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Intereconomics

Suggested Citation: Schmidt, Christian; Straubhaar, Thomas (1995) : Maastricht II: Are real convergence criteria needed?, Intereconomics, ISSN 0020-5346, Nomos Verlagsgesellschaft, Baden-Baden, Vol. 30, Iss. 5, pp. 211-220, <https://doi.org/10.1007/BF02926364>

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Christian Schmidt*, Thomas Straubhaar**

Maastricht II: Are Real Convergence Criteria Needed?

In the run-up to the Intergovernmental Conference of the Member States of the EU in 1996, criticism of the convergence criteria laid down in the Maastricht Treaty selection and the scope left for interpretation is becoming ever vociferous. Will the shortcomings be rectified if, as demanded by the British Government in particular, the monetary and fiscal convergence criteria are complemented by real economic criteria?

Article 109j(1) of the Maastricht Treaty of 7th February 1992 lays down four monetary and fiscal convergence criteria that a European Union country must fulfil if it is to join the Economic and Monetary Union. Countries will be admitted to the EMU if they have achieved a high degree of price stability, do not have an excessive budget deficit, have relatively stable exchange rates and do not display an excessive interest rate disparity in relation to the best performing countries in terms of price stability.

The theoretical basis of the Maastricht convergence criteria is rather slender.¹ No valid economic justification can be adduced for either the choice of the criteria, which are strongly oriented towards monetary and fiscal factors, or the definition of the limits and band widths. The Maastricht convergence criteria should be viewed primarily as a compromise reached in the negotiations on the reshaping of the European Community.² It is little wonder that the definition given in paragraph 1 of Article 109j is couched in vague terms. The "Protocol on the convergence criteria referred to in Article 109j of the Treaty establishing the European Community" also leaves considerable scope for interpretation.

In remarkably open language, the European Monetary Institute (EMI) describes the statistical problems that remain in setting the convergence criteria and the need to define their content more precisely. In particular, the EMI states the following "issues for further consideration":³

□ With regard to price stability, the "Protocol on the convergence criteria referred to in Article 109j of the Treaty establishing the European Community" (Protocol No. 6, Article 1) stipulates that a "high degree" of price stability shall mean an inflation rate "that does not exceed by more than 1½ percentage points that of, at most, the three best performing Member States in terms of price stability". However, it remains unclear whether the wording "at most, the three best performing Member States" does not leave scope for judging price stability in relation to the performance of the two countries with the most stable prices or even to just the Member State with the best record in this regard. There are also evidently differences of opinion as to whether the 1½ percentage points are to be added to the average of the (one, two or three) reference countries or only to the inflation rate of the "worst" of them. Finally, the wording raises the question as to how "sustainable" price stability is to be assessed.

□ As regards the convergence criterion on the public

¹ See in this connection the clear analysis by R. H. Hasse: Analysis of the Convergence Criteria in the Maastricht Treaty. Are they Able to Create Credibility?, in: D. Currie and J. D. Whitley (eds.): EMU after Maastricht, London 1995; a similar view is adopted by P. De Grauwe: The Political Economy of Monetary Union, CEPR Discussion Paper No. 842, London 1993 (a much abridged version is also contained in P. De Grauwe: Alternative Strategies Towards Monetary Union, in: European Economic Review, Vol. 39 (1995), pp. 483-491); and (with reference to the fiscal criteria) W. Buiters, G. Corsetti and N. Roubini: Excessive Deficits: Sense and Nonsense in the Treaty of Maastricht, in: Economic Policy No. 16 (1993), pp. 58-100.

² See also P. De Grauwe: The Political Economy of Monetary Union, op. cit.

³ See European Monetary Institute: Annual Report 1994, Frankfurt 1995, especially pp. 48-58.

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finances, Article 2 of Protocol No. 6 requires "that at the time of the examination the Member State is not the subject of an EU Council decision under Article 104c(6) of this Treaty that an excessive deficit exists". The "Protocol on the excessive deficit procedure" (Protocol No. 5) defines the criterion of "sustainability of the government financial position" by setting the following reference values for an "excessive deficit": "3% for the ratio of the planned or actual government deficit to gross domestic product at market prices, 60% for the ratio of government debt to gross domestic product at market prices". The wording of Article 104c(2) and (3) illustrates the tremendous scope certain groups have found here for interpreting the public finances criterion to suit their interests:

- "the (deficit) ratio has declined substantially and

continuously and reached a level that comes close to the reference value, or ..., alternatively, the ... excess ... is only exceptional and temporary and the ratio remains close to the reference value";

- "unless the (debt) ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace";

- "other relevant factors".

The criterion of exchange rate stability means that a Member State must have "respected the normal fluctuation margins provided for by the Exchange Rate Mechanism of the European Monetary System without severe tensions for at least the last two years before the examination". After the widening of fluctuation margins from $\pm 2.25\%$ to $\pm 15\%$ on 2nd

Wassilios Skouris (Ed.)

