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The economic justification of European monetary integration: ex ante, ex post or inexistent?

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Did economic analysis justify ex ante the decision to create an European monetary union (EMU) and the way to create it? By looking at the main theoretical contributions and at official European publications, we show that the answer is not so straightforward. First, economic analysis, in particular optimum currency area theory, was far from offering a complete justification of EMU. Furthermore, EMU also raises the issue of the coordination of domestic fiscal policies with the unique monetary policy. But the available analyses were not always relevant for the European experience. The second part shall show therefore that the historical justification of EMU and of the organisation of its policy mix rests rather on more pragmatic analyses, except for the choice of an independent central bank, justified in theory. Finally, the realisation of EMU has fostered recent theoretical developments in the realm of optimal currency area theory, now better able to explain the benefits of EMU, and of fiscal federalism.

Introduction

The creation at the end of the 1990s of the European Monetary Union (EMU) by European countries introduced structural and institutional changes of a greater magnitude than those implied by most other economic and political choices. It could therefore be expected that the decision to create EMU would be grounded on a precise economic justification of its expected gains and on a thorough analysis of its optimal institutional architecture. It would seem natural for European decision makers to seek academic expertise to enlighten their choice and we are particularly interested in the role of economic academic experts. To what extent did academic economic analysis indeed justify the choices related to the creation of EMU? The answer is not so straightforward. Contrarily to expectations, it seems that these choices are not always grounded in an *ex ante* justification by economic analysis. This article seeks to identify the economic justification of EMU – or its absence – and focuses on two main issues: should EMU be created, and if so, how should it be organised? Did academic economic knowledge conclude that the advantages of the implementation of a common currency outweigh the costs, and that its intended institutional architecture is optimal to organise coordination between the unique monetary policy and domestic fiscal policies?

By analysing the main theoretical contributions to these debates and official European documents, we shall strive to bring to light the contribution of academic economists to the creation of EMU. We shall first see that the optimal currency area theory, although centred on questions of exchange rate regimes, offered robust and well-known analytical tools to answer the question “should EMU be created?”, but that the answer was clearly negative. Europeans’ choice therefore did not rely on this theory, but on other, more pragmatic, analyses. It seems that the decision to create EMU was paradoxically taken although economic theory at the time did not justify it. We shall then examine the justification of the choices regarding the institutional architecture of EMU. We observe here a second paradox: although economic theory found it difficult to justify the creation of a monetary union, it offered robust analyses of the independence of central banks and of the organisation of monetary and fiscal policies in a monetary union, which were widely drawn upon at the creation of EMU. Finally, we shall discuss how the specificity of the European experience has fostered new developments in economic analysis, which in some cases offer better justifications of EMU *ex post* than *ex ante*. Even if the architects of Europe could rely on academic knowledge with robust economic foundations, EMU is certainly not only the result of technocratic choices applying theoretical recommendations of highly regarded economists, it is also the result of political motivations and/or resistances.

1. Academic knowledge and the creation of EMU

Why optimal currency area theory did not recommend creating EMU

When the question of the creation of EMU arose at the beginning of the 1980s, the leading available economic theory at the time that was liable to guide this choice was the optimal currency area theory (OCA) of Keynesian inspiration. The post-keynesian interpretation of this theory concluded that monetary union was not desirable in Europe because economic integration was not yet sufficient and because alternative adjustment mechanisms did not compensate the loss of monetary policy independence. In the light of these very critical conclusions, a more consensual version of OCA constituted the reference framework in the discussions.

It is however an imperfect instrument as Mundell [1961] had elaborated it to compare exchange rate regimes (fixed vs. floating) and not to study monetary unions. But so as not to find themselves theoretically unarmed to discuss such important issues, economists assumed that a fixed exchange rate regime is after all an acceptable approximation of a monetary union. This allowed OCA to become a central reference on the question: it was reinterpreted as a discussion of the trade-off between a monetary union (extremely fixed exchange rates) and the absence of a monetary union (floating exchange rates). However, it turned out to be of limited use to Europeans, as its application to the European case did not recommend creating a monetary union.

