The Effect of European Monetary Integration on Macroeconomic Theory

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1. Executive Summary

This note argues that it was a revolution in economic thought that helped make European Monetary Union possible; that the formation of the monetary union did not inspire a revolution in economic research. Nevertheless, there is a sizable academic literature inspired by or analysing aspects of EMU. This note considers some of it.

2. Has EMU led to a revolution in economic thinking, or is it the other way around?

The fundamental economic paradigms of our time are not being rewritten as a result of the emergence of European monetary union. Rather, it was a revolution in economic theory that helped make possible the creation of a European common currency.

In the 1960s it was believed that there is a long-run tradeoff between inflation and unemployment and output; society can choose to have a higher level of economic activity if it is willing to tolerate the higher inflation. This view suggests that deciding upon monetary policy is a *political activity*, involving a weighing of the benefits to one group againsts the costs to another.

By the end of the 1960s the belief in this stable Phillip's curve relationship between inflation and unemployment had waned. Edmumd Phelps [28] and Milton Friedman [18] argued that, although monetary policy can have a significant temporary effect on the economy, it has little long-run effect on employment and output.

Following the rational expectations revolution in the 1970s, the prevailing belief among academics became that, instead of an exploitable Phillip's curve tradeoff between price stability and real economic activity, there is a positive relationship between unexpected inflation and employment and output. This implies that, at most, monetary policy can smooth business cycle fluctuations if it has an informational advantage over the private sector.

Milton Friedman and the monetarist school questioned even a stabilisation role for monetary policy, claiming that there are long, variable and uncertain lags between the implementation of monetary policy and when its effects are realised. During the 1970s and the early 1980s many economists came to believe that, not only is stabilising the economy difficult, it also has the drawback that activist central banks may be inclined to inflate too much.

The inflation bias arises because policy makers are tempted to exploit the relationship between unexpected inflation and real activity by inflating more than the public anticipates. However, the public understands that a policy maker has this incentive and

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anticipates the inflation. The result is too high inflation, but no unexpected inflation and, thus, no employment or output gain.[1]

The belief that using monetary policy for stabilisation is difficult and the view that activist monetary policy makers may not be able to make a credible commitment to low inflation has led to the idea that the primary and legally mandated role of a central bank ought to be price stability. A consequence of this is that monetary policy can be viewed as a *technical*, rather than a political, activity. The job of the central bank is not to make welfare tradeoffs between different groups but to pick a level of its policy instrument that, given current and expected future economic fundamentals, leads to a path of low and stable inflation. Once monetary policy was viewed in this light, it became possible for countries such as the United Kingdom and Japan to delegate the making of monetary policy to independent groups of technocrats and it became feasible for the European Union to achieve monetary integration without first having more than a rudimentary political union.

3. Has EMU led to breakthroughs in economic research?

It is fair to say that European Monetary Union has not led to major breakthroughs in economic research. Nor is the academic profession greatly preoccupied with its occurrence. Leafing through the past several years worth of issues of four major generalist economics journals yields only a few articles explicitely about monetary union.[2] Nevertheless, in some areas, the prospect and emergence of a common currency has contributed to reseach.[3] I will divide my discussion of research associated with EMU into three categories: (i) work associated with the prospect of EMU, assessing the costs and benefits of a common currency; (ii) work associated with the implementation of a common monetary policy; (iii) research on problems resulting from monetary union.

3.1. costs and benefits of monetary union. Prior to its emergence, there was a resurgence of academic interest in what constitutes an optimal currency area and the costs and benefits to membership.[4] For example, Bayoumi [4] looked at countries with asymmetric shocks where a common currency leads to slower real wage adjustment. Canzoneri and Rogers [10] adopted a public finance point of view, looking at countries with different seigniorage needs. Alesina and Grilli considered the loss of ability to pursue country-specific monetary policies when central banks retain a stabilisation role and business cycles are asymmetric. One innovation over the earlier literature was the view that optimal currency areas may be endogenous, either because monetary union tends to synchronise member's business cycles (Frankel and Rose [15]) or because the prospect of monetary union leads to reform of distortions that would otherwise make it difficult for countries to enter a monetary union (Sibert and Sutherland [30]).

Some of the literature inspired by interest in the costs and benefits of EMU has implications for more than a European common currency area; an example is the literature on the effect of the exchange rate regime on trade. This literature asks whether relatively

[1] This theory was developed by Kydland and Prescott [22], Calvo [9] and Barro and Gordon [3].

[2] The journals were *Journal of Political Economy, American Economic Review*, *Quarterly Journal of Economics* and *Economic Journal*.

[3] No attempt at a complete coverage of the research associated with EMU is attempted in this short note; I review only a small selection.

[4] An early literature began with Mundell's [25] seminal work.

volatile floating exchange rate regimes lower trade volume relative to fixed exchange rate regimes.

There is a long empirical literature on this topic and the evidence has been conflicting. Many early papers such as Thursby and Thursby [34] found that exchange rate volatility had a large and negative effect on trade. Later papers found a small, or a statistically insignificant, or even a negative relationship between the variability of the exchange rate and the volume of trade. (See, for example Frankel and Wei [17], Belanger, Gutierrez and Raynauld [7] and Brada and Mendéz [8].)

A seminal article by Rose [29], inspired by monetary union, provoked renewed interest in the topic. The result has been a large number of studies, although no conclusive result. Rose looked at the relationship between bilateral trade volume and whether or not countries shared a common currency.[5] His results are striking, they suggest that countries that share a common currency have three times the volume of bilateral trade of countries that do not.