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A study in comparative constitutional law

In view of the major economic and political importance of advertising, a comparative study on the constitutional parameters of this activity is long overdue. It has been undertaken for the first time by a group of Professors of Public Law from the Member States of the European Union who have each carried out a detailed and systematic account of the protection of advertising in the light of fundamental rights as guaranteed in their own legal systems. The various and disparate restrictions imposed on advertising in each Member State constitute the central point of the study. The national reports along with a report on the European Convention on Human Rights provide the basis for a comparative analysis, which reveals both common and divergent features among the various countries as far as the constitutional protection of commercial speech is concerned. This comparative analysis is arguably the first of its type.

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1994, 397 p., hardback, 138,- DM, 1021,50 öS, 138,- sFr, ISBN 3-7890-3461-4



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August 1993 as a result of "unprecedented exchange market pressures", the question arises as to which fluctuation margins are to be used as the reference point for measuring divergence. Is it the 2.25% margins applicable at the time of ratification of the Maastricht Treaty, or the new 15% margins set after the Treaty had been signed? On 7th October 1994 the EMI Council faced facts and considered it advisable "to maintain the present arrangements":⁴ The EU Council later endorsed this sanctioning of the 15% fluctuation margins.

□ The criterion on the convergence of interest rates means that "a Member State has had an average nominal long-term interest rate that does not exceed by more than 2 percentage points that of, at most, the three best-performing Member States in terms of price stability". Here the same reservations apply with regard to calculation of the reference value as with the criterion on price stability. In addition, it should be pointed out at this juncture that the criterion of "nominal long-term interest rates" is correlated with the convergence criterion on price stability. For most EU countries the coefficients of correlation between nominal long-term interest rates and inflation rates show values that differ from zero to a statistically significant degree (see Table 1).

Fiscal Criteria an Obstacle

In present circumstances, most countries would not meet the convergence criteria. Strict mathematical adherence to the criteria would mean that only Germany and Luxembourg could enter the third stage of monetary union; for the other EU countries, at least one of the two budgetary criteria is an obstacle to entry, and most of the aspirants have little hope of an improvement. It is true that government deficits will be slightly lower in 1995, thanks mainly to cyclical factors and only to a small extent as a result of structural improvements. They will nevertheless still be above the reference value of 3% and will persist at a high level.

Similarly, and even more "hopelessly", government debt is likely to increase further from an average of

69% for all EU countries in 1994 to 73% in 1995.⁵ Here again, it should be remembered that the public finances criterion leaves enormous scope for interpretation. Countries that fulfil the other criteria and fail only on the public finances criterion will be particularly tempted to exploit it to their advantage.

Real Economic Convergence Criteria

The first paragraph of Article 109j of the Maastricht Treaty itself requires that "the results of the integration of markets, the situation and development of the balances of payments on current account and an examination of the development of unit labour costs and other price indices" be taken into account when assessing progress towards convergence. Here the monetary and fiscal criteria have therefore been complemented by real economic aspects. The British Government's demand for "structural convergence" made in the spring of 1995 aims precisely at such an inclusion of real economic criteria.⁶ In their view, the fulfilment of real economic criteria should be a requirement for progress to further stages of integration in addition to the four monetary and fiscal convergence criteria explicitly laid down in Article 109j(1).

Bearing in mind the requirements of Article 109j(1) regarding the "integration of markets", the "situation and development of the balances of payments on current account" and the "development of unit labour costs and other price indices", the British Government views the Maastricht monetary and fiscal criteria as "a necessary but not a sufficient condition to justify a single currency".⁷ Or as the Governor of the Bank of England, Eddie George, said in a speech in Paris on

Table 1
Coefficients of Correlation between Nominal Long-term Interest Rates and Inflation Rates¹

Country	Correlation coefficient
Belgium	0.37 a
Germany	0.31 a
Denmark ²	0.15 c
France	0.61 a
Italy	0.14 c
Netherlands ³	0.26 a
Austria	0.37 a
Sweden ⁴	0.21 c
United Kingdom	0.22 a

¹ Consumer price index 1979/1 – 1994/2, monthly values. ² 1987/1 – 1994/2. ³ 1984/1 – 1994/2. ⁴ 1987/1 – 1994/2.

a = Statistically significant at the 1% level. b = Statistically significant at the 2.5% level. c = Statistically significant at the 10% level.

Sources: International Statistical Yearbook, OECD Economic Indicators, own calculations.

⁴ Op. cit., p. 56.

⁵ Loc. cit., pp. 46 f.

⁶ See for example the speech by Prime Minister John Major on 3rd February 1995, quoted in: *Neue Zürcher Zeitung* (foreign edition), No. 31, of 8th February 1995. For an academic contribution emphasizing the importance of real convergence, see F. Heylen, A. van Poeck, J. van Gompel: Real versus nominal convergence: National labour markets and the European integration process, in: *Labour*, Vol. 9, No. 1, 1995, pp. 97-119.

