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Spatial implications of the European Monetary Union

Studies in Spatial Development, No. 6

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STUDIES IN
SPATIAL DEVELOPMENT

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DATAR

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Tel. (+49-5 11) 3 48 42-0, Fax (+49-5 11) 3 48 42-41
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Spatial Implications of the European Monetary Union

DATAR

Délégation à l'Aménagement
du Territoire et à l'Action
Régionale

Akademie
für Raumforschung
und Landesplanung

No. 6

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Authors

Johannes Bröcker, Prof. Dr., Director of the Department of Regional Research, University Kiel

Martin Hallet, Dr., European Commission, Brussels

Konrad Lammers, Dr., Head of the Department „European Integration“, HWWA-Institute of International Economics, Hamburg

Ian Robins, Dr., Cambridge Econometrics Covent Garden, Cambridge

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Preface

By a joint initiative of the Akademie für Raumforschung und Landesplanung (Academy for Spatial Research and Planning, ARL) and the Délégation à l'Aménagement du Territoire et à l'Action Régionale (DATAR) a West-European Working Group was established with the objective to have a closer look at territorial development in Europe. Within that framework three special groups have been working during the last two years. One group dealt with the „Vision for Sustainable Rural Economies in an Enlarged Europe" another one dealt with „Employment and Regional Development Policy: Market Efficiency versus Policy Intervention". The third group presents its results herewith under the title „Spatial Implications of the European Monetary Union".

Members of the international group met in June 2001 to present and discuss their findings with a broader audience at the HWWA-Institute of International Economics, Hamburg. This gave impetus to partially reconsider the deliberations, to make amendments in the light of the discussion and to draw spatial policy conclusions out of it. All contributions were based on accumulated experience of the members of the Group. Unfortunately no funds were available for new research so that the Group had to be selective. All members of the Working Group served in their personal capacity.

The Group was co-chaired by KONRAD LAMMERS, Institute of International Economics, Hamburg, and ARMAND DENIS SCHOR, UNIVERSITY OF LILLE II. THILO RAMMS of the BAW-Institute for Economic Research, Bremen, was the scientific secretary of the group. The ARL was represented by EVELYN GUSTEDT, Hannover.

Préface

Suite à une initiative conjointe de l'Akademie für Raumforschung und Landesplanung (Académie pour la Recherche Territoriale, ARL) et de la Délégation à l'Aménagement du Territoire et à l'Action Régionale (DATAR) un groupe de travail Europe de l'Ouest a été mis en place dont la mission était d'observer le développement territoriale en Europe. Dans le cadre de ce groupe trois groupes spéciales travaillaient pendant les dernières deux années. Un groupe de travail international s'était consacré à la „Vision politique pour des économies rurales durables dans une Europe élargie", l'autre traitait „La politique de l'emploi et du développement régional: Efficacité du marché ou intervention politique" et la troisième présente par la suite ses considérations sous le titre „Répercussions territoriales de l'Union Monétaire Européenne".

Membres du groupe international se sont réunis en Juin 2001 à l'Institut de L'Économie Politique (HWWA) à Hambourg ou ils présentaient leurs délibérations et les discutaient avec des auditeurs nombreux. Suite à la discussion approfondie les documents ont été amandés par les auteurs à la lumière de la discussion et aboutit à l'élaboration des conclusion respectives au développement régional. Toutes les contributions étaient basées sur le cumul de l'expérience des membres du groupe. Malheureusement, aucun fonds n'était disponible pour d'autres recherches. Par conséquent, le groupe a dû prendre la décision d'effectuer une sélection. Tous les membres du groupe de travail ont apporté leur capacité personnelle.

Le groupe a été co-présidé par KONRAD LAMMERS, l'Institut de l'Economie Politique, Hambourg, et ARMAND DENIS SCHOR, l'Université de Lille II. THILO RAMMS, de l'Institut de la Recherche Economique (BAW), Bremen, était le secrétaire scientifique. EVELYN GUSTEDT, Hanovre, y représentait l'ARL.

KONRAD LAMMERS

Spatial Implications of the European Monetary Union – Overview and Policy Conclusions

Contents

1 Introduction

With the beginning of the year 1999, a further important step towards deeper integration of Europe took place: The European Monetary Union (EMU) was put into force. Undoubtedly, this step of European integration has had far reaching consequences within the monetary sphere of the economies in the member countries. But establishing a monetary union possibly has also considerable effects within the real sphere of the economies involved and that includes effects on the economic geography of the integrating area. Possible and probable spatial effects of EMU was the motive to establish a working group within the cooperation agreement of ARL (Academy for Spatial Research and Planning) and the DATAR (Délégation à l'Aménagement du Territoire et à l'Action Régionale) in order to shed some light on these effects. The present volume contains papers having been elaborated by members of the working group. This chapter provides a short introduction of the thematic issue, it summarises the main results of the papers in the light of the discussion of these papers within the working group, and it draws, based on these results, spatial orientated policy conclusions.

2 EMU and Economic Geography in Europe

If we want to get an answer to the question, whether and in which way EMU has a spatial impact on the EU we will need an idea of channels and mechanisms which could transfer the effects of introducing EMU and of running a European monetary policy as to the development of European regions. Two mechanisms are thinkable:

- The introduction of a common currency reduces the costs for trade of goods and services between countries belonging to the monetary union. It also lowers the costs for cross-border movements of production factors. Under the regime of a monetary union it will be cheaper to move a firm, to transfer capital or to migrate from one member country to another. Thus, it can be expected that the introduction of the European Monetary Union will change the national and regional pattern of trade and the location of firms and persons. The division of labour among European countries and regions will become deeper and nothing points to the fact that all countries and regions will be affected in the same manner. Thus, the economic landscape of Europe will change.

- The introduction of the single currency and the shift of competence in monetary policy from national central banks to the European Central Bank constitutes a big bang in the institutional environment for economic activities. This institutional change may lead to a different economic behaviour of firms, consumers, employed persons and their organisations as well as of national and regional politicians. Again, nothing points to the fact that – provided this mechanism is empirically relevant – the behaviour will change in all countries and regions in the same direction and to the same amount. Thus, the spatial pattern of economic activity under the regime of a single currency differs from the situation without this regime.

These are the two main channels or mechanisms which could, in principle, generate spatial effects by introducing the European Monetary Union. The next question is which spatial effects could occur: These possible effects are very similar to those which can be observed generally as a result of integration processes. They could be summarised as follows:

- In which way and to which extent will the spatial pattern of economic activity change? Can we expect more or less concentration of economic activity in the European area?
- Will convergence or divergence between regions and nations increase, for example in per capita income?
- Which countries and regions will be affected by spatial concentration/dispersion and convergence/divergence processes? Are these core, peripheral, border, or urban regions?
- Could we expect more or less specialisation of countries and regions in certain industries?

These are the key questions on a research agenda aiming at analysing spatial consequences of the European Monetary Union. Unfortunately, economic theory provides no clear answer to these questions. It is true, regional economic theory has made considerable progress in the last decade, especially in explaining spatial processes stemming from economic integration. Considering these processes is the main issue of the so called "New Economic Geography".[1] Indeed, the respective models are able to convincingly explain the interdependence of important factors constituting a certain spatial pattern of economic activities, like transportation costs, economies of scale and the original distribution of industries including agriculture. However, the way in which these factors interact and which results concerning the spatial pattern of economic activities they create, depends essentially on the assumptions made in these models. Thus, it remains an empirical question which regional effects result from integration steps like the introduction of the single currency in the EU. The articles collected in this volume aim at providing some tentative results in the latter respect, although the authors choose quite different approaches.

[1] The main ideas of the „New Economic Geography" were laid down in PAUL KRUGMAN'S often cited book „Geography and Trade" (KRUGMAN 1991). In the meantime the „New Economic Geography" has reached a textbook state. See FUJITA, KRUGMAN, VENABLES (1999).

3 Main results

IAN ROBINS considers in his article differences the single currency might bring to the regions within the euro-zone under three main headings:

- consequences for the regions of a changed relationship in which countries being members of the euro-zone stand to each other;
- macroeconomic consequences for regions of their being a member of EMU;
- effects of the possible concentration of industrial activities in regions and of trends towards specialisation of regions in certain industries.

IAN ROBINS points out, like many other authors do, that under the regime of a single currency a country has lost the opportunity to choose exchange and interest rates which may be appropriate to the economic performance of certain regions. To overcome regional employment problems and to recover regional competitiveness other mechanisms of adjustment have to be at work. Prices for production factors, especially wages have to be flexible and the mobility of production factors, especially of human labour, has to be high. In addition, fiscal transfers could, in principle, compensate for losses in regional competitiveness or regional employment problems, but the European competition policy and fiscal constraints in the national as well as in the EU-Budget limit this possibility. As far as macroeconomic consequences are concerned, ROBINS argues that EMU membership favours peripheral countries more than core countries. This is concluded from the fact that before introducing EMU, the exchange rate risk was considerably higher for peripheral countries than for core countries, especially Germany and countries which had fixed their currency to the Deutsche Mark. Under these circumstances, peripheral countries had a location disadvantage which might have discouraged companies to invest there. Under the regime of the single currency this disadvantage does no longer exist with the consequence that more companies choose now more locations in peripheral countries than before. Finally, ROBINS discusses the possible effects of EMU on the concentration of industrial activities in regions and on the specialisation of regions in certain industries. He expects some changes in the location pattern, based on other empirical studies investigating the changes in the spatial industry pattern during the process of European Integration in the last 25 years. But these changes are not significant in terms of an increase (or decrease) in the existing core-periphery structure of the continent.

JOHANNES BRÖCKER´S paper studies effects of EMU using a multiregional general equilibrium model. The model is applied in a comparative-static way comparing a situation with and without EMU. The difference between these two situations is represented by savings of transactions costs, due to a common currency for traded goods. The main results of BRÖCKER´S analysis are:

- taking all member countries together, the welfare gain of EMU is approximately 1% of the European gross domestic product.
- EMU turns out to be neutral with regard to the per capita position of regions. There is no (positive) correlation between the level of per capita income of European regions and their gains by introducing the common currency.
- Within the countries, those regions benefit mostly which are close to borders of other EURO-zone countries. This result is the outcome of the implicit assumption of the model that border regions have the highest trade intensities with partner countries and, therefore, gain mostly from a reduction in transaction costs by the common currency.

MARTIN HALLET distinguishes between static and dynamic effects of the Euro in his paper. Static effects are those showing the magnitude in the reduction of trade costs generated by the introduction of the common currency. Dynamic effects are defined by him as the changes in economic growth, employment, welfare and production structures of regions which are induced by the reduction of trade costs in a middle- and long-term perspective.

According to HALLET'S analysis, there is no clear core-periphery pattern regarding the exchange cost savings by introducing the Euro, neither on the country nor on the regional level. Thus, in a static view, the Euro is more or less neutral with regard to the geographical location of regions and countries in Europe. As far as the dynamic effects are concerned, HALLET points out that the period since introducing the common currency in 1999 is too short to expect any empirical evidence in the middle- and long-term perspective. He argues that, nevertheless, some lessons can be drawn from analyses on the regional impact of previous steps of the European integration process. A main result of these analyses is, that there is a visible trend of industrial concentration in regions and of regional specialisation in certain industries. But these processes are of a slow nature and do not support the fear that poor and peripheral regions are affected in a negative way. Moreover, the general trend of structural change from manufacturing into services tends to make regions more similar regarding their specialisation. This would mean that the probability of region-specific shocks are getting smaller. As far as border regions are concerned, HALLET shows that they performed rather well within the EU integration process.

Although the approaches of the considered papers are rather different, their conclusions are very similar or at least compatible. With regard to the effects of the Euro in a spatial and regional context, the main results are:

- The positive welfare effect for the European Union as a whole is probably small.
- The Euro will not affect the aim of regional cohesion in a negative way. Rather, the opposite seems to be true: the poor (in terms of per capita income) and peripheral regions and countries will probably benefit more than those which are rich or belong to the geographical core of the Euro-zone.
- Regions bordering those of other member countries of the Euro-zone will be affected positively.
- The fear is not justified that the probability of region-specific shocks will increase because the Euro will lead to more industrial concentration and regional specialisation.

4 Spatial Orientated Policy Conclusions

In the run-up to the introduction of the common currency, the fear was often expressed that this would lead to more regional divergence in Europe. This fear seems to be unfounded. The papers under consideration do not provide any evidence that the aim of territorial cohesion in the EU is touched systematically by the common currency in a negative way. Rather the opposite is true. Regions with a low per capita income, regions located at the European periphery and regions bordering other member states tend to be favoured more than other regions. Thus, EMU does not provide any reason to extend regional policy measures to those regions being already subject of EU regional policy today and to legitimate this by the argument otherwise the aims of national or regional cohesion would be in danger.

It has often also been argued that the introduction of the common currency has to be accompanied by establishing an interregional transfer system in order to absorb region-specific shocks. In a monetary union, so the argument, this transfer system has to take over the role which the national exchange rate had played under the regime of national monetary policy. If a region lost its competitiveness by a region-specific shock, financial transfers from other regions, the national states, or the EU would have to stabilise the economic performance of the respective region in terms of income and employment. Establishing such a transfer system would be especially necessary because under the regime of a monetary union the regions would become more specialised and industries would get more concentrated in a geographical sense. Although it could not be completely precluded, the general fear that region-specific shocks will increase is, according to our results, not justified. Thus establishing an interregional transfer system compensating automatically for region-specific shocks does not seem to be necessary.

To conclude, there seems to be no need to introduce new or to extend already existing regional orientated instruments or policy regimes on EU level in order to avoid unwanted spatial effects by EMU. The reason is simple because such effects are not presumable. Moreover, it would not be meaningful to implement policy measures for the specific purpose to balance precisely these effects. The EMU is only one important step of European integration with possible spatial effects; others are the completion of the internal market and the Eastern enlargement. All steps of European integration decrease the transaction costs for economic activities across national borders with the consequence of possible changes in trade between regions and in the location of people, firms, and production. It would be an impossible task to separate the effects of EMU from those of other steps of European integration. But even if it were possible and provided there were any undesired effects, from the regions' point of view it would be of no relevance which step of European integration would generate them. Only for this reason, it would make no sense to implement spatial orientated policy measures for the purpose to meet undesired, but unlikely regional effects of EMU.

Moreover, it would hardly be possible to design policy measures in a way that they could rapidly and precisely recover losses in regional competitiveness. As far as interregional transfer systems are concerned, in principle, they could compensate for losses, but only in a financial sense. The regions' economic recovery in competitiveness after a region-specific shock will only be possible, if adjustments in the real sphere take place, that means adjustments in relative prices and/or quantities on product and factor markets. Generally, the introduction of the Euro as well as the other steps of European integration require more flexibility on product and factor markets in the whole integration area and not only in specific regions. The Euro increases the competition among all regions in attracting firms and production factors and it creates higher adjustment needs in regions regardless of their income position and geographical location. For these reasons it is important to strengthen the market forces by liberalisation, deregulation and decentralisation in all countries of the Euro-zone. This would raise the capability of regions to cope with adjustment pressures stemming from intensified competition among them.

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FUJITA, M.; KRUGMAN, P.; VENABLES, A.J. (1999): The Spatial Economy, Cities, Regions, and International Trade. Cambridge (MA), London.

KONRAD LAMMERS

Répercussions territoriales de l'Union Monétaire Européenne - Résumé et conclusions politiques -

Contenu

1 Introduction

Au début de l'année 1999, une autre étape importante vers l'approfondissement de l'intégration européenne était mise en place: l'Union Monétaire Européenne (UME). Cette étape de l'intégration européenne allait avoir indubitablement des conséquences de grande envergure au sein de la sphère monétaire de l'économie des pays membres. Mais il se peut que l'instauration d'une union monétaire ait également eu des effets considérables au sein de la sphère réelle des économies impliquées, y compris des effets sur la géographie économique de la zone d'intégration. Les effets territoriaux possibles et probables de l'UME constituent la raison qui a motivé l'instauration d'un groupe de travail au sein de l'accord de coopération entre l'Academy for Spatial Research and Planning (ARL) et la Délégation à l'Aménagement du Territoire et à l'Action Régionale (DATAR) afin de mettre en évidence ces effets. Le présent volume contient des documents élaborés par les membres de ce groupe de travail. Ce chapitre fournit une brève introduction sur le sujet, il résume les principaux résultats des papiers à la lumière de la discussion tenue au sein du groupe de travail, et tire, sur la base de ces résultats, des conclusions sur la politique régionale.

2 L'UME et la géographie économique en Europe

Pour obtenir une réponse à la question: "L'UME a-t-elle eu un impact territorial sur l'UE et si oui de quelle manière?", il convient de connaître les canaux et les mécanismes pouvant transférer les effets de l'introduction de l'UME et du fonctionnement de la politique monétaire européenne sur le développement des régions européennes. Deux mécanismes sont envisageables:

- L'introduction d'une monnaie commune réduit les coûts d'échange des biens et services entre les pays faisant partie de l'Union Monétaire Européenne. Elle diminue également les coûts des mouvements transfrontaliers des facteurs de production. Dans le cadre du système d'une Union Monétaire Européenne il reviendra moins cher de déplacer une entreprise, de transférer des capitaux ou de migrer d'un pays membre à un autre. Ainsi, on peut s'attendre à ce que l'introduction de l'Union Monétaire Européenne modifie la carte nationale et régionale du commerce ainsi que la localisation des entreprises et des personnes. La division du travail au sein des pays et des régions de l'Europe s'accentuera et rien ne permet de dire que tous

les pays et toutes les régions seront affectés de la même manière. Par conséquent, on assistera à un changement du paysage économique de l'Europe.

- L'introduction de la monnaie unique et le déplacement des compétences de politique monétaire des banques centrales nationales vers la Banque Centrale Européenne constitue un « big bang » dans l'environnement institutionnel de l'activité économique. Ce changement institutionnel pourrait se traduire par une modification du comportement économique des entreprises, des consommateurs, des salariés et de leurs organisations, de même que des responsables politiques nationaux et régionaux. Là aussi, rien ne permet de dire que, à condition que ce mécanisme ait une importance empirique, le comportement changera dans la même direction et dans la même ampleur dans tous les pays et dans toutes les régions. Ainsi le modèle territorial de l'activité économique dans le système de la monnaie unique diverge de celui existant sans ce système.

Dans le sillage de l'introduction de l'Union Monétaire Européenne, ces deux canaux ou mécanismes pourraient, en principe, générer des effets territoriaux. Il reste à se poser la question de savoir quels sont les effets territoriaux qui pourraient se produire. Ils sont très similaires à ceux généralement observés en conséquence des processus d'intégration. Ils peuvent se résumer comme suit :

- De quelle manière et dans quelle ampleur le modèle territorial de l'activité économique changera-t-il? Peut-on s'attendre à davantage ou moins de concentration de l'activité économique dans la zone européenne?
- Assistera-t-on à un accroissement de la convergence ou de la divergence entre les régions et les nations, par exemple au niveau du revenu par tête?
- Quels pays et quelles régions seront affectés par la concentration ou la dispersion territoriale et par les processus de convergence ou de divergence? S'agira-t-il des régions centrales, périphériques, frontalières ou urbaines?
- Peut-on s'attendre à plus ou moins de spécialisation des pays et des régions dans certains secteurs industriels?

Il s'agit des questions clés à l'ordre du jour des travaux de recherche visant l'analyse des conséquences territoriales de l'Union Monétaire Européenne. Malheureusement, la théorie économique ne fournit pas de réponse claire à ces questions. Il est vrai que la théorie économique régionale a fait de considérables progrès au cours de la dernière décennie, en particulier dans l'explication des processus territoriaux résultant de l'intégration économique. La considération de ces processus constitue le thème principal de la dite "Nouvelle géographie économique".[1] En effet, les modèles respectifs sont en mesure d'expliquer de manière convaincante l'interdépendance des facteurs importants constituant un certain modèle territorial spécifique de l'activité économique, comme les coûts de transport, les économies d'échelle et la distribution d'origine des industries, y compris l'agriculture. Toutefois, la manière dont ces facteurs interagissent et les résultats qu'ils entraînent en ce qui concerne le modèle territorial de l'activité économique dépendent essentiellement des hypothèses faites dans ces modèles. Par conséquent, il reste l'aspect empirique des effets régionaux résultant de processus d'intégration tels que l'introduction de la monnaie unique dans l'UE. Les articles rassemblés dans ce volume tentent d'apporter des réponses concernant le dernier point, bien que les auteurs aient choisi des approches tout à fait différentes.

