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Monetary Policy in a Non-optimal Currency Union: Lessons for the European Central Bank

Abstract

This paper examines how monetary policy should be conducted in a non-optimal currency area, and argues that optimal policy requires a slightly higher rate of equilibrium inflation to avoid higher unemployment. Formation of a non-optimal currency area shifts the Phillips curve to the right, and worsens the inflation - unemployment trade-off. This has important implications for the ECB, since it is widely agreed that the euro area is not an optimum currency area. By carrying over the old Bundesbank's implicit two percent inflation target, the ECB is setting policy as if the euro were an optimum currency area. The euro area therefore stands to have higher unemployment. Lastly, the analysis in the paper has important implications for plans to enlarge the euro area. To the extent that enlargement worsens the non-optimality of the euro area, it further worsens the ECB's inflation - unemployment trade-off. Preventing unemployment from rising will require an even higher inflation target.

Keywords: Optimum currency area, monetary policy.

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I Does not being an optimum currency area matter for monetary policy?[1]

Since January 1999 eleven countries in Europe (Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Portugal, Spain, and the Netherlands) have shared a common currency. Prior to the formation of this union, there was extensive debate over whether the eleven constituted an optimal currency area. The general consensus was that by the standards laid out in the Mundell (1961) - McKinnon (1963) - Kenen (1969) literature on optimum currency areas, they did not.[2] However, despite this, European politicians still concluded that a currency union was worthwhile because of the political benefits it stood to confer.

With currency union now in place, debate over whether or not the euro region is an optimum currency area has receded. The thinking is that a currency union is now in place, there will be problems from not being an optimum currency area, but Europe will just have to live with this fact and move on. This attitude is reflected at the new European Central Bank (ECB) where policy debate has moved on to the issue of building policy credibility. Thus, much attention has been paid to institutional design issues concerned with establishing policy accountability and the desired extent of policy transparency. In addition, there has been debate over whether the ECB should adopt a policy of inflation targeting, and if so what that target should be. The outcome has been the adoption of an inflation target for the euro area "Harmonized Index of Consumer Prices"(HICP) of below 2 percent - a target that is very similar to that earlier adopted by the Bundesbank.

In the debate over what the inflation target should be, no mention has been made of the fact

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[1]. This paper is based upon a longer paper (Palley 2000) that presents a formal theoretical model deriving a long run negatively sloped Phillips curve. The paper shows how an imperfect currency union which widens the dispersion of country demand shocks will worsen the inflation - unemployment trade-off. It also presents empirical evidence showing that expanding the euro area to include all European Union countries would widen the dispersion of country demand shocks.

[2]. See Bayoumi and Eichengreen (1993). They report that the group of eleven do not constitute an optimum currency area, but there is also a group of countries centered around Germany that could plausibly constitute an optimum currency area.

that the euro region is not an optimum currency area.[3] In effect, the debate has been conducted as if the issue of whether or not Euroland is an optimum currency area does not matter. The implicit assumption has been that once a currency union is in place, monetary policy should be conducted without regard to this question. Consequently, the concerns and practices of the ECB should be the same as those of a monetary authority operating in an optimum currency area. This view is directly reflected in the ECB's willingness to adopt an inflation target that was earlier used by the Bundesbank for just Germany, despite the fact that the euro now encompasses eleven economies.

The current paper challenges this assumption, and argues that monetary policy in a non-optimum currency area must differ significantly from monetary policy in an optimum currency. Formation of a non-optimal currency area shifts the Phillips curve to the right, and worsens the inflation - unemployment trade-off confronting the monetary authority. This in turn implies that the inflation target in a non-optimum area must be set at a higher level to avoid higher unemployment. In terms of the ECB's current operational practice, it implies that the target of less than two percent inflation is too low. Whereas such a target might have been appropriate for Germany alone, it is not appropriate for the euro area and will likely consign the euro region to permanently excessive unemployment.

Lastly, the paper has important implications for discussions regarding enlargement of the euro area. To the extent that enlargement worsens the non-optimality of the euro as a currency area, it further worsens the ECB's inflation - unemployment trade-off. Preventing unemployment from rising will therefore require an even higher inflation target.

