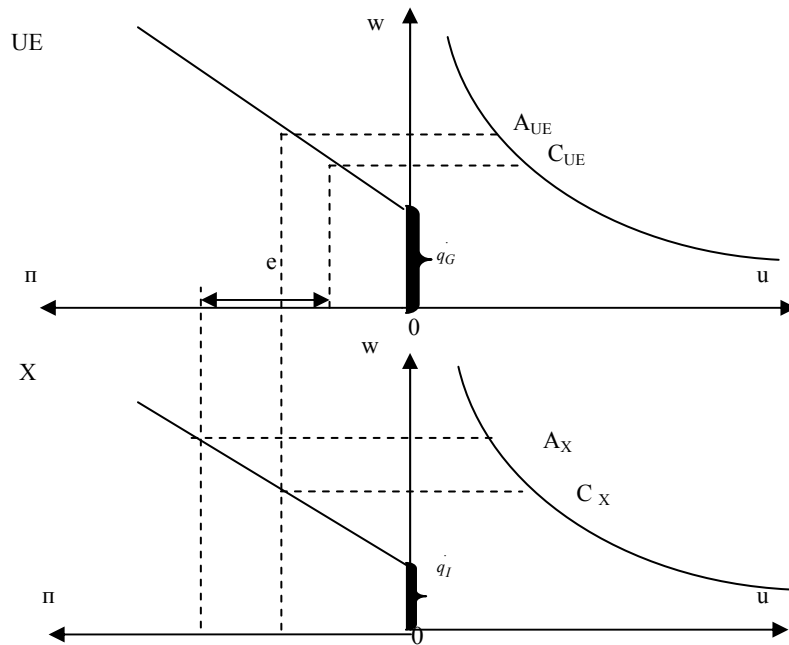


Figure 5. Costs determined by the productivity differences

$$W_Y^* = \Pi_Y^* + q_Y^* \Rightarrow \Pi_Y^* = W_Y^* - q_Y^*$$

$$W_X^* = \Pi_X^* + q_X^* \Rightarrow \Pi_X^* = W_X^* - q_X^*$$

If X and Y constitute a monetary union, then $e^* = 0$, where

$$e^* = \Pi_X^* - \Pi_Y^* \Rightarrow \Pi_Y^* = \Pi_X^*$$

then

$$W_Y^* - q_Y^* = W_X^* - q_X^* \text{ or}$$

$$W_Y^* - W_X^* = q_Y^* - q_X^*$$

If the productivity rates are different in the two areas (lower in X) and they decide to constitute a monetary union, then the increases of the nominal wages in X should be lower than those recorded in EU. If, for various reasons, this does not happen, then costs occur.

C. Differences among the fiscal systems of the countries

Joining a monetary union supposes that the involved countries accept some constraints with reference to the modality of financing the budget deficits. Due to the differences among the fiscal systems, the countries use different financing combinations by means of indebtedness and monetary financing of the budget deficits. The budget constraint is as it follows:

$$G - T + rB = dB/dt + dM/dt,$$

where:

- G = the level of the government expenses;
(minus the payments with interest for the government debt);
- T = taxation revenues;
- r = interest charge for the government debt;
- B = the government debt;
- M = the monetary base.

The budget deficit includes the primary deficit ($G - T$) and the payments with interest for the government debt (rB); it can be financed either by indebtedness (dB/dt), or by increasing the monetary base (dM/dt). A reasonable government will use different revenues sources so that it could equalize the marginal costs for increasing revenues by means of these sources; in case the marginal cost for increasing revenues by means of increasing taxation exceeds the marginal cost for increasing revenues by means of inflation (seniorship), a government chooses the variant of increasing inflation. Thus, generally, the countries with under-developed fiscal systems consider an advantage to increase their budget revenues by means of inflation (seniorship), as the costs for increasing the budget revenues by means of increasing taxation are higher than the costs for increasing the budget revenues by means of inflation (Burda, Wyplosz, 1997).

As a conclusion, the less developed countries which join more developed countries in a monetary union should increase taxation in order to finance their deficit. But the increase of taxation in the less developed countries will result in losing from welfare.

Conclusions

Thus, the analysis from above outlines the significant differences existing among countries. Moreover, we can mention here the legal differences, differences between the rates of growth, or when the adjustment mechanisms are not operational (there are no systems for adjusting the shocks, the institutions of the labor market operate in a different manner, or there are still differences among the fiscal systems).

In order to adjust these differences, the countries may use various tools of economic policy, or the exchange rate tool. According to the optimum currency areas theory, in most of the cases, the countries have tools available which are alternatives to the rate of exchange. But joining a monetary union is not desirable as long as its costs are higher than the benefits, and the differences among the countries are big, thus making the objective of minimizing the costs difficult (de Grauwe, 2003).

The differences among the countries exist, but the problem is to what extent these differences are relevant, so that their presence could prevent the achievement of

a monetary union. There are significant differences among the countries, which do not disappear in a monetary union. Giving up the exchange rate tool may be considered a cost of the monetary union. And changing the rate of exchange is a strong tool which is available to the countries which desire to eliminate the major macroeconomic unbalances, with lower costs in terms of output and unemployment.

We should mention that handling the rate of exchange does not permanently affect the real variables (output and employment). Moreover, *the experiences of several countries show that, when depreciation is used in a systematic manner, the result is the increase of inflation, without gains in terms of output and employment.* Moreover, in such cases, the macroeconomic instability gets increased, due to the inflationary expectations of the private economic agents, who expect new depreciations. The depreciation is not a flexible tool and it is neither less expensive.

As a consequence, the changes of the nominal exchange rate only temporarily affect the competitiveness of a country's industries. Thus, the nominal depreciations only temporarily result in real depreciations. On a long term, the changes of the nominal rate of exchange do not affect the real rate of exchange of a country's currency.

To conclude, on a long term, the rate of exchange (the tool which is given up by joining a monetary union) does not solve the problems generated by the characteristics which are specific to the goods market from various countries. *The solutions to the problems generated by the structural differences among the countries are related to the structural policies, and not to the monetary policies.* Handling the cash or the rate of exchange cannot solve the problems generated by the structural differences among the countries, at least not on a long term. The differences among the countries exist, but the problem is to what extent these differences are relevant, so that their presence could prevent the achievement of a monetary union.

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Notes

- (1) We initially assumed that the two countries are part of a monetary union.
- (2) Solution proposed by Robert Mundell.
- (3) The relation defines the rate of change for the prices which keep the profits unchanged.

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