[1] Les idées essentielles de la „Nouvelle géographie économique" ont été exposées par PAUL KRUGMAN dans son ouvrage fréquemment cité de „Géographie et commerce" (KRUGMAN 1991). La „Nouvelle géographie économique" est devenue maintenant un manuel de référence. Voir FUJITA, KRUGMAN, VENABLES (1999).

3 Principaux résultats

Dans son article, IAN ROBINS considère les différences que la monnaie unique pourrait apporter aux régions au sein de la zone euro sons trois aspects:

- conséquences pour les régions à cause de la modification de leur relation réciproque appartenan à la zone euro
- conséquences macroéconomiques des régions du fait qu'elles sont membres de l'UME
- effets d'une possible concentration de l'activité industrielle au sein des régions et d'une tendance à la spécialisation des régions dans certains secteurs industriels.

Comme bien d'autres auteurs, IAN ROBINS souligne que dans le système de monnaie unique un pays perd la possibilité de déterminer ses taux de change et ses taux d'intérêt, ce qui pourrait être approprié pour les performances de certaines régions. Pour surmonter les difficultés régionales de l'emploi et pour recouvrer une compétitivité régionale, d'autres mécanismes d'ajustement doivent entrer en jeu. Les prix des facteurs de production, en particulier les salaires, doivent être flexibles et la mobilité des facteurs de production, en particulier la main d'œuvre, doit être élevée. En outre, les transferts budgétaires pourraient, en principe compenser les pertes de compétitivité régionale ou les problèmes d'emploi régionaux, mais la politique européenne sur la concurrence et les contraintes budgétaires au niveau du budget national comme au niveau du budget européen limitent cette possibilité. Pour ce qui est des conséquences macroéconomiques, ROBINS affirme que l'adhésion à l'UME privilégie les pays périphériques par rapport au pays du centre. Ceci résulte du fait qu'avant l'entrée dans l'UME le risque de taux de change était considérablement plus élevé pour les pays périphériques que pour les pays du centre, en particulier pour l'Allemagne et les pays dont la monnaie était ancrée au Deutsche Mark. Dans ces circonstances, les pays périphériques avaient un désavantage du point de vue de la localisation qui aurait pu décourager les entreprises à investir chez eux. Dans le système de la monnaie unique ce désavantage disparaît, encourageant ainsi davantage de sociétés à s'installer dans les pays périphériques qu'auparavant. Finalement ROBINS discute les effets possibles de l'UME sur la concentration de l'activité industrielle dans certaines régions et la spécialisation des régions dans certains secteurs industriels. Se basant sur des études empiriques analysant les modifications de la carte industrielle territoriale lors du processus de l'intégration européenne au cours des 25 dernières années, il table sur certains changements concernant le modèle de localisation. Mais ces changements ne seront pas significatifs en terme d'amplication (ou de déclin) de la structure centre-périphérie sur le continent.

Le papier de JOHANNES BRÖCKER étudie les effets de l'UME en utilisant un modèle d'équilibre multirégional général. Le modèle est appliqué d'une manière comparativo-statique comparant la situation avec et sans l'UME. La différence entre ces deux situations résident dans l'épargne de coûts de transactions résultant de la monnaie unique utilisée pour les biens échangés. Les principaux résultats de l'analyse de BRÖCKER sont les suivants:

- pris globalement, l'ensemble des pays membres de la zone euro réalisent un gain au niveau des systèmes sociaux égal à 1% environ du PIB de l'Europe.
- l'UME s'avère être neutre du point de vue du revenu par tête des régions. Il n'y a pas de corrélation (positive) entre le niveau de revenu par habitant des régions européennes et leurs profits suite à l'introduction de la monnaie unique.

- Au sein des pays, les régions bénéficiantes le plus de la monnaie unique sont celles situées à la frontière d'autres pays de l'EURO-zone. Ce résultat provient de l'hypothèse implicite du modèle selon lequel les régions frontalières ont le plus d'échanges commerciaux avec des pays partenaires et profitent donc le plus de la réduction des coûts de transaction qu'entraîne la monnaie unique.

MARTIN HALLET fait la distinction entre les effets statiques et les effets dynamiques de l'euro dans son papier. Les effets statiques sont ceux indiquant l'ampleur de la réduction des coûts commerciaux induite par l'introduction de la monnaie unique. Il définit les effets dynamiques comme étant des changements de la croissance économique, de l'emploi, du système de sécurité sociale et des structures de productions des régions induits par la réduction des coûts commerciaux à moyen et à long terme.

Selon l'analyse de HALLET, il n'existe pas de modèle clair centre/périphérie en ce qui concerne l'épargne en frais de change due à l'introduction de l'euro, ni au niveau national, ni au niveau régional. Donc, du point de vue statique, l'euro a eu un effet plus ou moins neutre en ce qui concerne la localisation géographique des régions et des pays en Europe. En ce qui concerne les effets dynamiques, HALLET souligne que l'on ne dispose pas de suffisamment de recul depuis l'introduction de la monnaie unique en 1999 pour compter sur des preuves empiriques à moyen et à long terme. Il affirme que, néanmoins, certaines leçons peuvent être tirées des analyses sur l'impact régional des étapes précédentes du processus d'intégration européenne. L'un des résultats essentiels de ces analyses est qu'il existe une tendance visible à la concentration industrielle dans les régions et à la spécialisation régionale dans certaines branches d'activité. Mais ces processus sont de nature lente et ils ne vont pas dans le sens des peurs craignant que les régions pauvres et les régions périphériques seraient affectées négativement. En outre, la tendance générale des changements structurels se caractérisant par une activité se déplaçant de la production vers les services tend à rendre les régions plus semblables en ce qui concerne leur spécialisation. Cela signifierait que la probabilité des chocs régionaux spécifiques s'amoindrirait. Dans la mesure où les régions frontalières sont concernées, HALLET montre qu'elles se sont plutôt bien débrouillées dans le cadre du processus d'intégration de l'UE.

Bien que les différents papiers pris en considération présentent des opinions divergentes, leurs conclusions sont très similaires ou tout au moins compatibles. Pour ce qui est des effets de l'euro dans un contexte territorial et régional, les principaux résultats sont les suivants:

- L'effet positif sur le système social pour l'ensemble de l'Union européenne est probablement faible.
- L'euro n'affectera pas l'objectif de cohésion régionale. Il semble plutôt que l'inverse se produise: les régions et les pays pauvres (en termes de revenu par habitant) et périphériques profiteront probablement davantage que les régions riches ou faisant partie du cœur géographique de la zone euro.
- Les régions situées à la frontière d'un ou plusieurs autres pays membres de la zone euro bénéficieront de la monnaie unique.
- La crainte d'une augmentation de la probabilité des chocs spécifiques aux régions n'est pas justifiée car l'euro entraînera une intensification de la concentration industrielle et de la spécialisation régionale.

4 Conclusions sur la politique territoriale

Dans la phase d'introduction de la monnaie unique, les craintes que cette étape de l'intégration conduise à un accroissement des divergences régionales en Europe a souvent été exprimée. Elle ne semble pas fondée. Le papier mentionné précédemment ne fournit aucune preuve selon laquelle l'objectif d'une cohésion territoriale serait systématiquement affectée par la monnaie unique. L'inverse serait plutôt vrai. Les régions à faibles revenus par habitant, les régions situées à la périphérie européenne et les régions situées à la frontière d'autres États membres tendent à profiter davantage que d'autres. Ainsi, l'UME ne fournit aucune raison d'étendre les mesures de politique régionale aux régions bénéficiant déjà de la politique régionale actuelle de l'UE et de légitimer ceci en argumentant que sinon, les objectifs de la cohésion nationale et régionale seraient en danger.

Il a aussi souvent été dit que l'introduction de la monnaie unique devait s'accompagner de l'instauration d'un système de transfert interrégional afin d'absorber les chocs régionaux spécifiques. Dans une union monétaire, ce système de transfert doit prendre le rôle que jouait le taux de change national dans le système de politique monétaire nationale, selon l'argument prédominant. Si une région a perdu sa compétitivité en raison d'un choc régional spécifique, des transferts financiers en provenance d'autres régions, d'États nationaux ou de l'UE devraient stabiliser les performances économiques de la région en question en terme de revenus et d'emploi. Instaurer de tels systèmes de transfert serait particulièrement nécessaire car dans un système d'union monétaire les régions deviendraient plus spécialisées et les industries se concentreraient davantage en terme géographique. Bien qu'il soit impossible de les dissiper totalement, les craintes générales selon lesquelles les chocs régionaux spécifiques s'accroîtraient ne sont pas justifiées. Ainsi, l'instauration d'un système de transfert interrégional qui compenserait automatiquement les chocs régionaux spécifiques ne semble pas être nécessaire.

Pour conclure, il semble qu'il ne soit pas nécessaire d'introduire de nouveaux instruments, ou d'étendre les instruments existants axés sur les régions ou des systèmes politiques au niveau de l'UE de manière à éviter les effets territoriaux indésirés dus à l'UME. La raison est simple car de tels effets ne sont pas prévisibles. En outre, il ne serait pas approprié de mettre en œuvre des mesures politiques précisément destinées à compenser ces effets. L'UME n'est qu'une étape importante de l'intégration européenne ayant de possibles effets territoriaux. L'achèvement du marché intérieur et l'élargissement à l'est en sont d'autres. Toutes les étapes de l'intégration européenne diminuent les coûts de transaction pour l'activité économique transfrontalière et peuvent entraîner d'éventuels changements dans le commerce entre les régions et dans la localisation des personnes, des entreprises et de la production. Il serait impossible de distinguer les effets de l'UME de ceux d'autres étapes de l'intégration européenne. Mais même si cela était possible et s'il y avait quelques effets indésirables que ce soit, du point de vue des régions peu importerait de savoir quelle étape de l'intégration européenne les aurait généré. C'est uniquement pour cette raison qu'il n'y aurait aucun sens à mettre en oeuvre des mesures de politique régionale dans l'objectif de trouver des effets régionaux indésirés mais improbables de l'UME.

Il serait en outre quasiment impossible de concevoir des mesures politiques permettant de recouvrer rapidement et précisément les pertes de la compétitivité régionale. En ce qui concerne les systèmes de transfert interrégionaux, ils pourraient en principe compenser des pertes mais uniquement celles de nature financière. Le rétablissement de la compétitivité économique d'une région suite à un choc régional spécifique ne sera pos-

sible que si des ajustements sont entrepris dans la sphère réelle, ce qui signifie des ajustements relatifs de prix et/ou de quantité sur des produits et des marchés de facteurs de production. Généralement l'introduction de l'euro tout comme les autres étapes de l'intégration européenne nécessite davantage de flexibilité concernant le produit et les marchés de facteur dans toute la zone d'intégration et pas uniquement dans des régions spécifiques. L'euro accroît la concurrence entre l'ensemble des régions, qui tentent d'attirer les entreprises et les facteurs de production et il crée des besoins d'ajustement importants dans les régions quels que soient leurs revenus et leur situation géographique. C'est pourquoi il est important de renforcer les forces du marché en libéralisant, dérégulant et décentralisant dans tous les pays de la zone euro. Ceci accentuerait la capabilité des régions à faire face aux tensions découlant des ajustements imputables à l'intensification de la concurrence entre elles.

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IAN ROBINS

Europe's Regions within the Currency Union: Risks and Opportunities

Contents

1 Introduction

In this paper[1] I consider the differences that the single currency might make to the regions of countries within the euro-zone, under three broad headings:

- consequences for the regions of the changed relationships in which countries that are members of the euro-zone stand to each other;
- macroeconomic consequences for regions of their being in the euro-zone;
- the effects on regions of the possible concentration or dispersal of industrial activities and of trends towards specialisation of regions in certain industries.

Because it is still too early for much evidence to be available about the effects of EMU, let alone the single currency in particular, the following discussion is concerned mainly with what theoretical considerations would lead us to expect, but I support, or at least illustrate, these expectations with some empirical observations.

2 The Changed Relationships between Members of the Euro-Zone

2.1 Preliminary Comments: Conditions for an Optimal Currency Area

Theorising about optimal currency areas (OCAs) proposes four necessary conditions for the establishment and endurance of such areas:

- Members of the area must have similar propensities to inflation.
- The economies of the members of the area must be similar and synchronised, so that economic shocks hit all members evenly.
- There should be a high degree of factor mobility between members of the area.
- There should be automatic fiscal adjustments between members of the area.

[1] An earlier version of this paper was presented at the ARL-DATAR workshop on the euro and the regions of Europe, held at the HWWA in Hamburg on 22nd June 2001. I am grateful to the comments of participants at that meeting, and in particular to the trenchant criticisms that JOHANNES BRÖCKER made of my uncritical approach to the conditions for an optimal currency area.

The literature on OCAs since MUNDELL'S original paper (MUNDELL 1961) is extensive. The present paper is in part a reaction to RON MARTIN'S discussion (MARTIN 2001) of whether the regions within the euro-zone meet the conditions for belonging to an OCA. My paper is influenced also by ARMAND-DENIS SCHOR'S argument (SCHOR 2000), based on the history of the Single Market, that members of a currency union may, by their efforts to qualify for the union and then to preserve it, establish the credibility of the currency union as an optimal currency area even though they never fully satisfy the conditions. To support this he cites as empirical evidence the success of the de facto D-Mark zone (Germany, Austria and the Benelux countries). The sufficient condition for the success of this zone was the first of the four conditions listed above: that all the members shared nearly identical preferences and consequent policies with respect to inflation.

This argument gives a reason to believe that the members of the euro-zone can make a success of the single currency area even though they do not satisfy all the conditions fully. Nevertheless, membership of a single currency zone may bring with it some consequences that are, at least at first sight, adverse. My paper is concerned with possible adverse consequences for regions. Although the regions are, of course, not sovereign states that have adopted a currency union, the risk is that their failure to satisfy (some of) the conditions for an OCA may expose them to adverse economic consequences. The opportunity for the regions is that by overcoming these adverse consequences they may improve their own economic position and also help the currency union to come closer to being an OCA.

2.2 Monetary Policy

Fixed Exchange Rates

Within the currency union it is no longer possible for an individual state to use monetary policy, and in particular the exchange rate, as a means of compensating for shocks to the national economy. This raises the concern that adjustment to a shock in a particular region might be slower than it would have been if the national government had been able to alter the exchange rate, and as a result unemployment would be higher and output growth slower than if the exchange rate instrument had been available. This concern becomes more pressing if currency union leads to greater concentration and specialisation of industry at the regional level, thereby making regions more liable to asymmetric shocks.

Concentration and specialisation are discussed in Section 3. It may, however, be doubted whether the exchange rate was ever a tool that could be targeted precisely to meet the needs of particular regions within a country. Nor is it clear that response to shocks through the exchange rate is more than a temporary palliative at the national level. The more open an economy is, the more rapidly do its prices and costs adjust to changes in the exchange rate. Within the Single Market, therefore, variations in the exchange rate between Member States would have had only a very limited and temporary effect on the relative competitiveness of countries even had variations not been severely restricted by the rules of the EMS governing the approach to membership of the euro-zone. These rules in effect set a premium on cost-cutting, labour market flexibility and productivity improvements as strategies for competitiveness within a currency union.

It is, of course, possible for a country to enter a currency union with its currency over-valued in relation to the currency of the union, which makes it even more imperative for costs to be reduced and/or productivity greatly improved. This is clearly shown by the experience of German re-unification, when West Germany imposed (and many

East Germans wanted) parity between the Ost-Mark and the D-Mark. The effects of this decision on the economy in the east were compounded by the agreement that eastern wage levels should rapidly rise to match those in the west. Because there was no equally-rapid rise in productivity, the result was a massive inflation of eastern unit labour costs, still 25% higher than in west Germany in 1999, which made much of the already antiquated industry hopelessly uncompetitive.

Interest Rate Policy

One of the more familiar topics in debates about the euro-zone is the 'one size fits all' interest rate policy. Countries in the euro-zone are at a disadvantage, it is argued, because they can no longer operate pro or counter-cyclical interest rate policies, nor can they adjust interest rates to suit the inflationary or deflationary pressures within their own economies. This argument can be extended to the regions. Even when a single country is setting its own interest rates, the rate may be inappropriate for economic conditions in some areas of the country. In the UK in 1999, for example, interest rates were raised to counteract inflationary pressures in the south east of England, and this was a serious handicap to companies in the north of England and southern Scotland, where margins were tighter and inflationary pressures, being much weaker, did not justify a rise in interest rates. It is, therefore, possible that interest rates, set for the EU as a whole could at times be at least as inappropriate for particular regions as for individual countries.

There is, however, a strong argument that in practice interest rates set by the ECB will not often and not for long be inappropriate to particular countries, because business cycles are already closely synchronised across the increasingly integrated economies of the Single Market and the conditions of belonging to the euro-zone require members to have very similar preferences about inflation. On the other hand similarity of overall economic conditions between countries in the euro-zone is found alongside divergences between regions within countries in terms of output growth, diversity of industrial structure, levels of skill and so forth. The problem of interest rates inappropriate for certain regions remains a problem.

Alternatives to Monetary Policy

In the absence of monetary policy instruments, countries have a strong incentive to adopt measures that will quickly return an economy to equilibrium after a shock and compensate for inappropriate interest rates (see BEAN 1998). Important among such measures are reforms to increase the flexibility of labour markets, to raise skill levels and to improve infrastructure, i.e. the kinds of measure often adopted as tools of regional policy. In this way a principal economic cost of belonging to a currency union can provide an incentive to improve the competitiveness of regions that would otherwise be at a disadvantage.

2.3 Regional Policy

Fiscal Aspects

The fourth condition for optimal currency areas (listed in Section 1.1 above) is that there should be automatic fiscal adjustments so as to even out payment flows between countries within the area (see INGRAM 1969). These adjustments include the use of the tax-benefit system to cushion individuals from the effects of economic shocks or failing industries in their own region. They include also other transfers from wealthier to less well-off regions. EMU contains no such mechanism for adjustments between member

countries of the euro-zone, nor is it likely to without a harmonisation of domestic taxes that is, to say the least, unlikely for several years. Consequently, it is left to national governments to continue to provide such adjustments within each country.

Of the two broad types of transfer (through the tax-benefit system and through transfers from wealthier to less well-off regions) the latter is more important from the standpoint of regional policy. In practice such transfers are becoming less feasible because in several Member States there is growing political resistance in wealthier regions to the continuation of transfers to poorer regions. The most vociferous opposition in recent years has come from the Lega Norte (Northern League) in Italy, but in Germany also the wealthiest Länder (Bavaria, Baden-Württemberg and Hesse) brought their challenge to the Länderfinanzausgleich (financial equalisation system between Länder) before the Constitutional Court. The Court ruled in 2000 that the legal framework is not sufficiently comprehensive, clear or transparent. The wealthy *Länder* are now pressing their case in the negotiations over revision to the framework.

This political opposition means that regional policy will have to look less towards fiscal transfers and more towards ways of raising the competitiveness of less-advantaged regions and of reducing their exposure to asymmetric shocks. Similar considerations apply to other types of regional aid.

Regional Aid

The merits and drawbacks of adjustments through the tax-benefit system and transfers between regions become more urgent issues if regions are in fact more prone to asymmetric shocks within the euro-zone than they were outside it. IAN BEGG and DERMOT HODSON (BEGG and HODSON 2000) argue that neither of the two current sources of regional aid is adequate to cope with economic shocks. EU structural funds, being determined for five-year periods and awarded to development projects, are not adjustable to cope with shocks. Secondly, the nature of regional aid is circumscribed by the trade and competition policies of the Single Market and the total amount of fiscal resources that could be devoted to regional aid is constrained in theory, if not in practice by the Stability and Growth Pact. Thus, at just the time when interventions to assist regions may become more necessary because of EMU, the rules of the Single Market limit the freedom of action of national governments.