II The economics of optimum currency areas revisited

The traditional approach to optimum currency areas has focused on microeconomic

[3]. See Angeloni, Gaspar, and Tristani (1999) who provide an insider's account of the monetary policy strategy of the ECB. Gaspar is the Director General of Research at the ECB, and their article contains no mention of optimum currency area considerations. This absence is likely furthered by understandable institutional considerations whereby the ECB has a political vested interest in denying that the euro is not an optimal currency area.

concerns. On the supply side, attention has focused on factor markets and the mobility of factors across geographic regions. The more geographically mobile factors are, the more regions correspond to an optimum currency area. The argument is that if factors move between regions in response to regional imbalances, there is no need for an exchange rate to perform the function of ensuring full employment by adjusting relative regional prices. Instead, full employment is achieved by factors moving to where demand is rather than by exchange rate adjustment that brings demand to where the factors are.

On the demand side, regions correspond more closely to an optimum currency area the greater the extent of inter-regional trade and the greater the degree of product market integration. In this case, there is no need for exchange rate adjustment to bring demand to producers, since producers follow market demand of their own will. The force behind this process is profit maximization. When demand is stronger and prices are higher in one market, this presents profit opportunities that induce firms to redirect output to that market with higher prices. Thus, the combination of the price system and the profit motive ensures that producers find demand, so that there is no need for relative price adjustment via exchange rates to create demand for producers in the low demand region. Indeed, the existence of different currencies could even impede this process by introducing currency conversion costs that make it more difficult to sell across regions, thereby reducing product market integration.

In addition to these microeconomic factors there are also macroeconomic factors that matter for whether a set of countries constitute an optimum currency area. In an optimum currency area countries should experience broadly similar business cycles, with expansions and contractions occurring simultaneously across the regions. Moreover, not only must the “timing” of cycles be similar, but so too must the “amplitude”. Currency unions involve countries giving up having their own interest and exchange rates, so that they cannot use these variables to offset demand shocks. If a currency union is to work, demand shocks in the member countries should therefore be of similar timing, magnitude, and direction so that there is no need for country specific adjustment of interest and exchange rates.

The problem of demand shocks in a currency union is illustrated in figures 1 - 4. Consider two economies in which the aggregate supply schedule is L-shaped, becoming vertical at the full employment level of output. In figures 1 and 2, countries A and B are subject to synchronized positive demand shocks of the same magnitude, and a common monetary policy can therefore be used to offset the shock. This contrasts with figures 3 and 4 in which country A is subject to a negative demand shock, while country B is subject to a positive demand shock. In this situation, if the monetary authority seeks to offset the negative shock in A, it amplifies the inflationary shock in B. Conversely, if it seeks to offset the expansionary shock in B, it amplifies the contractionary shock in A.

No economy is ever a perfect optimum currency area since there always exist local differences in demand conditions, and markets are imperfectly integrated owing to factor mobility frictions and goods transportation costs. That said, some economies are closer to being optimum currency areas than others. Thus, the U.S. is widely viewed as an optimum currency area, while Euroland is not. Over time, Euroland can expect to become more integrated owing to increased factor mobility, increased financial and product market integration, and elimination of foreign exchange uncertainty.[4] However, in the meantime there is the question of how Europe should conduct monetary policy given that it is not an optimum currency area. On this issue there is little theoretical guidance.

III Monetary policy in currency unions that are not optimal currency areas

The above construction of the problem of macroeconomic management in a currency union has important implications for central bank behavior. In an earlier paper (Palley, 1994) I presented a model of a multi-sector economy in which there is a long run negatively sloped Phillips curve that offers policy makers a permanent trade-off between inflation and

[4]. See Rose (1999) for evidence that the creation of a currency union leads to greatly increased cross-country trade, thereby endogenously contributing to the creation of an optimum currency area.

unemployment.[5] This model can be applied to analyze monetary policy in a currency union, only different sectors are now identified as countries.

The logic of the inflation - unemployment trade-off is as follows. A currency union consists of many countries. Each country is characterized by a degree of downward nominal wage rigidity, and countries are also subject to random demand shocks.[6] In countries with unemployment, nominal demand is too low. Restoration of full employment therefore calls for price and nominal wage reductions, but this process is slow and contested so that unemployment will persist.[7] An alternative to country specific nominal wage reduction is to increase aggregate nominal demand, but this increases nominal demand in all countries. As a result, employment increases in those countries with unemployment, but prices and nominal wages rise in those countries at full employment.