According to the OCA theory, two countries stand to gain from the creation of a monetary union if they have strong trade links and if they dispose of instruments to compensate the loss of the exchange rate as an adjustment mechanism in case of economic divergence. According to the traditional OCA criteria, the effects of a monetary union will be all the more beneficial as countries share a high trade intensity; as production factor mobility helps to realise the necessary adjustments; as high business cycle correlation prevents the emergence of economic divergence; and as fiscal transfers can realise the adjustment in the absence of spontaneous adjustment mechanisms. For simplicity reasons, we ignore the refinements brought to the theory by McKinnon [1963], Kenen [1969] and others.

The application of these criteria, except the first one, to European countries clearly concluded that Europe was not an optimal currency area. In particular, labour mobility was observed to be much lower than in the United States [Bayoumi & Prasad, 1996] and fiscal

transfers at the Union level were obviously impossible because of the small size of the European budget and of political resistances to direct redistribution between member countries.

The debate therefore moved on to new approaches leading to less pessimistic conclusions. The first studied the criteria of business cycle correlation. It was reformulated in terms of symmetry or asymmetry of shocks in order to identify a group of countries whose business cycles were correlated enough for them to benefit from monetary union. Several authors sought to determine the degree of symmetry of shocks in Europe to identify the “core” countries who would benefit from EMU and “peripheral” countries who would not [Bayoumi & Eichengreen, 1993, 1997], thus suggesting a method to select the countries to be admitted into the monetary union. Unfortunately, this approach was unable to draw up a consensual list of “core” countries. In parallel, others analysed how business cycle correlation would evolve after EMU: would its implementation bring about more economic convergence or more divergence? Krugman [1993] was pessimistic and showed that, in the American case, integration had increased productive specialisation and correlatively the exposure to asymmetrical shocks, which boded ill for EMU¹.

The second approach concerned the design of the convergence criteria imposed to candidate countries. But here also, OCA theory was only an imperfect reference: the nominal convergence criteria, as defined by the Maastricht Treaty, derive only partly from Mundell’s criteria. They refer almost exclusively to the correlation of business cycles, understood as a convergence of inflation rates, interest rates and exchanges rates, with a degree of fiscal discipline, neglecting the three other criteria [Wyplosz, 2006].

OCA theory provides a negative answer to the question “should EMU be created?”. European countries did not give up altogether the hope of respecting Mundell’s criteria *ex post*, but in the meantime other analyses had to be found to justify the creation of EMU.

Use and non use of academic knowledge by the European Commission to justify EMU

The European Commission justified its engagement in favour of creating EMU in the Emerson Report written in 1990 [Emerson & alii., 1990], following the publication by the Commission of a collection of academic economic analyses on EMU [European Economy, 1990]. Drawing to a large extent on this latter publication, the Emerson Report was conceived of as a way of bridging the gap between European political decision makers and academic economists. Written within the General directorate for economic and financial affairs under the direction of M. Emerson, director of the economic evaluation of European policies, this report is structured around the main contributions of D. Gros and J. Pisani-Ferry, economic advisors of the general director, and otherwise academics. Its objective was to convince all the actors concerned by EMU (governments, firm directors, citizens, trade unions...) that there was a strong case in favour of EMU, on the basis of strictly economic arguments. Resorting to expertise allowed the Commission, here as in many other cases, to legitimate its policies [Robert, 2003].

Based on the premise that OCA theory, although remaining the reference framework, fails to justify EMU because it underestimates its benefits, this Report develops alternative economic arguments, more pragmatic, formulated in terms of micro and macroeconomic costs and benefits of monetary union. These are evaluated according to an eclectic approach based on three theoretical traditions: standard microeconomic theory, the Keynesian analytical framework of exchange rate regimes and the political economy analysis of credibility of economic policies. The Report explicitly gives up trying to elaborate a unified theoretical framework incorporating these three traditions.

¹ In the American case, this is more than compensated for by federal fiscal transfers between States, which do not exist in Europe (see below).