BEGG and HODSON do not go on to argue that therefore the EU should move in with more assistance or that national governments should have more freedom. Rather they urge closer attention to the question of what kinds of regional aid and development policies could help to prevent growing disparities in wealth and economic output between regions across the EU.

Now, it is undeniable that economic disparities between regions in the EU are wide: "At the level of NUTS 2 regions, regional unemployment rates in the EU vary by a factor of ten and regional per capita GDP by a factor of seven." (MARTIN 2001, p. 57). There is also some evidence for the period up to 1996 (Cambridge Econometrics 1997) that, as Single Market measures took progressively more effect, poorer regions within the EU converged on the EU average for GDP per capita because of a spill-over effect from the GDP growth of the leading growth poles (urban areas and other regions) within their own countries, but during this period the gap in wealth between poorer and richer regions within each country widened rather than diminished. On other measures too disparities between the richest and poorest regions within the EU did not lessen during the first ten years of the Single Market. MARTIN (2001), analysing the data gathered by Cambridge Econometrics (1997), found that there was some convergence between

NUTS 2 regions in the EU in terms of GDP per worker (productivity) before the introduction of the Single Market but virtually no convergence after the mid-1980s. When he turned to employment growth, however, he found that the gap between regions with high rates of job growth and those with low rates had not narrowed since the mid-1970s.

Such findings are among the reasons why governments and regional development agencies continually reassess the effectiveness of particular regional policies. In the case of the Mezzogiorno in Italy for example, it became apparent by the mid-1990s that regional assistance, which for nearly forty years took the form of transfers to households and public works contracts without much investment in training, education or new industry, had not succeeded in raising the relative level of the south. The change in policy from the mid-1990s towards more supply-side measures at least put the Mezzogiorno in a better position to benefit from the investment policies of northern Italian firms as first more routine manufacturing was transferred to the south and then industrial clusters and high-tech start-ups became established in the south.

The restrictions on the scope and quantity of regional aid directly and indirectly imposed by the Single Market and the changed macroeconomic position of regions in the currency union (discussed in Section 2) may well prompt a rethinking of the nature and aims of regional policies. BEGG and HODSON argue strongly for the necessity of such a rethinking so as to take advantage of the challenges of changed circumstances. There will, as they also emphasise, be no one template to be followed in the case of all regions.

To examine further the issue of diversity of regional needs, we must next look closely at the changes in the macroeconomic conditions of regions and at some factors influencing firms' decisions about where to locate.

3 Macroeconomic Consequences of the Euro-Zone for Regions

3.1 Price Transparency, the Exchange Rate Risk, and Companies' Decisions about location

Price Transparency

One thrust of the Single Market Programme is the lowering and eventual removal of the barriers to trade across national borders: customs barriers, different regulations and standards alongside the need to obtain certification in each country, different tariffs and different taxation systems. This ambition goes hand-in-hand with the liberalisation of markets and the introduction of wider and more open competition. It is also a part of the Four Freedoms of the Single Market: movement of goods, persons, services and capital. The introduction of the euro in 1999 complemented the Single Market Programme by increasing price transparency between members of the euro-zone and removing the exchange rate risks of trading and operating between different member states. The costs of currency transactions and transfers between countries within the euro-zone, however, remained higher than expected for longer than expected. The arrival of euro notes and coins on 1 January 2002 made prices across borders even more transparent to individual citizens and removed the need to exchange currencies within the euro-zone.

A major study of the effect on market equilibrium of price transparency in a currency union (Davidson et al. 1998) distinguishes three possible effects:

- Enhanced information to consumers facilitates price comparisons, and increases competition.

- Enhanced information to firms facilitates co-ordination, and decreases competition.
- Enhanced information improves opportunities for arbitrage across countries, thereby increasing competition.

For individual citizens price transparency between countries could affect their purchasing decisions, but two other broad groups of considerations weigh heavily:

- the possibility of making informative comparisons of the quality and associated features (such as after-sales service) of the products;
- the related costs, such as time and effort to discover the prices, ease or difficulty of ordering systems and costs of transport and delivery.

The second group is relevant to the assessment of the amount of trouble it is worthwhile taking to search out or obtain particular types of good at lower prices. Even within a single country, costs of time, information and transport discourage consumers from seeking lower prices for many kinds of good. In recent years, however, some of these costs are beginning to be lowered by e-commerce.

For these reasons the single currency is likely to have an effect on purchasing decisions only if accompanied by other facilitators such as a great expansion of e-commerce. Since e-commerce is still in its early days it is hardly surprising that purchasing decisions have not yet altered sufficiently to exert much downward pressure on prices, especially before the practical boost given by the introduction of euro notes and coins.

It is, finally, worth setting the possible price effects of the single currency more clearly in their context by mentioning that in many areas more direct action under competition legislation is required if price transparency is to make any practical difference to price levels. Car prices provide a good example. The European Commission's twice-yearly surveys of car prices in Member States show that the single currency made virtually no difference and that even within the euro-zone prices for the same model still differed by more than 25% in 2000. One response to this is the small but growing market for bypassing the franchised dealer network and buying cars over the internet from the least expensive source. This, however, requires time and effort from consumers and access to electronic information. Euro-pricing lowers some of the information costs, but the effective force to reduce differences in car prices should come from the reform of the block exemption from EU competition rules in 2002.

The Exchange Rate Risk and Companies' Decisions about Location

The costs of converting between the currencies of the euro-zone finally disappeared on 1 January 2002, but the exchange rate risk between all members of the euro-zone (except Greece) ended on 1 January 1999 and had in effect ended several years earlier between Germany and the Benelux countries. This has altered the trade-off between relocation and staying put for companies that no longer have to produce in one currency area and sell in another within the euro-zone. This change might be expected to favour members of the zone whose national currencies used to be unstable, but which have competitive advantages, for example lower labour costs.

In practice, however, the experience of EMU suggests that the ending of exchange rate risk may not weigh very heavily in companies' location decisions. Portugal and Italy (especially southern Italy) would seem to be prime examples of countries/regions where the ending of exchange risk, coupled with a more stable fiscal and monetary climate, should enhance their advantages of lower labour costs. Portugal did receive an

increased amount of foreign direct investment in 1997 and 1998, but since then investment has tailed off as companies seem to have been deterred by wage inflation, poor manufacturing productivity and relatively high tax rates (higher, to take a crucial example, than those in another geographically-peripheral location, Ireland). Under these circumstances membership of the euro-zone does not outweigh the disadvantage of distance from the core of the EU. From the point of view of the regions, it is worth noting that the foreign investment went preponderantly to the areas around the two growth poles of Lisbon and Porto, thus leaving the western north-south arc of the country as unfavoured as it has always been.

Southern Italy, on the other hand, has received an increasing amount of investment in recent years, but principally from companies in the north of Italy rather than foreign investors. Foreign investment is relatively slight in Italy, and the vast majority of it goes to the northern region of Lombardy and its capital, Milan (see ERNST and YOUNG 2001). Northern Italian companies, notably Fiat, were relocating the more routine parts of the production process to the south of Italy while retaining design and the higher-value parts of manufacturing in the north. Their motives were partly to cut costs, but also to cope with the increasing labour shortages in the north. At the same time they were offering special support and training to recruits from the south who might come north to help fill the skills gap. Since 2000, however, some southerners trained in the north have returned south to start up high-tech companies and even some companies have left the north for the less-crowded and less expensive lands of the south. Industrial clusters have grown up in Apulia and Calabria, and the magazine, Wired, has drawn attention to foreign investment in what some Italians like to think of as their version of Silicon Valley, the Etna Valley in Sicily, (a pleasing development for those who remember that in Greek mythology Hephaestus, the armourer of the gods, had the Titans working for him under Mount Etna).

3.2 Factor Mobility

In MUNDELL'S original argument (MUNDELL 1961), if members of a currency union are liable to asymmetric shocks, then a high degree of factor mobility is necessary for the currency to be viable. Since adjustment is not possible through the exchange rate, factor mobility is the only alternative to negative output growth and rising unemployment. His argument may be applied to regions within countries that are members of a currency union. Even if all the member countries have economies of similar diversity and structure so that no one country is unduly liable to asymmetric shocks, some regions within countries might not be so fortunate, since the diversity of economic structure enjoyed by the whole country may depend on specialisation and concentration of a limited range of activities in some of its regions. The risk then is that capital may freely move out of some region hit by an asymmetric shock, but in practice labour and property markets are hard to clear and labour mobility between regions is hard to achieve. Labour mobility across national boundaries within the EU is even rarer than mobility between regions within one country.

The argument, in short, is that in a currency union some regions tend to become more specialised in a smaller range of industries. The upshot would be that some regions would be more exposed to asymmetric shocks in the euro-zone, but that the factor mobility of labour is not adequate to compensate for this.

When one assesses this argument, it is evident that much depends on the delimitation of the regions. The more tightly the geographical boundaries are drawn, the more plausible the argument seems. The argument also treats regions as single entities, but in practice the economic fortunes of any one region depend on its relations in a complex

geographic and economic system of interlocking regions and sub-regions within regions. What is needed is an examination of regions as functioning economic entities, of the systems that link more prosperous with less prosperous regions. I return to this subject in Section 4, and I discuss in Section 4.3 the question whether regions in the eurozone, or the wider Single Market are at risk of becoming over-specialised. Independently of those two issues, we can advance the counter-argument that increased flexibility in the labour market should be the goal rather than a degree of labour mobility between regions or countries that might be socially disruptive even if attainable. There was, after all, considerable mobility of labour across national boundaries and across the Atlantic in the nineteenth century and much seasonal movement of labour between European countries in the mid-twentieth century before the Single Market was introduced (e.g. from Portugal to France long before Portugal joined the EU). Labour was moving from areas of declining industrial monocultures or where opportunities were so limited that there could be hardly any flexibility of the labour market within large regions. Recent data suggesting that labour migration rates within the EU have declined (see GROS and HEFEKER 1998) can be taken as evidence that labour markets have become more flexible, thus reducing the need for labour mobility over long distances.

4 Concentration, dispersal and specialisation

4.1 Three Predictions from New Economic Geography

The recent developments in Italy (described in Section 3.1) encapsulate two trends, both of which are forecast by the New Economic Geography (NEG), and a third, which is a reasonable inference from NEG theory:

- Industries that can achieve economies of scale tend first to concentrate in particular locations so as to reduce transaction (notably transport) costs.
- Later these industries disperse backward links in the value chain as congestion, labour costs and other diseconomies take more of a toll in areas of industrial concentration.
- In some cases the diseconomies in the areas of concentration lead to dispersal towards lower-cost and less crowded areas of industries for which economies of scale are either not very important (e.g. start-ups) or are less important than avoiding the diseconomies.

In an integrated market, industries are likely to concentrate in areas that are close to their principal markets (and therefore with a level of prosperity related to the place of the industry on the value chain), and which also have such supply-side advantages as skilled labour and good infrastructure. Industries will also attract all the related services and ancillary activities. The consequence is that areas with advantages are likely to become even more advantaged and also come to house a wide range of types of economic activity, and will thus become more protected against asymmetric shocks. It is also probable that the range of industries will help promote labour-market flexibility. The lower-cost regions to which backward links in the value chain are dispersed, may well (although not inevitably so) have a more limited range of economic activities (since there are very likely to be more lower-cost than favoured higher-cost regions in a currency union) and are thus more exposed to asymmetric shocks.

4.2 Some Empirical Evidence

At a broad level of description these predictions are valid for the EU. There is a swathe of more prosperous areas concentrating a broader range of higher-value activities stretching from the Greater Dublin area of Ireland (something of an anomaly, geographically speaking, because of the influence of US investment), via southern England, the Benelux countries, northern (and some parts of southern) France, western Germany to northern Italy. But a simple contrast of this more prosperous core with the less prosperous periphery would not do justice to the facts. Patterns of concentration and dispersal vary between industries, and core-periphery distinctions are repeated across Europe. The economic prospects of regions and the effects on them of the Single Market and the single currency depend on how the regions stand within these more complicated patterns.

A study conducted in the late 1990s (MIDELFART KNARVIK et al. 2000) revealed a structured pattern of concentration and dispersal of manufacturing industries across the whole EU over the period 1970-97. Some industries that were once concentrated in central areas of the EU became more dispersed. These included medium to high-tech industries (such as computer hardware and instruments) that require a high level of skill in the workforce, but also slow-growing, labour-intensive industries (such as beverages and tobacco) that seek lower labour costs. Ireland and Finland above all benefited from the first kind of dispersal, while southern countries with lower labour costs benefited from the second kind. Thus Portugal, Spain, Italy and, to a much lesser extent Greece, benefited from both kinds of dispersal. Some industries that used to be present throughout the EU became more concentrated in low-cost countries as the return on capital declined (textiles and furniture). Other industries remained concentrated (motor vehicles, aircraft, electrical apparatus, chemicals), but there was an increasing tendency to concentrate the high-value end of these industries in central areas where research facilities and highly-skilled personnel are available and to locate lower-value activities such as production away from the centres. While centres are concentrated along the line of high-wage, high-skilled urban areas that runs from eastern Ireland to northern Italy, there are other concentrations of high skill and research, such as Stockholm, Helsinki, south-eastern France and Catalonia. Finally, some industries remained dispersed throughout the EU because of the location of their inputs (food, wood & paper), the scattered nature of their markets (printing & publishing) or the requirements of their production processes (shipbuilding).

Some common factors are found in these patterns: clustering around research facilities, the requirement for high levels of skill and for secondary and higher-education qualifications, the concentration of higher-value activities in favoured centres.

These trends were seen in a European market becoming more integrated as single market measures took effect. The euro is likely to introduce greater internal stability by removing the exchange rate risk within the euro-zone and so to consolidate the integrated market. Under these circumstances the trends already seen are likely to be strengthened. These trends do not imply a continued widening of disparities between regions within countries, but, instead, more complex patterns of regional advantages. The established growth poles are likely still to attract a high proportion of high-tech industry, but there are some examples of successful high-tech clusters based around universities outside the established centres (as Oulu in Finland and technopoles in south-eastern France). Diseconomies in the established centres can also lead to a dispersal of industrial activities. Market services, however, because they tend to depend either on agglomeration economies or the distribution of population and purchasing power, are more likely to remain concentrated in urban areas. This is even more true of financial

services since technology and the integrated market on a global scale combine to reduce transaction costs and make concentrations of skills, expertise and liquidity the central determinants of advantageous location. HALLET (2000) found that between 1980 and 1995 financial services concentrated more than any other type of market service, and located in the high-growth, high-income urban areas.

At the same time, the expansion of the EU's effective markets towards the east, even many years before the actual enlargement of the EU, helps former peripheral regions within the EU. As in Austria and east Germany, companies find new markets into which to sell and can also achieve economies by relocating parts of their production to nearby low-wage areas.

These trends take place on a continent characterised by a patchwork of favoured and unfavoured regions rather than by a clear, geographically-defined stratification of, say, high-growth central area and low-growth periphery. In spite of the greater prosperity of the central urban swathe, there are in fact many centres of higher growth from where activities are dispersed to the immediate area or outsourced further away in the same country or beyond its borders. It is not surprising, then, that HALLET (2000) found that between 1980 and 1995 there was an increasingly similar pattern of specialisation across all regions. This ought to make them less susceptible to differentiated regional shocks.

4.3 Some Extrapolations

The statistical data underlying the studies cited are, unavoidably, earlier than the introduction of the euro. They also cover too short a period of time to allow any firm conclusions about long-term trends within the EU. Nor does the experience of the US offer a reliable guide. In all the crucial respects (flexibility of labour markets, labour mobility, institutional structures and traditions, fiscal systems) the differences are great. Furthermore, as MARTIN (2001) argues, any current similarities in economic developments between the US and the EU may well have more to do with the influence of such forces as globalisation and technological change than with the shared features of integrated economies. In fact MARTIN'S argument brings home the fact that the trends discussed in this paper are evidently consequences of the decisions of companies, some of which operate on a global scale and most of which are seeking to meet the competitive challenges of changes in the technologies of production and communications. The increasing integration of the EU market, including the introduction of the euro, is itself a response to these conditions and facilitates the trends discussed, without being their principal cause.

The effects of these trends on regions within the EU is problematic. If we extrapolate from these trends we may predict with some confidence that output and employment growth will continue to be concentrated in urban growth poles, many of which will be in the swathe of cities between south-eastern England and northern Italy, but with many others scattered throughout the EU. Related activities (intermediate inputs) will tend to be dispersed from the centres to avoid problems of congestion and high prices. More labour-intensive activities will be dispersed to areas where labour costs are lower but educational levels are high, and many such regions have already been found in candidate countries to the east of the EU. Older, low-growth industries will be dispersed further in search of lower labour costs and will eventually almost vanish from within the EU. In short, there will be no simple pattern of centre and periphery within the EU, but many centres throughout the EU.

To obtain a more precise idea of these patterns and to understand them better, it will be necessary to look in more detail than has yet been attempted at the types of industrial structure (for example, the constituents of different types of cluster, and different kinds of industrial mix) to be found in the EU and to see how these are related to different types of location. In particular it will be necessary to look at structures that do not correspond either to regions or to single urban areas. These structures are the different types of urban system (groupings of several urban areas). This requires collecting data at a more micro-level than the broad statistics at NUTS 1 or NUTS2 level that have been used in previous studies of regional convergence or divergence. The Institute for World Economics (IfW) at Kiel embarked recently on the assembly of a database relevant to industrial mix and urban systems (see KRIEGER-BODEN 2000).

The resulting patterns of relative economic growth may well be only loosely related to the NUTS regions or to administrative regions within each country. Economic growth in any particular centre affects the travel-to-work area, but networks of suppliers and related services are often based outside the administrative region, outside that country or outside the EU. Such conditions help to explain why there are sharp economic differences between neighbouring areas within the same region or even the same urban area and why regions without growth centres often do not benefit from growth in neighbouring regions of the same country.

5 Conclusions

The chief drawbacks of the euro (from the perspective of regional development) lie in the possible inappropriateness of interest rates, the absence of fiscal and related adjustment measures, the relative immobility of labour and the restrictions on national governments with relation to regional policies. The principal advantages lie in the stimulus that the drawbacks give to rethinking regional policy and fostering patterns of industrial diversity in which more flexible labour markets are encouraged. The winners will still be winners, but the stability and integration of the market give other regions a better chance of joining them.

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JOHANNES BRÖCKER

Regional Welfare Effects of the European Monetary Union

Contents

1 Introduction

The Euro is supposed to have led to a considerable decline of transaction costs between the Euro Zone member states. This is a further step on the way to deepen integration of goods and factor markets in the European Union. Ever since the European Economic Community has been established there was some concern about economic divergence that might be implied by deepening economic integration. It was argued that central regions might gain from increasing agglomeration advantages and attract factors of production from the periphery towards the centre of Europe. This argument has been put forward during the Maastricht-Treaty negotiations and has led to the introduction of the cohesion fund aiming at a compensation for pretended losses or disadvantages in the relatively poor countries of the European Union.

As far as capital markets are concerned, economic integration affects countries only as a whole. There are hardly any effects affecting regions within countries differently, with possible exceptions of financial centres such as Frankfurt and London (HALLET 1999, 2001). Regarding labour markets, incentives for wage bargaining are likely to change. Some authors also argue that employees and unions were subject to currency illusion before the Monetary Union. When these illusions dissolve with the common currency, unions in low productivity countries might opt for excessive wage claims. The German experience is taken as evidence in favour of this hypothesis. This experience does not apply to the European Monetary Union (EMU), however. The incentives for unions and employers in Germany were completely different. It was not Eastern but Western unions and employers' organisations sitting at the bargaining desk in East Germany. Furthermore, East German employees were fully eligible to the West German social security system, then becoming the social security system of entire Germany. Whatsoever, even if EMU would induce excessive wage claims, they are likely not to have effects systematically varying between regions within countries.

