



IN THIS ISSUE

This issue of the *Bulletin* reports research on the harmonization of social policies and the foundations and practice of competition policies in the EU. It also summarizes conference proceedings on unemployment persistence and business-cycle analysis, and reports on discussion meetings on state aids to EU industries, policy towards drugs and the determinants of OECD export performance.

- 3 EU Social Policies**
CEPR's eighth annual *Monitoring European Integration* report examines the relationships between national and community-level social policies in the EU, with particular emphasis on the interactions between social policy and economic integration. The report evaluates ideas for the Social Chapter and suggests criteria for effective EU-level social policies, given the context of continued deepening and widening of integration.
- 5 EU Competition Policies**
A new CEPR publication provides a comprehensive review of the principles and practice of EU policy towards agreements and undertakings between firms. The book highlights the main strengths and weaknesses of the current approach, and formulates proposals for improvements in the legal framework and the practical application of policy.
- 9 Re-Evaluating the Natural Rate**
A CEPR conference on long-run unemployment persistence set out to examine the observed movements in European unemployment and to assess whether these could be explained by changes in labour-market equilibria, as opposed to dynamic unemployment processes. Policy implications, including the need for a new agenda to combat Europe's high unemployment levels, were also considered.
- 14 Business Cycles**
A CEPR conference assembled a wide range of recent contributions on the measurement and theory of the business cycle from different methodological perspectives. The themes included the relationship between micro- and macroeconomic dynamics; trend-cycle decompositions for macroeconomic indicators; equilibrium business-cycle theory; and simulation results.
- 21 Discussion Meetings**
At recent meetings in Warsaw and in London, Paul Seabright considered the implications for the 'accession' countries of EU moves to control state aids to industry; Frederick van der Ploeg put the economic case for a more liberal drugs policy in the United Kingdom, drawing on the Dutch experience of a pragmatic, public health-oriented approach; and Wendy Carlin and John Van Reenen asked how much costs matter in explaining export performance in key OECD industries, and what determines the sensitivity with which exports react to cost changes.
- 24 Among Recent Discussion Papers**
The sources of East Asian growth. Performance-related pay. The causes of regionalism. International leapfrogging and subsidies. The UK housing market. Optimizing bookmakers' betting odds. Setting exchange rates between EMU 'ins' and 'outs'. Transatlantic policy interactions after EMU. Why firms form research joint ventures. International barter trade. Regional integration and FDI. R&D spillovers in open economies. Extracting information from asset prices.
- 64 Forthcoming Activities**
Planned future events include a conference in La Coruña on 'rethinking the welfare society'; a Naples conference on core competencies, diversification and the role of internal capital markets; a discussion meeting in Edinburgh on Scotland and EMU; a conference in La Coruña on the new economics of inequalities; the 29th meeting of the Economic Policy Panel in Frankfurt; the annual European Summer Symposia in macroeconomics, economic theory, financial economics, and labour economics and public policy; and an Athens workshop on FDI and MNCs.

CEPR NEWS

CEPR has been awarded a number of project grants: these include a Euroconference grant, led by Lars-Hendrik Röller, entitled 'Competition and the Evolution of Markets: New Empirical Approaches to the Study of European Industry' and an Economic & Social Research Council grant for a series of seminars on Transition Economics, led by Mark Schaffer.

Funding has been secured from DGI of the European Commission and the German-Marshall Fund of the United States to finance 'The Transatlantic Economic Policy Panel (TEPP)', which is designed to bring together a small group of senior officials, private sector decision-makers and leading researchers, to discuss key issues affecting transatlantic relations.

Phare ACE has supported two workshops in transition economics: the first, led by Mark Schaffer, was the First Annual Transition Economics Summer Workshop for Young Academics; and the second, the International Workshop in

Transition Economics, was led by Gérard Roland. Additional funding for both workshops was received from the Ford Foundation.

CEPR will carry out two studies for DGII of the European Commission: 'Factors Affecting the Location of Activities within the EU' and 'Efficiency Gains from Mergers'.

CEPR is delighted to welcome Sveriges Riksbank as a corporate member. In addition, we are very pleased to announce that Svenska Handelsbanken has decided to upgrade its level of membership and to welcome Dai Ichi Kanygo Bank as a new corporate member. Information about CEPR's corporate membership programme can be obtained from Joan Concannon, External Relations Officer, CEPR, 90-98 Goswell Road, London EC1V 7RR. Tel 44 171 878 2917, Fax 44 171 878 2999, Email jconcannon@cepr.org



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RESEARCH

Social Europe One For All?

To what extent should national policies of social protection and labour market regulation be harmonized in a deepening and widening EU? This question, which lies at the heart of the debate about the Social Chapter of the Maastricht Treaty, is the focus of CEPR's eighth annual *Monitoring European Integration* report, entitled *Social Europe: One For All?* Compiled by **Charles Bean** (LSE and CEPR), **Samuel Bentolila** (CEPR, Madrid, and CEPR), **Giuseppe Bertola** (University of Turin, European University Institute, Florence, and CEPR) and **Juan Dolado** (University Carlos III, Madrid, and CEPR), the report provides a detailed analysis of European labour markets, explores ideas for the Social Chapter, and sets out specific recommendations for the design and implementation of social policies within the EU.

The authors note that the 'pervasive' welfare states of Western Europe, and the frequent references to a 'social dimension' in EU documents and treaties, testify eloquently to the desire of both people and governments to ameliorate the undesirable social consequences of economic life. Measures to address these concerns – 'social policy' for short – can take a variety of forms. These range from workplace regulation, such as constraints on worker dismissals or health and safety regulations, to income transfers, in the form of pensions and unemployment and other social benefits. For the most part, social policy seeks either to remedy market failures – in which case it will have beneficial consequences for economic efficiency – or to protect disadvantaged members of society from the consequences of their economic weakness. In the latter case, the primary purpose is redistributive, and hence has a less desirable impact on efficiency. Thus the composition of social policies involves an inescapable trade-off between economic efficiency and social protection, i.e. between the average level of welfare and its distribution across society. But social policy can also have perverse consequences, because sometimes it can protect better-off groups within society. Moreover, those who benefit from regulation will have a vested interest in retaining it and, hence, will inhibit the political feasibility of reform, even when the arguments for reform are compelling in other respects.

Of particular significance, from the EU perspective, is that there are interactions between social policy, broadly interpreted, and economic integration. The impact of economic integration – which also encompasses a variety of forms, ranging from trade liberalization to enhanced labour and capital mobility – on social policy can be summarized thus: closer integration is generally desirable on overall efficiency grounds, because it offers mutually beneficial gains from trade; but integration usually also has adverse

consequences for relatively inefficient producers. As a general rule, closer integration between a richer and a poorer country can be expected to increase inequality in the richer country (by adversely affecting the incomes of its poorer citizens in relative and, possibly, absolute terms). By the same token, inequality in the poorer country is likely to be reduced. Thus it is unsurprising that, as the EU has expanded over time, with the richer original core of countries being augmented by poorer peripheral countries, the demand for greater social protection in the richer countries has grown. This is confirmed by wider empirical evidence showing that social spending is not only higher in rich countries – which can better afford the luxury of such protection – but also in countries that are more open to international influences.

But integration also affects the supply of social protection, in that redistribution can become more difficult to accomplish when labour and capital are both more mobile. In these circumstances, in order for national social policies to be effective, more coordination at EU level may be necessary. Otherwise, governments could be tempted to use social policies strategically to benefit their own citizens at the expense of foreigners. For example, a government may seek to encourage greater inflows of capital, and so drive up domestic wages, by offering lower taxes or less regulation and lower social protection than in other EU countries. With a given and limited total supply of capital, the effect of this – other things equal – would be to reduce the tax base in the other countries, thereby pushing up the tax burden on their immobile factors, or forcing a reduction in their public spending (or both). Such 'social dumping', however, eventually will generate retaliatory or defensive responses from the other governments which, if unchecked, will result in lower levels of social protection all round as the countries engage in a 'race to the bottom'.

The authors do note that, if existing national social policies are ill-designed or fail to protect the most disadvantaged members of society, a 'race to the bottom' outcome may not necessarily be a bad thing. In general, however, it is clear that lack of coordination can lead to suboptimal levels of intervention or regulation. A canonical example of the importance of international coordination of social policy is afforded by the temptation for shipowners to escape the imposition of safety regulations or work rules by registering their vessels in more 'lenient' jurisdictions. As integration in the EU becomes deeper, with the consolidation of the single market and the introduction of EMU, and as the Union expands to embrace some of the Central and East European countries (CEECs), with their significantly lower wage costs and very different institutional structures, the question of coordination of social policy issues will come increasingly to the fore.

Against this background, and drawing on the lessons of past EU integration experiences – notably the enlargement to include the poorer Mediterranean countries and Ireland – the report discusses the implementation of present and prospective national and EU-level social policies. Many of the policy issues raised in the debate surrounding the Social Chapter are

addressed. Apart from the general question of the extent to which EU member states can continue to implement their own national social policies, rather than cede responsibility to the EU level, the authors enquire (1) whether 'social dumping' would be inevitable in the absence of a common EU social policy; (2) whether common provisions, if needed, should take the form of agreements about minimum standards or should allow exceptions for individual countries; (3) how the circumstances of potential new EU members from among the CEECs should be taken into account in the design of current EU social policy directives; and (4) to what extent social dumping should be welcomed as a healthy force obliging countries to lighten the sometimes excessive and damaging regulations they impose on their labour markets.

After reviewing the history of EU social policy in relation to the major movements forward in economic integration over more than four decades, the report infers the existence of a causal relationship between closer integration and new attempts to harmonize social policies. Two other trends that are also seen as potentially relevant to development of a pan-European social policy are the increasing heterogeneity in income levels as integration has proceeded, and the increasing unemployment levels in most member states. A quite striking finding, however, is that even though the social-security systems of individual countries have become more highly developed and labour-market regulations much more restrictive, there has not been an associated closing of the gap between national and EU-level social policies. Consequently, progress towards development of EU social policy has been much slower than in trade or monetary policy. This suggests that, to date, EU policy has not seriously constrained national social policies.

The report considers, however, that this situation is likely to change as both deepening and widening of the EU proceed. Thus EU-level social policies can be expected to become more binding in future. The authors conclude that continued integration will accentuate the pressure both for 'flexibility-oriented' reform and for greater harmonization of social policies. From the point of view of reducing the persistently high levels of unemployment in most EU countries, they argue that increased labour-market flexibility would be a welcome development. The 'European model' has involved the maintenance of both a high level of labour-market rigidity and a high level of social protection. In an environment of increasing competition, this model will become ever more costly in terms of unemployment and it risks creating serious sustainability problems for the welfare state. A drive for harmonization, therefore, should not be permitted to stand in the way of reform.

The report further contends that harmonization only makes sense between countries at similar standards of development, and with similar social preferences with regard to the trade-off between efficiency and redistribution towards the poor. Income disparities are already large among the current EU members and will increase dramatically with the next enlargement. There are also large disparities in labour-market regulations and in the organization of social policies. Since these policy differences are present even among countries

with similar income levels, they constitute compelling reasons for different national preferences concerning the efficiency versus redistribution trade-off to be respected.

Consequently, the authors argue that policy-makers should strive for minimum standards, but only where these are acceptable to all countries. Examples of desirable and undesirable measures are not hard to find. Most obviously, establishing a single minimum wage, or a single unemployment-benefit level, throughout the EU would not make sense, since any average level would be too low for the richest countries and too high for the poorest ones, and would carry the potential for causing even higher unemployment in the latter. In contrast, fostering a dialogue between the representatives of employers and employees at the European level would be a good idea, because it would help ensure that EU social policy was based on consensus. It would also render more likely the rejection of measures that would harm the ability of firms to compete in increasingly integrated markets. It should be kept in mind, however, that European-level federations of unions, like their national counterparts, will generally represent existing employees rather than the unemployed. Similarly, European-level federations of employers are more likely to represent the interests of large corporations than of small and medium-sized firms. In effect, therefore, the unemployed and owners of small firms will have to rely on politicians to represent them at the European level.

Also desirable would be measures to foster labour mobility, for example, action to suppress any discrimination against migrant workers, or erection of any unwarranted formal or informal barriers to the mutual recognition of diplomas. By the same token, measures that clearly deter mobility for protectionist reasons – such as the 1995 'Posted Workers Directive' – should be avoided. Mobility-enhancing measures would help reduce incentives for 'benefit shopping'.

Measures designed to overcome problems of imperfect or asymmetric information are also potentially desirable, for example, the obligation to furnish workers' representatives with notice of and information about collective redundancies, or to foster exchanges of information among employees of multinationals in different countries. But if harmonization of social policies were to evolve into measures obstructing the shift of production sites across countries, this would harm the competitiveness of firms and would be counterproductive. Problems of asymmetric information may also be overcome by regulations on health and safety, but imposing the same working conditions across countries in a way that runs counter to different national tastes and customs would be undesirable.

The report thus concludes that although EU-level policies are not particularly binding at present, they may become a more significant factor in future. At some point, as the competitive concerns raised by monetary union and the single market make reform more desirable and politically feasible – with the consequence of improving labour-market flexibility and reducing social protection – the Social Chapter may

become a binding floor, thereby preventing an unwarranted 'race to the bottom'.

Social Europe; One for All
C Bean, S Bentolilla, G Bertola and J Dolado
ISBN Paperback: 1 898128 33 2
1998. xvi + 110. £10/\$14.95/15 euros
Please contact CEPR for details

EU Competition Policy

Trawling for Minnows

The basic principles for a competition policy to create a competitive economic environment in the European Union were set out 40 years ago, in Articles 85 and 86 of the Treaty of Rome. The European Commission's Annual Reports on Competition Policy, however, have displayed a broad, even bewildering, set of objectives, and their priorities have shifted considerably over the period. A new CEPR publication, *Trawling for Minnows: European Competition Policy and Agreements Between Firms*, provides a comprehensive review of the principles and practice of public intervention policy in the field of agreements and undertakings between firms in the EU, highlights the main strengths and weaknesses of the current approach, and formulates specific proposals for improvements in both the legal framework and the practical application of the policy

Written by **Damien Neven** (Université de Lausanne and CEPR), **Pénélope Papandropoulos** (ECARE and DULBEA) and **Paul Seabright** (University of Cambridge and CEPR), the book covers five crucial areas: (1) it provides an up-to-date account of modern industrial and institutional economic analysis as it applies to agreements between firms; (2) it proposes a new, and more streamlined, procedure for the evaluation of vertical agreements; (3) it establishes criteria for assessment of joint ventures, balancing their risk to competition against their potential efficiency benefits; (4) it casts light on the way the Commission currently takes decisions and the inducements this creates for lobbying; and (5) it proposes reforms to increase transparency and reduce the costs for business of compliance with Article 85.

As a background, the authors note that the Treaty of Rome committed the Community to a system that would not 'distort' competition. Although Articles 85 and 86 sought to give effect to this objective in respect of oversight of both cooperative behaviour (whether in the form of formal or tacit agreements between firms) and abusive exercise of market power, they provided ample scope for a variety of interpretations and left much to the subjective judgements and discretion of the Commission. This was true, for example, of the provisions that prohibited an agreement if it 'affected' trade between member states or 'restricted' competition within the Common Market. Nor has the situation improved as new policy goals – such as the encouragement of innovation by, and the promotion of the competitiveness of, European firms – have been added with the passage of time. In short, examination of the declared objectives of European competition policy demonstrates both their variety and their consequent potential for inconsistency.

Turning to the underlying principles, the authors consider what the economics literature has to say about the effects of inter-firm agreements on competition, and about the consequent rationale for public intervention. They first examine 'vertical' restraints, namely contracts between firms at different stages in a production chain that specify more detailed commitments by the parties than simple exchange of goods and services in agreed quantities and at agreed prices. Examples include retail price maintenance, exclusive distribution agreements and tied-sale requirements. The authors provide careful and detailed evaluation of recent theoretical arguments – embodied in the so-called 'Chicago approach' – to the effect that there may be many good reasons why all kinds of economic agents may wish to enter into such contractual arrangements, and many circumstances under which they can enhance productive efficiency. While recognizing the validity of these arguments, they conclude that there are also significant circumstances in which vertical restraints may prove anti-competitive. They therefore reject the extreme Chicago view that such arrangements should not be proscribed. At the same time, however, they do agree that, on efficiency grounds, there are good reasons for vertical contracts to be presumed innocent until proven guilty.

The primary rationale for this presumption is derived from an important insight yielded by the Chicago approach, namely that vertical restraints are agreements between producers of complementary, as opposed to substitute, goods and services. Furthermore, each party to a vertical contract has a fundamental interest in preventing, rather than facilitating, the exercise of market power by the other. In effect, therefore, each party to the contract is more an ally than an enemy of the public interest. It is only when third parties are harmed that public intervention is called for. In contrast, agreements between producers of substitutes are inherently and necessarily suspect from the point of view of public policy, because the exercise of market power by one producer always benefits the producers of substitute products.

This theoretical distinction leads the authors to suggest a simple test for distinguishing between horizontal and vertical agreements for policy purposes: if the parties to the contract operate in the same product market in respect of the goods or services specified in the contract, or in markets for sufficiently close substitutes, the agreement is horizontal and there should be a (refutable) presumption of illegality. If not, the agreement should be seen as vertical and there should be a *prima facie* presumption that it is legal.

Returning to vertical restraints, the implication frequently derived from the ambiguity of the theoretical results is that public policy towards such restraints must be inherently highly discretionary and case-specific. Discretion, however, imposes many costs, including uncertainty, administrative delays, opportunities for regulatory capture and inconsistent decisions. The book therefore emphasises the importance of clear and predictable policy that does not give unnecessary discretion to public officials.