31st January 1995: "Differences in unemployment – whether cyclical or structural – should be taken into account before deciding whether to push ahead with EMU. ... Countries with inflexible labour markets are poor candidates for monetary union, no matter how low their inflation rate is."⁸

The British attempt to define real economic convergence criteria did not initially go beyond the additions mentioned above, however.⁹ A far more concrete proposal for real economic criteria was published in March 1995 by the British branch of the US investment bank Goldman Sachs. According to this, the following four real conditions should be met in addition to the monetary and fiscal criteria in order to be able to participate in EMU:¹⁰

The current economic growth of an economy should not diverge by more than ± 1.5 percentage

points from its long-term growth rate, based on its performance over the last ten years. This criterion is intended to ensure that the economic cycles of member countries are synchronised at the time of entry to EMU.

A country's unemployment rate should not be more than 2 percentage points above the average unemployment rate in the EU. The purpose of this requirement is to ensure that participants in EMU have not only a similar cyclical performance but also similar levels of structural unemployment.

The deficit on the current account of the balance of payments should not exceed 2% of GDP. This should primarily prevent EMU from causing a collapse in the exports of particular economies because the devaluation option is no longer available.

Competitiveness in relation to Germany must not have deteriorated by more than 10% since February 1987, the date of the last voluntary realignment. This criterion is designed to ensure that only countries whose real exchange rate is close to the long-term equilibrium level can join EMU.

Table 2
Real Convergence Criteria according to Goldman Sachs

Proposed criterion	Real GDP (1994)	Unemployment rate (% 1994)	Current account deficit as % of GDP (1994)	Index of competitiveness vis-à-vis Germany (Feb. 1987 = 100) as at end - 1994
Within 1.5% percentage points of long-term trend growth ¹		12.9	Not less than -2.0	90-110 ²
Germany	2.3	7.3	-1.8	-
France	2.4	11.3	0.8	108.3
Italy	2.4	11.8	1.5	123.9
United Kingdom	3.9	9.4	-0.4	93.9
Spain	1.8	22.4	-1.0	109.5
Netherlands	2.4	10.0	1.8	108.3
Belgium	2.3	10.0	4.8	103.9
Denmark	4.6	10.2	2.8	103.1
Portugal	1.0	6.1	-1.6	-
Greece	1.0	10.2	-0.8	97.7
Ireland	5.0	17.7	7.9	106.3
Luxembourg	2.6	3.3	28.6	110.9
Finland	3.5	18.7	2.4	112.1
Sweden	2.0	7.7	0.4	113.9
Austria	2.8	6.0	-1.1	105.5

¹ The trend growth rate is the average rate of growth between 1984 and 1994.

² Competitiveness vis-à-vis Germany within 10% of the level of February 1987 (date of the last "voluntary" realignment); higher values indicate improved competitiveness vis-à-vis Germany.

Source: Goldman Sachs: The UK Economics Analyst, Vol. 10, No. 3/4, p. 1.26.

Table 2 shows the extent to which the EU countries fulfil the real convergence criteria proposed by Goldman Sachs. Even a cursory analysis of the criteria and their quantification makes it abundantly clear that the proposals are unconvincing. The criticism levelled at the monetary and fiscal criteria applies equally or even more to Goldman Sachs' real economic criteria. The quantitative reference values have been set arbitrarily. Excessive current account surpluses are also problematic, a point Goldman Sachs itself acknowledges. Moreover, a "competitiveness index" is imprecise and of little indicative value, as illustrated by some of the rather implausible figures shown in

⁷ Prime Minister John Major in a speech delivered on 3rd February 1995, quoted in: Goldman Sachs: The UK Economics Analyst, Vol. 10, No. 3/4, p. 1.26. The British demand for "structural" or real economic convergence should be seen against the background of the high level of private home ownership in the United Kingdom, mostly subject to variable mortgage interest rates. As a consequence, the British are directly affected by monetary measures to a much greater extent than their EU partners, which makes the transition from a national monetary policy to an EU-wide one a particularly sensitive issue. See Philip Nölling: Die Sonderrolle Großbritanniens im währungspolitischen Integrationsprozeß in Europa, Diskussionsbeiträge zur Wirtschaftspolitik, Universität der Bundeswehr Hamburg, 1995.

⁸ Quoted in Goldman Sachs, op. cit., p. 1.26.

⁹ See the speech by the Chancellor of the Exchequer, Kenneth Clarke, on 9th February 1995, quoted in Goldman Sachs, op. cit., p. 1.27.

¹⁰ Op. cit., pp. 1.30-1.31.

Table 2.¹¹ Finally, it is clearly being assumed that the real exchange rates of February 1987 were the long-term equilibrium rates, an assumption that can probably not be proven empirically.

Optimum Currency Area Theory

Although efforts to put the (British) demand for "structural" convergence into practice have largely failed so far, the question remains whether there is a theoretical basis for making real economic convergence a requirement of membership of EMU. In order to answer that question, let us first examine the optimum currency area theory.¹²

¹¹ See T. Straubhaar: Internationale Wettbewerbsfähigkeit einer Volkswirtschaft – was ist das?, in: WIRTSCHAFTSDIENST, Vol. 74 (1994), No. 10, pp. 534-540.