This adjustment process is illustrated in figure 5. Initially, country A is short of demand and has excess capacity and unemployment, but country B is at full employment. Expanding aggregate nominal demand increases demand in both countries, and shifts both country's demand schedules to the right. In country A the increase in nominal demand translates into a pure output and employment gain: in country B it translates into price and nominal wage increases, and the increase in nominal wages raises the floor of the supply curve.[8]

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[5]. My model is a formalization of a descriptive model outlined by Tobin (1972) in his presidential address to the American Economics Association. Akerlof, Dickens, and Perry (1996) have presented a similar model of the Phillips curve. The principal difference is that instead of describing the economy in terms of sectors, they describe it in terms of monopolistically competitive firms. In their model the allocation of demand across firms also depends on relative prices.

[6]. There is no need for complete downward rigidity of nominal wages. All that is needed is that the adjustment process in response to unemployment be sluggish (see Palley, 1994).

[7]. Even if nominal wages were perfectly flexible downward, it is still possible that this might be unable to restore full employment owing to adverse debt effects (Palley, 1999).

[8]. This type of analysis applies to national economies as well. For instance, in the U.S. there is considerable variation of unemployment rates by state, and within each state there is variation by county. Attempts by the Federal Reserve to expand economic activity through monetary policy

Figure 5 provides a static glimpse into the micro foundations of the Phillips curve. If there were no further shocks to the two economies, the monetary authority could simply expand nominal demand until both were at full employment. However, in reality there are on-going demand shocks, and this means that unemployment is constantly re-emerging. Countries that were at full employment suffer negative shocks so that they have unemployment, and dealing with this requires new demand injections. By having nominal demand grow at a steady pace, the monetary authority can offset the impact of new demand shocks. In effect, it introduces a "nominal demand drift" that has each country's demand curve steadily drift up. This drift offsets the impact of each period's negative demand shocks and reduces unemployment. But it also amplifies the impact of each period's positive demand shocks, which increases inflation in countries at full employment. Faster nominal demand growth strengthens this drift factor, offsetting more of the unemployment impact of negative demand shocks, and further amplifying the inflation impact in countries at full employment. Hence the existence of a long run negatively sloped Phillips curve as shown in figure 6.

Each point on the Phillips curve corresponds to a different rate of aggregate nominal demand growth, with points of higher inflation corresponding to higher rates of nominal demand growth. The long run rate of unemployment depends on the rate of nominal demand growth, and the long run rate of inflation is equal to the rate of nominal demand growth minus the average rate of productivity growth.

The location of the Phillips curve in figure 6 depends on the variance of demand shocks across countries. As the variance of these shocks increases, the Phillips curve will shift to the right so that there will be a higher rate of unemployment for any given rate of inflation. The logic of this shift is readily understandable in terms of the reverse L-shaped supply diagrams shown in figure 5. If the variance of cross-country demand shocks is small, the two countries demand

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confront the problem of causing inflation in some regions and output gains in others. The same problems also confront the Bank of Canada.

curves will tend to be close together. Consequently, a low growth of nominal demand will be sufficient to offset negative country demand shocks and keep both economies close to full employment (i.e. low unemployment). It also means that inflation will be low since low nominal demand growth means there will be little additional inflation pressure in the economy at full employment. Conversely, if the variance of demand shocks is large, then one economy will have high unemployment and the low rate of nominal demand growth will do little to offset this. Consequently, there will be more unemployment for each rate of inflation.

The above construction of the Phillips curve has important implications for the conduct of monetary policy in a currency union. The bottom line is that monetary policy in a currency union needs to take account of the structural factors impacting the optimality of the currency area. The critical parameter is the variance of country demand shocks. An optimum currency area can be thought of as a group of countries in which the cross-country variance of demand shocks is small. A non-optimal currency area is one in which the variance of cross-country demand shocks is large. The fact that the euro area is likely not an optimum currency area suggests that its formation has increased the variance of country demand shocks. The impact of this is shown in figure 7. Prior to the formation of the euro, the representative country monetary authority confronted a Phillips curve denoted PC_1. After the formation of the euro, which merged eleven different economies into one currency are, the new European Central Bank confronts a euro area Phillips curve denoted by PC_2.

The policy implications of this changed circumstance are clear. When the Bundesbank pursued an inflation target of 2%, the resulting unemployment rate was U_{GER}. If the ECB persists with this same inflation target, the resulting euro area unemployment rate will be U_{EURO}. Consequently, if the ECB is to prevent an increase in the euro area's equilibrium unemployment rate it will need to adjust its inflation target upward.