Further integration of goods markets brought about by the Monetary Union, however, will have effects varying over space. Different currencies with unpredictably floating exchange rates imply transaction costs affecting regions differently, depending on their respective direct and indirect linkages with foreign countries. This paper studies effects of the Currency Union using a multiregional general equilibrium model. The model is applied in a comparative static analysis, where transaction costs between EMU members are reduced by those amounts, that are supposed to represent the transaction cost savings due to a common currency. Section 2 explains the model and Section 3 its calibration. In Section 4 we try to figure out which transaction cost savings are to be expected from a currency union. The section is mainly based on estimates of GLICK and ROSE (2001) who showed considerable trade creating effects of currency unions in panel and cross-section regressions. Section 5 presents results for countries and regions in the EMU. Some qualifications of these results are discussed in Section 6. The concluding Section 7 summarizes.

2 Model

Our Model is a static general equilibrium model for a closed system of regions covering the whole world. The geographical Europe from Atlantic to Ural (including the Asian part of Turkey) is subdivided into 800 regions. Germany for example covers 99 so called "Raumordnungsregionen". Luxembourg as well as several small countries in Central and Eastern Europe are not subdivided. The rest of the world is subdivided into five regions: North America, Latin America, Africa, Middle East and Asia-Australia-New-Zealand.

In each region reside identical immobile households owning the regional stock of production factors that are immobile as well. Their incomes stem from regional factor returns as well as from an interregional income transfer that can have a positive or negative sign. Income transfers are exogenous (in real terms) and add up to zero for the entire world. Households spend their income for buying goods and services partly produced in their own regions and partly produced in other regions. Households' demand represents total final demand, that means private as well as public consumption and investment. There is no separate public sector in the model; that is households have to be regarded as an aggregate of private and public households, their budget constraint is the consolidated budget constraint of private and public households in the region.

Households are price takers on all markets. They maximize a Cobb-Douglas utility depending on the quantity of local goods and the quantity of an index of diversified tradable goods. Hence, they spend fixed shares ε and $1-\varepsilon$ of their income for local and tradable goods, respectively. Utility changes of households, measured in monetary terms by HICKS' equivalent variation concept, are our measure of regional welfare effects of the Monetary Union.

The production sector is represented by identical immobile firms. There are two types of firms: 1) firms producing local goods and 2) firms producing tradable product varieties. There is no further sectoral differentiation. Local goods are produced under constant returns to scale and, as the name says, can only be used within the region itself. Tradable goods, however, are produced by a "Dixit-Stiglitz-Industry". Each firm is an exclusive producer of a single product variety supplied under monopolistic competition.

The number of firms is determined endogenously. For each product variety a fixed amount of the local good as well as a variable amount is required, that is proportional to the output. With a constant price elasticity of demand (which is given in our case) this is well known to imply a constant output per product variety. Hence, a region's output of tradable goods is proportional to the number of supplied varieties, and the product price equals unit cost. With an appropriate choice of units the mill price in the diversified sector equals the mill price for local goods, which is called p_r for region r.

For the sake of simplicity local goods are assumed to be produced by a Cobb-Douglas-technology with cost shares α, β and γ for primary factors, local goods and tradable goods that are used as inputs, respectively. Primary factors are modelled as a single homogeneous factor. One may also regard them as a composite of an arbitrary number of factors combined by a linear homogeneous technology. As we do not distinguish between sectors having different factor intensities, this would be formally equivalent.

Analogous to household consumption, firms use tradable goods as a composite index that is composed of all variants produced anywhere in the world. The same index is used for final demand as for intermediate inputs: as usual, varieties are composed by a symmetrical CES-index, with elasticity of substitution between varieties equal to $\sigma > 1$.

The decisive assumption for the issue under study in this paper is that there are transaction costs for goods delivered from region r to region s amounting to a share of $\tau_{rs} - 1$ in the traded value. The local price of a good available in s and stemming from r is though $p_r \tau_{rs}$. The transaction cost depends on the transport distance and includes a term representing impediments to international trade:

$$\tau_{rs} - 1 = \zeta g_{rs}^{\omega} + \theta_{kl} . \qquad (1)$$

g_{rs} is the transport distance from r to s, measured as the shortest travel time of a route through the road network. ζ and ω are parameters. $0 < \omega < 1$ takes account of the fact that transport cost increases less than proportional with increasing distance. If r notes a region in country k and s a region in a different country l, then θ_{kl} is the tariff equivalent of impediments to international trade from country k to country l. For example, $\theta_{kl} = 0.1$ means that the trade impediment is equivalent to a 10% tariff rate. $\theta_{kl} = 0$ for $k = l$, by assumption.

Trade impediments partly consist of tariffs (outside the EU), partly of administrative non-tariff barriers, and partly of cost of communication, contracting, monitoring etc. that are specific to international trade, and partly of cost resulting from different currencies. This latter cost is subject of our analysis. Simulating the effects of a currency union simply consists in reducing θ_{kl} by a certain amount for pairs of countries jointly becoming EMU members. The appropriate amount of reduction will be discussed in the next section. Even though some trade impediments outside the EU consist in tariffs generating public income (to the extent that they are not completely used up by the customs administration), all expenditures for overcoming trade impediments are modelled as lost resources. Trade impediments are not measured directly, but drop out from the calibration procedure. They are calibrated such that international trade flows generated in the models' equilibrium are equal to observed trade flows.

In the general equilibrium one also has to specify where resources for performing the transactions come from. The standard approach is the "iceberg assumption" saying that, for performing the transaction, a certain share of a transferred good itself is used up (melts). We use a slightly different approach. According to our assumption not the individual good, but a certain amount of the composite tradable that is available in the region of destination, is used up. Hence, the composite tradable serves a triple purpose, it is used for transactions, it is used for consumption, and it is used as an intermediate good in production.

The explained assumptions imply the equilibrium to consist of a system with four equations per region determining four unknowns per region. This system of equations describes the market for tradable goods. The four unknowns are:

S_r: value of tradable goods supply from region r, valued at mill prices;
D_r: value of demand for tradable goods in region r valued at local prices, that is including transaction cost;
p_r: mill price for goods from region r;
q_r: composite price per unit of tradable goods used in region r.

The corresponding four equations are (see the appendix for derivation):

$$S_r = \phi_r p_r \left(p_r / q_r\right)^{\gamma/\alpha} - \varepsilon G_r, \quad (2)$$

$$D_r = S_r + G_r, \quad (3)$$

$$q_r = \psi \left[\sum_s S_s p_s^{-\sigma} \tau_{sr}^{1-\sigma} \right]^{\frac{1}{1-\sigma}}, \quad (4)$$

$$p_r = \left[\sum_s \frac{\tau_{rs}^{-\sigma} D_s}{\sum_t S_t (p_t \tau_{ts})^{-\sigma}} \right]^{1/\sigma}. \quad (5)$$

γ, α, ε, σ and τ_{rs} are parameters that have already been explained. ϕ_r is a further parameter measuring the effective regional stock of factors. ψ is a parameter scaling units of the composite good; its choice is arbitrary, having no consequences for the result. Finally, G_r is the exogenous interregional transfer already mentioned.

Note that the system of equations fixes nominal variables only up to a factor, as it should be. If, for any solution, all prices and values (including G_r) are multiplied by an arbitrary positive factor, we obtain another solution that is however unchanged in real terms. Even though the equation system is not simple it can be solved for a world with more than 800 regions.

3 Calibration

In order to perform simulations we have to assign numerical values to all parameters. In the above equation system everything with a Greek symbol is a parameter. From national accounts one can infer that the shares of factors and intermediate goods in production costs have a ratio of 2:3, approximately. Furthermore, as a plausible guess, we assume a ratio of 2:3 between the respective shares of tradable and local goods in consumption and in production cost. This implies $\alpha = 0.4$, $\beta = 0.36$, $\gamma = 0.24$ and $\varepsilon = 0.6$. Sensi-

tivity analysis shows that deviations from these specifications in a plausible range are non-critical. The parameter ϕ_r is chosen such that the regional GDPs in the equilibrium solution coincide with observations. Observations are taken from the benchmark year 1995.

The remaining parameters are σ as well as those parameters determining τ according to equation (1), namely ζ, ω and θ. In this context we exploit the fact that trade flows, measured in mill prices, follow a gravity equation, according to equation (2):

$$t_{rs} = A_r \tau_{rs}^{-\sigma} B_s \quad (6)$$

with

$$A_r = S_r p_r^{-\sigma} \quad (7)$$

and

$$B_s = \frac{D_s}{\sum_t S_t \left(p_t \tau_{ts}\right)^{-\sigma}} \quad . \quad (8)$$

According to (1)

$$\tau_{rs} \approx \exp\left(\zeta g_{rs}^{\omega} - \sigma\theta_{kl}\right),$$

because τ_{rs} is sufficiently close to 1. Inserting this into (6) yields

$$t_{rs} = \exp\left(a_r + b_s - \sigma\zeta g_{rs}^{\omega} - \sigma\theta_{kl}\right), \quad (9)$$

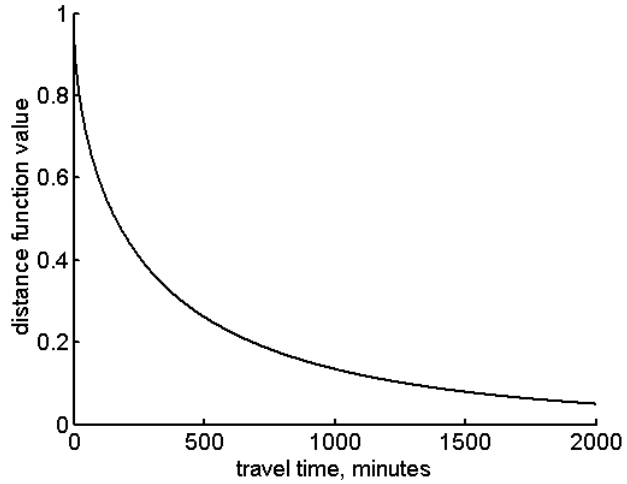
with $a_r = \log A_r$ and $b_s = \log B_s$. We estimate this equation by a non-linear regression using data on international trade, because interregional trade data on a sub-national level are lacking. a_r and b_s are estimated as fixed effects, associated with the countries of origin and destination, respectively. θ_{kl} is estimated as a linear function of dummies representing common languages and other influences. Unfortunately, σ is, however, not identified, but only the combinations $\sigma\zeta$ and $\sigma\theta_{kl}$ (the latter only up to an additive constant). We obtain highly significant and robust estimates for $\sigma\zeta$ and ω implying a "distance function"

$$f\left(g_{rs}\right) = \exp\left(-\sigma\zeta g_{rs}^{\omega}\right)$$

shown in Figure 1. The distance function shows the factor by which a trade flow is reduced in comparison to a trade flow with a zero distance. The estimate of ω is $\hat{\omega}$ = 0.58 which means that one obtains the expected concave shape of the transaction cost function.

As the gravity estimate does not allow for a separate identification of σ and ζ, respectively, other information is required. According to equation (1), ζ determines the distance related transaction cost. According to the literature about logistics, these costs have a share between 5% and 10% in the traded value. Reproducing these shares in the equilibrium solution implies a σ-parameter in the range of 15 to 25. As these elasticities are high in comparison to what is usually assumed in the literature, we choose $\sigma = 16$, that is a value at the lower bound of this range. Figure 2 shows the transaction cost $\hat{\tau}_{rs} = \exp\left(\hat{\zeta} g_{rs}^{\hat{\omega}}\right)$ as a function of time distance as implied by these parameter choices.

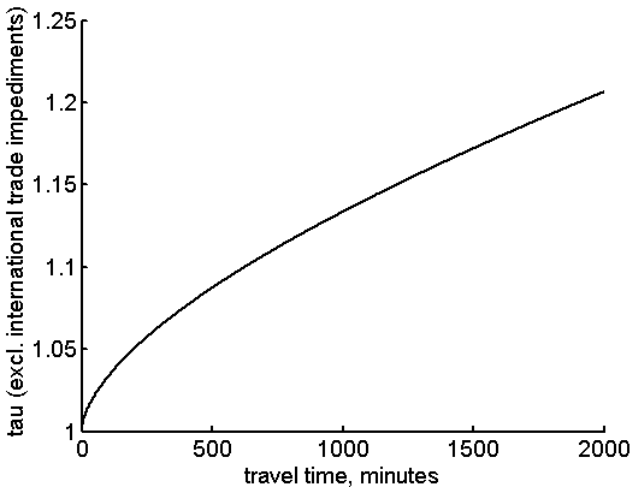
Figure 1: distance function $f(g_{rs})$



Source: Own calculations

Some authors (e.g. HUMMELS 1999) present σ-estimates in the order of 3 to 8. These estimates, however, imply implausibly high transaction costs. Anyway we do not trust HUMMELS' estimates because of his non-sensible specification $\tau_{rs} = g_{rs}^{\delta}$ implying the transaction cost for sufficiently small distances to become negative!

Figure 2: transaction-cost function



Source: Own calculations

Finally, the tariff equivalents θ_{kl} have to be determined. They are calibrated such that international trade flows in the equilibrium solution coincide with observed international trade for 1995. Thereby we assume symmetry, $\theta_{kl} = \theta_{lk}$, because otherwise the tariff equivalent would not be identified.

Beyond parameters, exogenous transfers G_r have to be specified as well. As already mentioned, these equal the regional trade balance deficits. There are no observations for regional trade balance deficits. Therefore we simply divide the national trade balance deficit by region proportional to regional GDPs. We only make an exception for Germany because of the extremely high transfers from West Germany to East Germany. In this case we subdivide the total East German trade deficit, which is known, by region

according to GDP. The influence of variations of G_r in plausible ranges is negligible, according to our sensitivity analysis.

4 Currency Transaction Costs

The transaction costs in international trade, θ_{kl}, are partly due to costs resulting from the fact that different countries have different currencies, as already mentioned. The impact of these costs on trade can be estimated by a regression, again applying trade equation (9) to international trade. An estimation is possible if we have data for country pairs not having a common currency as well as for country pairs with a common currency.

Let $\theta_{kl} = \mu_{kl} + \pi \cdot z_{kl,}$, with μ representing currency costs (measured as tariff equivalents), z_{kl} denoting a vector of further explaining variables (dummies for common language etc.) and π denoting a parameter vector of appropriate length. Furthermore, let

$$\mu_{kl} = \begin{cases} \overline{\mu} & \text{if } k \text{ and } l \text{ have different currencies,} \\ 0 & \text{else.} \end{cases}$$

Then one substitutes for θ_{kl} in equation (9) and estimates the regression for international trade:

$$t_{kl} = \exp\left(a_k + b_t - \sigma\zeta g_{kl}^{\omega} - \sigma\overline{\mu}\delta_{kl} - \sigma\pi \cdot z_{kl}\right) + u_{kl} \quad (10)$$

with dummy

$$\delta_{kl} = \begin{cases} 1 & \text{if } k \text{ and } l \text{ have different currencies,} \\ 0 & \text{else.} \end{cases}$$

u_{kl} is the error term. Again, only the product $\sigma\overline{\mu}$ is identified, not the cost-component $\overline{\mu}$ itself. As mentioned in the beginning we rely on regression estimates of ROSE (2000), ROSE and VAN WINCOOP (2001) and GLICK and ROSE (2001), who use regression equations such as equation (10). ROSE and van WINCOOP estimate the equation for a pool of three cross-sections (1980, 1985 and 1990) with 143 countries, taking the endogeneity of a_k and b_l, as shown by equations (7) and (8), into account. These estimates correct earlier ones by ROSE (2000) that neglected these endogeneities. Different from equation (9), these authors specify a distance influence as $\log g_{kl}$ rather than g_{kl}^{ω}. This makes no sense, as it implies $\tau_{kl} = 0$ for $g_{kl} = 0$. The estimated currency union effect, however, which only interests us here, is sufficiently robust such that this difference can be disregarded. The resulting estimate is $\sigma\overline{\mu} = 0.91$, which is an enormously high value. According to this estimate, trade between countries with a common currency is 2.5 as large as trade between countries without a common currency, ceteris paribus[1].

An obvious problem of this estimate is the potential endogeneity of the establishment of a currency union. If the currency union was endogenous, this parameter estimate just

[1] In this case the ceteris-paribus clause also includes the multipliers a_k and b_l, that in fact depend on $\overline{\mu}$ and therefore can not be taken as constant. In general equilibrium, trade increases by less than the factor 2.5 if currency costs are reduced to zero [see the discussion of this point in ANDERSON and VAN WINCOOP (2001)].

expresses the fact that countries trading intensively with one another for what reason ever are inclined to form a currency union. In this respect the estimate of GLICK and ROSE (2001) is less vulnerable. These authors estimate the effect of a common currency in a panel covering a time series of trade matrices, catching all influences that are specific for country pairs but constant over time by fixed country pair effects. In this case the effects of a currency union are based on observations of the change in trade over time that is synchronous with entering a currency union or exit from a currency union.

If the unobserved reasons making countries trade intensively with one another remain constant over time, these reasons are not contained in the parameter now anymore. However, we can not be sure about the constancy of these reasons either. Many currency unions cover less developed countries. Here it is possible that unobserved political events are the reasons for both, decreasing trade as well as dissolution of currency unions, even though the latter may not influence the former.

A further problem is that the observations mainly contain exits from currency unions, not entries. Note that the estimate only depends on exits and entries. Effects of a currency union existing over the whole observation period of the panel are not measured by the parameter but are fully contained in the country-pair specific dummies. If we use these estimates for simulating the Euro effect, we apply evidence from dissolutions of currency unions to the formation of a currency union. Obviously this is a problem, but unfortunately formations of currency unions are rare events in recent history such that there is only little evidence about their effect.

Using the panel estimate, GLICK and ROSE (2001) come up with a smaller, but still considerable estimate of $\sigma\overline{\mu}=0.65$, corresponding to a doubling effect of a currency union on trade, ceteris paribus[2]. We use this as an estimate for variant I of our results. Taking as given our guess for the elasticity of substitution ($\sigma=16$), this estimate implies a tariff equivalent $\overline{\mu}$ of 4%.

Simulating welfare effects of EMU by reducing all trade impediments θ_{kl} between EMU members uniformly by this amount generates welfare gains that are particularly large in the Netherlands, Belgium, Luxembourg and in the western parts of Germany. This means in a European context that it's relatively rich regions that are the beneficiaries of the EMU. Given our basic question this is in fact a politically important result. One can object, however, that a currency union is likely to reduce transaction cost differently for different pairs of countries. In particular, transactions between Germany and other countries were probably cheaper than transactions between countries other than Germany among each other before EMU. This is because the DEM played an import role as a vehicle currency that was not only used in transactions with Germany, but also in transactions between other countries among each other. We try to take account of different levels of transaction costs before EMU in variants II and III in our results by introducing proxies for transaction costs among different currencies. Using these proxies we construct estimates $\hat{\mu}_{kl}$ varying over pairs of countries such that the weighted average over all country pairs of the EMU equals $\hat{\overline{\mu}}=0.65/\hat{\sigma}$. Trade volumes are taken as weights.

[2] Remember the qualification of the ceteris paribus clause.

One proxy related to transaction costs is the bid-ask spread, that is the percentage deviation of the ask from the bid exchange rate. We use daily exchange rates in inter bank exchange, averaged over the days of January 1996 (excluding weekends). The rates are very stable over time: each day (except 27.1.96, which is obviously disturbed by special influences) correlates with the average with a correlation coefficient between 0.93 and 0.97. The matrix of spreads is close to symmetry. The lower left triangle in Table 1 shows spreads averaged over both directions. The range is between 0.05 per thousand (NLG-DEM)[3] and 2.4 per thousand (FIM-IEP). The non-weighted average is 1.2 per thousand, the standard deviation is 0.5 per thousand.