Rose used a "gravity" model for his estimations.[6] The key features of his approach are that bilateral trade between a pair of countries is modelled as increasing in the product of the two countries' outputs and decreasing in the geographical distance between them. To this model Rose added a measure of exchange rate volatility and a dummy variable, indicating whether or not the countrys shared a common currency. Glick and Rose [19] extends Rose's cross-sectional analysis to a time-series analysis and suggests that pairs of countries had twice the trade in periods that they shared a currency than they did in periods where they did not. Frankel and Rose [16] also found a three-fold effect on trade of a common currency and no loss of trade with other countries. In a recent paper, Micco, Stein and Ordoñez [24] use euroland data and the gravity approach to estimate that the euro has boosted trade by 4 - 16 percent.

Many economists found the results implausible. Critics of the model pointed out that most of the countries that Rose and his co-authors considered were small or poor or both and thus the results were not applicable to large, affluent nations. They also pointed out that while countries with the same currency had greater trade, that did not imply that a common currency increased trade. It might instead, for example, be that countries with a large volume of bilateral trade were more apt to adopt a common currency. In addition, econometric problems associated with the gravity approach were identified.

In competing work, Thom and Walsh [33] find no evidence from either time series or panel regressions that the exchange rate regime had any effect on Anglo-Irish trade. Using an alternative technique, Persson [27] finds the effect of a common currency on trade to be only about 10-20 percent. Pakko and Wall [26] find a negative relationship between the use of a common currency and the volume of trade and claim that Rose's results are from omitted or misspecified variables that are correlated with trade volume and the likelihood that countries use a common currency. Tenreyro [32] argues that after correcting for a number of sources of bias in the gravity equation procedure, there is no relationship between exchange rate volatility and the volume of trade.

3.2. implementing monetary union. A number of problems have arisen in in association with the problem of implementing a common monetary policy. A particularly interesting and important one is the proper methodology for constructing price indices.

[5] The common currency eliminates transactions costs associated with multiple monies as well as eliminating exchange rate risk.

[6] The analogy is to Newton's gravitational attraction between bodies.

One of the convergence criteria of the Maastricht Treaty was (and is) that potential member countries must attain an inflation rate below a specified level. The imposition of this criterion required the European Union to develop a common methodology for constructing price indices; the result was the Harmonised Index of Consumer Prices (HICP). This index is now used by the ECB as its measure of inflation. The need to construct a measure of inflation and ongoing methodological changes in HICP, as well as direct encouragement by the ECB, have been factors contributing to a sizable body of recent academic research on price indices. This is a topic of significant importance as it is widely believed that current measures of inflation are flawed. Alan Greenspan [21], for example, commented, "For all these conceptual uncertainties and measurement problems, a specific numerical inflation target would represent an unhelpful and false precision."

An obvious question is what goods and services should be included in a price index. The consumer price index used in the United States is meant to be a cost-of-living index. In contrast, the HICP is a pure price index; it measures changes in the prices of goods and services available in a country. Cecchetti and Wynne [**?**] suggest that a pure price index lacks a theoretical basis and that a cost-of-living index may represent a better measure of consumer welfare.

There is significant evidence that consumer price indices overestimate inflation. By comparing the price of a basket of goods in the base period with the price of the same basket of goods in the current period, the measure does not take account of consumers changing their consumption baskets when prices rise. In addition, there are biases associated with failing to take adequate account of changes in quality, the introduction of new goods and the ways that goods are sold. Recent papers on these topics are by Silver and Heravi [31] and Blow and Crawford [5]. Cechetti and Wynne [**?**] believe HICP may overstate inflation by a percentage point but the current paucity of data and ongoing methodalogical changes make precise estimates difficult.

In more controversial new research, Mankiw and Reis [23] and Erceg, Henderson and Levin [14] argue that including nominal wages in the price index and giving them substantial weight would produce more stable real economic activity. Aoki [2] suggests that the central bank should target the prices in sectors with nominal rigidity. Goodhart [20] argues for the inclusion of asset prices.

3.3. problems with monetary union. One of the problems of monetary union is the conduct of members' fiscal policy. Current dissatisfaction with the stability and growth pact has led to a plethora of policy papers by economists. The pact and the general problem of fiscal coordination in a monetary union have led to some interesting academic papers as well.

Chari and Kehoe [12] describe why countries in a monetary union might issue excess debt. There, a benevolent central bank in a common currency area has an incentive to inflate when national governments have outstanding stocks of nominal debt. When each country's fiscal authority decides how much debt to issue, he takes into account the central bank's incentive to partially monetise his country's debt, but he neglects the costs of the resulting inflation to other countries in the monetary union. The result is that countries are tempted to issue too much debt relative to the union-wide optimum. Beetsma and Uhlig (1999) consider a model where policy makers have an incentive to issue debt to pay for expenditures benefiting their constituents, leaving their successors to repay their debts. A group of countries might attempt to solve this problem by agreeing to jointly punish any country where a policy makers runs up debt. The problem is that without a

common currency, there is no way to commit themselves to doing this; there is no reason to carry out the punishment. If the countries are part of a monetary union however, they can credibly threaten to carry out a punishment. The successor to a policy maker who has accumulated debt will attempt to influence the common central bank to lower the value of the debt through inflation. Thus, in this scenario, it makes sense for countries in a common currency area to enter into a stability pact that punishes a policy maker for accumulating debt.

Beetsma and Uhlig [6] and Casella [11] have described alternative solutions to the problem of countries producing deficits that cause negative spillovers for other countries. Beetsma and Uhlig propose a system of fines and Casella advocates the issuance of deficit permits. These permits would allow governments to issue another unit of debt and they would be freely tradable. The idea behind this solution is that bargaining over permits by governments would establish an optimal outcome without additional interference and without the European Union knowning the preferences of national governments.[7]

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