The theory of optimum currency areas compares the economic costs of flexible and fixed exchange rate systems. The main cost factor in a system of fixed exchange rates is the inability to adjust exchange rates to shocks.¹³ The level of the associated costs depends on the availability of alternative adjustment

¹² There is such a wealth of literature on the theory of optimum currency areas that we shall only mention, by way of example, the highly instructive contributions by G. Aschinger, R. Ohr, F. Reither and P. Bofinger in the *Hamburger Jahrbuch für Wirtschafts- und Gesellschaftspolitik*, Vol. 38 (1993) and the formal model presented in T. Bayoumi: *A Formal Model of Optimum Currency Areas*, in: *IMF Staff Papers*, Vol. 41 (1994), pp. 537-554.

¹³ "Shock" means a relatively pronounced and relatively rapid change in supply and/or demand. Examples may be a change in customer preferences (a change in fashion), new production technology, bad harvests, shortages of raw materials and changes of government; for a portrayal of the relationship between shocks and adjustment in the European Union, see the clear and succinct analysis in N. Berthold: *Sozialunion in Europa*, Tübingen 1993, especially Chapter 2.

Hans-Joachim Christe

Die USA und der EG-Binnenmarkt

Die amerikanische Außenwirtschaftspolitik gegenüber der EG 1985–1992: Strukturen, Entwicklungen, Entscheidungsprozesse

The foreign trade decision-making process has been one of the more neglected fields of political science research. In this book, this decision making process, especially with regard to the European Community, is analyzed in light of the U.S.' reaction to the EC 1992 internal market project in the years 1985 to 1992. The book will focus on the question: Where and according to which rules is the American policy towards the European Community formulated?

The study shows that in this case the political system did not act on behalf of the private sector, but mostly on its own, even having to alert the private sector to be more aware of the potential dangers the EC internal market could present to American economic interests. The relevance of the various actors in foreign economic policy issues is determined by the type of policy issue. The distinction of distributive, redistributive, and regulatory policy-issues was developed by the American scholar Theodore Lowi. In the book, this distinction is further developed to include structural, strategic, reactive and crisis issues.

The second part looks at the role the private sector, the Administration, and the Congress play in this decision making process.

1995, 343 p., hardback, 98,- DM, 725,50 öS, 98,- sFr, ISBN 3-7890-3717-6
(Integration Europas und Ordnung der Weltwirtschaft, Vol. 5)



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mechanisms. This in turn means that the potential members of a monetary union must have certain characteristics or meet certain requirements, which are described as follows in the literature (see Diagram 1 for a synoptic presentation):¹⁴

Mobility of the factors of production: Countries with a high degree of factor mobility are considered suitable candidates for monetary integration, as factor mobility is a substitute for exchange rate flexibility in international adjustment to shocks.

Wage and price flexibility: Wage and price flexibility facilitates adjustment to adverse exogenous shocks and reduces the detrimental effects on unemployment and inflation. Accordingly, countries with more flexible labour markets are more suitable members of a monetary union.

Fiscal integration: Budgetary transfer payments between two countries help reduce the negative effects of shocks on real economic activity. Currency areas are therefore optimum if there is also a willingness to undergo fiscal integration and hence to enter into an economic union in general.

High degree of economic openness: Open economies tend to be suited to systems of fixed exchange rates, as exchange rate movements have relatively weaker effects on real competitiveness. This criterion means that smaller countries are better suited to monetary union than large countries.

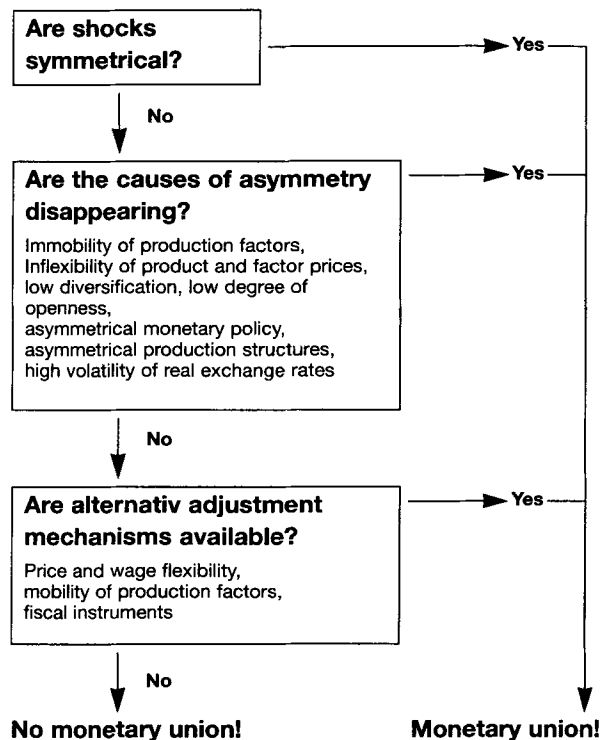
Diversification of production structures: Diversified economies are regarded as better candidates for monetary union, as a high level of diversification offers protection against the effect of shocks specific to particular sectors.

Similarity of production structures: Terms-of-trade shocks have a symmetrical impact in countries with similar production structures, so that the exchange rate is redundant as an adjustment instrument. Accordingly, countries with similar production structures are better candidates for monetary union.