The pattern of the matrix is plausible. The entries are well approximated by a sum of two amounts relating to the respective currencies. That means, for the spread s_{kl} we have

$s_{kl} \approx \bar{s}_k + \bar{s}_l$.

Table 2 shows least square estimates of $\bar{s}_k$. Obviously DEM is by far the cheapest, FIM and IRL are the most costly currencies. Spreads are the higher, the smaller the respective transaction volume and the higher the volatility of the respective currency was in the past. Regressing spreads on volatilities (as measured as explained below) and trade volumes (as proxies for transaction volumes) over the respective country pairs shows a highly significant impact of both variables with expected signs, positive for volatility and negative for trade volume. R^2 is 0.57. Hence, spreads seem to be a plausible indicator for transaction costs between the respective currencies. Therefore we fix μ_{kl} proportional to spreads for EMU countries k and l, $k \neq l$, in variant II of our estimates. As already said, the weighted average is held constant at the same level as for variant I.

In variant III μ_{kl} is fixed proportional to the volatilities of the exchange rate between their respective currencies, measured ex post over the period 1992-1995. This is because transaction costs to a large extend do not result directly from the cost of exchange itself, but from the uncertainty of price predictions.

Table 1: Volatility (upper right) and spread (lower left) in per thousand

	DEM	FRF	ITL	NLG	BEF	IEP	GRD	ESP	PTE	FIM	ATS
DEM	-	1.6	4.7	0.2	1.4	4.7	4.6	5.9	2.9	5.2	4.4
FRF	0.2	-	4.3	1.6	1.5	4.7	4.7	5.7	2.9	5.2	4.7
ITL	0.4	0.5	-	4.7	4.6	5.9	6.0	6.6	5.0	6.2	6.4
NLG	0.1	0.7	1.0	-	1.4	4.7	4.6	5.9	2.9	5.2	4.4
BEF	0.1	0.9	1.2	0.4	-	4.8	4.8	5.8	2.9	5.2	4.7
IEP	1.6	1.5	1.8	1.6	1.7	-	4.4	5.8	5.0	6.3	4.5
GRD	0.9	0.8	1.1	0.8	0.9	1.6	-	4.9	5.0	6.6	3.3
ESP	1.1	0.9	1.2	1.0	1.1	1.8	1.0	-	5.5	7.2	4.9
PTE	0.4	1.1	1.4	1.2	1.2	2.0	1.2	1.4	-	5.6	5.0
FIM	1.0	1.5	1.8	1.6	1.6	2.4	1.6	1.8	1.9	-	6.6
ATS	0.9	0.8	1.1	0.8	0.9	1.6	0.8	1.0	1.2	1.6	-

Source: WWW.OANDA.COM 2002; own calculations

[3] Currencies are: German Mark (DEM), French Franc (FRF), Italian Lira (ITL), Dutch Guilder (NLG), Belgian Franc (BEF), Irish Pound (IEP), Greek Drachma (GRD), Spanish Peseta (ESP), Portuguese Escudo (PTE), Finish Mark (FIM) and Austrian Schilling (ATS).

Table 2: Country components of volatilities and spreads in per thousand

	DEM	FRF	ITL	NLG	BEF	IEP	GRD	ESP	PTE	FIM	ATS
Spread	0.03	0.27	0.57	0.31	0.41	1.24	0.48	0.67	0.75	1.15	0.48
Volat.	1.14	1.28	3.23	1.12	1.30	2.81	2.60	3.64	1.93	3.77	2.60

Source: WWW.OANDA.COM 2002; own calculations

It would be preferable to measure uncertainties ex ante by implied volatilities, obtained from option prices. There are no appropriate data for all pairs of countries, however. Hence, we choose a common volatility measure, namely the standard deviation over daily relative changes of exchange rates. For volatility predictions in applied option pricing this standard deviation is usually calculated over sixty days. Such simple predictions outperform predictions obtained from sophisticated time series models, according to KRONER (1996). Hence, we stick to the simple standard deviation measure. As we are interested in long term patterns, however, we prefer a longer time period. Our measure is the standard deviation over daily log changes of exchange rates between 1.1.1992 and 31.12.1995. Exchange rates are taken from (WWW.OANDA.COM 2002). The upper triangle in Table 1 shows volatilities in per thousand per day. The range is between 0.2 per thousand (HFL-DEM) and 7.2 per thousand (FIM-ESP). The non weighted average of volatilities is 4.6 per thousand, the standard deviation is 1.5 per thousand. FIM, ESP and ITL were the most volatile currencies over the observation period.

5 Results

Welfare gains by country, measured as equivalent variations as a percentage share in GDP, are shown in Table 3. Belgium and Luxembourg are merged under BEF. Taking all member countries together, the welfare gain is approximately 1% of GDP. Not surprisingly, the overall level for the whole EMU hardly differs between variants, because the savings are assumed to be equal in all three variants, on average. According to variant I, in which equal savings are assumed for each country pair, small open economies like the Netherlands and Belgium/Luxembourg gain most. The pattern changes considerably with the two other variants. The gains are larger for Ireland, Finland, Austria, Portugal and Spain, who had relatively high costs of currency exchange before EMU, because these differences are accounted for in variants II and III. The effects for Germany and the Netherlands are correspondingly smaller in variants II and III, as compared to variant I.

The spatial patterns are depicted in Figures 3 to 5. The left and right maps in Figures 3 to 5 show the same numbers, respectively. The right maps are just differently classified zooms of the left maps, respectively, showing clearer the spatial variation in Germany and neighbouring countries.

According to variant I, relative effects correlate significantly positive ($r = 0.29$) with GDP per capita over regions. Correspondingly, absolute effects per capita correlate even stronger ($r = 0.57$) with GDP per capita. Hence, taking this serious, we would have to conclude that, on average, richer regions gain more than poorer ones from establishing the EMU. This result turns out not to be robust, however. It relies on the assumption that the relatively rich regions in the centre of Western Europe save transaction costs to the same extent as more peripheral regions. As the analysis of spreads and volatilities

shows, however, this is not the case. Germany, the Netherlands and France enjoyed relatively low costs of international transactions before EMU. In Variants II and III, taking this fact into account, we therefore do not observe higher gains in richer regions. The correlation of relative welfare gains with GDP per capita is virtually zero in these variants. Therefore, EMU turns out to be neutral with regard to spatial effects measured in relative terms. We trust more in the results of variants II and III rather than those of variant I because more information about pre-EMU transaction cost is incorporated in the estimates of variants II and III. We may therefore conclude that the EMU does not contradict the cohesion objectives of the European Union. This is our first empirical result.

Table 3: National welfare effects of EMU, equivalent variations in percent of GDP

variant	**DEM**	FRF	ITL	NLG	BEF	IEP	GRD	ESP	PTE	FIM	ATS	EMU
I	0.8	0.8	0.6	2.1	2.8	1.4	0.5	0.7	1.0	0,7	1.4	1.1
II	0.5	0.7	0.8	1.7	3.0	6.6	0.9	1.6	2.4	2.8	2.6	1.1
III	0.7	0.7	1.2	1.1	1.7	2.7	0.9	1.7	1.3	1.7	2.5	0.9

Source: Own calculations

Figures 4 and 5 show regional results for variants II and III. Despite of different measurements of transaction costs before EMU, the spatial patterns of all three variants show close similarities. The results of variant I correlate with those of variants II and III with r = 0.75 and r = 0.81, respectively. Variants II and III show the closest correlation (r = 0.88). The similarity of intranational spatial patterns appears as lines of points in the scatter plot in Figure 6. The extreme outliers on the right in variant II are Ireland and a Finish region (Ålands).

Within each country the pattern is governed by the gravity hypothesis that is implied by the model. Regions close to the border trade more intensively with foreign countries and therefore gain relatively more from transaction costs savings than regions in the respective centres of a country. According to variant II, relative effects in Germany range from 0.4% for the region Südheide (Lower-Saxony) to 0.8% for the region Rosenheim (Bavaria). In spite of the pronounced distance effect, the standard deviation of relative effects is with 0.1% still small.

Figure 3: Regional welfare effects of EMU, equivalent variations, percent of GDP, variant I

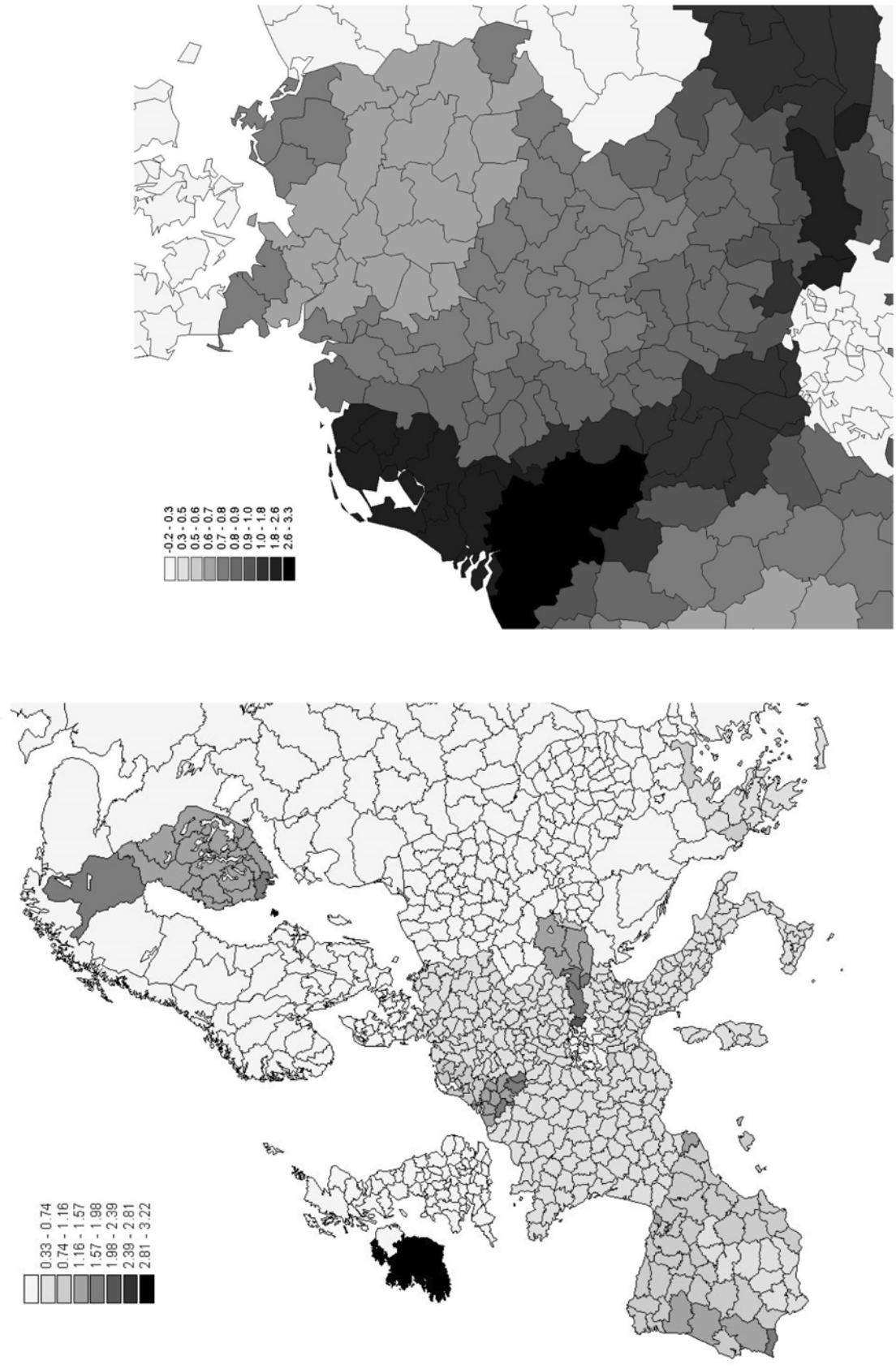
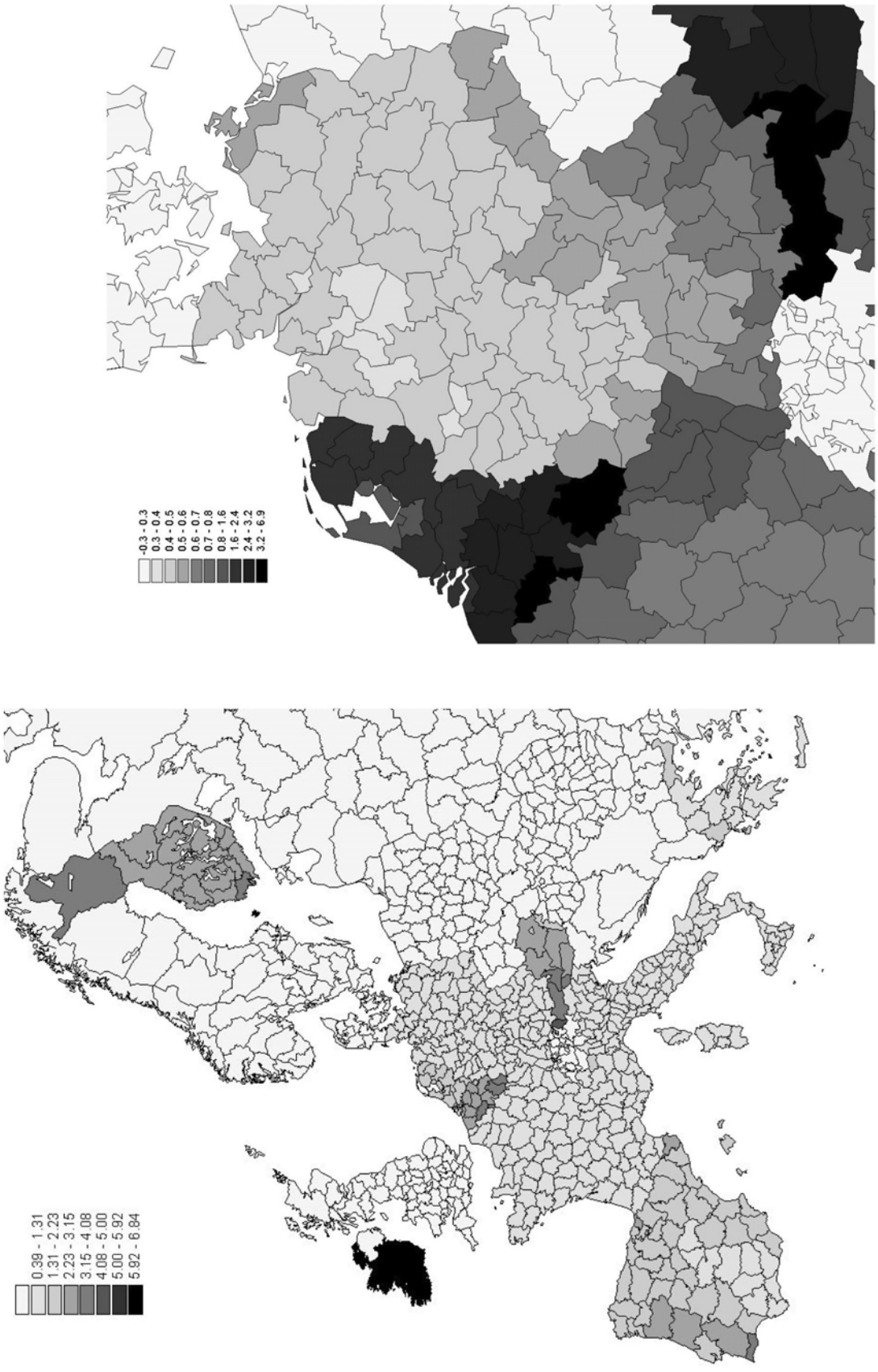


Figure 4: Regional welfare effects of EMU, equivalent variations, percent of GDP, variant II



Source: Own calculations

Figure 5: Regional welfare effects of EMU, equivalent variations, percent of GDP, variant III

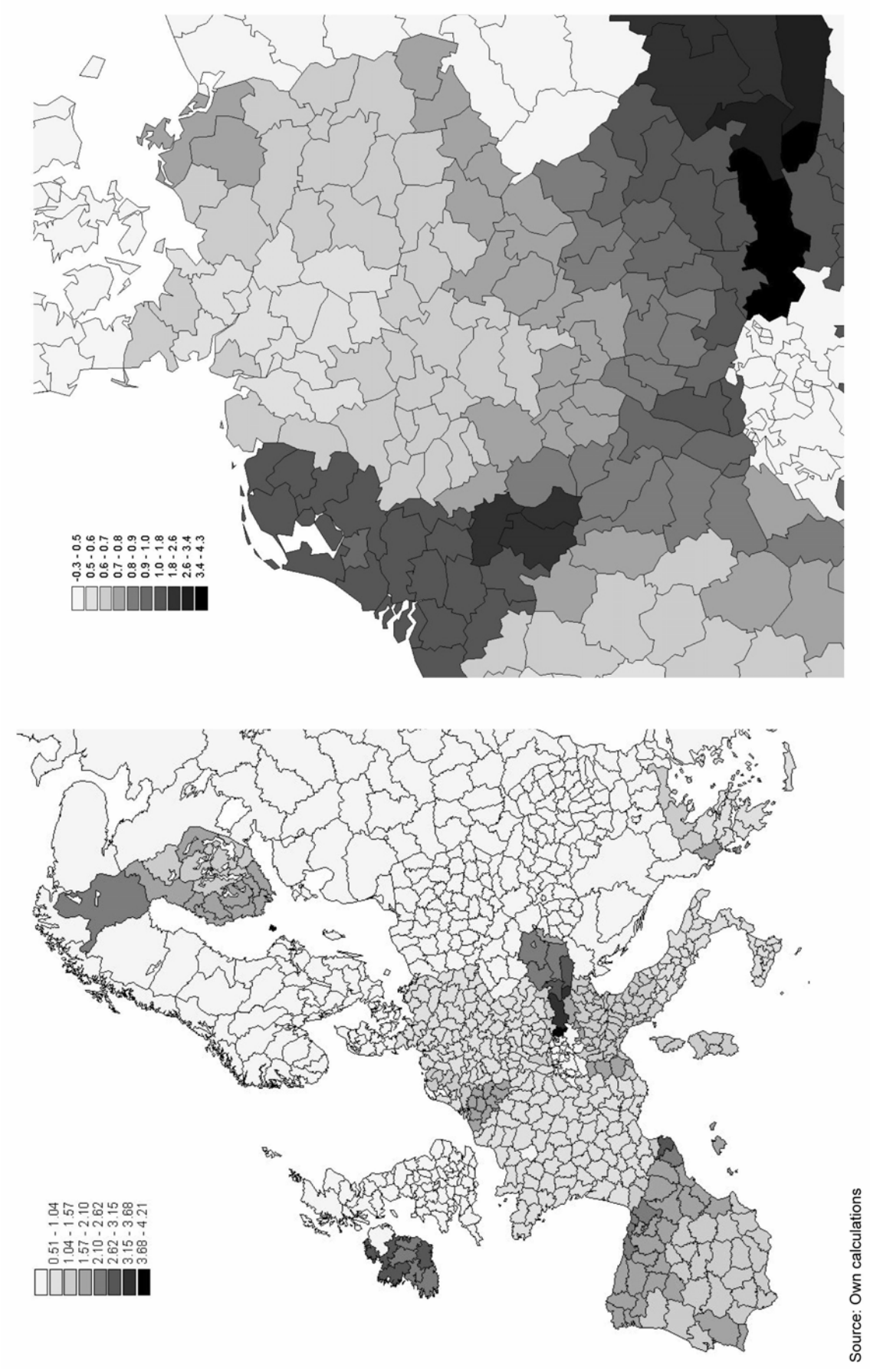
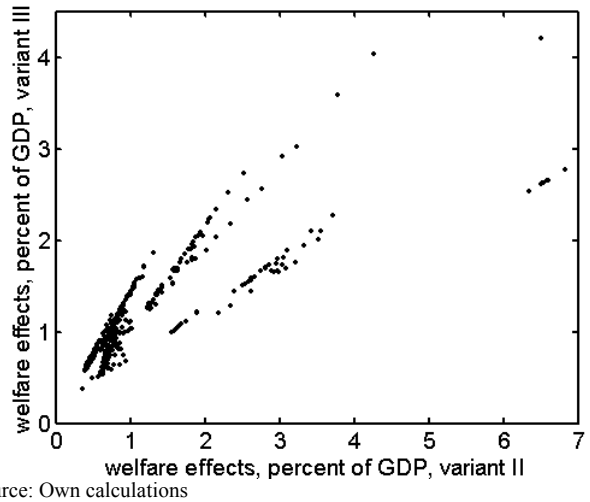


Figure 6: Correlation between effects according to variants II and III, respectively



Source: Own calculations

6 Discussion

To be sure, the numerical results must not be taken as precise estimates. They should rather be regarded as model-based guesses. The characteristic spatial pattern within the countries, with stronger effects close to the borders to other EMU countries, results from the gravity hypothesis that is an integral part of the model. We have not used any direct information about international trade intensities on the regional level. But in judging the reliability one should be aware that hardly any hypothesis in empirical economics is that robust as the gravity hypothesis, such that we feel justified to take it as a central pillar to base our guesses about spatial effects of EMU on.