The costs of EMU result from the loss of monetary policy and of domestic exchange rates, which reduces an economy's adjustment capacity in case of a shock. But the Report minimises these costs, as all European countries except Germany had *de facto* lost their monetary autonomy in the EMS. Microeconomic gains of EMU arise from economising on transaction costs due to the abolition of currency exchanges between European countries, estimated to be 1 to 4% of the European GDP, from the elimination of the exchange rate risk and from the increase in competition in the common market due to the easier comparison of prices denominated in the same currency. The final elimination of exchange rate volatility between European countries, which was considered as detrimental, should also favour trade and cross-border investment. The creation of the EMS had not sufficiently reduced exchange rate volatility [Wyplosz, 2006] and it remained vulnerable to exchange rate crises that the Emerson Report feared – and which did eventually occur in 1993. It is therefore preferable to make it permanently impossible to realign currencies by giving up domestic currencies: the Report considers that capital mobility, effective in Europe since the 1st of July 1990, greatly endangers the viability of EMS, which can no longer be considered as a possible alternative to monetary union.

Macroeconomic gains of EMU result first from the relaxation of the external constraint, as trade between European partners becomes internal to the monetary union. The Report also considers that the creation of EMU should develop intra-industry trade, which will foster greater business cycle correlation and lead to less frequent occurrence of asymmetric shocks, contrary to Krugman's pessimistic argument. EMU should also be a way to benefit from the advantage of price stability with a lower cost of disinflation, especially if the future European central bank disposes of the necessary independence (see below). EMU also resolves the dilemma of Mundell's incompatibility triangle [Wyplosz, 2006] according to which a country cannot have at the same time capital mobility, a fixed exchange rate and an autonomous monetary policy. Within the EMS, as all countries desired to preserve fixed exchanged rates in a context of capital mobility, they were all constrained – with the exception of Germany – to give up their autonomous monetary policy. On the contrary, in a monetary union, it becomes possible to combine capital mobility, "fixed" exchange rates within the union and floating exchange rates with the rest of the world, and an autonomous monetary policy at the level of the union. And as decisions regarding this unique monetary policy are taken in common by all member states of the union (via their central bank governors at the ECB governing council), they recover part of their lost monetary sovereignty. Finally, the Report hopes that the euro will become an international reserve currency and that Europe will acquire a greater influence on worldwide capital flows and on the working of the international monetary system compared to the United States and Japan.

In all, even if the Report claims to resort only to economic arguments, its authors nevertheless present their own arguments in a favourable light, minimising the predictable costs (ie. coordination problems between the unique monetary policy and the domestic independent fiscal policies), which is a hidden form of political voluntarism. The Emerson Report allowed the Commission to structure the economic debate on EMU in a way that minimised the reference to OCA theory which led to a negative recommendation.

2. Academic knowledge and the institutional architecture of EMU

The European integration process first raised the question of the desirability of the creation of EMU. A positive answer immediately raised the question of the institutional architecture that it should be given. How should decision making of monetary policy be structured? How should domestic fiscal policies be organised so as to ensure their coherence and the efficiency of the monetary union? How far is it necessary to go in the direction of an

eventual federal European fiscal structure? This section studies to what extent the decisions taken in this area were justified by economic analysis.

The justification of the independence of the European central bank (ECB)

Paradoxically, although on one hand economic analysis did not really justify *ex ante* the decision to create a monetary union, it offered on the other hand a very relevant theoretical framework for the design of the organisation of the unique monetary policy. Kydland and Prescott [1977] have founded an important literature arguing for central bank independence. They assume a global supply framework, with rational expectations and nominal rigidities. In this model, the government pursues two partially conflicting objectives (controlling inflation and increasing employment by pushing economic output above its natural level), while workers aim to keep their real wages constant. If monetary policy is discretionary – if the government can take its monetary decisions after the workers have committed to nominal wage increases – and if workers anticipate positive inflation, then the non-cooperative solution is sub-optimal: inflation is positive and output is at its natural level. Kydland and Prescott therefore suggest to impose a rule on monetary policy: if the government decides of its monetary policy *before* workers negotiate nominal wages and if monetary policy is credible, it is possible to obtain natural production without inflation (workers do not require nominal wage increases), which is preferable to the preceding outcome.

However, the government may be tempted to cheat, which casts doubts on the credibility of monetary policy: if it can modify its choices after the workers have agreed on nominal wages, it can generate inflation to reduce real wages and therefore unemployment. The parameters of the model imply that this outcome is preferable to the preceding one for the government. This result highlights the “time inconsistency” of monetary policy, which reduces its credibility even in presence of a rule. A monetary policy rule also reduces its flexibility in response to shocks, which reduces its efficiency.