A two-stage decision procedure is recommended for evaluating vertical agreements, in which market power

International Workshop in Transition Economics

A joint CEPR/WDI (University of Michigan) International Workshop in Transition Economics was held in Prague from 9 July to 12 July 1998. The workshop, which was hosted by CERGE-EI, was organized by **Gérard Roland** (ECARE, Université Libre de Bruxelles and CEPR) and **Jan Svejnar** (WDI, CERGE-EI and CEPR). Financial assistance was provided by the European Union's Phare ACE Programme 1996. The papers presented were as follows:

'Ownership and Managerial Competition: Employee, Customer, or Outside Ownership', **Patrick Bolton** (Princeton University, CentER, Tilburg University and CEPR) and **Chenggang Xu** (London School of Economics, HIID, Harvard University and WDI)

'Investment and Wages in Transition', **Janez Prasnikar** (University of Ljubljana, WDI and CEPR) and **Jan Svejnar** (WDI, CERGE-EI and CEPR)

'Voucher Privatization with Investment Funds: An Institutional Analysis', **David Ellerman** (World Bank)

'Privatization, Ownership Structure and Transparency: How to Measure a Real Involvement of the State', **Frantisek Turnovec** (CERGE-EI)

'Real Exchange Disparities in the CEE Countries', **Evzen Kocenda** (CERGE-EI, WDI and CEPR)

'Restructuring Investment in Transition: A Model of the Enterprise Decision', **Richard E Ericson** (Harriman Institute, Columbia University, and WDI)

'Bureaucracies in the Russian Voucher Privatization', **Guido Friebel** (SITE, Stockholm School of Economics, WDI and CEPR)

'Firm Performance in Bulgaria and Estonia: The Effects of Competitive Pressure, Financial Pressure and Disorganisation', **Jozef Konings** (LICOS, Katholieke Universiteit Leuven and CEPR)

'Capital Structure of Firms in Central and Eastern Europe', **Francesca Cornelli** (London Business School, WDI and CEPR), **Richard Portes** (London Business School and CEPR) and **Mark Schaffer** (Heriot-Watt University and WDI)

'Efficiency Losses from Tax Distortions vs Government Control', **Chong-En Bai** (Boston College), **Roger Gordon** (WDI, University of Michigan and CEPR) and **David Li** (University of Michigan, Hoover Institution, Stanford, and CEPR)

'Delegation and Delay in Bank Privatization', **Loránd Ambrus-Lakatos** (Central European University, Budapest, WDI and CEPR) and **Ulrich Hege** (CentER, Tilburg University and CEPR)

'Understanding Wage Arrears in Russia', **John S Earle** (SITE, Stockholm School of Economics, Central European University, Budapest, and WDI) and **Klara Z Sabirianova** (Urals State University and SITE, Stockholm School of Economics)

'Corruption in Transition', **Susanto Basu** (University of Michigan) and **David Li** (University of Michigan, Hoover Institution, Stanford, and CEPR)

'Political Instability and Growth in Proprietary Economies', **Jody Overland** (University of Colorado, Denver) and **Michael Spagat** (Royal Holloway College, London, and WDI)

'Finance and Investment in Transition: Czech Enterprises 1993-1994', **Ronald Anderson** (IRES, Université Catholique de Louvain, Hong Kong University of Science and Technology and CEPR) and **Chantal Kegels** (Université Catholique de Louvain and LABORES, Université Catholique de Lille)

'Performance of Czech Companies by Ownership Structure', **Georgiy Nikitin** (Boston University) and **Andrew Weiss** (Boston University)

'A Model of the Informal Economy in the Transition Setting', **Simon Commander** (European Bank for Reconstruction and Development, World Bank and WDI) and **Andrei Tolstopiatenko** (World Bank)

'Tax Avoidance and the Allocation of Credit', **Anna Meyendorff** (WDI, University of Michigan Business School)

'Coordinating Changes in M-form and U-form Organizations', **Yingyi Qian** (Stanford University and CEPR), **Gérard Roland** (ECARE, Université Libre de Bruxelles, WDI and CEPR), and **Chenggang Xu** (London School of Economics, HIID, Harvard University, and WDI)

'Privatization and Market Structure in a Transition Economy', **John Bennett** (University of Wales, Swansea) and **James Maw** (University of Wales, Swansea)

'Competition, Selection and Entry: A Model of the Social Returns to Infrastructure with Asymmetric Firms', **Mark Schankerman** (European Bank for Reconstruction and Development and London School of Economics)

'Intragovernment Procurement of Local Public Good: A Theory of Decentralization in Nondemocratic Government', **Chong-En Bai** (Boston College), **Yu Pan** (University of Minnesota) and **Yijiang Wang** (University of Minnesota and WDI)

'Financing Mechanism and R&D Investment', **Haizhou Huang** (London School of Economics and Queen Mary and Westfield College, London) and **Chenggang Xu** (London School of Economics, HIID, Harvard University, and WDI)

'Disorganization, Financial Squeeze, and Barter', **Dalia Marin** (Universität München and CEPR)

'To Restructure or Not to Restructure: Informal Activities and Enterprise Behaviour in Transition', **Clifford Graddy** (The Brookings Institution, Washington DC) and **Barry W Ickes** (Pennsylvania State University)

'Corporate Structure and Performance in Hungary', **László Halpern** (Institute of Economics, Budapest, WDI and CEPR) and **Gábor Kőrösi** (Institute of Economics, Budapest)

'Output and Unemployment Dynamics in Transition', **Vivek H Dehejia** (Carleton University, Ottawa, WDI and CEPR) and **Douglas W Dwyer** (William M Mercer Inc, New York)

'Accession and Real Exchange Movements: A Comparison', **Evzen Koèenda** (CERGE-EI, WDI and CEPR)

'Chronic Moderate Inflation in Transition: The Tale of Hungary', **János Vincze** (National Bank of Hungary and Central European University, Budapest)

'Tenures that Shook the World: Worker Turnover in the Russian Federation and Poland', **Hartmut Lehmann** (Trinity College Dublin and WDI), **Jonathan Wadsworth** (Centre for Economic Performance, London School of Economics and Royal Holloway College, London)

'Unemployment and the Social Safety Net During Transitions to a Market Economy: Evidence from the Czech and Slovak Republics', **John C Ham** (University of Pittsburgh), **Jan Svejnar** (WDI, CERGE-EI and CEPR) and **Katherine Terrell** (WDI, University of Michigan Business School and CERGE-EI)

'Internal Borders', **Daniel M Berkowitz** (University of Pittsburgh and WDI) and **David N DeJong** (University of Pittsburgh)

'Does Market Structure Matter? New Evidence from Russia', **Annette Brown** (SITE, Stockholm School of Economics, WDI and CEPR) and **J David Brown** (SITE, Stockholm School of Economics and CEPR)

'Structural Adjustment and Regional Long Term Unemployment in Poland', **Hartmut Lehmann** (Trinity College Dublin and WDI), **John O'Flaherty** (Trinity College Dublin) and **Patrick P Walsh** (LICOS, Katholieke Universiteit Leuven, and Trinity College Dublin)

'Estimation of Euler's Function of Profit Maximising Firms: The Case of the Czech Republic 1992-1995', **Ashot Baghdasarian** (CERGE-EI), **Lubomir Lizal** (CERGE-EI) and **Miroslav Singer** (CERGE-EI, Expandia Finance and CEPR)

is first assessed, and then the impact on third parties is evaluated. The former step would seek to establish whether, in the case of a full vertical integration, the parties would together possess substantial market power for their combined final product. The answer to this question will hinge on the extent of inter-brand competition. If it is sufficiently strong, the contract should be seen as legal, unless it can be shown that the parties are seriously likely to exert more market power without vertical integration. Only if full integration would indeed lead to substantial market power would the second stage of the investigation proceed. Here, the focus would be on any external effects exerted by the contract on third parties, such as consumers, competitors and potential entrants. If these parties are not likely to be damaged by the contract, it should be deemed legal.

In the case of horizontal agreements, a distinction is drawn between those involving the creation of joint ventures (which account for a large proportion of cases) and explicit or implicit price-fixing or market-sharing agreements ('cartels'). In the case of joint ventures – which generally create some productive benefits – the authors again exploit the utility of comparing the joint

venture with the benchmark case of full integration between the activities of the parents. They argue that if a merger of these activities would be allowed, then a joint venture should also be allowed. Conversely, if a merger would not be allowed, then there should be a presumption that the joint venture also involves serious restrictions of competition. In those circumstances, it should be deemed illegal unless it can be shown that the parents are unlikely to be able to use the joint venture as a coordination mechanism. Two conditions are seen to be essential for this assessment: the extent to which the joint venture can appropriate the benefits from the pricing decisions of the parents; and the extent to which the parents will be able to capture the average profit made by the joint venture.

Under the terms of the Treaty, agreements that generate 'efficiency benefits' that outweigh the detrimental effects on competition are eligible for exemption from prohibition. Again, joint ventures are the most likely candidates, with the benefits arising from the various strategic commitment mechanisms that they can implement regarding the management of specific assets and outputs from the joint venture. Scale economies, complementary assets and technology

transfers are among the several potential sources of efficiency benefits.

With the assistance of a survey of firms involved in completed competition cases since 1989, the authors examine the actual procedures and decisions of the Commission, and find them to be deficient in many important respects. Both the Commission and the Courts apply a very narrow definition of what constitutes a restriction of competition, and there is often a failure to distinguish properly between intra- and inter-brand competition. The former point in particular has been noted by a number of legal commentators and the study confirms, from an economic perspective, that there are many instances where agreements have been adjudged unlawful even though they have had negligible effects on third parties. Such a narrow approach means firms seeking legal security have a strong incentive to notify their agreements. There is often also an incentive for firms to obtain prior clearance of agreements to avoid the risk of challenge, possibly by a partner to the agreement in case of dispute. Such challenges can be particularly costly where irrecoverable investments have been undertaken as a result of the agreement.

The number of agreements notified is therefore large, and the Commission labours under a very heavy case-load, following procedures that are slow and cumbersome. Rather than seeking to reduce the flow of cases, however, the Commission has merely increased its exercise of discretion in ignoring or settling cases informally. These 'reforms' may speed up the process, but only at significant cost in terms of the (already limited) transparency of the procedures and the difficulties that firms face in predicting the outcome. The majority of cases are thus cleared or negotiated away from public scrutiny. An econometric analysis, undertaken by the authors, of the determinants of lobbying by firms seeking to influence the outcome to their own advantage, indicates that the opacity of the procedure also increases this tendency.

The situation with regard to the granting of exemptions is similarly unsatisfactory. These decisions also seem to follow a rigid legal structure and often fail to consider the question of efficiency benefits in any depth. The range of benefits referred to is large, but hardly any of them are given a serious hearing. Some of the arguments refer to genuine externalities which might enhance efficiency. Others refer in vague terms to general objectives which have a remote and unspecified link with economic efficiency. In all cases, the arguments are simply stated and there is no attempt to evaluate their significance, let alone to quantify their importance.

By contrast, the authors consider that the Commission's practice in dealing with explicit or implicit 'cartel' agreements concealed by firms has a great deal to recommend it. In particular, the Commission (and the Court) seem, rightly, to look with tolerance on implicit agreements between firms which do not involve explicit coordination. Nevertheless, a particular concern arises because of the requirements imposed by the Court on the material evidence required to convict firms. These requirements appear excessive in the light of the small

cost that wrongful conviction may entail in this area; they also explain the apparent lack of deterrent effect that the current policy has on cartels.

The analysis of the determinants of lobbying behaviour suggests that firms are more likely to lobby senior Commission officials for cases that appear 'difficult' or involve high technology. Firm characteristics also determine lobbying behaviour, with significant differences between nationalities in this respect. Lobbying is also significantly more intense in cases in the transport sector. Assessment of the impact of lobbying, however, and particularly whether it succeeds in influencing the outcome of individual cases, is rendered difficult both by the diversity of the cases and firms involved and by the lack of adequate data.

The study concludes by recommending reforms in the decision-making processes and criteria that may help improve the Commission's analysis and drastically reduce the number of cases that it would need to examine. The main proposal for improvement relates to notified agreements. Given the need for a more systematic basis for distinguishing between horizontal and vertical agreements, the authors urge adoption of their simple test outlined above. They also consider that it would be desirable to find ways of applying the criteria for prohibition less restrictively, so that agreements are not obliged to pass through the legal process at all unless there is a real likelihood of their damaging competition. These changes would enable the Commission to examine the reduced number of remaining cases in a more transparent manner. Finally, there is need for a more systematic treatment of efficiency benefits.

The authors believe that these changes could be implemented without major changes to Community legislation and without changing the Treaty. They might, however, require changes in secondary legislation, in particular, block exemptions and Commission notices. Since present practice is a long way from what realistic reforms might produce, they would certainly require more than marginal changes in the Commission's own approach. In the authors' view, the need for change is urgent, and current Commission proposals, such as the reforms aired in the recent Green Paper, which in any case relate only to vertical restraints, go nowhere near far enough. The requisite sharp change in policy could be communicated and implemented via a set of published guidelines which clearly laid out the principles of the Commission's intended new practice, and recognised officially a degree of departure from some of the earlier case law. This procedure would both increase the degree of consistency between cases, and ensure that firms were better able to foresee whether their agreements were in breach of the law.

Trawling for Minnows: European Competition Policy and Agreements Between Firms
D Neven, P Papandropoulos and P Seabright
ISBN: 1 898128 34 0
xvii + 227. £16.95/\$24.95/25 euros
Please contact CEPR for details

CONFERENCES

Unemployment Persistence Re-Evaluating the Natural Rate

A CEPR conference on 'Unemployment Persistence and the Long Run: Re-Evaluating the Natural Rate' was held in Vigo, Spain on 30 November/1 December 1997. The organizers were **Dennis Snower** (Birkbeck College, London and CEPR), **Brian Henry** (London Business School) and **Jenni Greenslade** (London Business School). The objective of the conference was to examine the observed movements in European unemployment and to assess the degree to which these movements could be explained by changes in labour-market equilibria, as opposed to dynamic unemployment processes.

The conference brought together a group of academics from Europe and North America with interests in the analysis of high levels of unemployment to examine radically different approaches to unemployment. Policy implications were also considered, as was the question of whether a new policy agenda was required to combat the high European unemployment levels. The deliberations continued the theme developed in a previous conference and workshops, but extended the debate to look in depth at developments across Europe and North America.

Stephen Nickell (University of Oxford) presented 'Unemployment: questions and some answers'. In almost every OECD country, unemployment was lower in the decades following the Second World War than in any other period of comparable length. The paper set out to consider why this was so, and to ask what factors had caused the enormous variations in cross-country unemployment rates. Nickell offered some tentative answers to the second question and some speculation about the first.

The paper set out a general dynamic model in which the long-run solution for unemployment depended upon industrial turbulence, the replacement ratio, the terms of trade, the skills mismatch, the mark-up, the tax wedge and the real interest rate. This relationship comfortably explained the four-fold rise in unemployment from the early/mid-1960s to the late 1980s/early 1990s. There remained, however, a feeling of dissatisfaction, since it was hard to tell a seven-variable story simply, and because the variables that were really needed – for example, those close to capturing exogenous shifts in search effectiveness – were not observed. On the reasons for the rise in unemployment, Nickell suggested that, by the 1980s, either employers found it far harder to get the workers they wanted from the unemployed pool, or the unemployed were much less enamoured of the work on offer. The problem was to provide a persuasive empirical analysis of these apparently large shifts in behaviour. Dennis Snower

emphasised the importance of lagged dynamic effects, arguing that the outcome depended upon the extent of nominal inertia. **Robert Gordon** (Northwestern University, CEPR and NBER) suggested that a cross-sectional estimation be conducted to analyse the impact across countries.

Brian Henry (London Business School) presented 'Dynamic adjustments versus the natural rate: A story of UK unemployment', written with **Dennis Snower** (Birkbeck College, London and CEPR). This paper challenged the standard account of UK unemployment, namely that the major swings in unemployment over the last 25 years were due predominantly to movements in the underlying empirical 'natural rate of unemployment' (NRU). The authors' explanation of the medium-term movements of unemployment was that the trajectory of unemployment through time reflected the cumulation of labour-market 'impulses' and their associated streams of 'dynamic' responses, with each shock followed by a prolonged adjustment process. Their paper thus sought to refocus analysis of the labour market away from exclusive attention to equilibria and towards the dynamic movements between them. They contended that, because these movements took place over long periods of real time, they were important objects of analytical attention.

The analysis suggested that an important part of the movement of UK unemployment was due to the interaction between structural shifts in exogenous variables (such as the real oil price and the interest rate), and mutually reinforcing lagged labour-market responses operating on employment, wage determination, labour supply and capital accumulation. In contrast to the conventional interpretation, the authors argued that the UK's NRU had been reasonably stable through time, whereas the major unemployment swings had arisen from the cumulation of one-off shocks and their associated dynamic repercussions. Discussion centred on the nature of shocks that might yield a transitory, but possibly prolonged, effect. **Edmund Phelps** (Columbia University) gave examples of many such shocks, including EMU and real interest rates. **David Rose** (QED Solutions, Ontario) pointed out that separating the equilibrium level and the dynamic path was a difficult empirical task.

Robert Gordon (Northwestern University, CEPR and NBER) presented his paper 'Price, wage and unemployment dynamics in the recent experience of the United States'. The paper provided a unified framework in which inflation depended on inertia, demand and supply. The benign behaviour of inflation and unemployment in the United States in the mid-1990s was interpreted as the direct converse of the positively correlated 'twin peaks' of US inflation and unemployment in the mid-1970s and early 1980s. The decade between 1973 and 1982 was dominated by the macroeconomic effects of the adverse food and energy price shocks, which were largely reversed in 1982–86. Gordon's interpretation of the 'Cinderella' economy of the mid-1990s was that three beneficial supply shocks had combined to create 'twin valleys' of inflation and unemployment. These shocks were: (1) acceleration in the rate of computer price deflation; (2) reduction in the relative price inflation of medical care; and (3)

measurement improvements which had reduced measured inflation relative to true inflation. The estimation of wage equations indicated that the same factors that had held down price inflation had also held down wage inflation. There was thus no need to appeal to factors specific to labour markets to explain why wage inflation had been so well behaved in recent years. The author explained that a period of outstanding economic performance was only the first step in guiding policy-makers; also needed was a prediction of the future behaviour of the special factors. **Dennis Snower** questioned whether the extent of the changes in computer and medical care prices and in the measurement of prices accounted fully for the movement in the Phillips Curve, and whether the exchange rate might also have an important role to play.

The paper by **Edmund Phelps** (Columbia University), entitled 'Lessons in natural-rate dynamics' built upon previous work on the dynamic model of the natural rate, such as the author's 1994 book. In this paper, attention was paid to these medium-run dynamics, with all frictions stripped away in order to focus on what Phelps believed was the crucial driving force behind the equilibrium motion of unemployment in an open economy, namely the accumulation of private assets net of liabilities – private wealth. Thus the Phelps-Winter customer was banished in this model. Only physical capital that was frictionless, costless and instantaneously transportable in and out of the country was permitted. The turnover-training model of wages and unemployment, as rebuilt by Hoon and Phelps, was used. For simplicity, however, the hiring/training cost of each new employee was taken to be constant, rather than an increasing function of the hire rate. In the equilibrium case, with these simplifications, the unemployment rate jumped on to its equilibrium path and, in the future, the equilibrium rate was driven by the evolution of the private wealth of the representative worker.

Robert Gordon questioned why US unemployment was currently low, given that stock market wealth was high. The flow of the benefits from wealth, rather than the current market value of workers' homes and durables, was more relevant. Another participant questioned why wealth dynamics should affect the movement in unemployment given that the unemployed hold only a small fraction of the average national wealth per head.