The deviation of effects in regions close to the border from those more distant from the border depends on the distance sensitivity of trade. This sensitivity is measured by the combined parameter $\sigma\zeta$ in our model. At least for foreign trade, the estimate of this parameter is highly reliable, though the application of the parameter obtained from international trade to interregional trade could be called in question, of course. More uncertain than the regional distribution of effects are the estimates of the national levels. The regression estimates that our results are based on deliver just one single parameter for the suggested effect of a currency union, and additional assumptions had to be introduced in order to come up with estimates of cost savings specific to each country pair. To be sure, spreads and volatilities are just rough proxies for transaction costs by country pairs.

Even more doubts are in order with regard to the overall level of welfare effects, because it is inversely proportional to σ, the elasticity of substitution between tradable product varieties. The econometric estimates from the literature deliver only an estimate of a combined parameter $\sigma\overline{\mu}$, but the tariff equivalent $\overline{\mu}$ itself is not known. It is only obtained after fixing σ, and as the estimates of σ are very uncertain, those of $\overline{\mu}$ are uncertain as well. Doubling σ halves the level of welfare effects, and vice versa. Following the literature, ROSE and VAN WINCOOP (2001) assume σ to be equal to 5, which makes them go that far as to claim the establishment of the EMU to generate a welfare gain amounting to 11% of GDP of the participating countries! Except that this estimates must be called into doubt also for other reasons not discussed in this paper, an

estimated tariff equivalent of transaction costs amounting to 13% of the trade value, as implied by $\sigma = 5$, is clearly a severe exaggeration of the level of transaction costs before EMU. Note that these transaction costs are not payments generating an income to other agents in the economy, but lost resources due to the necessity of handling different currencies. Cost savings due to EMU of such a magnitude are absurd, taking results from questionnaire studies (IFO INSTITUTE 1998) into consideration. Even our implicit estimate of a tariff equivalent of 4% of the trade values is still high, compared to the empirical studies just mentioned. Hence, the overall level of effects is still uncertain, and even 1% of GDP seems to be quite optimistic.

7 Summary

The reduction of transaction cost in international trade brought about by EMU is likely to lead to a deeper integration of labour, capital and goods markets. While effects on factor markets will hardly generate any impact differing by region, goods market effects will affect regions differently, depending on their respective international trade intensities. This paper estimates welfare effects resulting from reduced transaction costs in international trade, using a static multiregional general equilibrium model. The kernel of the model is the trade part specified in Dixit-Stiglitz-style. Interregional trade shows a gravity pattern due to transaction costs depending on distance. Transaction cost reductions brought about by EMU are based on econometric estimates by GLICK and ROSE, relying on trade intensification following the establishment of other currency unions worldwide.

According to our results EMU could imply a welfare gain for the participating countries amounting to 1% of GDP annually. This is considerably less than the authors just mentioned have suggested, but still all but a negligible quantity. The aim of this paper was, however, to estimate the spatial distribution rather than the overall level. There is some concern that the spatial effect of EMU might contradict the cohesion objectives of the European Union in benefiting richer regions in central Europe more than relatively poorer ones.

Our simulation results show this concern not to be substantiated. We find neither a positive nor a negative correlation of relative effects with base year levels of GPD per capita. The highest gains are predicted for regions close to the borders. These regions are supposed to have the highest trade intensities with partner countries and therefore gain most from saving of transaction costs in international trade.

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Appendix

Let F_r denote the stock of factors, w_r the factor price and P_r the value of production in region r. From the Cobb-Douglas assumption we get $w_r F_r = \alpha P_r$ and $p_r = w_r^{\alpha} p_r^{\beta} q_r^{\gamma} / \nu_r$, with the level of productivity of ν_r. Solve the latter equation for w_r and insert w_r as well as $P_r = w_r F_r / \alpha$ into the equation $S_r = P_r - \beta P_r - \varepsilon\left(w_r F_r + G_r\right)$ stating that tradables supply equals output minus local goods, both in value terms. The value of local goods is the value of intermediate (βP_r) and final ($\varepsilon\left(w_r F_r + G_r\right)$) use of local goods. This yields equation (2) with $\phi_r = \left(1 + \gamma/\alpha - \varepsilon\right) \nu_r^{1/\alpha} F_r$.

Equation (3) is the regional budget constraint. Equation (4) is the well-known CES-price-index

$$q_r^{1-\sigma} = \sum_s \ell_s \left(p_s \tau_{rs}\right)^{1-\sigma}$$

with number of variants ℓ_s in region s. ℓ_s is proportional to the real output S_s / p_s, which yields equation (4).

Finally, as to equation (5): The expenditure share of the respective region of origin r in expenditures for tradables in region s is proportional to $\ell_r \left(p_r \tau_{rs}\right)^{1-\sigma}$, hence proportional to $S_r p_r^{-\sigma} \tau_{rs}^{1-\sigma}$. These shares include the respective transaction cost. Hence, expenditures for purchases from *r*, valued at mill prices, are proportional to $S_r \left(p_r \tau_{rs}\right)^{-\sigma}$. Summing these purchases over r yields D_s. Thus deliveries from r to s, valued at mill prices, are

$$t_{rs} = \frac{S_r \left(p_r \tau_{rs}\right)^{-\sigma}}{\sum_t S_t \left(p_t \tau_{ts}\right)^{-\sigma}} D_s . \qquad (11)$$

Inserting t_{rs} from equation (11) into the equilibrium condition $S_r = \sum_s t_{rs}$ and solving for p_r yields equation (5). A similar expression would be obtained from the standard iceberg-assumption, with the only difference that the τ s in the nominator and denominator are raised to the power $1-\sigma$ rather than $-\sigma$. This difference is negligible for large σ.

MARTIN HALLET[1]

Regional Integration Effects of the Euro – What is the Empirical Evidence after the First Years?[2]

(submitted in October 2001)

Contents

1 Introduction

Taking a broad definition of economic integration as any reduction of trade costs (including risks) between distant markets, the introduction of the euro can be expected to have a measurable integration effect. Indeed, apart from enhanced macroeconomic stability[3], complementing the Single Market with a single currency has been one of the main motivations for European economic and monetary union (EMU). This has been best expressed by the title of the Commission's EMU study "One Market, One Money" in 1990. For transactions between different currency areas, costs occur for at least one of the transaction partners in comparing prices, exchanging foreign currency and managing exchange rate risks. The main benefit of a single currency is thus to economise on these transaction costs. While the introduction of the euro changes parameters at national level, i.e. the abolition of national currencies and their exchange rates within EMU, integration effects may well be different at the regional, sub-national level.

The introduction of the euro has effects on all cross-border transactions on goods, capital and labour markets. Since 1999, the most important integration effects have been observed on financial markets in the euro area where national currencies have disappeared although many differences in national regulations remain in place. In contrast, the integration effects on labour markets are rather limited given that

[1] Views expressed in the paper are exclusively those of the author and do not necessarily correspond to those of the European Commission, for whose Directorate-General for Economic and Financial Affairs (DG ECFIN) the author is working.

[2] Similarities to sections II.1 and II.2 of the Commission's Second Cohesion Report (EUROPEAN COMMISSION 2001) are no coincidence since the author has contributed to these sections.

[3] On the evidence on macroeconomic aspects of EMU after two years see DIRECTORATE GENERAL FOR ECONOMIC AND FINANCIAL AFFAIRS 2001.

geographic mobility depends on many other determinants and that an effect on wage bargaining would imply to assume that agents were subject to a money illusion prior to the introduction of the euro. In both cases, it would be difficult to identify regional effects of the euro – possibly except for some financial centres such as Frankfurt, Paris or London – so that this paper will be limited to goods markets, i.e. merchandise and services.

An important issue in any progress in European integration is whether it is beneficial or detrimental to economic and social cohesion, one of the main objectives defined in the EU treaty. For an analysis of the regional impact of economic integration, it is useful to distinguish between static and dynamic integration effects. The initial or static integration effects of the euro within the existing production structures may vary between regions and trigger dynamic integration effects changing the spatial structures of production through more competition, economies of scale, product differentiation, innovation and growth. In modelling terminology the difference is between the initial shock and how it spreads through the economy. The paper proceeds by presenting some evidence on the static integration effects of the euro in section 2 and then providing some results of regional effects of European integration in the long run in section 3. Section 4 concludes.

2 The static integration effects

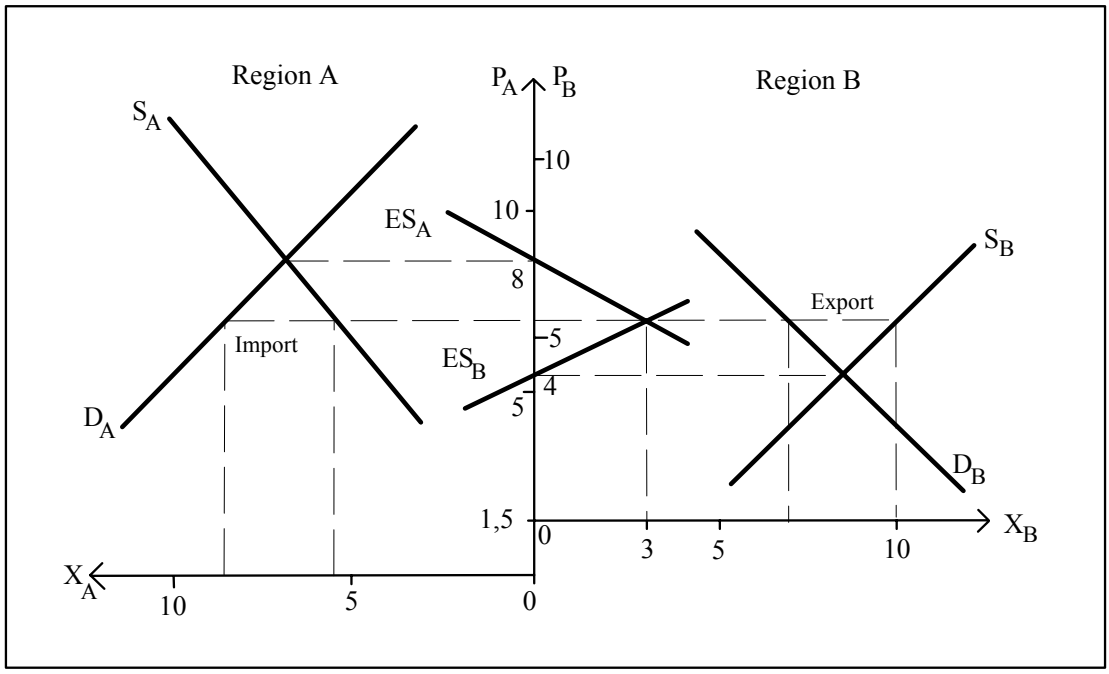
In theory, the “law of one price” should prevail on perfectly integrated markets without any trade costs. Otherwise arbitrage would allow for major profits from buying a good on lower-priced markets and selling them at markets with higher prices until price differences have disappeared. While full absence of trade costs does not exist in reality, it helps to understand the fact that prices can only differ to the extent that trade costs prevent this process of arbitrage.

In other words, trade costs have the effect of fragmenting markets. These can occur as transport costs to overcome geographic distance, information costs caused for example by different languages, costs of insurance against currency or other risks, or regulatory costs arising for example from different product standards. In the European context, economic integration has been brought about in various steps such as the creation of the customs union until 1968, the elimination of non-tariff barriers by the Single Market until 1993, the reduction of transport costs by trans-European infrastructure projects as well as the reduction of foreign exchange-related costs and risks and increased price transparency by the introduction of the euro in 1999.

In theory, market integration of two regions exerts a tendency towards the reduction of price differences and the creation of trade. Figure 1 illustrates the relation between trade costs and prices of a good in two regions. The export supply curves ES_A and ES_B result from the excess supply and demand above and below the intra-regional equilibrium[4]. The trade equilibrium is at a quantity of 3 units and a price of $P_A = 7$ in region A and $P_B = 5.5$ in Region B. Trade costs for shipping the good from A to B (T_{AB}) of 1.5 units equal the price difference. This only holds until trade costs become prohibitive when there is no trade and price differences can vary within this range according to local supply and demand conditions (in our example between $P_A = 8$ and $P_B = 4$, i.e. $T_{AB} > 4$).

[4] Export supply curves in the quadrant of the other region are "negative" export supply curves, i.e. import demand curves.

Figure 1: Static integration effects in two regions A and B



Source: HALLET 1997, p.14, on the basis of Samuelson 1952, p.286

Since price differences can never exceed trade costs, there are only two possible ranges (cf. SAMUELSON 1952, p.287):

$|P_A - P_B| = T_{AB} \Rightarrow$ trade takes place and price differences equal trade costs; or

$|P_A - P_B| < T_{AB} \Rightarrow$ trade costs are prohibitive, there is no trade and regional prices may differ within the range of trade costs.

A reduction of trade costs in the prohibitive range has thus no effect on prices and trade, but may do so if a shift to the non-prohibitive range takes place. Lower trade costs in the non-prohibitive range usually reduce price differences and increase trade, although not necessarily so if export supply curves are fully price elastic and/or inelastic or if the margin of price differences given by trade costs has not been used due to similar regional market conditions. There is thus an asymmetric relation between integration and price differences. Progress in integration is likely to bring about a reduction of price differences for traded goods, while an observed reduction in price differences is not necessarily due to integration if the good is not traded.

Starting from this definition of economic integration as the reduction of trade costs, there are basically three groups of measures for integration. A first group measures the change of particular kinds of trade costs; in this case bank charges or other exchange costs economised by the euro. A second approach is to measure price differences for identical goods on different markets. A third possibility is more indirect in looking at the volume of trade induced by integration which is, however, difficult to trace back to one certain kind of integration project.

2.1 Bank charges

A study on "Bank charges in Europe" (IEIC 2000) carried out for the Commission has produced some interesting results. The procedure for surveying the charges for cross-border banking transactions made at the end of 1999 was as follows:

- a team of four researchers was constituted in each euro-zone country. Each researcher had a current account with a different bank, and an international means of payment (Visa, Eurocard or Eurocheque);
- each of the four researchers made four paper transfers of € 100 to each of two countries (A and B), and received eight transfers of € 100 (four from country A and four from another country, C);
- the four researchers then travelled abroad the same day, where they carried out the following transactions: a purchase by card for an amount of € 25, a cash dispenser withdrawal of approximately € 100, and a cash dispenser withdrawal of approximately € 50;
- on their return, they changed the € 100 at a bank, and the € 50 at a bureau de change.

The results in Table 1 show that charges for cross-border currency transactions are still considerably high. This is in particular the case for bank transfers, where a remarkable feature was that the beneficiary was often charged although the researchers had specifically asked not to do so and to ensure the beneficiary receives the full amount of € 100. While in view of the amounts the charges apply mainly to consumers and can be expected to be much lower for business transactions involving larger amounts, the level of charges is probably prohibitive for many potential cross-border purchases which could exploit lower prices. An update of the study in the beginning of 2001, although based on a different list of banks, did not reveal any major differences compared to the 1999 survey.

A similar study carried out for the Commission already in 1994 – excluding Austria and Finland – allowed to compare the charges for bank transfers. It can be observed that charges decreased by almost half in the core of the euro area (B, D, F, L, NL), whereas they remained relatively high in the periphery (E, I, IRL) and even increased by 11% in Portugal (Figure 2).

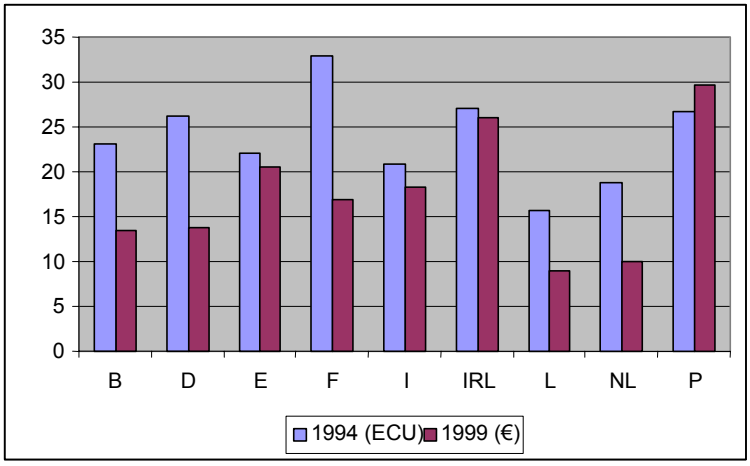
The integration effect of the euro at consumer level can thus be seen over time, although the absolute levels of conversion charges between euro currencies is still rather high and has lead the Commission to start cartel proceedings against more than 100 banks in 7 euro countries suspecting them of fixing conversion tariffs. Proceedings against several banks have been dropped in the meanwhile after they decided individually to considerably lower the fees for conversion. The introduction of the euro cash money at the beginning of 2002 gives therefore rise to expectations that banks will have to reduce these charges considerably if they want to avoid consumers doing most cross-border transactions in cash.

Table 1: Average costs of currency transactions within the euro area in November/December 1999

	€100 bank transfer (by country of origin)			€25 payment by bank card	€100 cash dispenser withdrawal		€100 exchange of banknotes	
	originator	beneficiary	total		card-issuing country	country of withdrawal	in a bank	in a bureau de change
B	13.37	0.00	13.37	0.00	4.32	4.17	1.78	
D	13.39	0.39	13.78	0.79	4.17	4.38	2.19	
E	15.48	5.02	20.50	0.00	3.74	6.02	2.40	3.00
F	15.36	1.52	16.88	0.37	2.21	2.46	7.08	5.95
I	16.10	2.18	18.28	0.26	4.89	4.67	1.93	1.03
IRL	25.61	0.37	25.98	0.00	1.59		2.63	2.81
L	8.15	0.76	8.91	0.00	3.85		4.34	3.72
NL	8.68	1.32	10.00	0.10	1.93	2.21	3.69	3.90
AT	9.56	1.05	10.61	0.26	4.67	4.89	3.54	6.53
P	25.13	4.55	29.68	0.32	6.02	3.74	1.04	1.00
SF	19.77	0.34	20.11	0.00	4.45		4.57	2.55
average	15.51	1.59	17.10	0.19	3.80	4.07	3.20	3.39

Source: IEIC 2000

Figure 2: Charges for a bank transfer of ECU100/€100 in the euro area in 1994 and 1999



Source: IEIC 2000

2.2 Regional exchange costs savings

General estimates on transaction cost savings brought about by the euro range between 0.3-0.4% and 0.8% of GDP.[5] In order to get an idea of the static integration effects of the euro at regional level, trade-related exchange costs estimated for the year 1994 may give an indication of the relative magnitudes (HALLET 1999). This estimate was done by multiplying regions' trade with other euro area countries by the respective bid-offer spreads vis-à-vis the deutschmark between currencies participating in the euro since 1999. The results (see Table 2 and Map) reflect the applied methodology and can be summarised by saying that exchange costs were high in regions where:

[5] The figures have been taken respectively from COMMISSION OF THE EC 1990, p. 68, and IFO INSTITUTE 1998, p. 46.