Therefore, when it is not possible to implement a credible monetary policy rule, Barro and Gordon [1983] suggest that the solution may rest on reputational effects in an intertemporal perspective. If the game is repeated and if workers can “punish” the government for having cheated by demanding higher nominal wage increases at the next period(s), which feeds into the inflationary process, then the government has incentives to keep its word, and this outcome is similar to that of the credible rule. But this result assumes that the workers may efficiently coordinate to punish the government, and that the time horizon is infinite, which can be called into question by the electoral calendar.

Rogoff [1995] proposes an alternative solution to the lack of credibility of the rule. The idea is to delegate monetary policy decision-making to an independent central bank, which retains the possibility of discretionary policies. The central banker, ideally reputed for his conservatism, can then lead a credible monetary policy, which allows workers to trust him and to anchor their inflationary expectations at a low level, so the solution is similar to that of the credible rule. In this arrangement, monetary policy also disposes of the necessary discretionary margins to face an unexpected shock. These suggestions underwent numerous convincing empirical tests concerning the links between central bank independence and the credibility and efficiency of monetary policy. For example, Cukierman [1992] defines an index measuring central bank independence, and Alesina and Summers [1993] observe a positive correlation between this index and inflation control. These developments fully justify the choice to create a very independent ECB, mentioned in the Emerson Report.

Alongside this dominant approach, there are alternative analyses of the independence of central banks. Although post-keynesians are not opposed to such independence by principle, following Keynes’ suggestions in the 1930s to make the Bank of England independent, they strongly disagree with the way this independence is carried out in practice

in the case of the ECB. On one hand, they object to the primacy of the price stability objective over other real objectives (growth, employment...), as they believe in the capacity of monetary policy to affect real variables [Arestis & Bain, 1995], to the difference of the neo-classical transition which Kydland and Prescott belong to. On the other hand, they offer an alternative analysis of inflation: its causes are not only monetary and the central bank cannot perfectly control the stock of money because for post-keynesiens it is endogenous, which calls into question the efficiency of the monetary policy of an independent central bank. Instead, they are favourable to a system of fixed exchange rates where a European clearing house would replace the central bank and where governments would keep their monetary sovereignty [Arestis, 1999]. They would also endorse adjustments to the ECB's prerogatives that would include real objectives, increase its responsibility before the European Parliament, and complement monetary policy with institutional arrangements of wage negotiation at union level, in order to control inflation [Arestis & alii., 2001].

The institutional architecture of European fiscal policies

The question of the organisation of domestic fiscal policies in EMU becomes essential for two main reasons. First, economic interdependence between countries is increased by membership in the monetary union, which calls for greater coordination to avoid negative spill-overs. Second, a good organisation of fiscal policies may help the countries move towards the optimality of the area, which they still hope to achieve. We examine here first the economic justification of the organisation of domestic fiscal policies as it was implemented in EMU, and second the deepening of this organisation in a more federal direction, even if this has not materialised to date.

The institutional architecture of economic policies consists in the coexistence of one common monetary policy delegated to the ECB, and independent domestic fiscal policies, constrained by the Stability and Growth Pact (SGP). There also exists a European budget, limited to 1,27% of the European GDP. Did economic analysis offer arguments to justify this architecture? On one hand, the preservation of independent domestic fiscal policies was coherent with the logic of OCA theory and of the Mundell-Fleming model. Indeed, the common monetary policy is efficient in the face of symmetrical shocks as it applies in a floating exchange rate regime (with the rest of the world), in which it is efficient. Conversely, domestic fiscal policies are efficient to respond to asymmetrical shocks as they are implemented at the level of each shock, and as they apply in a "fixed" exchange rate regime (monetary union) in which they are efficient in an open economy. EMU countries therefore dispose of a complete range of efficient policies to face symmetrical or asymmetrical shocks: this is called the "Brussels consensus".

On the other hand, the question of the coordination of fiscal policies in a monetary union was never really examined before EMU. For example, the CFA Franc zone was created in 1945 but only began to design tools for fiscal policy coordination at the end of the 1990s. The shape of the European institutional architecture results rather from choices by default linked to other decisions: once it was decided that price stability was the main objective, and that as a consequence the central bank would be independent, it became necessary to constrain fiscal policies, whence the SGP, to prevent them from conflicting with this objective. Thus, the preservation of independent fiscal policies in a monetary union – to combat asymmetrical shocks – is justified by OCA theory, whereas the constraints they are submitted to by the SGP, partially conflicting with this contra-cyclical role, are justified by the analyses founding the ECB's independence.