'A comparison of inequalities across French and US labour markets', presented by **Daniel Cohen** (CEPREMAP, Paris, and CEPR) provided a theoretical comparison of the bargaining power of French and American workers and an investigation of the channels through which they were affected. Using (the log of) wage inequality as a criterion, Cohen found that the United States was a much more inegalitarian society, with a coefficient of variation about 60% higher than the French coefficient. Taking the computed value functions as a criterion, the US was still more inegalitarian, but by a margin of only 15%. This difference was not uniform across various segments of the labour force: French labour markets were more inegalitarian along the age

axis, whereas US labour markets were more inegalitarian along the diploma axis.

The author found that, for all segments of the labour market, job turnover was the dominant feature, always explaining more than 80% of the discrepancy between the welfare of an employed and an unemployed worker. A difference arose only in the segment of workers with no diplomas, in which the bargaining power of French workers was about 20% higher. For all the other segments, there was no difference in the wage-determination process in the two countries. Job turnover, rather than lack of wage flexibility, therefore appeared to be the critical discrepancy. **Henri Sneessens**, (IRES, Université Catholique de Louvain and Faculté Libre des Sciences Economiques, Lille) initiated discussion on the possibility that bargaining power might be underestimated. Attention also focused on the issue of job tenure, with more job-to-job turnover taking place in the United States, where it was quicker for workers to be rehired. **Stephen Nickell** questioned whether differences in France could be overstated because of higher employment protection in that country.

David Rose (QED Solutions, Ontario) presented 'Inflation and unemployment in Europe and North America: Asymmetry versus hysteresis', written with **Hamid Faruquee** (International Monetary Fund) and **Douglas Laxton** (International Monetary Fund). A model and methodology for simultaneous estimation of the Phillips Curve and the Non-Accelerating Inflationary Rate of Unemployment (NAIRU) was specified in a small system of equations, and was applied to the data for seven countries in Europe and North America. The authors found that a model with modest asymmetry in the Phillips Curve fitted the data better than a linear alternative in most cases. They also found that this model could explain part of the rise in the NAIRU in many countries over the past few decades as a macro phenomenon, related to the increased volatility of the business cycle.

The model with asymmetry had some interesting policy implications. Interpreting the NAIRU as the 'equilibrium' unemployment rate consistent with stable inflation, the authors noted that this value must lie above DNAIUR (deterministic NAIRU), namely the value that would be obtained in a world without shocks. The difference between these values, which they dubbed the a-shift, depended, among other things, on the degree of asymmetry and the degree of volatility in the macro cycle. Their estimates suggested that the a-shift had been growing through the sample in most countries, but may now be falling in countries where stabilization policies have been more successful in establishing both credibility in the stable-inflation monetary policy, and a new direction with respect to fiscal policy. **Dennis Snower** questioned whether stochastic variations around a non-linear short-run Phillips Curve implied a non-vertical long-run Phillips Curve. **David Mayes** (Bank of Finland) asked whether the convexity of the curve had changed, to which David Rose replied that there was some empirical evidence of increased convexity.

Marika Karanassou (Queen Mary and Westfield College) presented 'Surprising properties of the natural-rate hypothesis', written with **Dennis Snower**. The paper examined whether it was possible to find a unique empirical estimate of the natural rate of unemployment, representing the rate towards which unemployment is tending. In the standard, single-equation models of natural-rate theory, such a unique rate was simply the unemployment rate at which unemployment adjustment dynamics have worked themselves out. The authors argued, however, that single-equation models were at best an encapsulated summary of the unemployment behaviour that emerged from a multi-equation labour-market system containing labour demand and labour supply equations.

For an empirical model of the UK labour market, they computed various estimates of the long-run unemployment rate and found that these differed substantially from one another. Since each of the estimates was equally compelling as a potential reference point towards which the actual unemployment rate could move, the search for a unique, empirically assessable natural rate of unemployment consequently must be abandoned. Rather than viewing unemployment dynamics in terms of movements towards an identifiable reference point, it might be more useful to focus instead on labour-market shocks and the lagged behavioural adjustments to them. Given that each shock affected the labour market by feeding through a network of lagged adjustment processes, unemployment movements may then be viewed as a cumulation of past shocks and their associated dynamic sequence of labour-market responses. **Stephen Nickell** suggested that, since capital accumulation and working populations evolved at different rates across countries and time periods, unemployment may be independent of these factors. Dennis Snower considered that this depended upon the time frame, and that long-run restrictions should not be imposed in the medium run.

Gylfi Zoega (Birkbeck College, London) presented 'Education and the natural rate of unemployment'. Written with **Michael Orszag** (Birkbeck College, London) and **Edmund Phelps** (Columbia University), this paper used Phelps's 1994 turnover-training model to predict differences in the rate of unemployment across education groups. There were two types of labour which differed in their level of education. The authors found that the rate of unemployment in each group depended on the rates of autonomous inflow into and out of employment, the responsiveness of hires and quits to changes in the rate of unemployment and the unemployment-benefits replacement ratio. Unemployment among the less educated was higher for three reasons. First, the less educated faced a higher unemployment-benefit replacement ratio since their wages were lower, and hence they were more prone to quit and less likely to accept jobs. Second, the less educated could perform fewer tasks in the firm and hence were more often turned down for jobs. In turn, this reduced the rate of inflow into employment and raised the group's unemployment rate. Third, the less educated may be more prone to quit because of a variety of social problems affecting those in the lower levels of the education distribution disproportionately.

Within the context of the model, the recent deterioration in the relative unemployment/wage rate of the less educated could be attributed to the information revolution which had made firms more selective when hiring from the pool of less educated workers, rather than relying on biased technological change in the traditional sense of affecting the ratio of marginal products. There was some discussion about the impact of the minimum wage on the outcome. Furthermore, such a model potentially allowed for a large role for longer-run unemployment dynamics via education. The authors believed that education provided part of the explanation for the rise in unemployment.

Torben M Andersen (Aarhus University and CEPR) presented a paper entitled 'Persistency in the Danish labour market', written with **Svend Hylleberg** (Aarhus University). The aim of the paper was to identify different sources of persistency in employment adjustment. Based on a dynamic labour-market model, an explicit distinction was made between real and nominal (prices and wages) propagation mechanisms. The theoretical analysis provided the basis for an empirical analysis of wages, prices and employment for the manufacturing sector in Denmark from 1973 to 1993. The authors found that nominal rigidities prevailed in the short run and that nominal propagation mechanisms played a larger role than real propagation mechanisms. As the half-life of temporary shocks was about 11 quarters, it followed that endogenous propagation mechanisms were important, although they could not fully explain the observed persistency.

The finding that nominal adjustment failures had a larger effect than real adjustment failures had several important implications. First, it might be misleading to base measures of the structural unemployment rate on recently observed unemployment rates. Second, policies directed towards making the labour market more flexible, and so reducing inertia in the adjustment process, should focus more on the incentives underlying wage and price formation than on employment adjustment. Finally, given substantial inertia – particularly nominal inertia – there is a role not only for general demand management policies in smoothing employment, but also for monetary policies in speeding up the adjustment process. **Simon Burgess** (University of Bristol and CEPR) commented that it might be interesting to consider the effects of linear symmetric adjustment mechanisms. **Edmund Phelps** questioned whether some persistence in real shocks was needed. It was also suggested that it would be important to evaluate the relative importance of the real and nominal adjustments.

'Labour supply, the natural rate and the welfare state in the Netherlands: the wrong institutions at a wrong point in time' was presented by **Coen N Teulings** (University of Amsterdam and Ministry of Social Affairs, The Netherlands) and written with **Lourens Broersma** and **Jan Koeman** (both Ministry of Social Affairs, The Netherlands). This paper analysed the causes of the Dutch miracle. Low wage increases in the Netherlands, by comparison with the rest of Europe, were the main factor explaining the fast employment growth. Two factors might explain the lag in wage growth: the 1982

Wassenaar agreement between trade unions and employers; or the realignments in the welfare state.

A small macroeconomic model for the Dutch economy was estimated to analyse these issues. The residuals of the wage equation were not systematically negative for the post-1982 period. These residuals did have a large impact on the employment history, however. There was a clear effect resulting from the generosity of the welfare state, but the data did not allow the magnitude of this effect to be established precisely. The impacts on the Dutch economy of the oil price shock and the social experiment of more generous welfare benefits were felt during much the same period (1975–84) and so it was difficult to disentangle their effects. **Stephen Nickell** pointed out that the Netherlands had the highest productivity in the world. He commented that if wages grew in line with productivity, then unemployment would appear constant in the model.

The next paper, 'Duration distributions and unemployment dynamics', was presented by **Michael Orszag** (Birkbeck College, London). Economic policy frequently relied on constructs which related changes in unemployment, away from its natural rate, to other variables, such as growth rates (Okun's Law) or inflation (the Phillips Curve). Such constructs ignore the distribution of unemployment. In Orszag's view, this was misleading for economic policy because distributional issues – such as the number of long-term unemployed – had implications for both growth and inflation.

Beginning with a general Markov chain model, Orszag derived a continuum model of employment and unemployment, the steady states of which had distributions corresponding to those used in the microeconometrics of transitions. These steady states differed considerably from traditional natural-rate theories in which only the aggregate unemployment rate settled down to its steady-state level. The author demonstrated the use of the model in calculating steady-state unemployment rates for comparison with natural-rate theories. He also analysed convergence to steady-state equilibrium and discussed possible extensions. **Simon Burgess** suggested that the flows into and out of unemployment, with their associated probabilities, be included in the model, and **Stephen Nickell** commented that it would be beneficial to include wages.

'Unemployment persistence' was presented by **Alison Booth** (University of Essex and CEPR) and written with **Wiji Arulampalam** (University of Warwick) and **Mark Taylor** (University of Essex). They estimated dynamic panel-data models of unemployment incidence, in order to disentangle the effects of unobserved individual heterogeneity and true state-dependence. They also controlled for the 'initial conditions' problem that arose when the start of the observation period did not coincide with the start of the stochastic process generating individuals' unemployment experiences. These problems could be properly addressed only with panel data, such as the new British Household Panel Survey. If there was no state-dependence in the incidence of unemployment, then short-run policies to reduce unemployment would have no effect on the natural rate.

If there was true state-dependence, however, then policies that reduced the incidence of short-run unemployment would have longer-run effects by reducing the natural rate.

The authors estimated their models for a sample of men for the period 1991–5. They found strong evidence of state-dependence, especially for more mature men (defined as those aged 25 and over in 1991). This finding was consistent with the 'scarring' theory of unemployment, which suggested that individuals' previous unemployment experiences had implications for their future labour-market behaviour. Some discussion, initiated by **Daniel Cohen**, concerned a possible sample-selection problem. Alison Booth confirmed that if a person became employed, he/she would remain in the sample, but that the data did not take into account a person who may have changed jobs several times during the survey period.

Juan Dolado (Universidad Carlos III, Madrid, and CEPR) presented 'Hysteresis and the sources of shocks: A cross-country analysis', written with **Manuel Balmeseda** (CEMFI, Madrid) and **David López-Salido** (Banco de España). Their paper used long-run identifying restrictions on a three-variable system, containing output growth, real-wage growth and the unemployment rate, to isolate three 'structural' shocks which drove business-cycle fluctuations in a sample of 16 OECD countries during 1950–94. These shocks were interpreted variously as aggregate-demand, productivity and labour-supply disturbances. Two competing hypotheses were assumed for the stochastic behaviour of the unemployment rate: trend stationary, or integrated of order one.

The authors found that the observed dynamic adjustment of the variables in response to structural shocks was much more consistent with the implications of a model with full hysteresis in unemployment than with models of partial hysteresis. In particular, aggregate demand and productivity had almost mirror-imaged positive/negative cumulated effects on output and unemployment, while labour-supply shocks tended to increase unemployment, and productivity shocks were most important in explaining fluctuations in real wages. The authors also concluded that productivity and aggregate-demand shocks explained most of the fluctuation in real output, the former being particularly important in the Anglo-Saxon and Scandinavian economies. Most remarkable, however, was the contribution of aggregate-demand shocks to the forecast error variance decomposition for unemployment for a large subset of countries, comprising the above-mentioned economies and some central European economies.

Some discussion took place about the assumption of modelling unemployment as an I(1) process. Although this may be a good approximation for the economies and sample periods used, in the long run it would be an I(0) process; it was possible, however, that unemployment over a specific period might be interpreted as being I(0), but with a mean shift.

Henri R Sneessens (IRES, Université Catholique de Louvain and Faculté Libre des Sciences Economiques,

Lille) presented 'Demand-supply interactions and unemployment dynamics: is there path dependency? The case of Belgium, 1955–1994', which was written with **Fatemeh Shadman-Mehta** (IRES, Université Catholique de Louvain). The fact that the proportion of capacity-constrained firms in European economies had remained fairly small suggested that capacity shortages could not be the direct and single cause of unemployment persistence. Inferring from this observation that low investment rates played no role in explaining the persistence of high unemployment rates, however, may fail to take into account the relationship between demand expectations, capital accumulation and real rigidities.

The authors' objective was to show how a continuum of excess-supply equilibria could be obtained in models with real rigidities, similar to those traditionally used to analyse the determinants of equilibrium unemployment (the NAIRU), provided the effect of a 'capital gap' on wage formation and the relationship between capital accumulation and demand expectations were explicitly taken into account. Such a persistence mechanism might explain why current unemployment rates seemed to depend so much on past history, and why there was not a simple explanation that applied equally well to all European countries. The authors estimated an econometric model using post-war Belgian data, with special emphasis on the effects of the 1982–7 wage controls. They estimated the model using Johansen's maximum likelihood approach, thus imposing as few a *priori* structural restrictions as possible. Their results suggested path-dependency and were thus compatible with the implications of their theoretical model. **Dennis Snower** questioned whether there was a sales constraint, implying wage and price inertia, to which Sneessens replied that the model implicitly contained menu costs, and hence nominal inertia.

Giorgio Brunello (Università degli Studi di Udine) presented 'Regional Disparities and the Italian NAIRU', written with **Claudio Lupi** (Istituto di Studi per la Programmazione Economica (ISPE), Roma). In this paper, the authors estimated the Italian NAIRU using annual data for the period 1951–96. They found evidence that aggregate wage-setting in Italy depended only on the rate of unemployment prevailing in the northern and central areas of the country. Southern unemployment did not affect wage pressure. There was evidence of a co-integrating relationship between unemployment in the northern and central areas, the tax wedge, the real interest rate and a measure of union power.

The NAIRU estimates were not very precise, and the width of the 95% confidence interval was close to two percentage points. The NAIRU had remained more or less constant in the past ten years, in association with a reduction in union power and in the real interest rate, which was almost completely compensated for by the increase in the tax wedge. However, aggregate equilibrium unemployment had increased by 8 percentage points and actual unemployment had increased by 15.2%. These numbers suggested that both regional-mismatch and demand factors had been important in the increase of Italian unemployment since the early 1980s. **Dennis Snower** suggested that if the

mismatch was roughly measured by the difference between average and northern unemployment (and therefore between southern and northern unemployment), then changes in mismatch could be regarded as exogenous. If this were the case, the model could be extended to endogenise southern unemployment.

Hector Sala-Lorda (Universitat Autònoma de Barcelona) presented his paper on 'The natural rate and lagged adjustment processes in Spain'. The paper represented a first attempt at using Chain Reaction theory to analyse the Spanish labour market. The objective was to understand how much the dynamic effects of different kinds of shocks could explain unemployment in Spain. The analysis was done via two different types of exercises. First, Sala-Lorda used unemployment persistence and imperfect responsiveness measures to evaluate the degree of persistence of the effects of temporary and permanent shocks on unemployment. Second, he estimated which part of the unemployment trajectory could be explained by lagged adjustment processes and which by the impulses of growing exogenous variables. When analysing the contribution of lagged adjustment processes to the change in unemployment, he found that the dynamics of the system accounted for one-half of this change. The interplay between the succession of impulses and the dynamic responses may have been explained by the medium-run unemployment changes.

Sala-Lorda suggested that these results showed that Chain Reaction theory provided a useful framework for analysing the causes of unemployment and thus for deriving an appropriate design of unemployment policy. **Juan Dolado** suggested that, rather than looking at the entire business cycle, it might be beneficial to consider the peak and the trough of the cycle separately. **Dennis Snower** thought it might be desirable to ensure that there was a reasonably close fit between the Spanish unemployment 'story', factors such as the 1978 tax reform, the introduction of fixed-term labour-market contracts in 1984 and the empirical analysis.

'Structural unemployment and the NAIRU in Austria: theoretical considerations and empirical results' was presented by **Andreas-Ulrich Schuh** (Ministry of Finance, Vienna) and written with **Karl Pichelmann** (Institute for Advanced Studies, Vienna). Their paper gave a brief survey of the main theoretical and empirical issues surrounding the NAIRU concept. According to modern labour-market literature, NAIRU was defined as the rate of unemployment at which inflation stabilizes in the absence of any wage-price surprises. Conventional thinking about the equilibrium unemployment rate assumed that, in the long run, the NAIRU is determined solely by supply-side factors in the labour market. The authors showed that quite complex adjustment dynamics may arise even in simple log-linear wage-price models. Furthermore, they surveyed a number of hysteresis mechanisms which could lead to permanent shifts of equilibrium unemployment over time, implying that a unique long-run NAIRU may not even exist.

In addition to these theoretical issues, the authors referred to two serious problems which might arise with empirical applications of the NAIRU concept. First,

various empirical studies suggested that the results depended highly on model specifications. Second, a considerable amount of statistical imprecision was inherent in the results obtained from empirical estimates. For these reasons, they argued, policy conclusions drawn from the NAIRU concept must be judged with the utmost care, particularly in the many countries in which a number of labour-market measures, as well as monetary policies, were based on the concept. **Dennis Snower** questioned how important the static natural rate of unemployment, as well as the lagged adjustment processes, were in accounting for the observed movements in unemployment.

David Mayes (Bank of Finland) presented 'Unemployment in a small open economy: Finland and New Zealand', written with **Jouko Vilmunen** (Bank of Finland). This paper sought to make a contribution to the understanding of the causes of unemployment and its successful reduction by exploring the examples of two rather different small open economies, Finland and New Zealand. They hoped to shed light on three key issues: (1) the degree to which unemployment had been the result of slow adjustment to large external shocks; (2) the degree to which differences in labour-market structures could lead to different responses to shocks; and (3) the importance of the exchange rate and the external sector in resolving the problem.

For Finland, the bulk of the short-run adjustment to a shock to the long-run unemployment relationship fell on unemployment. The speed of adjustment of unemployment was also quite fast, whereas the response of real wages was perhaps surprisingly small: unemployment would adjust at the speed of 0.34 percentage points per six months to a unit shock, while the adjustment speed of real wages was as low as 0.01 percentage points per six months. In the case of New Zealand, the evidence was more difficult to interpret because of some uncertainty about the parameter estimates. Terms of trade, however, appeared to be an important adjustment channel to shocks to the long-run equilibrium in the New Zealand economy. On the relevance of productivity growth in New Zealand, which was raised in discussion, Mayes pointed out that, although it may be the case that the actual outcome for the service sector was more favourable than the impression given by the official statistics, there were many new jobs in lower productivity areas. Unlike many other countries, however, these jobs were not generally of a part-time nature.