- Exchange rate volatility vis-à-vis the stable core of the deutschmark area had been high. This applies in particular for regions in Spain, Ireland, Italy, Portugal and Finland;
- The share of foreign trade with other euro area countries is high which is in particular the case for the six founding members of the European Community;
- The share of production of manufacturing goods is high like in the north-east of Spain, the east of France, the north-east of Belgium, the north-east of Italy and the north of Portugal; in contrast, major cities and peripheral regions which are dominated by services have rather low exchange cost savings.

Given that the first two aspects are basically identical across all regions within a country, country characteristics seem to be much more important than characteristics of regional specialisation. Taken together, the results suggest that a clear core-periphery pattern regarding the exchange cost savings does not emerge either at the country or at the regional level.

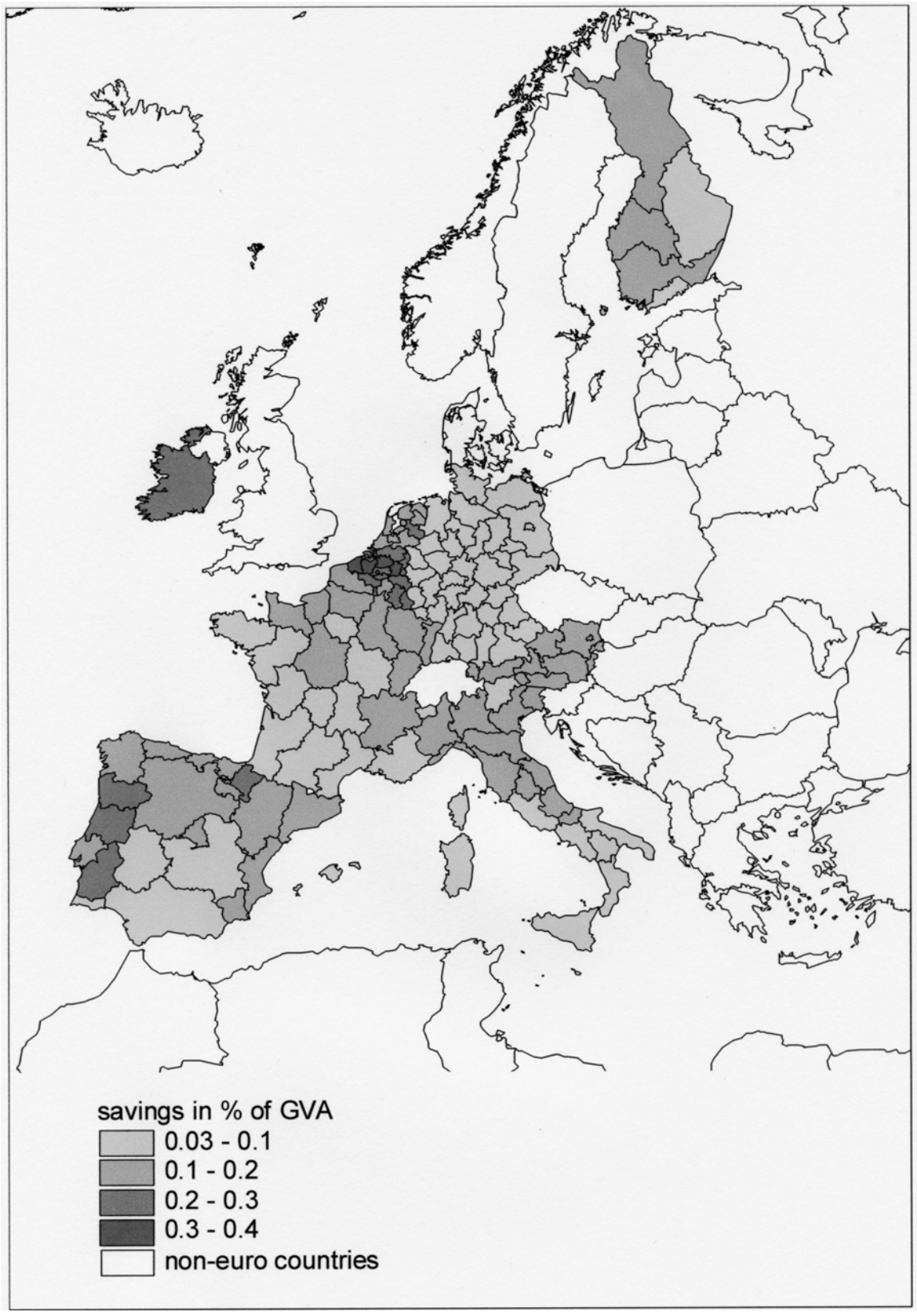
Table 2: National average, highest and lowest regional values for exchange cost savings in % of GVA, 1994

	average	highest	lowest
B	0.31	Limburg (0.40)	Namur (0.18)
D	0.05	Niederbayern (0.06)	Hamburg (0.03)
E	0.14	Navarra (0.23)	Ceuta y Melilla (0.04)
F	0.09	Franche-Comté (0.16)	Corse (0.03)
IRL	0.22	-	-
I	0.13	Piemonte (0.17)	Calabria (0.06)
L	0.26	-	-
NL	0.18	Noord-Brabant (0.24)	Utrecht (0.13)
A	0.14	-	-
P	0.22	Alentejo (0.28)	Madeira (0.08)
SF	0.12	Etelä-Suomi (0.14)	Ahvenmaa/Åland (0.09)
total	0.10	0.40	0.03

Note: For Ireland, Luxembourg and Austria calculations were based on national data.
Source: HALLET 1999

VILLAVERDE (2000) applied the same methodology to a more precise set of data for visible trade of the Spanish *Comunidades Autónomas*. The results range from 0.01% for the Baleares to 0.22% for Navarra, averaging 0.10% for Spain relative to GDP respectively. He concludes that "although not negligible, it must be recognised that these savings alone will barely affect the evolution of regional disparities in Spain" (p.5). However, the level of exchange cost savings should be of less interest than the relative position of regions within and between Member States since every choice of bid-offer spreads is more or less arbitrary as regards the level of foreign exchange costs. It would be easy to change the level of exchange cost savings by taking other bid-offer spreads, e.g. lower ones in interbank trade or higher ones for consumers, but it would not affect the structure of results considerably.

Map: Exchange cost savings from the euro in NUTS 2 regions in % of GVA, 1994



Source: HALLET 1999, (GVA – Gross Value Added)

2.3 Price differences

A major difficulty when it comes to price comparisons is to actually compare identical goods and to avoid that price differences rather reflect differences in product quality. Given the wide range of product qualities and the services that come along with a product, this is already difficult within a single country. Comparisons between different countries can additionally be complicated by differences in product taxes and changes in exchange rates. A further problem occurs with comparisons over time when product qualities change due to innovations.

Several price comparisons have tried to come around these difficulties. A well-known and simple price comparison which is repeated regularly is the "Big Mac Index" by the weekly news-magazine "The Economist" (Table 3). The Big Mac shows the typical features of a non-traded good since price differences mostly reflect differences in wages and purchasing power in line with the Balassa-Samuelson-theorem, in particular when looking at the Central European countries. It is therefore of little surprise that there are little signs of price convergence within the euro area since 1999, and the price in Italy even seems to be diverging.

Table 3: Price of a Big Mac, 1997-2001

	in US $ at market exchange rates					US price=100				
	Apr-97	Apr-98	Apr-99	Apr-00	Apr-01	Apr-97	Apr-98	Apr-99	Apr-00	Apr-01
USA	2.42	2.56	2.43	2.50	2.54	100	100	100	100	100
Britain	2.95	3.05	3.07	3.00	2.85	122	119	126	120	112
Czech Republic	1.81	1.57	-	1.39	1.43	75	61	-	56	56
Denmark	3.95	3.39	3.58	3.08	2.93	163	132	147	123	115
Euro area	-	-	2.71	2.37	2.27	-	-	112	95	89
France	3.04	2.84	2.87	2.62	2.49	126	111	118	105	98
Germany	2.86	2.69	2.72	2.37	2.30	118	105	112	95	91
Hungary	1.52	1.22	1.26	1.21	1.32	63	48	52	48	52
Italy	2.73	2.47	2.50	2.16	1.96	113	96	103	86	77
Poland	1.39	1.53	1.38	1.28	1.46	57	60	57	51	57
Spain	2.60	2.40	2.43	2.09	2.09	107	94	100	84	82
Sweden	3.37	3.00	2.88	2.71	2.33	139	117	119	108	92

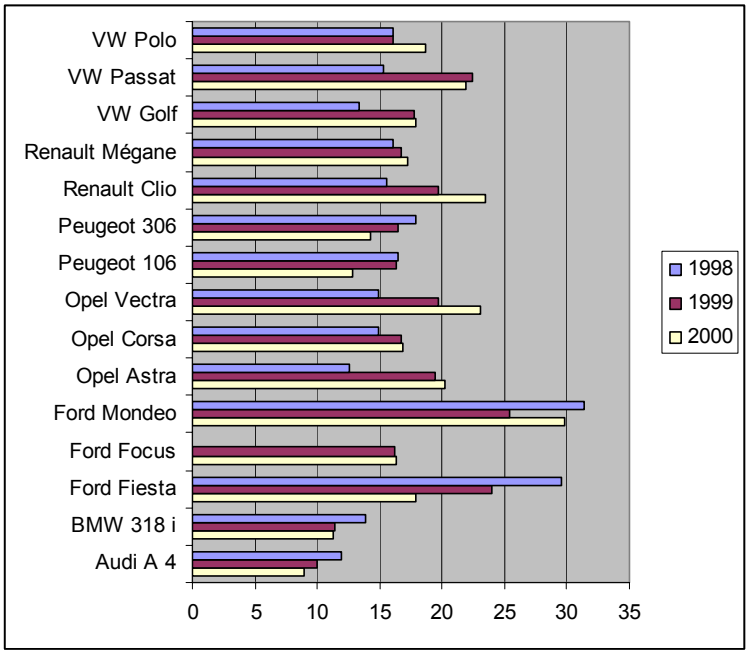
Source: The Economist, various editions

Since 1997, the Commission carries out twice a year a survey on prices of 75 car models in all Member States in order to provide information on car manufacturers' price differentiation within the Single Market. The average results for the years 1998 to 2000 provide little evidence that the introduction of the euro has yet had an impact on manufacturers' pricing policies given that the highest price can still differ more than 25% from the cheapest country within the euro area (Figure 3). It seems that until now, rather than the euro, other transaction costs – in particular those related to the car producers' distribution systems – prevented from more extensive use of arbitrage. Nevertheless are the UK and Sweden frequently among those countries that have the highest prices of all Member States, while Finland, Denmark and Greece often have the lowest prices to compensate for high taxes related to car purchases. For French and German cars there is obviously a "home market effect" in that cars are most expensive in the country where they are produced due to low demand elasticities.

The Economist Intelligence Unit (EIU 2001) has recently carried out an international price comparison of branded consumer goods in France, Germany, Sweden, the UK and the US for the governments of the UK and Sweden. The 113 items surveyed were grouped into eight product categories: pre-recorded items; computer games and toys; cosmetics and fragrances; clothing and footwear (non-sporting); sports and leisure; electrical goods; household goods and furniture; and accessories. The overall result of

the survey for the European countries was that for both retail prices and net prices the UK and Sweden had the highest prices and France and Germany the lowest prices for most items. Many factors may contribute to this result, such as the nominal exchange rate of the euro, the location of the countries or the specific features of the retail sales system. However, most of the products surveyed are tradable and a certain lack of market integration is necessary to allow for the sometimes substantial price differences without arbitrage taking place. Consumers in France and Germany thus seem to benefit significantly from a higher integration into the Single Market, one factor among others being the euro.

Figure 3: Car price differences in EUR10 (euro countries excluding Finland and Greece) net of taxes, calculated as annual average of difference of highest to lowest price in %



Source: European Commission; own calculations

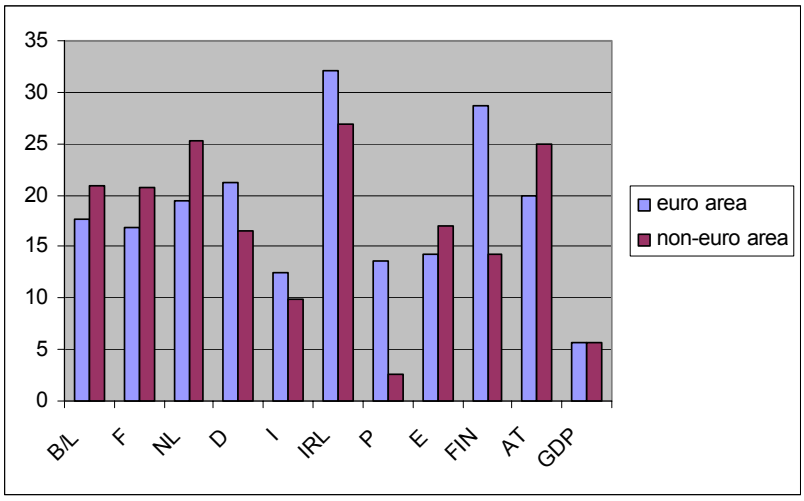
2.4 Trade flows

In principle, an increase in trade between the euro countries since 1999 could be expected if the integration stemming from the euro were strong enough to show up in the data. In view of the many determinants of trade, such as business cycle, distance and competitiveness, one should be cautious by merely looking at the changes. Nevertheless, given that real GDP growth has been about the same in the two country groups over the period under consideration (about 6% in both cases), a consistently higher increase in euro area trade than in non-euro area trade of all participating countries in 1999/2000 compared to 1997/1998 could be a first indication of an integration effect of the euro. However, this has not been the case, as can be seen in Figure 4. Only Germany, Italy, Ireland, Portugal and Finland had a higher euro area growth in their exports, whereas Belgium/Luxembourg, France, Netherlands, Spain and Austria had a higher non-euro area growth in exports. It would obviously be difficult to relate this pattern to an integration effect of the euro.

3 The dynamic integration effects

The evidence on static integration effects on regions through trade in merchandise and services has been shown above to be not very clear in the first years and probably requires more time to show up, although considerable price differences between euro and non-euro countries are visible. However, it is a well-established empirical result that welfare gains from integration through international trade and specialisation alone are usually rather low. The more important gains arise in a dynamic, long-term perspective from increased competition, better exploitation of economies of scale, more product diversity and transfer of technology which result in additional growth and employment. A negative side of these dynamic integration effects may be adjustments of productive activities by privileging the most competitive producers and eliminating less competitive ones. The latter involves adjustment costs which may concern certain firms, sectors, regions, labour skills or social groups more than others.

Figure 4: Change in merchandise exports in 1999/2000 relative to 1997/1998 in %



Note: Greece has been considered as non-euro area country since it only joined the euro area in 2001.
Source: Eurostat (COMEXT database), own calculations

Given that the euro was only introduced at the beginning of 1999 and that changes in production structures have a much longer time horizon, hardly any direct empirical evidence can yet be expected. However, there are several analyses on the regional impact of previous European integration projects from which certain lessons can be drawn since the long-term integration effects of the euro should not be too different. A particular focus has always been on the regional income and employment effects and on the effects on geographic concentration and specialisation.

3.1 Evidence from New Economic Geography

The spatial impact of economic integration has received renewed interest in academic literature through the development of the "New Economic Geography" in the 1990s.[6] Economic integration is modelled as the reduction of transport costs which are simplified – in order to avoid a more complicated modelling of a transport sector - by the "iceberg assumption", i.e. a share of the good "melts" during the transport. One central hypothesis is that "while complete elimination of obstacles to trade always raises the competitiveness of the peripheral regions, partial elimination may in principle have a

[6] For a summary of the vast literature on the New Economic Geography see FUJITA ET AL. 1999.

perverse effect" (KRUGMAN; VENABLES 1990, p.58). These models - generating in graphical terms a U-shaped curve of the periphery's relative income with increasing integration - have been developed on the basis of only a few crucial variables such as market size, increasing returns to scale and factor prices. Depending on the periphery's possibilities to exploit economies of scale through access to the large markets of the core, relative wages in core and periphery diverge in a range of high to medium transport costs and converge in a range of medium to low transport costs. When transport costs are extremely high, manufactured goods are essentially not traded, and firms have to locate their production in the region that they ultimately serve so that each region produces according to local demand. As transport costs are reduced, the larger core region becomes more attractive, as firms located in the core have larger sales and, because of increasing returns, experience increasing profits. The higher profits attract more firms and production into the core which then becomes a net exporter of manufactured goods towards the periphery. At the same time, demand and prices for immobile local factors in the core rise relative to the periphery and, as transport costs fall further, this offsets the attraction of locating in the core. At the extreme where there are no transport costs, factor prices dictate the distribution of economic activity.

While these models are certainly appealing, their empirical basis is still weak since trade costs (or the degrees of integration) are extremely difficult to measure, making it almost impossible to determine a region's position in the U-shaped curve. In the context of the evaluation of Cohesion Fund projects, an interesting empirical application of New Economic Geography models has been made to simulate the regional impact of six road transport projects (EUROPEAN COMMISSION 1999). The simulation starts out by estimating the intra-regional and inter-regional distance saved by six projects: the North-South road link in Ireland, the Madrid ring road and the Rias-Bajas motorway in Spain, the Tagus crossing in Portugal, and the Egnatia and Pathe motorways in Greece. On the basis of models for each of the countries, the regional effects are distinguished through various mechanisms. The reduction in transport costs affects prices in different regions which change firms' sales and profits. In response to changes in profits, entry and exit of firms may occur. On the one hand, the entry of a firm increases competition which reduces profits and bids up factor prices. On the other hand, the entry of a firm increases demand for intermediate goods which increases suppliers' profits and causes supplier firms to enter. The opposite effects take place in the case of the exit of a firm. The results for all regions within each country give a clear indication of the interregional spill-overs at work, even where the transport project is only within a single region. While the overall income effect is positive in all regions - in some cases the indirect effects are more than 50% higher than the direct effect of transport cost savings – its size is usually negatively correlated to the distance of a region to the transport project. However, due to the short, medium and long run effects, i.e. changes in prices, location of firms and of labour, some regions experience an increase in labour income whereas others experience a decrease in labour income. The latter result points to the possibility that – in these models – integration of some regions may have negative long-term effects on others.

3.2 Concentration and specialisation

Some authors, inspired by arguments of New Economic Geography, maintain that the euro in combination with the Single Market would lead to a degree of market integration comparable to that of the US and would cause a similar degree of regional specialisation as in US manufacturing (KRUGMAN 1993). The result would be a higher vulnerability to regional asymmetric shocks following sector-specific shocks. Given that the empirical evidence was not very clear on this issue, several studies have been carried out

for the Commission over the last years. Three of these studies used national data for manufacturing while one study was based on regional data including also services.

A first study (AIGINGER ET AL. 1999) used data for manufacturing on value added and exports for all EU Member States between 1988 and 1998 to analyse the specialisation of countries and the geographic concentration of industries. Using various indicators, the overall speed of change in the degree of specialisation and concentration has not been dramatic, although it seems to have increased slightly during the 1990s. Fears of extremely fast and disadvantageous types of specialisation and concentration are thus not substantiated by the results. Highly concentrated industries are tending to spread across countries, with low-income countries catching up in endowments and in market shares of fast-moving industries. The strongest trend towards specialisation can be witnessed in Ireland, which has a favourable structure and growth performance. The vertical and horizontal division of labour within firms is increasing in a way that high-tech industries in the core are proliferating technology and skills to the periphery. Labour-intensive industries are concentrating geographically, but in most cases by shifting activities slowly towards low-wage countries. At the same time, in the countries in which labour-intensive industries are concentrating, a second group of industries is actively expanding in mainstream and engineering sectors. To remain competitive, firms in less dynamic industries are co-operating with low-wage countries, retaining the higher-quality jobs and producing for the higher-quality segments.