From several points of view European monetary integration proceeded without firm justification, whereas conversely, in the realm of the "European federal budget", several

economic analyses, ranging from heterodox to orthodox, offer converging recommendations that are not as yet implemented.

Post-keynesians note that by relaxing the external constraint between member countries [Arestis & alii., 2001], the creation of EMU makes it possible to carry out coordinated domestic expansionary fiscal policies. Indeed, Boyer [1999] recommended as early as 1999 the creation of an “economic government of the euro zone” to coordinate fiscal policies to counterbalance the dominant power of the ECB in the European policy mix, resulting from its status as the only European institution of a “federal” level.

In parallel, the traditional theory of fiscal federalism, which investigates the organisation of fiscal policies in federations, argues in favour of a large federal budget to finance allocation and stabilisation policies. It originates in a 1972 article in which Oates [1972] raises two questions: which fiscal policy decisions should be taken at the centralised level, and how should they be financed? Individual preferences are assumed to be homogeneous in the federation and agents’ mobility high. Concerning resource allocation, the theory of fiscal federalism shows that the decentralisation of local public goods supply helps to satisfy the local preferences of agents. National public goods supply should however be centralised because of externalities between jurisdictions, because of economic agents’ mobility and because of economies of scale. Concerning macroeconomic stabilisation, due to risks of tax avoidance and to diseconomies of scale resulting from decentralised policies², the theory recommends implementing stabilisation policies at the centralised level. But are these analyses a relevant basis to recommend a larger European federal budget?

Indeed, the issues raised by the theory of fiscal federalism correspond only imperfectly to the European case since it analyses the decentralisation of public decisions in an existing federal state – top down – rather than the unification in a federal structure of initially independent entities – bottom up –³. Furthermore, the theory studies federal states such as the United States or Canada, the best-known monetary unions, to which Europe is invariably compared. But even if sharing a common currency is an important step towards federalism, EMU is still far from being similar to the American case as labour mobility is much lower and as European nations retain their own culture, their own language, etc., whereas the United States are a much less heterogeneous nation.

The theory of fiscal federalism remains nonetheless relevant for the European case from the point of view of both allocation and stabilisation. In spite of the heterogeneity of European agents’ preferences, the number of “European public goods” (environment, R&D...) the supply of which is preferable at the centralised level is continuously increasing. Furthermore, if factor mobility is imperfect in Europe – justifying a decentralisation of stabilisation policies –, macroeconomic stability of EMU can be considered as one of these new “European public goods” and as such it is justified to implement stabilisation policies at the centralised level [Le Cacheux, 2007]. Taking into account these European specificities, the theory of fiscal federalism concludes that it is necessary to increase the European budget. It was on the same theoretical basis that the MacDougall Report [1977] already recommended to increase the European federal budget to 5 or 7% of the European GDP to finance European public goods and to carry out centralised stabilisation policies, otherwise monetary union would not be viable in Europe⁴.

² A stabilisation policy carried out at the level of one country generates benefits for other countries of the union through spill-overs, while it is the only one to incur its costs.

³ The logic of the theory of fiscal federalism is thus the opposite of the OCA theory’s which addresses the question of the aggregation of different entities.

⁴ Let us note that contrarily to the Emerson Report which explicitly expresses the European Commission’s convictions, the MacDougall Report was written by a group of experts

But this federal budget does exist in Europe today: the European budget is limited to 1,27% of the European GDP, it cannot be in deficit and mainly finances the CAP. This choice seem to result more from a political than from an economic logic: national governments refuse to relinquish further fiscal prerogatives.

Although post-keynesians and the theory of fiscal federalism recommended increasing the centralisation of fiscal policies parallel to the creation of a “federal” monetary policy in EMU, the architects of Europe did not apprehend the issue in this way. Absent a central fiscal decision-making level, they rather based their conception of the fiscal dimension of monetary union on the principles of the coordination of domestic policies. This choice draws on the theory of tax competition which recommends coordinating and harmonising fiscal and tax policies between perfectly integrated countries [Turnovsky, 1988; Devereux, 1991]. ‘Coordination’ refers to decisions following concertation, whereas ‘harmonisation’ consists in common decision-making. They are mainly justified as an answer to tax competition, according to which in presence of factor mobility, governments choose suboptimal tax rates in order to avoid tax evasion [Wilson, 1986; Wildasin, 1988].