The final paper, 'Unemployment persistence in a small open labour market: The Irish case', was presented by **Brendan Walsh** (University College Dublin). The question underlying the paper was whether the behaviour of the Irish unemployment rate since the 1960s was best understood in terms of the lagged adjustment of a stable equilibrium unemployment rate (NAIRU) to shocks, or in terms of variation over time in the equilibrium rate of unemployment. Walsh presented evidence from a variety of sources to demonstrate that the relevance of the NAIRU concept was not easily established under Irish conditions. The price-inflationary process was generally agreed to reflect the influence of world inflation, transmitted through the exchange rate. Although domestic inflationary pressures, emanating

from wage costs, had been shown to play a minor role in Irish price inflation, it had proved difficult to establish a link between these pressures and the rate of unemployment.

Alternative approaches to defining an 'equilibrium' rate of unemployment had drawn on the relationship between Irish and UK unemployment. A stable relationship appeared to have existed between these two variables until the mid-1970s. Although it subsequently broke down, this link now appeared to have been re-established, but with a significant negative trend in the gap between the two rates. This was attributed to favourable developments in the Irish economy, notably the steady improvement in competitiveness, changes in the wage-bargaining process and reforms in the social welfare system. It remained to be seen how rapidly and how far the Irish unemployment rate would fall in response to further rapid economic growth.

Business Cycles

New Approaches

A CEPR conference on 'New Approaches to the Study of Business Cycles' was held in Madrid on 30/31 January 1998. The conference, which was organised by **Lucrezia Reichlin** (ECARE, Université Libre de Bruxelles and CEPR), assembled recent contributions on the measurement and theory of the business cycle from different methodological perspectives. One theme of the conference was the relationship between micro- and macroeconomic dynamics; another was trend-cycle decompositions for macroeconomic indicators. There were also papers on equilibrium business-cycle theory and simulation results. In all, 12 papers were presented.

'Capital accumulation with incomplete markets' was presented by **Francesc Obiols-Homs** (ULB and ECARE) and written jointly with **Albert Marcet** (Universitat Pompeu Fabra, London Business School and CEPR) and **Philippe Weil** (ULB, ECARE, CEPR and NBER). The authors asked whether the lack of perfect insurability implies that there will always be precautionary savings in the steady state. When markets are complete, economic agents can get perfect insurance against major fluctuations in their wealth and do not therefore need to save for precautionary motives. When markets are incomplete, however, precautionary savings are likely to ensue, thus allowing both a higher rate of capital accumulation and faster growth. Previous research has suggested that, in an economy with a fixed labour supply, the availability of precautionary savings implies an aggregate stock of capital around 2-3% larger than under complete markets. Consequently, if incomplete markets were always characterized by positive aggregate precautionary savings, a better allocation of risk would lead to an increase in welfare, but would cause output to fall.

The authors argued that the answer to their question must rely heavily on the elasticity of, and the wealth effects on, labour supply. When labour supply is endogenous, wealth effects will shrink the size of incomplete, relative to complete, market economies. In

Transition Economics Summer Workshop for Young Academics

CEPR's first annual Transition Economics Summer Workshop for Young Academics was held in Prague from 29 June to 8 July 1988. The workshop was organized by **Jacek Rostowski** (Central European University, Budapest), **Mark Schaffer** (Heriot-Watt University) and **Jan Svejnar** (WDI, CERGE-EI, Prague, and CEPR). The following papers were presented:

'Multinational Enterprises and the Emergence of Markets and Networks in Transition Economies', **Klaus Meyer** (Centre for East European Studies, Copenhagen Business School)

'Chained Monopolies and Innovation Adoption in Restructuring Economies', **Ella Kállai** (CERGE-EI, Prague)

'Privatisation Funds and Corporate Governance in Bulgaria', **Rilka Dragneva** (University of Sussex)

'Stochastic Economic Shocks and Incentives for (Dis)Integration', **Jan Fidrmuc** (CentER, Tilburg University, and ECARE, Université Libre de Bruxelles)

'Restructuring as a Signal: A Simple Formalization', **Emilio Colombo** (University of Southampton)

'The Evolution of Bank Credit Quality in Transition: Theory and Evidence from Romania', **Enrico C Perotti** (Universiteit van Amsterdam and CEPR) and **Octavian V Carare** (Tinbergen Institute and Rutgers University)

'Does Market Organization Speed Up Market Stabilisation? First Lessons from the Budapest and the Warsaw Stock Exchanges', **Anna Zalewska-Mitura** (London Business School)

'Screening Borrowers in Transition Economies: Two Risk Parameter Version', **Gyöngyi Lóránth** (Universitat Autònoma de Barcelona and ECARE, Université Libre de Bruxelles)

'A Macro-Theoretic Model of an Economy in Transition', **Tsvetomira S Tsenova** (University of York)

'Private Pension Schemes and Financial Sector Development in Transition Economies', **Lisa Cook** (Harvard Institute for International Development) and **Katharina Pistor** (Max Planck Institute for Foreign and International Private Law, Hamburg)

'Vorsprung durch Training? A Microeconomic Evaluation of the Employment Effects of Active Labour Market Programmes in Poland', **Patrick A Puhani** (Zentrum für Europäische Wirtschaftsforschung (ZEW), Centre for European Economic Research, Mannheim, and SELAPO, Universität München)

'A Strategic Overlapping Model of Wage Differentials: The Case of Hungary 1972-1996', **Arpad Abraham** (Universitat Pompeu Fabra, Barcelona)

'Public Sector Labor Markets in Transition Economies: The Case of Hungary', **Gábor Kézdi** (Institute of Economics, Hungarian Academy of Sciences)

'Twin Peaks in Regional Unemployment and Returns to Scale in Job-Matching in the Czech Republic', **Stefan Probit** (Humboldt Universität zu Berlin)

'The Prince and the Pauper Revisited: A Bootstrap Approach to Poverty and Income Distribution Analysis Using the PACO Data Base', **Georges Heinrich** (Centre for Economic Reform and Transformation, Heriot-Watt University)

'The Determinants of Female Labour Supply in Hungary', **Catherine Saget** (Centre March Bloch, Berlin)

'The Influence of the Shadow Economy on Russian Economic Development', **Ekaterina Vostroknoutova** (St Petersburg State University for Economics and Finance)

'A Cointegration Analysis of Polish Inflation', **Byung-Yeon Kim** (University of Essex)

'Labour Supply in the Informal Economy and Second Job Holding in Russia', **Alexandre Kolev** (European University Institute, Firenze)

'Wage Differentials Between State and Private Sector', **Maxim Bouev** (St Petersburg Institute of Economics and Mathematics, Russian Academy of Sciences)

'Insider Privatization and Restructuring', **Guzel Bilialova** (Universitat Pompeu Fabra, Barcelona)

'Production and Rent-Seeking Behaviour', **L Polishchuk Alexandre Savvateev** (CEMI, New Economic School, Moscow)

these circumstances, the existence of precautionary savings will depend on aggregate *ex-post* wealth, and on the complementarity between the input creating the wealth effect and other productive inputs. For a sufficiently high employment rate, the wealth level of employed agents will be such that the aggregate labour supply under incomplete markets will be smaller than under complete markets. Hence incomplete markets *per se* do not necessarily imply either the existence of precautionary savings or an increase in the size of the economy relative to complete markets. Instead, if there were complementarities in production, and some of the inputs were able to create wealth effects, then completing the markets would increase not only welfare, but also output. This result called for a cautionary approach to the design of an optimal taxation scheme. A positive tax on capital income would be likely to move the economy even further from the optimal state. The authors' own simulations indicated that their results were robust with respect to the introduction of substitution effects implied by a particular form of aggregate uncertainty.

Empirical studies of the financial decisions of firms have revealed important differences in the behaviour of large and small firms. In 'Monetary policy and the financial decisions of firms', **Thomas F Cooley** (University of Rochester) and **Vincenzo Quadrini** (Universitat Pompeu Fabra) developed a general equilibrium model to help to explain this feature, among others. In the model, the capital structure of firms changes endogenously over time and over the business cycle as a result of the firms' financial decisions, and in response to idiosyncratic technology shocks, as well as to aggregate real and monetary shocks. One of the objectives of the paper, which was presented by Quadrini, was to provide a general equilibrium framework for describing the transmission of monetary shocks to the economy, where the effect of the shocks was to change liquidity levels in the economy.

Four interdependent sectors of the economy are considered: households, firms, financial intermediaries and mutual funds. There is a continuum of firms which, in each period, are heterogeneous in their initial equity capital. The firms' equity is endogenous and changes over time as profits are reinvested, this being the only source of increased equity. Firms finance their working capital by borrowing (up to a maximum defined by the firm's liquidation value) from financial intermediaries through a standard debt contract based on a non-contingent interest rate.

The authors derived several results. First, they determined the industry-wide dynamics and the equilibrium distribution of firms. Second, their model predicted that small and large firms would respond differently to aggregate real and monetary shocks. Small firms were found to be more sensitive to monetary shocks, whereas the response to real shocks was slightly greater for big firms. Third, the behaviour of households and firms had business-cycle implications. Firm heterogeneity was found to generate more persistence in the economy's response to monetary and real shocks, although the real effects of monetary policy were found to be very small. Fourth, monetary shocks

led to considerable volatility in financial markets, particularly in stock-market returns. Monetary policy shocks and their effects on stock-market fluctuations could thus serve as an explanation for the puzzle of excess volatility of stock returns for representative-agent economies.

The model was calibrated to generate quantitative implications broadly consistent with aggregate data. **Sumru Altug** (Koç University and CEPR) noted, however, that it did not test whether this was true also of firms at the individual level. Since firms' decision rules depended on a specific set of observable state variables, a simple test could determine their significance for the firms' behaviour.

International agreements – such as the Maastricht and Amsterdam Treaties – to formalize stabilization pacts for debt and public deficits arise from the perception that national deficit spending imposes negative externalities on foreign countries. The possibility of such externalities is not new – interest-rate transmission channels, for instance, have long posed such a threat. In EMU, however, their potential will be accentuated by the creation of the European Central Bank, which may be called upon to bail out a heavily indebted member country, thereby ultimately threatening union-wide price stability. In a paper written with **Soren Bo Nielsen** (Copenhagen Business School) and entitled 'Is coordination of fiscal deficits necessary?', **Harry Huizinga** (CenTER, Tilburg University, and CEPR) examined the scope for fiscal rules to restrict government borrowing in the case where government financing stems from capital income taxation. The paper stressed interest-rate and tax externalities as a rationale for international restrictions on national budget deficits. In a two-period model, the authors generalized the existing literature by allowing for public expenditures in each period to be financed by distortionary taxes on investment and saving, with the possibility of first-period public deficits.

Where governments had access to both source- and residence-based capital income taxes, the predictions of the model were familiar: there was no need to coordinate national borrowing. The assumption that both investment and saving taxes were available, however, was crucial for the result. In practice, the residence-based tax on the return to savings is increasingly eroded by tax avoidance and evasion. If a savings tax was not available, there was still scope for fiscal-policy coordination. Allowing for government borrowing in the first period, however, introduced an additional international interest-rate externality: borrowing by one government pushed up international interest rates, thereby increasing borrowing costs for all governments. The tax-competition and interest-rate externalities worked in opposite directions, with the result that in the absence of fiscal-policy coordination net public borrowing could be either too high or too low. The paper showed that there will be excessive borrowing without coordination if capital is fairly immobile, and if the first-period marginal propensity to save is high. In this instance, international agreements, such as the European stabilization pact, can improve welfare levels in all countries.

CEPR Economic Policy Roundtable

Around 70 European decision-makers gathered in London on 5 June 1998 for the eighth CEPR Economic Policy Roundtable. The meeting was hosted by Credit Suisse First Boston and supported by the UK Foreign and Commonwealth Office. The Centre's major corporate members were well represented; also present were CEPR Research Fellows and senior representatives of the European Commission, European Central Bank and national governments and central banks. The informal and off the record discussions were divided into three main subject areas: Competition and Deregulation Policy in European Telecommunications; The 'Ins' and Pre-Ins post-1999; and Monetary Policy under EMU.

'Spanish unemployment and inflation persistence: Are there Phillips trade-offs?' was written by **Juan J Dolado** (Universidad Carlos III, Madrid, and CEPR), **J David Lopez-Salido** (Banco de España) and **Juan Luis Vega** (European Monetary Institute), and presented by Juan Dolado. The paper considered the evolution of inflation and unemployment in Spain during the period 1964–95, including what appears, at first sight, to be an unemployment-inflation trade-off close to 1:1 since the mid-1970s. The authors analysed the implications of hysteresis effects – related in Spain to high firing costs and long unemployment-benefit duration – and of high-inflation persistence for both the Phillips trade-off and the sacrifice ratio. They employed a bivariate VAR model, with both the inflation and unemployment rates in first differences. The structural innovations associated with the latter two variables were defined to be the demand and supply shocks, which were recovered from the estimated VAR residuals.

This methodology allowed the authors to address a number of relevant issues: (1) estimation of the short- and long-run effects of both demand and supply shocks on unemployment and inflation; (2) estimation of the Phillips curve trade-off; and (3) testing for both the long- and short-run neutrality of the Phillips curve. They considered three identification schemes: a real business-cycle model; a neoclassical-monetarist-rational expectations model; and a Keynesian model. The monetarist identification scheme was found to be best-suited for the unemployment-inflation joint dynamics. The authors were unable to reject the existence of a permanent output loss of half a percentage point for each percentage point of permanent disinflation. When the VAR was augmented by a fiscal-policy variable, however, namely logged government current expenditures (in second differences), in an attempt to disentangle monetary from non-monetary demand shocks, the data favoured a transitory trade-off with a cumulative output loss of about six percentage points of GDP (notwithstanding the high degree of hysteresis in the Spanish labour market). None-the-less, the authors argued that the benefits from lower inflation were positive and similar in both cases.

A claim that the traditional VAR approaches to identification of the impact of a monetary-policy shock

on output mean that the conclusions are not drawn directly from the data, but rather result from the imposition of either a causal ordering of the variables, or contemporaneous or long-run restrictions, formed the starting-point for the paper by **Harald Uhlig** (CenTER, Tilburg University, and CEPR). Entitled 'What are the effects of monetary policy? Results from an agnostic identification procedure', the paper proposed an alternative method of directly imposing sign restrictions on the responses of prices, non-borrowed reserves and the US federal funds rate (FFR) to a monetary shock. More specifically, Uhlig assumed that a contractionary shock leads to no increase in prices, no increase in non-borrowed reserves and no decrease in the FFR for a certain period (the 'response horizon') following the shock. Unlike the previous VAR literature, moreover, this approach sought the identification of a single (monetary) shock alone, with no restrictions imposed on the response of output, thus leaving the data to 'speak for themselves'.

The monetary shock was identified from an impulse vector, which minimized a criterion dependent upon the response horizon, and a function for 'penalizing' responses of price, non-borrowed reserves and FFR with signs different from those desired. The results, which broadly confirmed those of previous studies, constituted what Uhlig termed a 'new Keynesian-new classical synthesis': even though the general price level reacts sluggishly, money has no real effects. More specifically, he found that: (1) contractionary monetary policy shocks had an ambiguous effect on real GDP; (2) the GDP price deflator fell only slowly following a contractionary shock, possibly indicating price stickiness, while the commodity price index fell more quickly; and (3) monetary policy shocks accounted for only a small fraction of the forecast-error variance in prices and, except at horizons shorter than half a year, in the FFR as well.

The fact that monetary shocks appeared to capture so little variation in future inflation could be interpreted to mean that US monetary policy had been largely successful, in that it was predictable. As Uhlig acknowledged, however, this result could also imply faulty identifying assumptions – a point taken up in the ensuing discussion. **Fabio Canova** (Universitat Pompeu Fabra and CEPR) argued that even where the identification was concerned only with a single shock and no restrictions were imposed on the response of real GDP, this did not get rid of the indeterminacy problem. Some response variables therefore do need to be restrained; and, if some of the restrictions turn out to be incompatible with economic reality, the identified shock becomes meaningless. Canova also pointed to the sensitivity of Uhlig's method with respect to the specification of both the impulse-response horizon and the penalty function. None-the-less, Uhlig had refined the method for identifying a monetary shock and his results did seem strongly consistent with prior expectations.

Vangelis Vassilatou (IMOP and IOBE) introduced his paper, 'A small open economy with transaction costs in foreign capital', which was written with **Tryphon Kollintzas** (Athens University, CEPR, IMOP and IOBE). Vassilatou noted that, with a few notable exceptions

(Canada, France, Portugal, Sweden and the United Kingdom), the successful application of real business cycle (RBC) models to the US economy had not been accomplished for other countries. He and Kollintzas were attempting to remedy this by extending the standard RBC model to incorporate the behaviour of a small open economy in which access to foreign capital markets was impeded by transaction costs and in which the public sector was large and distorting. They calibrated their model on data for the Greek economy from 1960 to 1992. A second objective was to analyse the response of the major Greek macroeconomic variables to various temporary and permanent policy changes, most notably the effects of foreign transfers and the so-called 'Delors I and II' packages.

The model successfully reproduced several stylized facts of the Greek business cycle, and the impulse-response analysis predicted that increases in the GDP share of government consumption would adversely affect output and factor productivity, and would increase net foreign asset holdings. A higher GDP share of domestic transfers would have qualitatively similar, but quantitatively smaller, effects. Increases in the GDP share of government investment, however, would raise output and all kinds of capital but decrease labour. These results suggested that the relative increases in government consumption and in foreign and domestic transfers over the last 20 years had worked to the detriment of the Greek economy, owing to distortions to the incentives to save and work.

The model proved weak, however, in reproducing labour-market behaviour. In the authors' view, this was because of the high degree of centralization of the Greek labour market. **Graziella Bertocchi** (Università di Modena and CEPR) concurred and suggested an alternative modelling strategy, based on the fact that capital controls can be introduced as protection for the bargaining power of labour. **Oved Yosha** (Tel-Aviv University) explored the possibility of incorporating an 'optimally behaving' public sector, but the authors argued that the model's results were qualitatively insensitive to the role of government consumption in preferences. **Fabio Canova** commented that the growth-oriented nature of the 'Delors packages' was not fully captured by a model focusing primarily on short- and medium-term fluctuations.

'New approaches for modelling dynamics of large cross-sections' was written by **Christophe Croux** (ECARE), **Mario Forni** (Università di Modena), **Marc Hallin** (ECARE and ISRO), **Marco Lippi** (Università di Roma and ECARE) and **Lucrezia Reichlin** (ECARE and CEPR), and was presented by Lucrezia Reichlin. Although the empirical co-movement of macroeconomic aggregates is one of the few stylized facts of economics, it is – paradoxically – also one of the least well-documented and understood facts. 'Co-movement' is a loosely used term with many different interpretations. Moreover, persistent aggregate fluctuations often can be explained by micro shocks, propagated locally by co-movements of microeconomic units through input-output relations, spillovers and other interactions. Observed aggregate fluctuations caused by such local, rather than aggregate, shocks thus

require explanation through a different class of macroeconomic models.