Similarity of inflation rates: If inflation rates are similar, a smooth flow of current-account transactions can be expected. Consequently, monetary unions are optimum if the inflation rates in member states are similar.

¹⁴ Here too there is no lack of relevant literature; see for example G. S. Tavlas: The "New" Theory of Optimum Currency Areas, in: *The World Economy*, Vol. 16 (1993), pp. 663-685, and the bibliography it contains; see also J. Melitz: The Current Impasse in Research on Optimum Currency Areas, in: *European Economic Review*, Vol. 39 (1995), pp. 492-500.

Diagram 1
A Theoretical Flowchart of the Concept of Optimum Currency Areas



Source: F. Heinemann: Central Europe and European Monetary Integration, in: *INTERECONOMICS*, Vol. 30 (1995), No. 3, p. 119.

Volatility of real exchange rates: As the above-mentioned characteristics are difficult to quantify, it has been suggested that the volatility of real exchange rates should be used as an all-embracing criterion for admission to a monetary union. The smaller real exchange rate fluctuations have been in the past, the better suited a country is for membership of a monetary union.

Political factors: Finally, the political desire for monetary integration is emphasised as a deciding factor for the success of a monetary union.

"Similarity" as a Precondition

To summarise, exchange rates can be fixed and a monetary union is optimum if the structure of the economies is "similar" and if markets in goods and factors of production react flexibly to real economic changes. Moves towards far-reaching integration should therefore be undertaken only if the real economies of participating countries react to changes with similar rapidity and flexibility and if both the

geographic and occupational mobility of labour is high. Otherwise shocks have a strongly asymmetrical regional impact.

If these theoretical characteristics of an optimum currency area are compared with the nominal convergence criteria laid down in the Maastricht Treaty, it can be seen that there is a striking discrepancy between economic theory and political reality. The Maastricht convergence criteria are nominal monetary and fiscal criteria, whereas most of the theoretical characteristics relate to real economic criteria. There is therefore a good theoretical basis for the demand that real economic convergence criteria be included.

If real economic convergence does not occur and if economic and monetary union prevents individual regions from taking specific economic measures in order to respond effectively to shocks, there is a danger of pronounced regional differences in unemployment, incomes and growth. As long as economic shocks affect different participating countries differently and as long as sectoral and regional labour and/or capital mobility are low, an optimum currency area cannot be achieved. If a monetary union is nevertheless created, it will result in regional differences in unemployment, pronounced international income disparities (core-periphery

effects) and hence the danger of social and political tension. Moreover, more recent variants of growth theory indicate that regional inequality in standards of living can lead to a reduction in long-term economic growth.¹⁵

Empirical Evidence

To what extent are the calls for real economic convergence criteria supported by empirical evidence? Can it be demonstrated that real economic convergence has occurred among the EU countries? In order to answer these questions, a number of empirical analyses dealing with aspects of the optimum currency area in the EU countries, labour market flexibility, labour mobility and convergence in standards of living are discussed below and complemented by calculations of our own:¹⁶

□ Poloz¹⁷ compares the adjustment of real exchange rates between the regions of Canada, as an existing monetary union, with the adjustment in the EU countries and finds lower real exchange rate volatility in the EU countries. He therefore concludes that a monetary union in Europe would not entail higher costs than in Canada.

□ Neumann and von Hagen¹⁸ carry out a corresponding analysis for the regions of Germany. They come to the conclusion that a monetary union would be possible for a core group of countries (Austria, Belgium, France, Germany, Luxembourg and the Netherlands). On the other hand, a monetary union comprising all EU countries would entail high costs. A study by De Grauwe and Heens¹⁹ reaches a similar conclusion.

□ Bayoumi and Eichengreen²⁰ compare the correlation of shocks to aggregate demand and supply in twelve EU countries and eight regions of the USA. They estimate that shocks in the EU countries are less

¹⁵ See A. Alesina and D. Rodrick: *Distributive Politics and Economic Growth*, NBER Working Paper No. 3668, Cambridge, Mass., 1991, and, above all, T. Persson and G. Tabellini: *Is Inequality Harmful for Growth?*, in: *American Economic Review*, Vol. 84 (1994), pp. 600-621. We allow ourselves the critical observation that the article by Persson and Tabellini, in common with many other American publications, fails even to mention the debate in Germany in the fifties, despite the fact that the literature of the period, which ultimately led to the concept of the social market economy, anticipated the findings of Persson and Tabellini, at least as far as analysis and factual recognition are concerned, even if it perhaps lacked their technical rigour. There is a lingering suspicion that the excellent article by Persson and Tabellini merely celebrates the re-invention of the wheel.