The Maastricht Treaty explicitly refers to this policy coordination as one of the objectives member countries should pursue. However, European governments have taken only few real decisions regarding the coordination of their fiscal and tax policies. The first one concerns the harmonisation of VAT rates (although VAT is one of the less distortive taxes in terms of tax competition), the second one is the implementation of an information transmission mechanism between member states to efficiently tax savings revenues, and the harmonisation of corporate income tax is still in its infancy. Beyond its role in the coordination of domestic fiscal policies and the unique monetary policy, the SGP was also designed to compensate for this lack of coordination of fiscal policies. But by imposing a constraint on domestic governments’ excessive deficits, it is limited to minimal coordination and it remains a negative rather than a positive incentive device. If fiscal and tax coordination does not play a major role in the institutional architecture of European economic policies, the reason is probably once again rather political than economic. Governments remain reluctant to develop coordinated strategies, as illustrated by the difficulty to agree on a coordinated fiscal policy response to the financial crisis in late 2008. They continue to view such coordination as an extra constraint on the only macroeconomic policy over which they still have sovereign control.

As the dominant economic theory on this issue (OCA) did not recommend creating EMU because European countries did not represent an optimal currency area, the official justification of EMU drew on more pragmatic analyses comparing the benefits and losses expected from monetary union. On the contrary, economic analysis offered precise recommendations regarding the independence that the central bank should be granted within the monetary union’s institutional architecture. And the Treaty does indeed confer the ECB a very high degree of independence, according to the conclusions of Kydland, Prescott and Rogoff. Concerning the organisation of fiscal policies within the union, OCA theory recommended to maintain independent domestic fiscal policies. The fear of excessive fiscal deficits justified creating the SGP, which is partially contradictory with the independence of domestic fiscal policies. The theory of tax competition justified the provisions of the Treaty concerning the coordination of fiscal policies, even if it is still implemented only to a very limited extent. Conversely, the recommendation of several theoretical approaches to reinforce

nominated by the Commission but does not engage the Commission. It is therefore less surprising that its recommendations were not followed.

the size and role of the federal budget has not yet had concrete effects. These issues fuel today's debates on the future of Europe and have spurred new theoretical developments.

3. EMU as a means of stimulating academic knowledge

OCA theory after EMU

Theoretical and empirical research in the field of OCA theory has developed following the creation of EMU, in two main directions. First, studies have refined the measurement of gains expected from EMU to correct the initial overestimation of costs and underestimation of benefits. In a game-theoretic perspective applied to economic policy, a monetary union can be considered as the creation of a public good as it generates reputation effects for the common currency and higher credibility for monetary policy thanks to the central bank's independence and the correlative disappearance of its inflationary bias [Barro & Gordon, 1983; de Grauwe, 1992]. These positive externalities entail the risk of creating a too small and therefore suboptimal monetary union, as in the case of other public goods. Internalising the monetary policy externalities improves the situation compared to traditional OCA theory, which as a consequence implied stricter optimality conditions for currency areas. The evaluation of EMU's optimality is therefore more favourable *ex post* than that measured *ex ante*.

Second, another branch of recent research on OCA theory is based on Rose's [2000] article. This paper is the first one to attempt to measure the trade effects of monetary unions *per se*, and not of the reduction of the volatility of exchange rates in fixed exchange rate regimes, which calls into question the initial assumption that fixed exchange rates and monetary unions are similar, which had allowed to apply Mundell's logic to monetary unions. On a large sample of small countries (ex. French territories linked to the French Franc) excluding EMU, Rose shows that monetary unions have a positive and strong impact on trade, distinct from the effect of the reduction in exchange rate volatility (this variable being also present, and also significant and positive). This article derives its fame from the scale of the observed effect: the existence of a monetary union triples bilateral trade compared with the sample's average. The exact value of this figure immediately prompted intense theoretical and empirical debates, which took on particular salience for European countries which had just joined EMU.