Accordingly, the authors offered two lines of analysis. The first developed a measure of co-movement, which was close to the notion of dynamic correlation, but which also took into account differences in drifts and variances. Being defined in the frequency domain, the measure could be used to study business-cycle as well as short- or long-run questions. It could also be generalized to provide a summary index of 'cohesion', i.e. the degree of co-movement either within or between groups of variables (or individuals). The authors provided two illustrations. First, by analysing the 'local interaction hypothesis' in a panel of sectoral output data for 450 US manufacturing sectors since 1958, they demonstrated that both the extent and shape of cohesion between different sectoral groups conveyed information about the nature of the shocks and the propagation mechanisms. Second, they used per capita output data for US states and European countries to evaluate differences in overall intra-group cohesion. In both illustrations, bootstrap confidence intervals for the co-movement measure were computed.

In the second line of analysis, the paper proposed an econometric framework for studying the propagation of micro shocks (with possibly local effects) and of aggregate shocks. The model – a dynamic approximate factor model – generalized the usual (static) principal-components analysis to a dynamic framework and, more specifically, to the frequency domain. The authors obtained a consistent result for their estimator, as well as encouraging preliminary simulation results.

Margherita Borella (University College London) presented 'Stochastic components of individual consumption: a time series analysis of grouped data', written with **Orazio Attanasio** (University College London and CEPR). The authors noted that although the well-known dynamic properties of aggregate consumption had stimulated development of different theoretical models of consumption behaviour, most empirical studies had focused on some version of an Euler equation, estimating and testing the structural model by exploiting the over-identified restrictions implied by such an equation. Little was known, however, about the stochastic properties of consumption at the individual level. Previous studies had either modelled only the labour-market variables or focused solely on the dynamics of purely idiosyncratic components, treating aggregate shocks and business-cycle patterns as nuisance parameters to be eliminated in preliminary regressions.

The authors therefore proposed a new methodology for analysing the time-series properties of individual consumption expenditure. Their aim was to characterize, at the individual level, the variance-covariance matrix of innovations to consumption, its components and other variables. They considered joint modelling of several components of consumption important, since the presence and nature of common factors could provide information about the empirical relevance of consumption-behaviour models. In particular, it allowed different models of individual behaviour and of market interactions, such as the

existence of complete contingent markets, to be tested. Given the lack of panel data, a distinguishing feature of the proposed approach was the focus on big T-asymptotics, which were required for a proper inference of the dynamic properties, rather than N-asymptotics.

With the life-cycle model in mind, the authors examined consumption in relation to age, dividing the sample into cohorts of individuals that were followed over time. They also considered educational and occupational characteristics, and modelled the cross-sectional heterogeneity among groups. The empirical results suggested that consumption was highly sensitive to output, and that durable consumption was much the most volatile component. **Harald Uhlig** commented that this result was to be expected, given the behavioural similarities between durable consumption and investment. It was also unsurprising that the volatility of non-durable consumption was almost invariant with respect to cyclical frequency, whereas durable consumption fluctuated more at business-cycle frequencies than in the short or long run.

Fabio Canova (Universitat Pompeu Fabra and CEPR) presented his paper, 'Testing for heterogeneities in the cross-sectional dimension of a panel: a predictive density approach'. Recent theoretical research on growth and development suggests the possibility of 'convergence clubs' emerging within groups of countries or regions. This clustering may be induced by intra-group similarities in preferences and technologies or in government policies. Hitherto, however, there has been little formal empirical examination of the existence of such a tendency. Canova thus proposed a general technique for determining the number of such 'clubs' and the location of break points in cross-sectional data. The test – within the Bayesian tradition – allowed for heterogeneity within groups, and used predictive densities to estimate the hyperparameters of each club, and posterior analysis to draw inferential conclusions about functions of the model coefficients. No distributional assumptions were required about the errors in the model, as long as the quasi-likelihood of the data, conditional on the hyperparameters, could be computed.

The author applied the technique to both a simulated and an observed data set, the former to establish the power and size properties of the tests and the features of the estimated parameter distributions, and the latter to test empirically the existence of convergence clubs among European regions. The observed data comprised per capita incomes for 144 European regions, measured relatively to the European average, for the period 1980-92. Four clusters were identified, each characterized by parameters controlling their speed of adjustment to the steady state and the (relative) mean level of per capita steady-state income. A high dispersion of steady states across each group was found, and inter-cluster heterogeneity was confirmed by differences in the long-run mobility indices across groups.

Christophe Croux commented on the limitations both of using a Bayesian-based predictive density, and of seeking an optimal solution to the clustering problem via a technique in which it is computationally impossible

to consider all possible partitions of n individuals into a given number of groups. He wondered whether similar results could not be obtained using more traditional *ad hoc* clustering techniques, which are model-free and independent of prior beliefs about the clustering structure.

Daniel Peña (Universidad Carlos III de Madrid) presented 'Forecasting with leading indicators by partial least squares', written with **Juan Antonio Gil** (Universidad Carlos III de Madrid). The use of a limited number of indicators to summarize the responses of a large number of highly correlated variables with respect to changes in a variable (or variables) whose behaviour is to be predicted is well-established. Examples include the business cycle 'diffusion indices' constructed by Quah and Sargent, and, in Spain, the use of a synthetic leading index to predict the inflation rate. Although principal components analysis (PCA) and factor analysis (FA) are the most commonly used procedures for such exercises, they do not exploit the relationship between the explanatory variables and the variables to be predicted. Partial least squares (PLS) estimation methods, by contrast, do exploit these relationships and have been used extensively in Chemometrics. Calling for greater use of PLS in econometrics, Gil and Peña argued that it had major advantages over traditional regression methods. For example, PLS allowed for the number of explanatory variables to be larger than the number of observations, and offered a means for correcting for possible strong multicollinearity between the regressands. Moreover, the PLS estimate could be interpreted as a 'shrinkage' of the usual least squares estimate.

The authors applied the algorithm to simulated dynamic data, and to the forecasting of the Spanish inflation rate for the period February 1977 to August 1997. For the latter application, the method provided better estimation and forecasting results than traditional time-series analyses. Given its characteristics, however, **Marc Hallin** found it puzzling that PLS could lead to any satisfactory results in the presence of highly-correlated or collinear regressors. Its best selling-point might be the shrinkage argument, although even then there were important qualifications. **Enrique Sentana** (CEMFI and CEPR) noted that if the specification criteria for the number of PLS factors did not converge, more factors would have to be added to the model to capture the dynamics of the regressor.

'A review of systems cointegration tests' was written by **Kirstin Hubrich** (Humboldt-Universität zu Berlin), **Helmut Lütkepohl** (Humboldt-Universität zu Berlin) and **Pentti Saikkonen** (University of Helsinki), and was presented by Kirstin Hubrich. Determination of the number of long-run equilibrium paths linking the variables in a system is one of the primary motivations for cointegration testing. Although a wide range of procedures is now available, there is no consensus that any single method outperforms all the others. The authors reviewed the systems cointegration literature, and compared the various assumptions for the asymptotic validity of the different tests within a general unifying framework, presenting local power analyses, where available. A major contribution of the paper, in their view, was that it placed simulations-based

comparisons of the size and power properties of the full range of tests on a common footing, using a bivariate vector process. The paper also reviewed systematically the differing assumptions regarding the deterministic terms, and it considered the performance of tests that do not depend on the values of the mean and the trend parameter in the Data Generating Process (DGP). In the latter case, it was noted that some newly suggested Lagrange multiplier-type tests performed similarly to standard likelihood ratio tests in small samples, whereas other tests were outperformed. Discussion focused on issues for further research, including the set-up of simulations in tests for a larger set of variables, and the robustness of results with respect to the possibility of some cointegrated variables exhibiting structural breaks.

Shifts in relations among economic variables over time – such as those induced by regime changes – may introduce deterministic breaks in data series which may be difficult to detect both by visual inspection and by available statistical methods. Current practice with unit root univariate processes, or with cointegrated error correction systems, is to circumvent this problem by preliminarily fitting the data with dummy variables. Studies of the effects of such procedures have concluded that the inclusion of dummy variables, as well as the size or the timing of the breaks, affects the critical values of the unit root or cointegration tests. In 'Detrending procedures and cointegration testing: ECM tests under structural breaks', **Alvaro Escribano** (Universidad Carlos III de Madrid) and **Miguel Arranz** (Universidad de Alicante) followed a different direction by examining robust procedures to test for unit roots in the presence of structural breaks in an error correction mechanism (ECM) context.

Instead of including dummy variables in ECM models, the authors set out to approximate these breaks by extending the number of lags in the models, as determined by the Schwartz-Bayesian information criterion (SBIC). In doing so, they looked at the critical values, studied the size of the ECM test under different MA(1) errors and analysed the power of the test with Monte Carlo simulations. The robustness properties of the test were examined by applying the same procedure not to the observable variables but to their (unobserved) trend and cyclical components, obtained from appropriate filters. Three types of structural breaks were considered: full cobreaking, cobreaking in levels, and cobreaking in differences. In all cases, bootstrap methods were used to compute the tests' critical values. The simulation results showed that in ECM tests the critical values depend upon the type of break and other nuisance parameters, and that, in some special cases, the test with structural breaks may have large size distortions. The use of trend and cycle decomposition procedures improved robustness in terms of size and with respect to MA error processes. The authors also argued that test performance can be improved by augmenting the number of lags – a conclusion that was considered surprising by **Massimiliano Marcellino** (European University Institute), who thought this would lead to potential overspecification of the model and, consequently, more inefficiency.

Financial Instability in Transition Economies

A CEPR/EBRD/ESRC Workshop on Financial Instability in Transition Economies was held in London on 28 May 1998. The workshop was one of a series organized under the auspices of the ESRC Resource Centre, established at CEPR in 1993 to provide networking, dissemination, support and training services to the UK economics community in the rapidly evolving area of Transition Economics. The organizers were **Steven Fries** (European Bank for Reconstruction and Development) and **Mark Schaffer** (Heriot-Watt University and WDI). The following papers were presented:

'Optimal Design of Bank Bailouts: The Case of Transition Economies', **Philippe Aghion** (University College London, European Bank for Reconstruction and Development and CEPR), **Patrick Bolton** (Princeton University and CEPR) and **Steven Fries** (European Bank for Reconstruction and Development)

'Gambling Banks and Firm Financing in Transition Economies', **Ranko Jelic** (University of Hull)

'Managing Capital Flows in Poland, 1995-1998', **Stanislaw Gomulka** (London School of Economics)

'The Rise and Fall of Currency Independence', **Kent Osband** (Credit Suisse First Boston)

DISCUSSION MEETINGS

Controlling State Aids Implications for the Accession Countries

Pressure from the European Union is beginning to persuade the countries of Central and Eastern Europe to devote more attention to a hitherto neglected area of competition policy, namely the control of state aids to industry. This was the view expressed by **Paul Seabright** (Churchill College, Cambridge, and CEPR) at a lunchtime meeting in Warsaw on 16 February 1998. The meeting was organized jointly by CEPR and IEWS under the auspices of the *Economic Policy Initiative*. Seabright also argued, however, that the EU's own internal policy in this area was in a state of some confusion. He recommended that both the EU and the Central and East European countries needed to distinguish aid that creates identifiable cross-border distortions to competition from aid that is merely irritating to competitors or a waste of taxpayers' money. Seabright concluded that this distinction, though essential, was a long way from being implemented either inside or outside the EU.

According to Seabright, the difficulties faced by the EU's internal policy on control of state aids were three-fold. First, there had been no coherent application of the principles of subsidiarity to this domain of policy. The EU hesitated between considering that control of state aid was important – to prevent member states from inflicting damage on each other – and treating it as a kind of medicine that should be taken for member states' own good. This meant that the principles used to analyse cases were often conflicting, sometimes emphasizing the damage caused by state aid to other firms, and sometimes the uneconomic use of the resources concerned.

In the application of state aid policy to the new German *Länder*, for example, there had been no attempt to focus attention on the cases that had cross-border effects. Although the waste of taxpayers' funds was certainly a matter of concern, there were domestic political mechanisms for the expression of such concern. Sometimes democratically elected governments choose to use state aids in a way that is foolish, but causes little damage outside their own borders. For the Commission to seek to restrain them was not only legally doubtful, but put at risk the admirable efforts the Commission had made in recent years to accommodate the fears expressed in many members states about the pace of European integration and the possible loss of local autonomy.

Second, the EU had a large and growing case-load of state aid notifications to deal with. Its ability to control aid levels, however, was limited. The proportion of cases that culminated in a negative decision had fallen from between 2% and 5% in the late 1980s to under 1.5% since 1991. Yet there were some benefits from this growing workload: in particular, as a result of the Commission's efforts, there was now much better and clearer information available to member states themselves about the levels of state aid granted. This information revealed major differences among member states and went some way towards creating pressures to justify this expenditure to the taxpayers that finance it. Because of the overload on the Commission's staff, however, it was doubtful whether the cases to which they objected were necessarily the ones that were most damaging, either to member states or to the single market as a whole.

Third, the lack of clear principles behind the Commission's involvement in the control of state aid was an invitation to lobbying and to the use of the judicial process as a strategic tool against competitors. Since the firms that were the most important recipients of state aid usually had powerful political connections (which is often why they received the aid in the first place), state aid decisions by the Commission were among the most controversial of all, and created powerful incentives for the exercise of pressure by member states themselves. This pressure was not only in the direction of allowing aid: member states were also using the procedure to bring pressure to bear on competitors to their own firms. The process was leading increasingly to litigation. In 1996, around 80 cases were pending before the Court of Justice and the Court of First Instance. In Seabright's opinion, in its efforts to reduce the flow of money into the pockets of industrialists, the Commission should not be provoking large flows of money into the pockets of lawyers.

How, then, should the countries of Central and Eastern Europe react to these developments? Overall, a better control of the allocation of state aid to industry was indeed in these countries' interests. They should therefore welcome EU attention to the issue, if only because it provided an inducement to improving both the transparency of their procedures and their ability to direct scarce tax resources to the most important uses. They should also be aware, however, of the risks that the state aid rules might be used by EU firms – as anti-dumping procedures had certainly been used – merely to stifle competition from firms in Central and Eastern Europe.

Dutch Drugs Policy Pragmatism Rules OK?

The economic case for a more liberal drugs policy in the United Kingdom, drawing on the experience of Dutch policy-makers, was the subject discussed by **Frederick van der Ploeg** (University of Amsterdam and CEPR) at a lunchtime meeting in London on 5 December 1997. Van der Ploeg noted that the more liberal drugs policy in the Netherlands had brought a reduction in the levels of crime committed by addicts, thus costing the

Economic and Social Reform in Russia

A CEPR/TACIS/RECEP/SITE Conference on Economic and Social Reform in Russia, in the form of a European-Russian dialogue, was held in Moscow on 11/12 September 1998. The dialogue encompassed a wide range of issues, including monetary and fiscal policy, industrial policy and financial-industrial groups, labour markets and social policy, and trade policy. The conference was organized by **Erik Berglöf** (SITE, Stockholm School of Economics, RECEP and CEPR) and the following were among the papers presented:

- 'Macroeconomic Effects of Arrears', **Charles Wyplosz** (Graduate Institute of International Studies, Geneva, and CEPR)
- 'A Comparative Perspective on Russia's Budget', **Rory MacFarquar** (RECEP)
- 'Russian Financial-Industrial Groups in a Comparative Perspective', **Enrico Perotti** (Universiteit van Amsterdam and CEPR)
- 'Industrial Policy in Post Soviet Russia', **Irena Grosfield** (DELTA-ENS, Paris)
- 'Pension Reform in Russia', **Vladimir Kosmarsky** (RECEP)
- 'Labour Market Regulations and Human Resource Practises: Urgent Needs for Reforms', **Tito Boeri** (IGIER, Università Bocconi, Milano, and CEPR)
- 'Enterprise Restructuring, Trade and Competition', **Damien Neven** (Université de Lausanne and CEPR)
- 'Comparative Advantage of Russia', **Simon Johnson** (RECEP and Sloan School of Management, MIT)
- 'Competition and Performance', **Annette Brown** (RECEP, SITE, Stockholm School of Economics, Western Michigan University and CEPR) and **J David Brown** (RECEP, SITE, Stockholm School of Economics, and CEPR)
- 'New Firms in Transition – A Comparative Study', **Simon Johnson** (RECEP and Sloan School of Management, MIT)
- 'Fiscal Federalism', **Ekaterina Zhuravskaya** (RECEP and Harvard University)
- 'Financial Crises', **Ksenia Yudeva** (RECEP and Harvard University)
- 'Explaining Wage Arrears', **John Earle** (SITE, Stockholm School of Economics)
- 'Disorganization, Financial Squeeze, and Barter', **Dalia Marin** (Universität München and CEPR)

taxpayer less, and that both drugs-related deaths and the number of hard-drugs users were the lowest in Europe. He concluded that the United Kingdom would also benefit from a more pragmatic, public health-oriented drugs policy.

Such pragmatism rules in the Netherlands by distinguishing soft drugs (hashish and cannabis) from hard drugs (heroin, cocaine, ecstasy). Hard drugs pose an unacceptable health hazard, but soft drugs are far less dangerous. Addiction to soft drugs is rare and, in any case, less common than addiction to sleeping pills or alcohol. Both soft and hard drugs are illegal, but the sale of small quantities (5 grams) of soft drugs, for personal use only, is tolerated in coffee-shops.

Van der Ploeg contended that the economic case for a more liberal drugs policy was clear. During the period 1983–93, heroin had cost, on average, £28 per gram in the Netherlands, compared with £74 per gram in the United Kingdom. Taking drugs out of the criminal circuit reduces both their price and addicts' need to steal. Thus fewer criminal offences are committed and less nuisance caused. Citizens feel safer and the taxpayer spends less on police, judges and prisons. Given that 50% of the price of a packet of cigarettes is accounted for by tax, there is no reason why soft drugs could not be taxed heavily. Moreover, drugs usage in the

Netherlands was lower than in more restrictive countries such as France or the United Kingdom. About two-thirds of UK 20–22 year-olds claim to have used an illegal drug. For the under-40 age group, 29% have smoked a joint, 11% have used amphetamines and 4% ecstasy. These proportions were a lot higher than in drugs-tolerant Netherlands.

There were other advantages, too. With a more liberal policy, it was easier to ensure that drug users had regular medical check-ups. By bringing drug users out into the open, it had been possible to make prevention and kicking-the-habit schemes more effective. Experiments were also under way to give heroin to addicts under medical supervision. To minimize the spread of AIDS, heroin addicts also received free syringes. The policy was working: only 10.4% of AIDS victims in the Netherlands were intravenous drugs users, compared with 39.2% in the European Union as a whole. Most of them had a 'normal' job. The Zurich experience had been similar.