¹⁶ For other empirical analyses, see also: A. Weber: *European Economic and Monetary Union and Asymmetries and Adjustment Problems in the EMS: Some Empirical Evidence*, CEPR Discussion Paper No. 448, London 1990; J. McKay and S. Hopkins: *Are European Community Members Suited to Fixed Exchange Rates? An Analysis Using Optimum Currency Area Theory*, Working Paper, Curtin University of Technology; J. Sachs and X. Sala-i-Martin: *Federal Fiscal Federalism and Optimum Currency Areas. Evidence for Europe and from the United States*, Working Paper, Harvard University, 1989, reprinted in: M. B. Canzeroni, V. Grilli and P. Masson (eds.): *Establishing a Central Bank: Issues in Europe and Lessons from the US*, Cambridge 1992, Chapter 7. An overview is also to be found in M. Williams: *Costs and Benefits of European Monetary Union*, in: *Institut Universitaire International Luxembourg* (ed.): *EMU: Legal Foundations and Economic Implications*, Luxembourg 1993, pp. 99-111, especially pp. 100-104.

¹⁷ S. Poloz: *Real Exchange Rate Adjustment Between Regions in a Common Currency Area*, in: V. Argy and P. De Grauwe (eds.): *Choosing an Exchange Rate Regime. The Challenge of Smaller Industrial Countries*, IMF, Washington 1990.

¹⁸ M. Neumann and J. von Hagen: *Real Exchange Rates Within and Between Currency Areas: How Far Away is EMU?*, in: *Review of Economics and Statistics*, Vol. 76 (1994), No. 2, pp. 236-244. T. Jordan applies a similar framework to regions of Switzerland. Ironically, he finds that Switzerland does not constitute an optimum currency area. T. Jordan: *Reale Wechselkurse innerhalb der Schweiz und zwischen der Schweiz und ausgewählten Nachbarstaaten*, in: *Kredit und Kapital*, Vol. 27 (1994), No. 4.

¹⁹ P. De Grauwe and H. Heens: *Real Exchange Rate Variability in Monetary Unions*, in: *Recherches Economiques de Louvain*, 59 (1-2), 1993. The study compares the regional volatility of real exchange rates in four European countries (Germany, the Netherlands, Spain and the United Kingdom) with the variability of real exchange rates in other EU countries.

²⁰ T. Bayoumi and B. Eichengreen: *Shocking Aspects of European Monetary Integration*, in: F. Torres and F. Giavazzi (eds.): *Adjustment and Growth in the European Monetary Union*, Cambridge University Press, 1993, pp. 193-229.

Table 3
Is the EU an Optimum Currency Area?

Author (year of publication)	Indicator	Reference variable	Is the EU an optimum currency area?
D. Cohen, C. Wyplosz (1989)	Symmetrical / asymmetrical shocks	-	-
S. Poloz (1990)	Real exchange rate variability	Regions of Canada	Yes
B. Eichengreen (1992)	- Real exchange rate variability - Labour mobility - Relative share prices	USA, Canada	No
EC Commission (1990)	Macro-econometric simulations	-	Yes
P. De Grauwe, W. van Haverbecke (1993)	Real exchange rate variability	Regions of - Germany - Netherlands - Spain - United Kingdom	-
T. Bayoumi, B. Eichengreen (1993)	Shocks (vector auto-regression, VAR)	Regions of USA	No
L. Bini-Smaghi, E. Vori (1992)	Shocks (VAR)	Regions of the USA	Yes
P. De Grauwe, H. Heens (1993)	- Real exchange rate variability - Regional labour mobility - Regional versus national growth	Regions of - Germany - Netherlands - Spain - United Kingdom	No
M. J. M. Neumann, J. von Hagen (1994)	Real exchange rate variability	Regions of Germany	No
H. Erkel-Rousse J. Méltitz (1995)	Shocks	-	Yes

Source: Own compilation.

highly correlated. Accordingly, a monetary union in Europe would entail relatively high economic costs. At the same time, they surmise that a monetary union in a core group of countries would give rise to costs comparable to those in the regions of America.

□ Bini-Smaghi and Vori²¹ consider that the structure of production in EU countries is more diversified than in the regions of the USA, so that asymmetrical shocks are less likely to occur in Europe than in the USA. This finding is confirmed by Cohen and Wyplosz,²² who show that Germany and France are primarily influenced by symmetrical permanent shocks. A monetary union between these two countries would therefore be feasible.

□ Eichengreen²³ examines various indicators for a monetary union – real exchange rate variability, labour mobility, relative share prices – and compares the

European performance with that of the USA and Canada. According to his findings, a monetary union in Europe would entail higher costs than in the existing monetary unions in the USA and Canada.

□ De Grauwe and van Haverbecke²⁴ compare the adjustment mechanism at regional level with that at national level in a number of EU countries and find that labour mobility plays an important role at the regional level, whereas at the national level adjustment occurs mainly via changes in real exchange rates. They argue that a monetary union in Europe would have to be accompanied by increased labour mobility. In the absence of such mobility, a monetary union would be in danger of triggering polarisation tendencies.