From a theoretical point of view, Rose underlines the need to account for the difference between fixed exchange rates and a monetary union. He suggests the following arguments to explain the specificity of monetary unions. Fixed exchange rates are never entirely fixed as a readjustment is always possible, which becomes impossible in a monetary union. The creation of a monetary union is also the sign of a very strong commitment liable to generate greater effects: it generally goes hand in hand with previous nominal convergence efforts (at least in the European case) and with a certain dose of policy coordination. These debates deepen the analysis of the specificity of monetary unions compared to fixed exchange rate regimes and bring to light some advantages of monetary union which were previously underestimated.

From an empirical point of view, the size of the effect identified by Rose spawned new works (surveyed in Baldwin [2006]) to evaluate it more precisely, in particular through methodological refinements. In the early 2000s, data on EMU was not yet available and many papers drew, as did Rose [2000], on experiences of previous monetary unions. According to Anderson and van Wincoop [2003], Rose has forgotten the "remoteness" variable⁵, which leads him to underestimate bilateral trade and therefore overestimate the effects of monetary

⁵ For example, although Australia and New Zealand are distant, they are even more distant from other developed countries, so omitting this variable underestimates their bilateral trade, because it is considered that it is hampered by distance.

unions on trade. Persson [2001] notes that these effects are probably non linear, which implies that Rose's linear methodology underestimates trade in the absence of a monetary union and overestimates the trade effect of a monetary union. Finally, Devereux and Lane [2003] argue that the relation between monetary union and trade is probably plagued by circular causality: countries tend to enter monetary unions with countries with which they already trade significantly, which introduces an upward bias in favour of monetary unions.

Rose and van Wincoop [2001] answer these critiques by taking into account the remoteness variable. By introducing dummies on the origin or destination of trade flows, monetary union no longer multiplies trade by 3 but only by 1,9 to 2,5 according to the specifications. Rose [2001] then computes the effect once again adopting Persson's methodology to take non-linear effects into account and obtains an effect ranging from 1,1 to 1,6. Glick and Rose [2002] collect a larger data set to generalise initial results computed on small territories and measure an effect of about 1,9. Finally, there is as yet no satisfactory solution to the problem of circular causality. All these studies have confirmed the existence of a large and significant effect of monetary unions on trade (even if its size has been revised downwards due to methodological reasons), which reinforces the argument in favour of EMU.

Later on, Micco et al. [2003] were among the first to estimate the effects of EMU on trade in the EU 15 countries between 1992 and 2002 (taking into account the methodological discussions above). They observe an increase in trade of only 6%, which is far less than the effect of 1,9 to 3 observed above, which raises new questions. Why is the effect of the euro smaller than that of monetary unions observed in the literature? Does the effect emerge only in time? Or has most of the effect been observed prior to EMU? Does its scale depend on the countries' size (with a larger effect for small countries and a smaller one for large countries)? Is the Rose effect still overestimated? The questions remain open.

In another field, following Frankel and Rose's [1998] study on the endogeneity of the OCA theory criteria, the creation of EMU provides an opportunity to revisit the *ex ante* debate on the dynamics of business cycle correlation between European countries, which opposed Krugman's pessimism and the Europeans' optimism (Emerson Report). Lane [2006] observes business cycle divergence between EMU members since 1999, while the European Commission observes that business cycle correlation between EMU members, which had strongly increased in the 1990s with the nominal convergence process, has not significantly improved in the following decade, but that it would be wrong to say that it has decreased [European Commission, 2008]. The answer to these questions is therefore still currently debated.

Finally, these debates have led Baldwin to develop a model with micro foundations, lacking in Rose's approach, to better explain the effect of a monetary union on trade [Baldwin & Taglioni, 2004]. The creation of EMU, by eliminating once and for all uncertainty on exchange rates, could encourage firms to become exporters, whereas this uncertainty previously deterred them from doing so. This would explain the fast increase in the number of varieties of goods after the creation of EMU, which cannot be explained by a significant change in the economies' productive structure, which takes more time.

The new theory of fiscal federalism in response to the uniqueness of the European case

After the creation of EMU, which is akin to the creation of a sort of unusual federation of very heterogeneous countries wishing to preserve a large fiscal autonomy, the study of fiscal federalism switched to questions of coordinating the interventions of different levels of government. This is the subject of the new theories of fiscal federalism which emerged in the beginning of the 1990s.