The Dutch emphasis on public health and on harm-reduction was also not without its successes. The number of drugs-related deaths per million inhabitants in 1995 was the lowest in Europe: 2.4, versus 9.5 in France, 20 in Germany, 23.5 in Sweden and 27.1 in Spain. The average age of heroin addicts was 36, much

higher than elsewhere in Europe. The number of hard-drugs users was the lowest in Europe: 1.6% of the population, versus 2.6% in the United Kingdom and 2.7% for Europe as a whole.

Importing and exporting of drugs none-the-less remained the most serious offences under the Dutch Opium Act, with maximum penalties of four years' imprisonment for soft drugs and 12 years' for hard drugs, plus a fine of 100,000 guilders. Following the abolition of the internal border controls of the Schengen countries, controls at external borders had also been stepped up, especially at Schiphol Airport and Rotterdam port.

Pragmatic, rather than ideological, considerations were thus driving Dutch drugs policy. The Dutch cherished the freedom of the individual; and drugs use was treated more as a medical than as a legal problem. Priority was given to protecting vulnerable groups (especially youngsters), tackling drugs-related nuisance, keeping public order, and restricting both the demand for, and supply of, drugs. Prohibition had failed. The United Kingdom could learn from this approach of separating soft from hard drugs, being tough where necessary and tolerant where possible. The result would be a less repressive, more open, safer and a more healthy society.

For further research on this topic, see Aloys Prinz, 'Drugs: Do European Drugs Policies Matter?' and Bruno S. Frey, 'Drugs, Economics and Policy', in Economic Policy 25

OECD Export Performance

How Important are Costs?

There is growing concern about the export performance of European industries in the face of increasingly fierce global competition. Yet, according to **Wendy Carlin** and **John Van Reenen** (both University College London and CEPR), the statistical basis of the relationship between relative costs and export-market shares is still poorly understood. Speaking at a CEPR lunchtime meeting on 21 January 1998, Carlin and Van Reenen posed two core questions: (1) How much do costs matter in explaining export performance in the 12 key industries in the 14 main OECD countries? (2) What determines the sensitivity with which exports react to cost changes?

The speakers argued that the answers to these questions had implications for the functioning of economic and monetary union (EMU) in Europe, and for the design and scope of industrial policies. With regard to the first question, Carlin and Van Reenen maintained that there are 'deep structural' factors that enable countries to maintain their share of export markets, and that these are ignored when attention is focused solely on labour costs. Recent work on economic growth had emphasised the importance of a range of structural and institutional factors. Similarly, long-run success in export performance is dependent on factors such as a country's education system and structure of corporate governance, which must be considered alongside conventional economic variables.

This was not to say that relative unit labour costs do not matter for exports. Over the longer run, a 10% improvement in costs – whether from wage restraint, productivity improvement or exchange-rate devaluation – leads to a 2-3% improvement in export-market share. Even when costs are netted out, however, some nations perform surprisingly well. West Germany, for example, managed to increase its market share slightly between 1970 and 1992, despite the fact that its costs rose nearly 1% per year faster than its competitors.

Clearly, technical progress, as embodied in new investment, also has an important role to play. Carlin and Van Reenen suggested, however, that there were two other factors that explained the ability of countries like Germany to overcome rising relative costs: high levels of schooling, and strong ownership concentration. Thus a more educated workforce appeared to enable faster improvements in the quality of manufactured products; the export performance of individual industries appeared to be boosted by improvements in efficiency in the broader business sector; and committed owners appeared to confer an advantage on exporters – for example, through facilitating long-term relationships with suppliers.

Turning to the second question, Carlin and Van Reenen noted that sensitivity of exports to costs differed in predictable ways across industries. For example, in high-tech industries the elasticity was much lower. Yet, despite the growth of such industries, costs actually had become more important for determining exports over time for most industries. This was probably because of the increased levels of global competition, since the industries with the biggest increases in cost sensitivity were also those which had faced the stiffest increases in global competition.

In conclusion, the speakers argued that underlying trends in export-market shares could be disruptive inside a monetary union. A member country with poor underlying export trends would find it necessary to achieve a lower growth rate of unit labour costs than its neighbours. In general, it appeared that in Europe the core EMU countries had less export sensitivity to costs than non-EMU countries, like the United Kingdom and Sweden. This helped provide an economic explanation for the reluctance of these countries to participate in monetary union, where they can no longer use what, for them, might be the potent weapon of exchange-rate changes.

Wendy Carlin, Andrew Glyn and John Van Reenen, 'Quantifying a Dangerous Obsession? Competitiveness and Export Performance in an OECD Panel of Industries', CEPR Discussion Paper No. 1628, April 1997

DISCUSSION PAPERS

Cross-Country Growth Patterns

Convergence Clubs versus Going it Alone

It might be thought that knowledge about whether individual economies are growing fast or slowly might be readily used to predict whether the bulk of the world's wealth will shift from one group of countries to another, say, from West to East. But what if, as in so many other aspects of strategic behaviour between economic agents or units, national economies interact with each other in subtle and unpredictable ways that might deny understanding about how a single economy behaves in isolation? In Discussion Paper No. 1586, **Danny Quah** investigates this question empirically and theoretically by studying cross-country patterns of growth from the viewpoint of income-distribution dynamics.

Quah identifies three stylized features of the data: (1) an 'emergent twin peaks' pattern in the cross-country distribution; (2) persistence; and, simultaneously, (3) mobility. He interprets these more generally as reflecting stratification and polarization – rather than simple patterns of convergence or divergence – in the cross-section of countries, and as suggesting that economies might well interact in ways different from those predicted in a 'representative economy' model. Quah then develops a model of cross-sectional, cross-economy interaction that generates, endogenously, patterns of 'convergence-club' dynamics, consistent with some of these stylized facts and driven by a tension, for each economy, between the benefits of bloc-membership and of going its own way. Finally, he finds that specific factors – such as geographical location and cross-country patterns of exchange – explain a large part of the observed patterns of cross-country income-distribution dynamics.

Empirics for Growth and Distribution: Stratification, Polarization and Convergence Clubs
Danny T Quah

Discussion Paper No. 1586, March 1997 (IM)

TFP Growth

Revisiting the East Asian Debate

Has the recent controversy over the appropriate partitioning of East Asian growth into accumulation versus technical change perhaps overlooked a fundamental indeterminacy in measurement, namely that it is impossible to calculate the technology 'residual' without taking a stand on the form (and change over time) of the underlying production function? In Discussion Paper No. 1587, **Dani Rodrik** argues that it has, and that it is therefore impossible to distinguish between the two contending explanations – high elasticity of substitution between capital and labour (the conventional wisdom), and high levels of labour-saving technological change – for the continuing high capital share in East Asia, despite tremendous capital-deepening. He concludes that the possibility that East Asia has in fact experienced a tremendous amount of technological progress of the labour-saving kind cannot be ruled out.

Rodrik also questions the tendency in cross-country analyses to compare East Asia as a whole to other regions of the world, given the wide range, in terms of policies (including microeconomic policy) and performance, exhibited by the East Asian countries themselves. He builds on earlier work to derive an index of institutional quality which does exceptionally well in rank-ordering East Asian countries according to their growth performance. A parsimonious specification containing only initial income, initial education and institutional quality accounts for virtually all of the variation in the growth performance in the region, even when institutional quality is instrumented. Finally, the experience of Hong Kong, which has had a flat investment ratio since the 1960s, is consistent with the idea that making the transition from a low-investment economy to a high-investment economy requires a hands-on government.

TFPG Controversies, Institutions and Economic Performance in East Asia
Dani Rodrik

Discussion Paper No. 1587, March 1997 (IT)

Labour Markets

'Good' and 'Bad' Jobs

Identical workers in market economies appear to receive widely different wages which cannot be explained easily by worker heterogeneity. Moreover, workers clearly are not indifferent between different high- and low-wage jobs. This evidence supports the common impression that there are 'good' jobs and 'bad' jobs, and that it is partly a matter of luck which kind a worker ends up with. Whether the composition of jobs is inefficiently biased towards 'bad' jobs is therefore an important policy question, which has grown in

significance as many high-wage manufacturing jobs have been destroyed and replaced by lower-paid service jobs.

In Discussion Paper No. 1588, **Daron Acemoglu** offers a theory which explains why 'good' and 'bad' jobs exist by modelling the interaction between composition of jobs and labour-market regulation. *Ex-post* rent-sharing owing to search frictions implies that 'good' jobs, which have higher creation costs, must pay higher wages. This wage differential distorts the composition of jobs, and, in the unregulated equilibrium, there are too many 'bad' jobs relative to the number of 'good' jobs. Minimum wages and unemployment insurance, however, encourage workers to wait for higher wages, and therefore induce firms to shift the composition of employment towards 'good' jobs. Consequently, such regulations, even though they will often increase unemployment, will also increase average labour productivity and may improve welfare. Acemoglu briefly investigates the empirical importance of this interaction using data from the United States. The results suggest that the composition of jobs does improve considerably in response to higher minimum wages and more generous unemployment benefits.

Good Jobs versus Bad Jobs: Theory and Some Evidence
Daron Acemoglu

Discussion Paper No. 1588, March 1997 (IM)

Fiscal Discipline

'Bottom-up' or 'Top-down' Budgeting?

Conventional wisdom argues that spending levels and, by extension, budget deficits will be higher for governments using bottom-up, instead of top-down, methods of budgeting. An attempt to debunk this argument was made in 1987 by Ferejohn and Krehbiel, who suggested that the superiority of one method over the other in lowering the size of the budget depends on the distribution of the spending preferences of the policy-makers. Defenders of the top-down approach, however, have cast doubt on this critique because it did not consider two problems that top-down budgeting is intended to solve, namely the existence of policy-makers who value a large budget as a goal in itself, and of policy-makers who do not consider fully the cost of the spending programmes they support, thus leading to the 'common pool problem'.

In Discussion Paper No. 1589, **Mark Hallerberg** and **Jürgen von Hagen** revisit this debate by adding such players to a framework that parallels the Ferejohn-Krehbiel model. They confirm that bottom-up methods do produce smaller budgets than top-down, if players seek to maximize dimensions of spending relevant to their constituents and if their ideal budgets are close to one another. When there exists a common pool problem, however, the order of the vote *per se* does not

reduce the size of the budget. An agenda-setter can provide the necessary coordination to force politicians to consider the full tax implications of their spending decisions. Supporters of top-down budgeting may therefore confuse added centralization with the sequence of the vote. Hallerberg and von Hagen use this insight to reinterpret post-war US budgeting experience.

Sequencing and the Size of the Budget: A Reconsideration
Mark Hallerberg and Jürgen von Hagen

Discussion Paper No. 1589, March 1997 (IM)

Anti-dumping Laws

Effects of Country Size

The use of anti-dumping legislation to prevent international price discrimination has increased substantially in the recent past. Anti-dumping measures have been presented as 'fair trade' measures, and are intended to be an extension of competition policy to international exchanges. Nonetheless, as more standard tools, like tariffs, are being put under stricter control by international agreements, such measures are regarded by economists as non-trade instruments in the making of trade policy.

In Discussion Paper No. 1590, **Pedro Pita Barros** and **Xavier Martinez-Giralt** consider the trade implications of bilateral adoption of strict anti-dumping laws, focusing on the asymmetry in country sizes and its implications for price equilibrium and welfare assessments. The authors present a model of product differentiation which highlights the drastic changes that may occur in trading patterns among economies of different sizes, if price discrimination is eliminated. They show that the nature and extent of trade is significantly affected by the pricing policy that firms are allowed to employ. A switch from discriminatory to non-discriminatory pricing (e.g. strict anti-dumping laws) leads to a switch from two-way trade to one-way trade. They also conclude that it is far from true that consumers necessarily will be favoured by such a policy switch, since the distribution of welfare effects depends crucially on the type of equilibrium that emerges in the integrated market, which in turn depends on the firm's market power in the large country. The distribution of gains is also significantly affected by country size.

On the Effects of Anti-dumping Legislation
Pedro Pita Barros and Xavier Martinez-Giralt

Discussion Paper No. 1590, March 1997 (IO)

Educational Achievements

Family Does Matter

The influences exercised by family circumstances, but especially mothers' backgrounds, on children's educational achievements, have become a subject of growing policy interest. In Discussion Paper No. 1591, **John Ermisch** and **Marco Francesconi** use a unique set of data matching mothers and their young adult children to study the impact of family background on young people's educational attainments. The data are derived from the first five years (1991–5) of the British Household Panel Study.

Mothers' education is found to be a powerful predictor of their children's educational attainments, particularly for young women. In the light of the growing incidence of single parenthood and step-families in the United Kingdom, the authors also estimate the impact of having spent part of childhood in a single-parent family. Almost two-fifths of the young adults in their sample spent some time in such a family. The authors find that time spent in a single-parent family reduces the educational attainments of young men moderately, but the effects on young women's education are small, especially if there is a subsequent move into a step-family. Part, if not all, of the negative effect of living in a single-parent family reflects fewer economic resources available to such families.

Family Matters

John F Ermisch and Marco Francesconi

Discussion Paper No. 1591, February 1997 (HR)

Bank Finance

'Relationship' Lending Under Threat?

What distinguishes bank from financial-market funding? Existing theories portray banks as providing screening, monitoring or liquidity transformation services. Consistent with these theories, many banking models focus on 'relationship banking', whereby banks invest in building relationships with individual borrowers which yield proprietary borrower-specific information. The capital market, by contrast, appears more an 'arm's length' provider of finance. The difference can be thought of as the difference between qualitative asset transformation (banks) and brokerage (financial market). As banks engage more in both relationship and transaction banking, however, this distinction is becoming blurred. Moreover, technology, competition and regulation (among other factors) are impinging increasingly on banks' strategic choices between the two options, and banking theory has had little to say – analytically or prescriptively – about the determinants of those choices.

In Discussion Paper No. 1592, **Arnoud Boot** and **Anjan Thakor** attempt a first step towards filling this void. They develop a model of the effects of both interbank and

capital-market competition on the role of banks in funding corporations. Banks can choose to provide transaction (capital-market-type) or relationship loans, and borrowers can choose either type of bank loan or direct access to the capital market. The key result is that a bank's optimal response to increased competition is to expand relationship lending relative to transaction lending. The behaviour of the absolute level of relationship lending with respect to increasing competition is non-monotonic. Moreover, the viability of relationship banking is found to depend significantly on the reputational quality of banks.

Can Relationship Banking Survive Competition? **Arnoud W A Boot and Anjan V Thakor**

Discussion Paper No. 1592, March 1997 (FE)

Performance-Related Pay

Assessing the Productivity Gains

Performance-related pay (PRP) has gained favour politically as a means of promoting labour-market flexibility and higher productivity. Thus the last UK government provided incentives for one form of PRP, namely profit-related pay, leading to an eleven-fold rise in the number of affected employees over 1990–5. Recent research suggests strong evidence of productivity gains in profit-sharing firms. Since profit-sharing carries free-rider problems, however, other forms of PRP, such as individual performance-related pay, may have larger productivity effects. Moreover, most research has been based on cross-section firm-level data, which are likely both to bias the impact of PRP upward and to conceal individual heterogeneity.

In Discussion Paper No. 1593, **Alison Booth** and **Jeff Frank** adopt a different approach. Since PRP is supposed to provide individual productivity incentives to increase, they seek to measure its impact on individual earnings (as a proxy) by using data from the British Household Panel Survey (BHPS). The BHPS provides not only detailed sources of earnings, but also a wealth of other controls likely to affect individual productivity and earnings. Moreover, panel-data techniques permit controls for unobservable individual heterogeneity. The authors test the hypothesis that PRP jobs attract workers of higher unobservable ability, and induce them to provide greater effort. They find that PRP raises wages by about 9% for men and 6% for women over the entire (union and non-union) sample, although for various theoretical and statistical reasons these estimated returns to PRP need to be regarded as upper bounds on the productivity gains.

Performance Related Pay **Alison L Booth and Jeff Frank**

Discussion Paper No. 1593, March 1997 (HR)
Exchange Rates

Volatility Clustering and Transmission in the ERM

The dominance of balance of payments flows prompted by capital account over current account transactions means that the exchange rate has to be viewed as an asset price. Indeed, the statistical properties of exchange-rate changes have some similarities with those of other asset price changes (equity, house prices, etc), for example, periods of marked turbulence in between more normal periods of comparative tranquility. In Discussion Paper No. 1594, **Michael Artis** and **Wenda Zhang** use daily observations of six ERM bilateral Deutsche mark (DM) exchange rates to investigate the characteristics of these periods of volatility.

Artis and Zhang consider the evidence for volatility clustering and transmission in the data, which are described by a mixture of two normal distributions. One of these contains the observations of volatile exchange rate changes and the other pertains to tranquil periods. Using the information given by the two distributions, each observation is classified to one or other category. The possibility of volatility clustering in a given bilateral exchange-rate series is then studied by means of a non-parametric test, and non-parametric tests for independence are used to identify volatility transmission across exchange rates. The test procedures turn up a number of interesting results. First, they confirm a decline in volatility within the ERM through time (the data set goes to April 1992); second, despite this decline, clustering remains persistent; third, the pattern of volatility transmission supports the view that the French franc formed an alternative pole of attraction for exchange rates in the ERM to that provided by the Deutsche mark.

Volatility Clustering and Volatility Transmission: A Non-Parametric View of ERM Exchange Rates
Michael J Artis and Wenda Zhang

Discussion Paper No. 1594, March 1997 (IM)

Transition Strategies

'Dual-Track' versus 'Big Bang'

In Discussion Paper No. 1595, **Lawrence Lau**, **Yingyi Qian** and **Gérard Roland** set out to show that the 'dual-track' price liberalization strategy, characteristic of the Chinese reform process, not only attains full economic efficiency but also simultaneously enables the transition from a centrally planned to a market economy to be Pareto-improving, i.e. a transition without losers. The authors define a dual-track strategy as comprising (1) the 'plan track', which is the existing – often inefficient – central economic plan, with the distribution of rents under it left intact; and (2) the 'market track', under which liberalization is carried out at the margin, in that economic agents have both the right and the incentive to participate in the free market, provided the obligations under the original plan are fulfilled.

The authors argue that, although the case for 'big-bang' price liberalization in transition economies rests on general equilibrium theory, dual-track liberalization within their framework also yields a first-best efficiency outcome with the same assumptions. Dual-track liberalization, however, is also Pareto-improving, because maintenance of the pre-existing distribution of rents implicitly implements lump-sum transfers to compensate any losers under the reforms. Under big bang, these transfers have to be explicit and are too costly to achieve in practice. Moreover, dual-track has no need of new institutions, such as tax authorities or welfare agencies, to implement the transfers. In short, the authors argue, the dual-track strategy solves both the informational and institutional problems of transition at relatively low cost, by making efficient use of existing information institutions. In their view, the argument is borne out by the success of the Chinese economic reforms.