Whether this increase needs to be temporary or permanent depends on how economic relations and practices within the euro area change as a result of the creation of the euro. If they change in a manner that has the euro area more closely resemble an optimum currency area, then

the Phillips curve will shift back to the left. In this event, the ECB will be able to lower its inflation target without negative consequences. However, such structural changes will take years, and this argues for an inflation target above the current 2% level for the foreseeable future.

Lastly, the above analysis has implications for discussions concerning enlargement of the euro area to incorporate the U.K., Greece and the Scandinavian economies (Denmark, Sweden, Norway). To the extent that such enlargement worsens the non-optimality of the euro as a currency area, it will further worsen the inflation - unemployment trade-off facing the ECB.[9] If enlargement occurs under this condition, it would argue for an even higher inflation target to keep the equilibrium unemployment rate from rising further.

IV Conclusion

This paper has focused on the question of how monetary policy should be conducted in a non-optimal currency area, and argued that this requires higher inflation to avoid higher unemployment. This finding has important implications for the ECB's conduct of monetary policy, since it is widely agreed that the euro area is not currently an optimum currency area. Yet, the ECB is conducting policy as if the euro area were an optimum currency area, as reflected in its 2% inflation target which corresponds roughly to the target used by the old Bundesbank when it set policy for just Germany. The paper also has implications for plans to enlarge the euro to include the U.K., Greece, and Scandinavia (Denmark, Sweden, Norway). To the extent that these economies march to a drum that differs from that of the euro economy, this will to aggravate the non-optimality of the euro area. To prevent unemployment from further rising, the ECB will have to increase its inflation target even more.

[9]. Palley (2000) prevents evidence that suggests having the U.K. join the euro would worsen it as an optimal currency area, but this is not the case for the Scandinavian countries.

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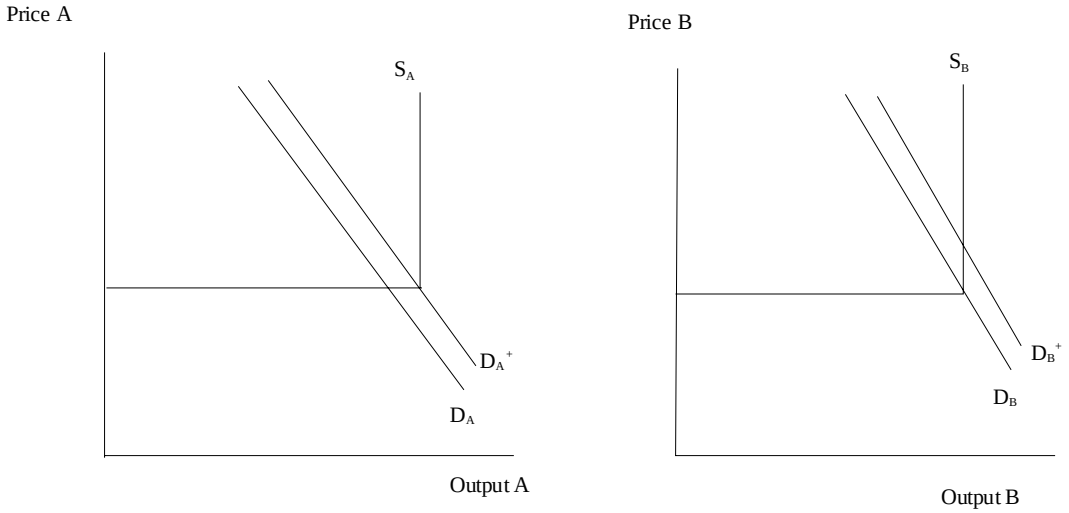

Figure 5 Price and output impact of an expansion of aggregate nominal demand in a two country currency union.