They renew the analysis of fiscal federalism by considering it as a joint intervention of different government levels on fiscal and tax matters. Domestic governments are assumed to pursue domestic objectives (without taking into account the objectives of the other federation

members), while the federal government aims to correct externalities arising from strategic interactions between domestic governments. This situation gives rise to vertical interactions between domestic governments and the federal authority which are at the heart of these studies (see Oates [1999] for an overview of recent developments in the theory of fiscal federalism).

This theoretical modelling is better suited to study the “subsidiarity principle” introduced by the Maastricht Treaty. It is much more cautious in recommending the centralisation of fiscal policy for stabilisation purposes since the intervention of the federal authority may be suboptimal due to vertical externalities. However, the new theory of fiscal federalism does recommend the use of instruments such as financial transfers or federal fiscal rules to stabilise asymmetrical shocks and to correct tax competition mechanisms. A large federal budget is therefore necessary.

Since the beginning of the 1990s, the new fiscal federalism theory has taken the opportunity of the creation of EMU to further its analyses [Inman & Rubinfeld 1992; Persson, Roland & Tabellini, 1997]. Most studies consider that EMU constitutes a radically new context that calls for important institutional changes in the way budgetary and fiscal policies are carried out and coordinated in Europe. Based on these premises, Dewatripont et al.’s report [1995] recommends a “flexible integration”, as opposed to a traditional federation with total integration. Flexible integration would take the form, on one hand, of common economic policies the participation in which all member countries must participate, and on the other hand of the possibility to create partnerships between groups of countries. Common decisions would concern a well-identified set of essential competences aiming to preserve the gains of trade integration and production factor mobility. Partnerships would remain outside the common base of competences and would not be compulsory for other countries. The authors justify this flexible integration by the sometimes very diverging interests of countries and individuals within this Union.

Economic knowledge therefore seems to progress towards a more appropriate justification of the creation of a federal budget able to carry out large-scale transfers in the case of EMU. This knowledge is elaborated in parallel to the slowly deepening fiscal and tax integration in Europe.

Conclusion

This article strove to bring to light to what extent economic theory was able to guide the choices related to the creation and institutional organisation of EMU. It appears that these choices were justified to various degrees by economic analyses, as although dominant approaches at the time (OCA theory) did not recommend creating this monetary union, they did however outline precisely how to structure it (Kydland and Prescott 1977). The building of monetary Europe also resulted from political choices and from the influence of “the historical process of integration in Europe” [von Hagen & Piansi-Ferry, 2003]. However, the case of EMU often remains difficult to apprehend by available theories, which tend to remain too general or to rely on assumptions too ill-suited to the European case.

In this context, there emerged a new field of economic analysis dedicated to the European case which was evidenced by the publication of numerous books and specialised articles centred on EMU, which has particularly developed in the 1990s. The emergence of a field of “European economics” has also entailed the creation of specialised research institutes, such as the Centre for European Economic Research in Mannheim, the CEPS in Brussels or the ZEW in Berlin. These institutions often also operate as think tanks counselling in economic policy (ex. Bruegel in Brussels). The European Commission has favoured these developments by financing research programmes in economics dedicated to the analysis of

the mechanisms of the European economy, programmes which bring together researchers of several European countries, thus contributing to the enhancement of the European reality.

Finally, these developments have had an impact on the way economics are taught in European universities. *A minima*, most European universities offer since the beginning of the 2000s courses in European economics (ex. the LSE, the University of Louvain la Neuve, the University Paris 1...), which are sometimes backed by Chairs in European economics financed by the EU (Jean Monnet Chairs, launched in 1990). More deeply, some universities have created curricula specialised in European economics, where students are generally required to study in several European countries (ex. the transnational network ENTER, *European Network for Training in Economic Research*, which comprises seven large European universities). A European university was even created in 1972 in Florence (the European University Institute) “to provide advanced academic training to doctoral researchers and to promote research in a European perspective at the highest level”, in particular in economics.

Alongside these academic developments, the creation in 2005 of the GEPA (Group of economic policy analysis), bringing together renowned academic economists and economic analysts from the private sector, to counsel the European Commission, shows that European institutions are keen on following the recommendations arising from academic knowledge in the orientations of economic policies in Europe.

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