Pareto-Improving Economic Reforms through Dual-Track Liberalization
Lawrence J Lau, Yingyi Qian and Gérard Roland

Discussion Paper No. 1595, April 1997 (TE)

International Trade

Why have Less Educated Workers Lost Out?

There is widespread disagreement among economists concerning the role of international trade in accounting for the relative decline in the wage of less-educated US workers since the late 1970s. A drawback of most studies, however, is their reliance on a partial, rather than a general, equilibrium framework. In Discussion Paper No. 1596, **Robert Baldwin** and **Glen Cain** utilize the standard general equilibrium model to review some earlier studies and to investigate empirically the impact, of both increased import competition, and the role of changes in technology and relative factor supplies of labour of different educational levels, on relative wages in the United States from 1967 to 1992.

The analysis relies on the basic relationship in the standard trade model that relates changes in product prices to factor price changes and factor shares, as well as on information about changes in the composition of output, trade, within-industry factor use and factor supplies. The paper finds support for the hypothesis that the relative increase in the supply of well-educated labour was the dominant economic force that narrowed the wage gap in the late 1960s and early 1970s. The results also indicate that technical progress, rather than increased import competition, was the dominant force in the widening of the wage gap among the major education groups after 1980.

Shifts in US Relative Wages: The Role of Trade, Technology and Factor Endowments
Robert E Baldwin and Glen G Cain

Discussion Paper No. 1596, March 1997 (IT)

Regional Integration

Factor Mobility and Wage Convergence

As demonstrated both by German unification and the north-south divide in Italy, when several regions are integrated into a single political entity, asymmetries between them – whether in terms of income, skills or physical capital endowments, or in terms of size or political weight in common decision-making – can create grave difficulties. In Discussion Paper No. 1597, **Gilles Saint-Paul** considers whether differences in wage formation processes constitute a similar obstacle to integration of European countries or regions. In particular, Saint-Paul asks what happens to the mobility of skilled and unskilled workers across regions, and to the resulting location of industrial activity, when wages in both regions are set by the unions of the 'West' – the region with the greater initial relative stock of human capital.

The paper shows that, in some circumstances, it is in the interest of the West's unions to set a speed of wage convergence greater than equilibrium, thereby generating unemployment in the 'East'. This slows the migration of human capital towards the East, but quickens the migration of raw labour towards the West. A greater share of economic activity is eventually located in the western region. Unions in the West will benefit from this, provided human capital has low migration costs relative to raw labour. Thus, as the German and Italian examples suggest, wage formation at the national level is likely to be determined by the interests of the dominant region.

Economic Integration, Factor Mobility and Wage Convergence
Gilles Saint-Paul

Discussion Paper No. 1597, March 1997 (IM)

Trade and the Environment

Rationalizing Opposing Views

28 DISCUSSION PAPERS

Many environmentalists think free trade harms the environment and ultimately decreases human welfare. Most economists think free trade is likely to improve welfare. Neither empirical evidence, nor economic theory, which recognizes that trade may reduce welfare in the presence of distortions, can resolve the debate. Economic theory can be used, however, to clarify the underlying issues. In Discussion Paper No. 1598, **Larry Karp, Sandeep Sacheti and Jinhua Zhao** investigate the effects of trade on five issues: (1) the demand for environmental services; (2) short-run efficiency and welfare distribution; (3) the steady-state values of environmental stocks; (4) long-run efficiency and welfare distribution; and (5) the pattern of trade over time and in the steady state. The first and third questions are of special interest to those who see the environment as intrinsically valuable; the second and fourth reflect the neoclassical view of the environment as a factor of production.

The authors use a north-south model with property right differences and resource dynamics to compare the outcomes of autarkic and free-trade equilibria. They find that autarky is likely to Pareto-dominate free trade in the long run when the environment is quite fragile, but the result is reversed when the environment is quite resilient. Trade may cause an environmentally poor country to 'drag down' its richer trading partner, or cause both to degrade their stocks when these would be preserved under autarky. Alternatively, trade may enable the environmentally richer country to 'pull up' its partner, or cause both to preserve their stocks. These results rationalize the positions of environmentalists and free-traders. The direction of trade may change over time, but in steady states it is either inefficient or indeterminate. In the former case a switch to autarky would increase global welfare.

Common Ground Between Free-Traders and Environmentalists
Larry Karp, Sandeep Sacheti and Jinhua Zhao

Discussion Paper No. 1598, May 1997 (IT)

Regional Integration

Political Domino Effects?

What has been the source of the resurgence of regionalism over the past decade? The traditional explanation rests on two pillars: (1) frustration with the WTO process (thought to be too cumbersome for today's trade issues); and (2) the United States' conversion from devoted multilateralist to ardent regionalist. In Discussion Paper No. 1599, **Richard Baldwin** argues that this explanation is inconsistent with the facts of North American and European regionalism, and he presents an alternative explanation based on a domino theory. Baldwin presents a political equilibrium model where an idiosyncratic shock, such as deeper integration of an existing regional bloc, can trigger membership requests from other countries. Each applicant government's

stance will reflect a balance between anti- and pro-membership forces. Pro-integration forces include exporters to the regional bloc who will be feeling disadvantaged by closer integration within the bloc. Membership will be sought if the political balance tilts in favour of such interests. Any enlargement of the bloc, however, generates a second-round lobbying effect, since the cost to non-members of facing an even larger market will have increased. Further enlargement is thus likely to ensue. Baldwin argues that the US-Mexico FTA and completion of the European Single Market constituted just such idiosyncratic events. Neither the timing of nor motives for these regional initiatives suggest that they were in any way a substitute for multilateral liberalization, nor did they have anything to do with US attitudes towards the GATT. Both events triggered a domino effect which is explained by the changing political equilibrium in previously non-member states.

The Causes of Regionalism
Richard E Baldwin

Discussion Paper No. 1599, March 1997 (IT)

EU

Who Makes the Decisions?

Power in EU decision-making has two dimensions of study: inter-country and inter-body relations. Hitherto, quantitative studies have concentrated on the former. The main organs of the EU, however, represent different views: the Commission is supposedly independent of any particular national views; the Council represents the views of national governments; and the European Parliament represents the views of member countries' citizens. While the Council's role as the main decision-making organ emphasizes the inter-governmental/country dimension, the relative weakness of Parliament raises questions about the impact of evolving decision-making procedures on the division of power among the EU main organs. In Discussion Paper No. 1600, **Annick Laruelle** and **Mika Widgrén** seek to derive quantitative measures of Parliament's changing relative role.

The authors note that probabilistic measures of *a priori* voting power are useful tools for assessing actors' influence on collective decision-making. They attempt to reduce a dynamic voting process into a cooperative voting game, using the EU as an example, and to develop power indices for the EU's institutions based on the three main procedures of consultation, cooperation and codecision. They reach three conclusions. First, when the cooperation procedure was introduced it was mainly the Council, not the Commission, that lost power to Parliament. Second, the change in power figures is almost negligible when the cooperation and codecision procedures are compared. Third, whatever behavioural assumptions are applied, the Council always wields most influence. The authors conclude by suggesting

that, in the codecision procedure, the majority rules in Council and Parliament should be equalized.

The Development of the Division of Power among the European Commission, the Council and the European Parliament
Annick Laruelle and Mika Widgrén

Discussion Paper No. 1600, March 1997 (IT)

Transition Economies

Macroeconomic Influences on Enterprises

Since macroeconomic stability is a critical precondition for effective enterprise decision-making and performance, boosting the quantity and quality of investment, it is a classic pure intermediate public good which is a natural responsibility of government.

In Discussion Paper No. 1601, **Willem Buiter**, **Ricardo Lago** and **Hélène Rey** analyse the theoretical arguments and empirical evidence linking enterprise performance in transition economies to the macroeconomic environment. Macroeconomic instability is traced to the unsustainability of the fiscal-financial and monetary programmes of the state and to regulatory and other failures leading to problems with the solvency of financial institutions. The importance of macroeconomic stability for enterprise performance is documented with a simulation study and by reviewing relevant microeconomic and aggregate empirical evidence from across the world and from the transition economies themselves. Conclusions are reached about the speed of transition, about the synergy between macroeconomic stabilization and market development, and about the creation of institutions for achieving and maintaining macroeconomic stability.

Enterprises in Transition: Macroeconomic Influences on Enterprise Decision-making and Performance
Willem H Buiter, Ricardo Lago and Hélène Rey

Discussion Paper No. 1601, April 1997 (TE)

Labour Markets

Equilibrium Unemployment and the Business Cycle

What determines the rate of unemployment and its movement over the business cycle? In the US economy, the unemployment rate moves

Unemployment Dynamics Workshop

Two CEPR/ESRC workshops on Unemployment Dynamics were held in London on 22 October 1997 and 20 May 1998. The workshops were held under the auspices of CEPR's ESRC Resource Centre, which was established in 1993 to provide networking, dissemination, support and training services to the UK economics community. The aim of these informal gatherings is to consider the issue of the high unemployment levels in Europe and the UK by examining radically different approaches accounting for unemployment. Emphasis is placed on unemployment persistence and exploration of new avenues of research into the dynamics of employment and unemployment adjustments. The workshops were organized by **Jenni Greenslade** (Bank of England), **Brian Henry** (London Business School) and **Dennis Snower** (Birkbeck College, London, and CEPR). The following papers were presented at the October 1997 meeting:

'Dynamic Adjustments Versus the Natural Rate', **Brian Henry** (London Business School) and **Dennis Snower** (Birkbeck College, London, and CEPR)

'Structural Unemployment and the NAIRU in Austria: Theoretical Considerations and Empirical Results', **Karl Pichelmann** (Institute for Advanced Studies, Vienna) and **Andreas Ulrich Schuh** (Federal Ministry of Finance, Austria)

'Hysteresis Effects on Unemployment: The Case of Belgium', **Fatemeh Shadman-Mehta** (IRES, Université Catholique de Louvain) and **Henri Sneessens** (Université Catholique de Louvain)

'Labour Supply, the Natural Rate and the Welfare State in the Netherlands', **Coen Teulings** (Ministry of Social Affairs and Employment, The Netherlands, and University of Amsterdam)

'Some Preliminary Thoughts Concerning the Persistence of Unemployment: The Irish Case', **Brendan Walsh** (University College Dublin)

'Education and the Natural Rate', **Edmund Phelps** (Columbia University) and **Gylfi Zoega** (Birkbeck College, London, and CEPR)

The papers presented at the May 1998 meeting were as follows:

'The Cost of Low Inflation? Nominal Wage Rigidity in the UK', **Jennifer C Smith** (University of Warwick)

'Good Jobs versus Bad Jobs: Theory and Some Evidence', **Daron Acemoglu** (Massachusetts Institute of Technology and CEPR)

'Modelling Wages and the Supply Side of the UK Economy', **Stephen Hall** (Imperial College, London, and CEF, London Business School) and **James Nixon** (CEF, London Business School)

'Technical Progress and the Natural Rate in a Vintage Model', **Julia Darby** (University of Glasgow), **Jonathan Ireland** (University of Strathclyde) and **Simon Wren-Lewis** (University of Exeter)

counter-cyclically, as does the average duration of unemployment, implying that it is easier to find a job in booms than in busts. Furthermore, the flows into and out of unemployment are positively correlated and move countercyclically. In Discussion Paper No. 1602, **Joao Gomes**, **Jeremy Greenwood** and **Sergio Rebelo** discuss whether these key facts about unemployment behaviour are consistent with a basic general equilibrium search model in which individual job opportunities are affected by both aggregate and idiosyncratic shocks.

Noting that most general-equilibrium research on the cyclical behaviour of unemployment has postulated the presence of perfect unemployment insurance, to allow the analysis to proceed within a representative agent framework, the authors adopt a search-theoretic model of frictional unemployment which abstracts from perfect unemployment insurance. Markets are incomplete, so agents cannot insure themselves against the idiosyncratic risk they face in their job opportunities; the

best they can do is to smooth the effects of these shocks by borrowing and lending in the economy-wide capital market, subject to a borrowing constraint. The decision to accept or reject jobs is also modelled explicitly. The model is shown to be consistent with some of the key regularities of unemployment over the business cycle. In the model, the return to a job moves stochastically. Agents can choose either to quit and search for a better job, or continue working. Search generates job offers that agents can accept or reject.

Equilibrium Unemployment

Joao Gomes, Jeremy Greenwood and Sergio Rebelo

Discussion Paper No. 1602, March 1997 (IM)

Political Effects of Long-Term Debt

In Discussion Paper No. 1603, **Harald Uhlig** examines the role of long-term debt in political support for a monetary union or, more generally, an inflation-reduction policy. The central idea is that the decision on membership of the union leads to a redistribution between debtors and creditors, if they are holding long-term debt with a nominally fixed interest rate, as well as taxpayers. For example, if joining the union means a decrease in the inflation rate, creditors should favour joining and debtors should be against it. A government of a high-inflation country might try to exploit this effect strategically by selling to its citizens more long-term debt denominated in its own currency at a fixed nominal rate, rather than in a foreign currency, such as the dollar (or, almost equivalently, as floating-rate debt or rolled-over short-term debt).

Uhlig shows that the effect of such action on political support is unclear. The 'creditor effect' of increasing the number of agents holding domestically denominated debt helps generate support for joining the union; but the 'tax effect' of having to raise more taxes in order to pay for the increased real-debt payments after a successful monetary union works in the opposite way. The paper then studies a number of special cases and ramifications; the case of Italy is examined more closely. Uhlig argues that recent debt-management policy in Italy probably eroded political support for actions aimed at enhancing EMU membership chances.

Long-Term Debt and the Political Support for a Monetary Union
Harald Uhlig

Discussion Paper No. 1603, March 1997 (FE/IM)

Financial Imperfections

Moral Hazard and Business Cycles

Support has grown in recent years for the idea that financial factors should play a central role in business-cycle theory. A growing body of empirical work indicates that financial imperfections affect real economic decisions in a way that varies systematically along the business cycle. Theoretical work likewise shows how transitory shocks can be propagated via imperfections in financial markets. In Discussion Paper No. 1604, **Javier Suarez** and **Oren Sussman** make a novel contribution to this work by modelling a reversion mechanism which produces endogenous business fluctuations. While in a cycle, therefore, the economy reverts each period to its previous state: from boom to bust and vice versa, one period after another.

The authors show that a Stiglitz-Weiss-type setting is sufficient to produce cycles, the only additional requirement being the inclusion of a dynamic link between successive periods. This is done by extending the duration of investment projects from one to two periods and making them overlap in time. The financial 'imperfection' is that an entrepreneurial decision affecting returns from investments is not verifiable and, hence, subject to moral hazard. This mechanism confirms that financial imperfections may have a dramatic amplification effect. Unlike some related models, contracts are complete and indexation is not assumed away. The authors also analyse the welfare properties of a possible stabilizing policy. Although stylized, the model still captures some important features of credit cycles.

Endogenous Cycles in a Stiglitz-Weiss Economy
Javier Suarez and Oren Sussman

Discussion Paper No. 1604, March 1997 (FE)

Trade Reforms

APEC Region Impacts

Numerous unilateral, regional and multilateral economic reforms are currently under way, or proposed, in the Asia-Pacific region and elsewhere. In Discussion Paper No. 1605, **Kym Anderson**, **Betina Dimaranan**, **Tom Hertel** and **Will Martin** examine the impacts of key trade reforms likely to affect the APEC region over the next decade by taking an economy-wide perspective using projections to the year 2005, based on the global CGE model known as GTAP.

The authors show that the empirical impact of implementing the Uruguay Round depends significantly on how China and Taiwan are treated. They then explore the market implications of increased economic growth in China, as well as several policy shocks. They show that increased industrial growth in China -- owing to China integrating more into the global economy -- would be beneficial to the world, since it would boost industrialization in other Asian countries. Failure to honour Uruguay Round obligations to open textiles and clothing markets in OECD countries, however, would reduce East Asia's industrialization and thereby slow the growth in this region's net imports. Further MFN trade liberalization by APEC members could add substantially to the growth and structural changes expected in the region and beyond over the next decade. The latter benefits, though, depend heavily on the inclusion of agriculture in the APEC reform, something that North-east Asian countries hitherto have been reluctant to do.

Economic Growth and Policy Reform in the Apec Region: Trade and Welfare Implications by 2005
Kym Anderson, Betina Dimaranan, Tom Hertel and Will Martin

Discussion Paper No. 1605, May 1997 (IT)
International Trade

Subsidizing Product-Quality 'Leapfroggers'

New Trade Theory models make extensive use of imperfect competition assumptions, reflecting the widespread notion that many international markets are imperfect. But international markets are also characterized by 'vertical' quality differences between substitutable products. Product differentiation of this type is an important – and, through intra-industry trade, a growing – dimension in international trade, where product quality becomes a strategic variable for the firm that can be influenced by trade policy. The resulting product asymmetries are often attributable to historical regional differences in technology and production costs, but they are also influenced by regional asymmetries with respect to market size, income, demand, technology and production costs. Moreover, trade policy has become more and more regionally oriented. In the presence of such asymmetries, national industries will either be market leaders or be lagging behind, in product-quality terms, in international markets. This creates powerful incentives for lagging industries – and their national governments – to reverse this situation by inducing product-quality 'leapfrogging' via production or R&D subsidies.

In Discussion Paper No. 1606, **Iñigo Herguera** and **Stefan Lutz** analyse the effects of such subsidies by considering two identical-cost firms, one domestic and one foreign, operating in a single domestic market with the foreign firm's product being of higher quality. The authors show that the domestic government can choose a percentage subsidy on the cost of quality, such that only one market equilibrium remains, where the domestic firm offers high quality. Although the welfare consequences appear favourable for the domestic country, the authors refrain from arguing for the general application of such policies, not least because the likelihood of the foreign government responding with a subsidy to the foreign firm could lead to typical prisoner's dilemma-type problems.

International Leapfrogging and Subsidies
Iñigo Herguera and Stefan Lutz

Discussion Paper No. 1606, March 1997 (IT)

Core-Periphery Model

Introducing Multi-Plant Firms

One common worry of politicians in peripheral regions – namely the tendency of industrial production to agglomerate in central regions – seems to have a theoretical basis in the new economic geography literature, one well-known result of which is that economic integration may increase industrial agglomeration via reduced trade costs. This literature, however, assumes a rather simplistic view of the firm as being identical with the plant. Where multi-plant firms are allowed for, however, the agglomeration tendency

may be less strong. In Discussion Paper No. 1607, **Karolina Ekholm** and **Rikard Forslid** examine the effect of allowing for a more general production structure in a two-region, two-sector core-periphery (CP) model.