□ H. Erkel-Rousse and J. Méltitz²⁵ contribute an interesting aspect to the discussion on asymmetric

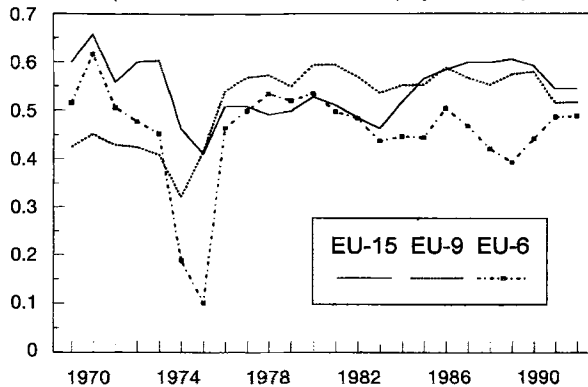
²¹ L. Bini-Smaghi and S. Vori: Rating the EC as an Optimal Currency Area: Is it Worse than the US?, in: R. O'Brien (ed.): Finance and International Economy, Amex Bank Review Awards 6 (1992).

²² D. Cohen and C. Wyplosz: The European Monetary Union: An Agnostic Evaluation, in: R. A. Bryant et al. (eds.): Macroeconomic Policies in an Interdependent World, Brookings Institution, Washington 1989, pp. 311-337.

²³ B. Eichengreen: Is Europe an Optimum Currency Area?, in: S. Borner and H. Grubel (eds.): The European Community after 1992, Basingstoke 1992, pp. 138-161.

²⁴ P. De Grauwe and W. van Haverbecke: Is Europe an Optimum Currency Area?: Evidence from Regional Data, in: P. R. Masson and M. P. Taylor (eds.): Policy Issues in the Operation of Currency Union, Cambridge 1993.

Diagram 2
Convergence of Unemployment Rates?
 (Coefficients of variation in unemployment rates)¹



EU-6: Belgium, Denmark, France, Germany, Luxembourg, the Netherlands; EU-9: EU-6 plus Austria, Finland and Sweden; EU-15: EU-9 plus Greece, Ireland, Italy, Portugal, Spain and the United Kingdom.

¹ The coefficient of variation is the ratio of the standard deviation to the mean of the variables.

Sources: OECD Labour Force Statistics; own calculations.

shocks. They apply a structural VAR approach to data from six European countries (France, Germany, Italy, the Netherlands, Spain, United Kingdom). First, they find that the correlation of shocks across countries is indeed very low. This finding is in line with the evidence provided, for example, by T. Bayoumi and B. Eichengreen and points to the empirical relevance of asymmetric shocks. However, in a second step, they analyze the importance of fiscal and monetary policies as a measure of response to asymmetric shocks. They find, first, that fiscal policies contribute heavily to output performance in all countries except Germany. Second, more interestingly, they find that monetary policies do not contribute significantly to output performance in any country except Germany. This latter result indicates that monetary policy in these countries has no value as a stabilization device and implies, of course, that the adoption of a common currency for those countries would impose much

²⁵ H. Erkel-Rousse and J. Méliitz: New empirical evidence on the costs of European monetary union, CEPR Discussion Paper, No. 1169, May 1995.

²⁶ See also J. Méliitz: The theory of optional currency areas, trade adjustment and trade, CEPR Discussion Paper No. 847, 1993.

²⁷ A. Fatás and J. Decressin: Regional Labour Market Dynamics in Europe, in: *European Economic Review*, Vol. 39 (1995), forthcoming.

²⁸ T. Bayoumi and E. Prasad, applying an alternative empirical framework, similarly emphasize differences in labour market adjustment between U.S. regions and European countries. T. Bayoumi and E. Prasad: Currency unions, economic fluctuations and adjustment: some empirical evidence, CEPR Discussion Paper No. 1172, May 1995.

lower economic costs than previously believed. This piece of work thus points to the fact that the mere existence of asymmetric shocks is not a sufficient argument against a currency union, because monetary policy may not be a useful tool for response to asymmetric shocks.²⁶

Overall, the available empirical analyses are divided on the question of whether the EU countries constitute an optimum currency area (see Table 3). The findings appear to depend mainly on the reference variable chosen. However, more recent analyses tend to suggest that a two-tier monetary union would be preferable.

Regional Labour Mobility and Flexibility

Regional labour mobility and flexible labour markets are important to the efficiency of a monetary union. In their examination of the mechanism for adjusting to changes in the demand for labour, Blanchard and Katz found that in 51 regions of the USA adverse regional shocks were mainly offset by the migration of labour to other regions. Fatás and Decressin²⁷ extend this analysis to European regions. According to their findings, changes in labour demand in Europe are not offset by labour mobility but mainly by an age or gender-specific decline in labour participation rates.²⁸ Eichengreen²⁹ examines regional unemployment in England and Italy and shows that adjustment to changes in relative price occurs in much the same way as in the regions of the USA.³⁰

It is also necessary to consider unemployment rates in the EU countries. Diagram 2 shows the coefficients of variation in unemployment rates since 1969 for various groupings of EU countries. Our calculations also show the variation in national unemployment rates to be significant and barely to have declined over the period under examination; for the group of 15 EU countries the variations were in the region of 5 percentage points in both 1969 and 1992. The unemployment rates for the other country groups show similar behavioural patterns.

²⁹ B. Eichengreen: European Monetary Unification and Regional Unemployment, Chapter 8, in: B. Eichengreen et al. (eds.): *Labor and an Integrated Europe*, Brookings Institution, Washington 1993.