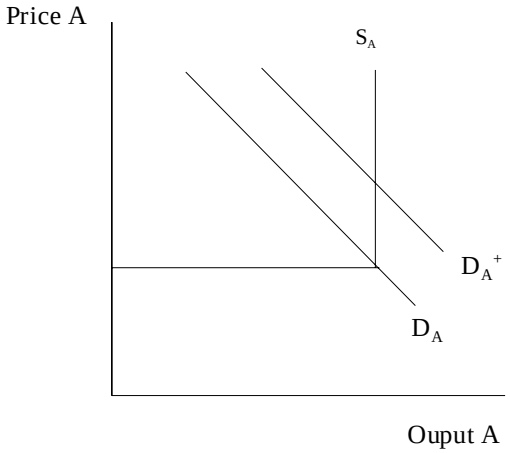

Figure 1

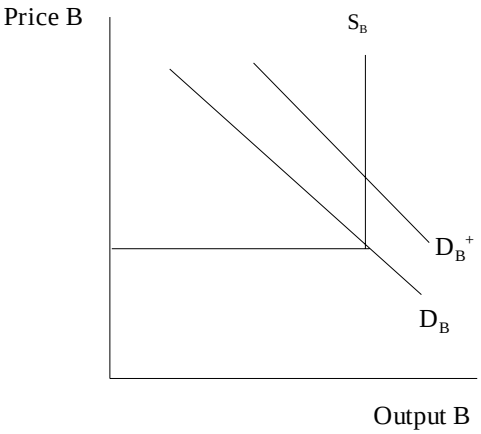

Figure 2

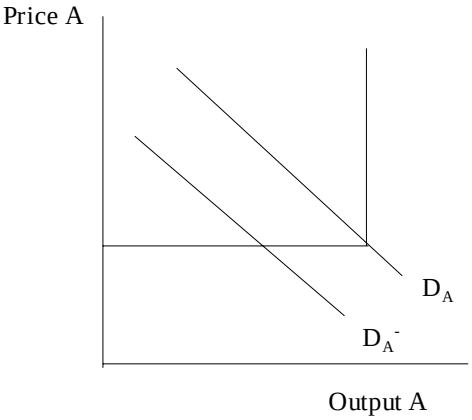

Figure 3

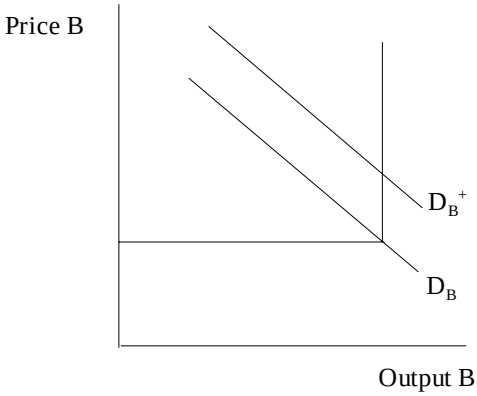

Figure 4

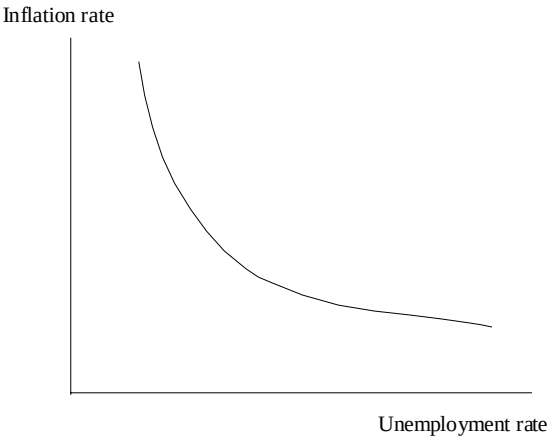

Figure 6 The long run Phillips curve.

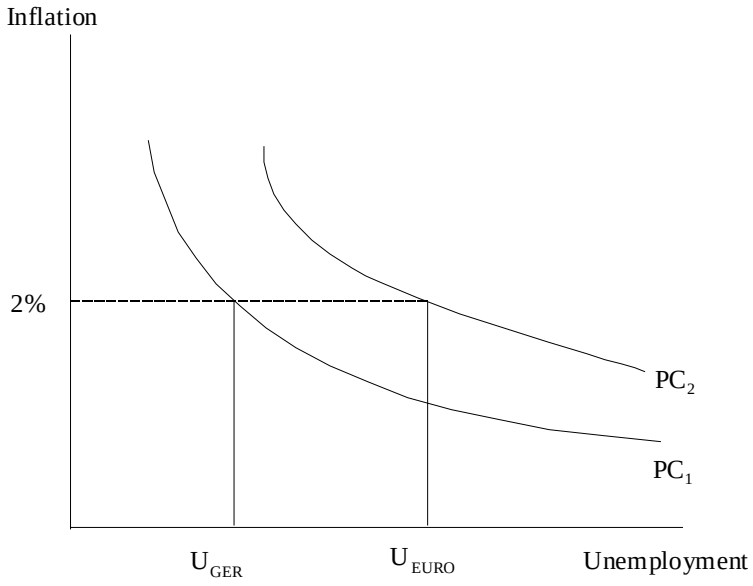

Figure 7 The impact of an imperfect currency area on the Phillips curve.