A second study (VEUGELERS ET AL. 2001) makes use of an EU market share matrix which identifies for each of 70 manufacturing sectors the five leading firms in terms of market share in total sectoral production. Comparable data exist for the years 1987, 1993 and 1997 for the 12 countries that were EU members before 1995. The authors find that the geographical structure of production within the EU has slightly changed over the period with an increase of the share of Spain, Italy and Portugal from 16.6% to 20%. This is explained by both an increasing importance of firms located in these countries and their increased share in inward investment. Using the entropy index at sectoral level, the figures show a decrease of intra-EU geographic concentration of production across all manufacturing industries. However, the study also finds large differences among industries where the largest changes in geographic concentration between 1987 and 1997 (in terms of a change in the entropy index value) were an increased concentration in leather, clocks and watches, cycles and motorcycles and steel tubes, and a decreased concentration for clay products, grain milling, man-made fibres and pasta. Textiles, wooden furniture and footwear were the sectors with the largest shift of production shares towards Southern Europe.

A third study (MIDELFART KNARVIK et al. 2000) was based on production data for 14 EU Member States (excluding Luxembourg) and 36 manufacturing industries between 1970 and 1997. Most European countries showed decreasing specialisation during the 1970s, but this trend was reversed from the early 1980s onwards, as countries have become slightly more different from the average of the rest of the EU and, in bilateral comparisons, from most of their EU partners. However, although some specialisation can be identified during the last two decades, this process is not uniform and rather slow. The only more dramatic changes in industrial structure have been the expansion of relatively high-technology and high-skill industries in Ireland and in Finland. Many, although not all, industries have experienced some changes in their location. A number of industries that were initially spatially dispersed have become more concentrated (see Table 4).

These are mainly slow-growing and unskilled labour-intensive industries whose relative contraction has been accompanied by spatial concentration, usually in

peripheral low-wage economies. Amongst industries that were initially spatially concentrated, around half of them stayed concentrated. Significant dispersion has occurred in a number of medium and high-technology industries and in relatively high-growth sectors, with activity typically spreading out from the central European countries. An econometric analysis which identifies the underlying forces that determine industrial location shows that a high proportion of the cross-country variation in industrial structure can be explained by a combination of factor cost and geographical considerations. Four interesting results came from this econometric analysis:

- The location of R&D-intensive industries has become increasingly responsive to countries' endowments of researchers, with these industries moving into researcher abundant locations;
- The location of non-manual labour-intensive industries was, and remains, sensitive to the proportion of countries' labour forces with secondary and higher education;

Table 4: Industries grouped by levels and changes in concentration (average 1994-97 compared to average 1970-73)

Concentrated industries that have remained concentrated over time	**Concentrated industries that have become less concentrated**
Motor Vehicles	Beverages
Motor Cycles	Tobacco
Aircraft	Office & Computing Machinery
Electrical Apparatus	Machinery & Equipment
Chemical Products NEC	Radio-TV & Communication
Petroleum & Coal Products	Professional Instruments
Dispersed industries that have become more concentrated over time	**Dispersed industries that have stayed dispersed**
Textiles	Food
Wearing Apparel	Wood Products
Leather & Products	Paper & Products
Furniture	Printing & Publishing
Transport Equipment NEC	Metal Products
	Non-Metallic Minerals NEC
	Shipbuilding
Residual group	
Footwear	Pottery & China
Industrial Chemicals	Glass & Products
Drugs & Medicines	Iron & Steel
Petroleum Refineries	Non-Ferrous Metals
Rubber Products	Railroad Equipment
Plastic Products	Other Manufacturing

Source: MIDELFART KNARVIK ET AL. 2000, p.19

- The location of industries with strong forward and backward linkages has become increasingly sensitive to the centrality/peripherality of countries. Thus, central locations are increasingly attracting industries higher up the value added chain, i.e. those industries which are highly dependent on intermediate inputs;
- Industries which have a high degree of increasing returns to scale tend to locate in central regions, but this effect has diminished markedly over the period.

A fourth study (HALLET 2000) replicated some of the statistical indices of the previous study, but used data for gross value added of 17 sectors, including five services, in 119 EU regions between 1980 and 1995. A surprising result is that regions have an increasingly similar pattern of specialisation which basically reflects the general structural change from manufacturing into services. This is rather good news in that it reduces the probability of region-specific shocks and does not support the frequently

expressed expectations of their increased probability following European integration. The results on regional concentration showed that agriculture and the processing of its products as well as day-to-day services are spatially dispersed following patterns of arable land and of settlement whereas manufacturing industries with high economies of scale are concentrated in fewer locations. Clustering seems to prevail in traditional manufacturing branches that are depending on raw materials which are only available in specific locations. Most branches tend to follow the general core-periphery pattern of GDP with only few exceptions: Banking and insurance services tend to be located in wealthier central regions whereas the more traditional labour-intensive branches are also located in peripheral regions of lower income. Altogether, three groups of branches could be distinguished: (1) agriculture with a low degree of concentration; (2) traded goods (including fuel and power products, almost all manufacturing goods, credit and insurance services and other market services) with a high degree of concentration and clustering; (3) non-traded goods (including building and construction, trade and tourism, transport and communication services as well as non-market services) which tend to follow the spatial pattern of purchasing power, obviously due to the nature of these activities.

Looking at the results of all four studies together suggests a less dramatic view of the spatial effects of European integration on concentration and specialisation for several reasons:

1. Location and relocation of production involve high investment and are therefore long-term processes with a high sluggishness, possibly also due to "lock-in" effects once a certain pattern of specialisation and concentration has developed. Significant changes are therefore difficult to identify over 20 or 30 years although several important location factors in the EU have changed due to the completion of the Single Market, several EU enlargements, the opening up of Eastern Europe and a general trend towards globalisation. However, in countries with a high pace of catching-up or structural change, such as Finland, Ireland and Portugal, patterns of specialisation have changed considerably.
2. The general process of structural change from manufacturing into services tends to make regions more similar regarding their specialisation. While further concentration in some traded goods sectors cannot be excluded in the medium to long run, the overall effect will always be limited by the increasing importance of non-traded goods whose production follows the spatial pattern of purchasing power and – given the absence of significant geographic labour mobility in the EU - counteracts possible agglomeration forces.
3. Among the determinants of location, the importance of market access and human capital endowments has been confirmed, whereas the centripetal effect of economies of scale seems to be diminishing. In this respect, and in combination with their traditional advantage of low labour costs relative to the rest of the EU, cohesion countries appear to become more attractive locations of certain types of production.

3.3 Border regions

Border regions within the euro area can be considered to be an interesting "microcosmos" illustrating the maximum regional impact of the euro since cross-border transactions are relatively higher than elsewhere. At NUTS 3 level, around 15% of the total population of the euro area are living in regions which border another country participating in the euro from 1 January 1999. Main changes in behaviour that can be expected from the euro are in cross-border shopping, commuting and relocation of firms. The

introduction of the euro banknotes and coins will probably be felt here more than elsewhere. However, it is not clear whether the volume of cross-border transactions is higher in border regions than in non-border regions in absolute terms and to what extent people living in border regions are subject to an exchange rate illusion, i.e. to what degree they are aware of prices differences in different currencies and whether they already benefit substantially from existing price differences. Furthermore, it might well be that language, culture, transport, regulations, discrimination are more important barriers to cross-border transactions than different currencies.

Few of these issues of the impact of the euro in border regions have been studied yet. There is only some data on the general economic performance of EU15 border regions – presented in the Commission's Second Cohesion Report – suggesting that border regions are not very different from non-border regions in terms of unemployment and GDP per capita (see Table 5). Border regions within the EU have even a lower unemployment rate which seems to be a remarkable success of European integration given that historically border regions tended to have major economic problems when one of their main functions was a military one.

Table 5: Population, unemployment rate and GDP per head in EU border regions (NUTS 3 level)

	All EU15 regions	Non-border regions	Border regions	Border regions within EU15
Population (% of total)	100.0	75.1	24.9	17.8
Unemployment rate (1999, %)	9.4	9.4	9.3	8.5
GDP per head (PPS, 1998, EU15=100)	100	101	96	99

Source: EUROPEAN COMMISSION 2001, Table A.12, p. 39

An interesting case study on the impact of integration on border regions has been provided by German unification since 1990. Although many aspects in German and European integration are not comparable, in particular the sudden shift from no integration to a very high degree of integration, the potential for geographic labour mobility, the size of financial transfers and the speed of structural change in east Germany, it provides an interesting example of the most extreme effects of opening up borders. A recent study compared the labour market performance of regions along the previous east and west German border relative to the performance of the *Länder* they are located in (BARJAK 2001). While western border regions were performing worse than their respective *Länder* averages during the 1990s, the opposite was true for eastern border regions. Gross wages and salaries in mining and manufacturing were decreasing from 92% in 1991 to 90% in 1999 of their western *Länder* levels, whereas they remained at about 97% in the eastern regions. The study considers the substantial net commuter flows from eastern to western border regions mainly as an outcome of the different overall labour market situation which is after all more attractive in the West than in the East in terms of wage levels and employment opportunities. The main factor driving the bad performance of western border regions is identified to be the withdrawal in 1990 of the specific investment support schemes, from which west German regions bordering the GDR had benefited for decades ("*Zonenrandförderung*"), so that industrial investment relative to revenue was lower than in east German regions where investment is receiving substantial support since 1990.

A recent study in the context of a larger study programme on the impact of enlargement on Austrian, German and Italian regions ("PREPARITY") has analysed the effects to be expected for German border regions at the Polish and Czech border (RIEDEL; UNTIEDT 2001). Among several other aspects, following a description of the regions' endowments with factors of competitiveness and their sectoral structure, the authors conclude that these border regions will be subject to some adjustment pressure which occurs already today through the implementation of the Europe agreements and general international competition. In the medium to long run, the proximity to the candidate countries is expected to have positive effects from the potential of higher international division of labour with the fast-growing economies of Poland and the Czech Republic.

4 Summary and conclusions

Evidence on the static integration effects of the euro in the first years is difficult to identify. Bank charges are still surprisingly high in absolute terms, but seem to be on a declining path following recent announcements by several banks to reduce their fees, a trend which can be expected to accelerate once the euro cash has been introduced in 2002. In general, economies of currency-related exchange costs vary between regions depending mainly on the previous exchange rate volatility, the geographic structure of foreign trade and the regions' production structure. Changes in price differences and trade volumes before and after 1999 hardly show up and may require more time to become visible, although there tend to be considerable differences between euro and non-euro countries, probably for a number of reasons such as distance, the overall degree of integration and the exchange rate level of the euro.

Regarding the dynamic integration effects some conclusions can be drawn from the long-term integration experience of the past. A tentative policy conclusion from the models of New Economic Geography is that income convergence through trade and investment can be expected if regional competitive advantages, in particular regarding wages and quality of labour, go along with good market access achieved by a significant reduction of trade costs, as provided by the combination of the single currency, the single market, stable economic policy and adequate infrastructure. Economic integration alone is thus only a necessary, but not a sufficient condition for cohesion. A sound economic policy framework is also needed to ensure the periphery's competitiveness vis-à-vis the larger markets of the core. Although a visible change in specialisation has taken place for most cohesion countries, the overall process of concentration and specialisation in the EU is in general of a slow and long-term nature and does not support concerns that peripheral regions' catching-up would impose high adjustment costs on other wealthier regions. These "macro" observations tend to be confirmed by the "microcosmos" of border regions which have performed rather well within the EU and seem to benefit considerably from integration in the long run.

To sum up, economic integration in Europe, which is further progressing with the introduction of the euro, requires structural adjustment in all regions to bring about its positive welfare effects in the long run. While policies to avoid this structural adjustment would be extremely inefficient or even without success, there is a case for reducing adjustment costs by smoothening and facilitating the transition to new production structures by regional and social policy measures. However, programmes of public expenditure will not be successful if not accompanied by sound economic policies, in particular a balanced macroeconomic policy-mix and structural reforms to enhance the efficiency of goods, labour and capital markets.

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Abstracts

Ian ROBINS

Europe's Regions within the Currency Union: Risks and Opportunities

In this paper the differences that the single currency might make to the regions of countries within the euro-zone are considered. It is still too early for much evidence to be available about the effects of EMU. Therefore the discussion is concerned mainly with what theoretical considerations would lead us to expect. Some empirical observations illustrate the expectations.

Chief drawbacks of the euro are seen in the possible inappropriateness of interest rates, the absence of fiscal and related adjustment measures, the relative immobility of labour and the restrictions on national governments with relation to regional policies. Principal advantages lie in the stimulus that the drawbacks give to rethinking regional policy and fostering patterns of industrial diversity in which more flexible labour markets are encouraged.

JOHANNES BRÖCKER

Regional Welfare Effects of the European Monetary Union

This paper estimates welfare effects resulting from reduced transaction costs in international trade, using a static multiregional general equilibrium model. The kernel of the model is the trade part specified in Dixit-Stiglitz-style. Interregional trade shows a gravity pattern due to transaction costs depending on distance. Transaction cost reductions brought about by EMU are based on econometric estimates by GLICK and ROSE, relying on trade intensification following the establishment of other currency unions worldwide.

According to our results EMU could imply a welfare gain for the participating countries amounting to 1% of GDP annually. Our simulation results show that this concern that the spatial effect of EMU might contradict the cohesion objectives of the European Union is not to be substantiated. Regions close to the borders are supposed to have the highest trade intensities with partner countries and therefore gain most from saving of transaction costs in international trade.

MARTIN HALLET

Regional Integration Effects of the Euro – What is the Empirical Evidence after the First Years?

Evidence on the static integration effects of the euro in the first years is difficult to identify. Changes in price differences and trade volumes before and after 1999 hardly show up and may require more time to become visible, although there tend to be considerable differences between euro and non-euro countries, probably for a number of reasons such as distance, the overall degree of integration and the exchange rate level of the euro.

Regarding the dynamic integration effects some conclusions can be drawn from the long-term integration experience of the past. Economic integration in Europe, which is further progressing with the introduction of the euro, requires structural adjustment in all regions to bring about its positive welfare effects in the long run. Programmes of

public expenditure will not be successful if not accompanied by sound economic policies, in particular a balanced macroeconomic policy-mix and structural reforms to enhance the efficiency of goods, labour and capital markets.

Résumés

IAN ROBINS

Les régions européennes dans l'Union Monétaire: opportunités et contraintes

Ce papier aborde les changements que la monnaie unique aura apportés dans les différentes régions des pays de la zone euro. Nous n'avons pas encore suffisamment de recul pour disposer de preuves des effets de l'Union économique et monétaire. Aussi la discussion s'attachera-t-elle principalement aux expectations auxquelles nous conduisent nos considérations théoriques. Certaines observations empiriques illustrent ces expectations.

Les inconvénients majeurs de l'euro sont à voir dans l'inadéquation possible des taux d'intérêt, l'absence de mesures d'ajustement budgétaire et autres, l'immobilité relative de la main d'œuvre et les restrictions imposées aux gouvernements nationaux concernant les politiques régionales. Les avantages principaux résident dans la stimulation suscitée par ses inconvénients de repenser la politique régionale et de favoriser les modèles de diversité industrielle qui encouragent une plus grande flexibilité des marchés de l'emploi.

JOHANNES BRÖCKER

Les effets de prospérité régionale de l'Union Monétaire Européenne

Ce papier évalue les effets sociaux résultant de la réduction des coûts de transaction dans le domaine du commerce international en utilisant un modèle d'équilibre général multi-régional statique. La partie commerciale spécifiée dans le style Dixit-Stiglitz est au coeur du modèle. Le commerce interrégional montre un modèle de gravité dû aux frais de transaction en fonction de la distance. La diminution des frais de transaction imputée à l'Union économique et monétaire est fondée sur des estimations économétriques réalisées par GLICK et ROSE, s'appuyant sur une intensification commerciale constatée suite à l'établissement d'autres unions monétaires dans le monde.

D'après nos résultats, l'Union économique et monétaire pourrait entraîner un gain social de l'ordre de 1% du PIB par an. Les résultats de nos simulations indiquent que les craintes selon lesquelles les effets territoriaux de l'Union économique et monétaire pourraient aller à l'encontre des objectifs de cohésion de l'Union européenne ne sont pas fondées. Les régions proches des frontières sont sensées avoir le plus d'échanges commerciaux avec les pays partenaires et profitent donc le plus des économies de frais de transaction dans le cadre du commerce international.

MARTIN HALLET

Les effets de l'Euro à l'intégration régionale – Quelle est l'évidence empirique après la première année ?

Les preuves des effets d'intégration statiques au cours des premières années sont difficiles à identifier. Quasiment aucun changement de différences de prix et de volumes commerciaux n'ont été constatés après 1999. Peut-être faudra-t-il attendre davantage pour qu'ils deviennent visibles, bien qu'il semble y avoir de considérables divergences entre les pays de la zone euro et les autres, sans doute dues à diverses raisons telles que la distance, le degré global d'intégration et le niveau du taux de change de l'euro.

Concernant les effets d'intégration dynamique, des conclusions peuvent être tirées de l'expérience d'intégration à long-terme vécues dans le passé. L'intégration économique en Europe, qui continue de progresser grâce à l'introduction de l'euro, nécessite des ajustements structurels dans toutes les régions pour qu'elle puissent avoir ses effets sociaux positifs à long terme. Tous les programmes de dépenses publiques seront voués à l'échec s'ils ne sont pas accompagnés de politiques économiques saines en particulier un dosage de mesures macroéconomiques équilibré conjugué à des réformes structurelles afin de promouvoir l'efficacité des marchés de biens, du travail et des capitaux.

With the beginning of the year 1999, a further important step towards deeper integration of Europe took place: The European Monetary Union (EMU) was put into force. Undoubtedly, this has, beside other effects, also considerable effects on the economic geography of the integrating area. Possible and probable spatial effects of EMU was the motive to establish an international working group within the ARL-DATAR (Délégation à l'Aménagement du Territoire et à l'Action Régionale) cooperation agreement in order to shed some light on these effects. The present volume consists of papers having been elaborated by members of the working group.

Considerations are made with regard to

- consequences for the regions of a changed relationship in which countries being members of the euro-zone stand to each other,
- macroeconomic consequences for regions of their being a member of EMU,
- effects of the possible concentration of industrial activities in regions and of trends towards specialisation of regions in certain industries,
- effects of EMU using a multiregional general equilibrium model,
- distinguishing between static and dynamic effects of the Euro.

Based on these deliberations recommendations are formulated and spatial orientated policy conclusions are given even though one fear seems to be unfounded: the aim of territorial cohesion in the EU seems not to be touched systematically by the common currency in a negative way.

Le début de l'année 1999 a vu se réaliser une autre étape importante de l'approfondissement de l'intégration européenne: l'Union Monétaire Européenne (UME) entrait en vigueur. Indubitablement, ceci a eu entre autre des effets considérables sur la géographie économique de la zone d'intégration. Les effets territoriaux possibles et probables de l'UME ont constitué la raison de mettre en place un groupe de travail dans le cadre de l'accord de coopération entre l'ARL et la DATAR (Délégation à l'Aménagement du Territoire et à l'Action Régionale) de manière à clarifier ces effets. Le présent volume est composé de papiers ayant été élaborés par les membres du groupe de travail international.

Ils comportent des réflexions sur les aspects suivants

- Appartenan à la zone euro.
- Conséquences macroéconomiques des régions du fait qu'elles sont membres de l'UME.
- Effets d'une possible concentration de l'activité industrielle au sein des régions et d'une tendance à la spécialisation des régions dans certains secteurs industriels.
- Les effets de l'utilisation de l'UME d'un modèle d'équilibre général multirgional.
- La distinction entre les effets statiques et dynamiques de l'euro.

Sur la base de ces déliberations, des recommandations sont formulées et des conclusions de politique territoriale sont tirées, bien qu'une crainte semble ne pas avoir de fondement: l'objectif de la cohésion territoriale dans l'UE semble ne pas être systématiquement affecté par la monnaie unique.

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