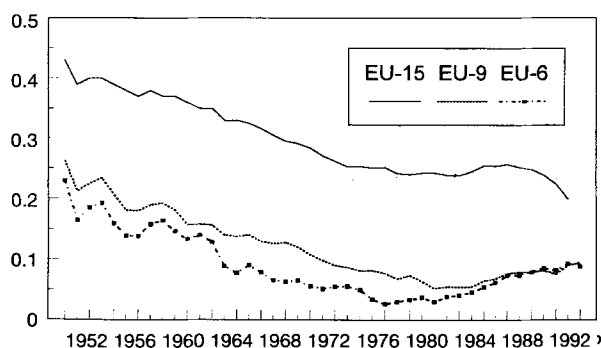
³⁰ See also: M. Beine and A. Hecq: Codependence and real convergence: an application to the EC economies, Service des Etudes et de la Statistique, Ministère de la Région Wallonne, Disc. Paper No. 9503, April 1995. R. Loufir and L. Reichlin: Nominal and real convergence in EC and EFTA countries, OFCE Document de Travail No. 92-12, 1993. These papers provide statistical analyses of convergence of several macroeconomic variables.

Regional Convergence in Living Standards

Barro and Sala-i-Martin³¹ found that the convergence of per capita GDP in 73 European regions was very slow and similar to that observed in the USA; the "speed of convergence" was only 2% a year. This means, for example, that only 50% of the distance between the initial income and the long-term steady-state equilibrium will have been covered in 35 years.³² Neven and Gouyette³³ draw the conclusion from their examination of around 140 European regions that the adjustment to shocks in Europe is very slow, and that the South responds much more slowly than the North.³⁴

Diagram 3 shows the coefficients of variation of per capita GDP for various EU groupings from 1950 to 1992. They serve as a measurement of income distribution.³⁵ It can be seen that, in accordance with the cited works by Barro and Sala-i-Martin, a relatively steady process of convergence can be observed in the EU-15 countries. The variation in the EU-15 countries has diminished from a value of over 0.4 in 1950 to about 0.25 at the beginning of the nineties. Similar convergence can be observed for the EU-6 and EU-9 groups as well, with variation falling from an initial value of about 0.25 to about 0.1 in the early nineties. However, it is noticeable that the dispersion of GDP growth rates within these country groups has increased again lightly since 1980.

Diagram 3
Convergence of Per Capita Income?
(Coefficients of variation in per capita GDP)¹



EU-6: Belgium, Denmark, France, Germany, Luxembourg, the Netherlands; EU-9: EU-6 plus Austria, Finland and Sweden; EU-15: EU-9 plus Greece, Ireland, Italy, Portugal, Spain and the United Kingdom.

¹ The coefficient of variation is the ratio of the standard deviation to the mean of the per capita GDP variables.

Sources: Summers and Heston Penn World Tables, S. 6 (1995); own calculations.

The empirical aspect of real convergence in Europe can be summarised as follows:

- Recent empirical analyses do not give a clear picture as to whether the EU countries constitute an optimum currency area. However, they tend to show that real convergence is discernible in a core group of countries around Germany, the Benelux countries, Denmark and Austria.³⁶
- With very low labour mobility, the labour markets in the European countries are highly segmented and display differing degrees of responsiveness, although all low. High unemployment rates generally point to a lack of labour market flexibility.
- Standards of living within the EU have converged over the long term. However, this may be partly the result of a policy of income redistribution and less the outcome of actual adjustment of output.

Conclusions

The British call for convergence to be measured in terms of real economic performance as well as the nominal monetary and fiscal criteria laid down in the Maastricht Treaty is not only justified on theoretical grounds, it is also strongly supported by empirical findings. The principles set out in the theory of optimum currency areas and developed further in the theory of symmetrical and asymmetrical shocks also apply in the current discussion about the conditions for membership of EMU: the strong centrifugal forces that would be generated if adjustment to real economic changes led to excessive regional differences could prove too strong for a monetary union; it is therefore right to call for real economic convergence among member countries as well as monetary and fiscal convergence.

³¹ R. Barro and X. Sala-i-Martin: Convergence Across States and Regions, in: Brookings Papers on Economic Activity, 1991, pp. 107-192.

³² For a critical view on β -convergence as a measure for economic convergence, see: D. Quah: Convergence empirics for economic growth, CEPR Discussion Paper No. 1140.

³³ D. Neven and C. Gouyette: Regional Convergence in the European Community, in: Journal of Common Market Studies, Vol. 33, No. 1, March 1995, pp. 47-65.

³⁴ See also I. P. Thomas: Konvergenz und Divergenz in der EU, Kieler Arbeitspapier No. 682, Kiel 1995.

³⁵ Barro and Sala-i-Martin label the change in the unweighted standard deviation of the variables (in this case per capita GDP) over time as δ -convergence. The variation coefficients used here therefore correspond to δ -convergence normalised with the mean.

³⁶ This largely coincides with the findings of F. Heinemann: Central Europe and European Monetary Integration, in: INTERECONOMICS, Vol. 30 (1995), No. 3, pp. 117-125, who bases his considerations on convergence on the symmetry or asymmetry of shocks to industrial output.