The authors consider two special cases of fully horizontally and vertically integrated firms. They find that horizontally integrated firms provide a counter-example to the strong agglomeration effects of the standard CP model. When there are economies from organizing several production plants within the same firm, it may be profitable to produce in both regions, thereby saving on trade costs. When such scale-economies are sufficiently large, agglomeration is always prevented. Vertically integrated firms, however, with headquarter activities separated from the location of production, generate two opposing effects. First, they break the symmetry of the original CP model and thus lead to more agglomeration. Second, they also decrease the parameter space in which full agglomeration occurs, therefore leading to less agglomeration. In this case, therefore, the outcome is more ambiguous.

Agglomeration in a Core-Periphery Model with Vertically and Horizontally Integrated Firms
Karolina Ekholm and Rikard Forslid

Discussion Paper No. 1607, March 1997 (IT)

FDI

Safer than Debt Finance?

How does foreign direct investment (FDI) compare with debt finance from a finance perspective? Given the problem of sovereign risk, which form of investment is 'safer' from the foreign investor's perspective? This is the question posed by **Monika Schnitzer** in Discussion Paper No. 1608. Schnitzer argues that debt and FDI accord different rights and, hence, different risks to foreign investors. Debt provides a well-defined right to a fixed monetary payment, and host-country default may trigger international sanctions. With FDI, the investor has a property right over the associated physical assets, but these are prone to nationalization, which may also be punished by international sanctions. FDI, however, carries an additional risk, in the form of adverse effects on the investment returns from changes in host-country tax laws, trade duties, or other charges. These forms of 'creeping expropriation' are both less visible and less clear-cut violations of international trade and investment agreements which render it more difficult for investors to protect their returns.

Schnitzer analyses how the value of the investment to the foreign investor and to the host country depends on who is in control, what types of goods are produced, what kind of technology is used for production and how the foreign investor can respond to 'creeping expropriation' in the case of FDI. She then considers two extensions of her basic model. First, she allows for stochastic returns on the investment; second, she considers the possibility of a joint venture between the

foreign investor and the host country, and shows that this reduces the temptation to nationalize and to raise taxes and that it may increase the overall efficiency of the project.

Debt versus Foreign Direct Investment: The Impact of Sovereign Risk on the Structure of International Capital Flows
Monika Schnitzer

Discussion Paper No. 1608, March 1997 (IT)

Unemployment Insurance

Links with Labour Turnover

Among several features distinguishing European and US labour markets are that most European countries have substantially more generous unemployment insurance, and that the duration of unemployment and employment spells are substantially higher in Europe -- i.e. employment turnover is lower. In Discussion Paper No. 1609, **John Hassler** and **José Rodríguez Mora** focus on the causal relations between these two observed features.

The low turnover implies that the average European worker faces a much lower risk of job loss than the average US worker. European workers, therefore, would be likely to be less willing to pay for high unemployment insurance. The authors demonstrate this in a labour-market model in which workers cannot save or borrow. The result may be reversed, however, when workers have access to a capital market. The authors show that self-insurance, via saving and borrowing, is a good substitute for unemployment insurance when labour turnover is high, as in the United States. The implication is that a small inefficiency, or a small deviation from actuarial fairness, can have a large impact on how much unemployment insurance the unemployed prefer. Workers in a low-turnover economy, by contrast, would be willing to pay for a high level of insurance, regardless of the degree of inefficiency in the system. Low turnover also leads to a strong divergence between the long- and short-run interests of the employed. In the absence of devices that enable the median voter to bind future voters to some level of insurance, the voting cycle must be long to support a high level of insurance.

Employment Turnover and Unemployment Insurance
John Hassler and José V Rodríguez Mora

Discussion Paper No. 1609, March 1997 (HR)

Fisher Effect

Impact of Central Bank Preferences

Several studies of the Fisher effect in post-war US data indicate that nominal interest rates and inflation expectations are fairly strongly tied together, but that they do not move one-for-one. This means that the Fisher effect is not complete. Rather, a 1% increase in the nominal interest rate is typically associated with a somewhat smaller increase in inflation expectations. Although this relation is probably not carved in stone -- it is likely to depend on the monetary policy itself, as suggested by the 'Lucas critique' -- its existence is important for applied economists, especially since several central banks now use nominal interest rates as indicators of inflation expectations. In Discussion Paper No. 1610, **Paul Söderlind** uses a dynamic rational-expectations model with staggered price setting to study how central bank preferences (and thereby monetary policy) affect the relation between nominal and real interest rates and inflation expectations.

The author uses maximum likelihood on quarterly 1966--95 US data to estimate the model's parameters, which are then used as benchmarks for several policy experiments. These include stronger inflation targeting, more active monetary policy, and a change in commitment technology. The coefficients in the Fed's loss function indicate that output stability is more important than inflation stability, and that the Fed is averse to large movements in the short nominal interest rate. Stronger inflation targeting decreases the Fisher effect, but improves the properties of the nominal interest rate as an indicator of the real interest rate. The main effect of a more active monetary policy is found to be an increase in the information content in the nominal interest rate about both inflation expectations and real interest rates.

Monetary Policy and the Fisher Effect
Paul Söderlind

Discussion Paper No. 1610, March 1997 (IM)

Trade Liberalization

Implications of an EU-US FTA

The 1995 EU-US summit meeting adopted a 'New Transatlantic Agenda' covering a broad set of international political and economic issues, including significant steps towards trade liberalization within the North Atlantic economies. This included bilateral reduction (or elimination) of tariffs in industrial products, accelerated implementation of Uruguay Round tariff reductions, and negotiated reduction in regulatory and other non-tariff barriers to trade. Discussion Paper No. 1611, by **Richard Baldwin** and **Joseph Francois**, offers a quantitative assessment of the implications of such preferential North Atlantic trade liberalization.

The authors consider the patterns of production, trade and import protection in North America and Western Europe, and the likely trade and income effects of liberalization. They observe that a combined North America-Western Europe trade bloc would be a leviathan, accounting for almost two-thirds of world trade and about one-half of world income. Most existing bilateral trade (\$276 billion in 1994) is in similar industrial products, with relatively little in the politically sensitive and friction-prone textiles, clothing, steel and agricultural goods industries. Moreover, existing commitments mean that most transatlantic trade shortly will face tariffs of less than 2.5%, if not zero, even without a preferential agreement. The simulation results suggest that a narrow preferential agreement – elimination of tariffs on industrial goods only – would have little impact: a slight increase in national income for North America and EFTA, with no effect on the EU. A deeper agreement, however, which bilaterally eliminated industrial tariffs, agricultural protection and anti-dumping remedies, implies modest income and wage gains all round, but still much less than those from comparable multilateral liberalization. The implications for developing countries vary.

Preferential Trade Liberalization in the North Atlantic

Richard E Baldwin and Joseph F Francois

Discussion Paper No. 1611, March 1997 (IT)

Fiscal Policy

Analysing Sustainability

In Discussion Paper No. 1612, **Merih Uctum** and **Michael Wickens** provide a formal theoretical framework for analysing the sustainability of fiscal policy based on the government intertemporal budget constraint, and derive conditions for determining whether a given fiscal stance is sustainable. The authors' framework generalizes the existing literature in several important respects by allowing for time-varying interest rates, for the primary deficit to be endogenous and for a finite planning horizon suitable for medium-term consideration of possible future policy shifts. They show how published forecasts can be used, and they derive a measure of fiscal pressure suitable for the medium term. This analysis is then applied to the fiscal positions of the United States and the EU countries since 1970 and to their planned positions over the next decade.

Uctum and Wickens analyse both long-run and medium-run sustainability. For the long run, they test the hypothesis that the discounted debt-GDP ratio has a zero-mean stationary process. They show that the market value of the discounted debt-GDP ratio is mean-reverting for several countries, while that of the undiscounted ratio is non-stationary in all countries. They conclude that fiscal policy is not sustainable for most industrialized countries over an infinite horizon. For the medium-term analysis of sustainability, they run simulations based on the finite-horizon stability

condition. They find that fiscal policy is sustainable in the medium term in the absence of ceilings. Imposing ceilings, however, generates unsustainability.

Debt and Deficit Ceilings, and Sustainability of Fiscal Policies: An Intertemporal Analysis ***Merih Uctum and Michael Wickens***

Discussion Paper No. 1612, March 1997 (IM)

Advertising Bans

Why Bans can Increase Demand

Many countries have adopted laws that restrict, partially or completely, the advertising of products whose consumption is thought to damage health. The rationale for such laws resides in the idea that advertising increases aggregate consumption. Yet empirical evidence does not point to a strong positive impact of advertising on demand, even in the most targeted industries, such as tobacco and alcoholic drinks. Nor do empirical studies of the impact of the advertising bans suggest that they are likely to be an effective policy instrument – in many cases, demand has even increased.

In Discussion Paper No. 1613, **Massimo Motta** offers a simple theoretical explanation for the failure of advertising bans to decrease total consumption of the products concerned, and defines the circumstances under which advertising bans are more likely to be effective. Motta points out that advertising affects demand through two channels: (1) an 'expansion effect', which increases demand at each price level; and (2) a 'price effect', which increases product differentiation, thus enabling firms to command higher prices for each level of demand. Since higher prices also reduce demand, however, the latter effect can outweigh the former. Consequently, an advertising ban is more likely to increase – rather than decrease – total consumption when advertising does not have a significant expansion effect and when it significantly increases product differentiation. In this case, the ban reduces equilibrium price and increases demand. Motta considers this outcome more likely in mature industries where consumer goods are similar *ex-ante* (i.e. without advertising) and advertising is of the 'persuasive' type. He also argues that firms will lobby against advertising restrictions if these will reduce their prices and, with that, their profits. Both producers and governments could lose from a ban in such cases.

Advertising Bans ***Massimo Motta***

Discussion Paper No. 1613, April 1997 (IO)

Asset Returns, Output and Inflation

Exploring Interdependencies

The relationship between asset returns, real activity and inflation is high on the research agenda in both macroeconomics and financial economics. Yet the empirical evidence regarding the dynamic interaction of these variables is incomplete in at least two respects: it is available primarily for the United States; and it concerns domestic variables taken in isolation from the rest of the world. This is unfortunate given the relative decline in importance of the US economy and the rapid integration of the real, financial and monetary sides of all industrialized economies.

In Discussion Paper No. 1614, **Fabio Canova** and **Gianni De Nicoló** analyse these interdependencies empirically from a multicountry and international perspective. Their goal is two-fold: to assess the robustness of some of the empirical regularities found in the United States; and to investigate how shocks generated in various markets are propagated in the world economy. The authors pose three questions: (1) whether innovations of nominal stock returns affect real activity and inflation and, in turn, whether and how nominal stock returns react to innovations in real activity and inflation; (2) whether, and to what extent, innovations in the slope of the term structure signal movements in real activity and/or inflation; and (3) whether inflation innovations propagate real activity. They find that nominal stock returns are significantly related to inflation only in the United States; that the US term structure predicts both domestic and foreign inflation rates, while foreign term structures do not; and that innovations in inflation and exchange rates induce insignificant responses of real and financial variables. They also offer an interpretation of the dynamics and some policy implications of the results.

Stock Returns, Term Structure, Inflation and Real Activity: An International Perspective
Fabio Canova and Gianni De Nicoló

Discussion Paper No. 1614, March 1997 (IM)

UK Housing Market

Understanding Boom and Bust

In the last 40 years there have been two major, and two minor, booms in the UK housing market. The 1990s have also seen bust on an unprecedented scale. It is now widely recognized that increases in housing wealth contributed significantly to the consumer boom of the 1980s. At the time, however, no major UK econometric model incorporated housing wealth in its consumption functions, and the consequent failure to forecast consumer expenditure led to costly macroeconomic policy errors. Since this omission has now been rectified, there is need for increased understanding of the determinants of house prices, and of the effects of fiscal, monetary or supply-side policies on these prices. In Discussion Paper No. 1615, **John**

Muellbauer and **Anthony Murphy** examine the causes of the booms and busts with a new econometric model for the prices of second-hand UK houses in the period 1957–94.

The authors derive an equation for real house prices as an inverted housing-demand function, and they examine housing demand in an intertemporal context taking into account expectations, credit constraints, lumpy transaction costs and uncertainty. The theoretical expectation that financial liberalization of mortgage markets in the 1980s should have induced notable shifts in house-price behaviour is supported by evidence of shifts in the housing demand function. The prediction of an increased role for income-growth expectations and real interest rates in the 1980s is also strongly borne out. The presence of transactions costs suggests important non-linearities in house-price dynamics. The paper also contains explicit econometric treatments of expectations, demography and supply spillovers from the rented sector, and of composition biases in the official house-price index.

Booms and Busts in the UK Housing Market
John Muellbauer and Anthony Murphy

Discussion Paper No. 1615, March 1997 (FE)

Transition Economies

Did Communist Bloc Incomes Converge?

The communist regimes of the former Soviet bloc took pride in the ability of their planning systems to transfer resources from richer to poorer countries within the bloc, and between regions within each country. This suggests several questions: Did Eastern European development levels become more equal in the communist era? Were the socialist countries as a group catching up with the West? And how have these trends been affected by the experience of transition? In Discussion Paper No. 1616, **Saul Estrin** and **Giovanni Urga** explore these questions econometrically with a variety of new techniques using data on three of the most important multinational states -- the Soviet Union, Yugoslavia and Czechoslovakia -- between 1970 and 1990, and post-1990 data on the 18 newly independent countries into which they disintegrated.

Estrin and Urga use unit roots/cointegration analysis and time-varying parameters procedures to test for a common growth path in the ex-communist bloc, both pre- and post-reform. They find surprisingly little evidence of convergence in 1970–90, thus bringing into question the effectiveness of communist policies to reduce income differentials across the region. Lack of convergence becomes a divergence in development levels in 1990–5. These results confirm that neither the communist bloc as a whole, nor some of its principal economic components, formed natural economic units, though there is some evidence that the two economies comprising the former Czechoslovakia did move

together. The authors also find little evidence of convergence with respect to the West either in 1970–90 or, including the early reform years, in 1970–95. They stress, however, that the reform period has been short and turbulent.

Convergence in Output in Transition Economies: Central and Eastern Europe, 1970–95
Saul Estrin and Giovanni Urga

Discussion Paper No. 1616, April 1997 (TE)

Consumption

Testing Sensitivity to Projected Income Growth

The permanent income hypothesis (PIH) predicts that individual consumption growth should not respond to expected income growth. Although the evidence from panel data studies testing the theory of households' intertemporal choices is mixed, the empirical literature on the PIH faces three serious problems in testing the restrictions implied by intertemporal optimization: (1) the difficulty of finding viable instruments for income growth that are truly exogenous and yet have good predictive power; (2) the difficulty of observing conditional variance of the uncertain components; and (3) the excess sensitivity that may result from failure to control properly for non-separability between consumption and leisure. For applied economics, the fundamental problem is predicting future income on the basis of variables that are in individuals' information sets and can be observed by the econometrician.

In Discussion Paper No. 1617, **Tullio Jappelli** and **Luigi Pistaferri** use data from a 1989–93 panel survey of Italian households, which includes measures of subjective income and inflation expectations, to test for excess sensitivity of consumption to predicted income growth. Controlling for the expected variance of consumption growth and for predictable changes in labour supply, the authors find that household consumption growth is strongly correlated with predicted earnings growth of the head. They also find considerable evidence that excess sensitivity is due to liquidity constraints. Their strongest result is that, in a sample of low-asset households, the coefficient of expected income increases is one, and that of expected income declines is zero.

Using Subjective Income Expectations to Test for Excess Sensitivity of Consumption to Predicted Income Growth
Tullio Jappelli and Luigi Pistaferri

Discussion Paper No. 1617, March 1997 (IM)

Pension Funds

Measuring UK Performance

The set of restrictions and regulations faced by UK pension fund managers in the late 1980s and early 1990s arguably was the smallest faced by any group of institutional investors anywhere in the world. Fund managers were also largely unconstrained by their liabilities – UK pension funds ran large actuarial surpluses over much of the period – and trustee (i.e. pension plan) sponsors interfered very little in day-to-day operations or in the choice of investments. Some trustee resistance to the use of derivatives and some statutory limits on self-investment in the sponsoring company apart, UK managers were free to invest in almost any security in any asset class in any currency denomination and in any amount. They also faced no substantive threats of litigation over imprudent investment behaviour. The industry thus provides for an interesting case study and, in Discussion Paper No. 1618, **David Blake**, **Bruce Lehmann** and **Allan Timmermann** investigate its investment performance using data on 364 pension funds over the period 1986–94.

The data, on funds' monthly asset holdings, allow for systematic investigation of the performance of managed portfolios in terms of market timing (allocation of funds across asset classes) and security selection (allocation of funds within asset classes). The authors find surprisingly little cross-sectional variation in the *ex-post* average performance across portfolios as a whole as well as within asset classes. They ascribe this to the strong incentive fund managers had not to underperform relative to their peers. For domestic equities – by far the most important component of the portfolios – fund size is the only variable that appears to account for an important fraction of the cross-sectional variation in measured performance.

Performance Measurement using Multiple Asset Class Portfolio Data: A Study of UK Pension Funds
David Blake, Bruce N Lehmann and Allan Timmermann

Discussion Paper No. 1618, June 1997 (FE)

Transition Restructuring

'Shock Therapy', 'Gradualism' or ...?

The speed with which restructuring should proceed in Central and East European countries has become an important economic policy question. Restructuring involves inducing movements of large quantities of physical and human resources from contracting (usually state) to expanding (usually private) sectors, by changes in incentive structures and elimination of price controls and other distortions. Whenever slow and costly, such adjustment implies transitory income losses for state-sector workers. Although some workers will respond fairly rapidly to incentive changes, others may be inhibited (e.g. by lack of training or appropriate capital equipment) and are likely to suffer the most. If there were no political

constraints on the reform process, instantaneous elimination of policy distortions would be the theoretically preferred strategy. But if such 'shock therapy' is politically unavailable, what is the 'second-best' option?

In Discussion Paper No. 1619, **Vivek Dehejia** argues that, although 'gradualism' is clearly one alternative, it may not be the only, or best, alternative. By formally characterizing the second-best choice under a political constraint, Dehejia concludes that the optimum entails administering the terms-of-trade shock fully at the outset (as in shock therapy), but supplementing it with interventions in domestic factor markets. These interventions should speed up the exit of the politically affected factor, labour, from the contracting to the expanding sector and retard the exit of capital. This would address the political constraint by propping up wages in the declining sector. It is possible, moreover, to design the requisite interventions – a subsidy and a tax – in a revenue-neutral package. These results are consonant with the Bhagwati-Ramaswami-Johnson principle of 'targeting' the affected margin directly.

Optimal Restructuring Under a Political Constraint: A General Equilibrium Approach
Vivek H Dehejia

Discussion Paper No. 1619, April 1997 (TE)

Greece and the Balkans

From Isolation to Integration?

Throughout the post-war period, Greece has faced a uniquely unfavourable situation occasioned by (1) a perimetric location away from major European markets; and (2) distorted economic relations with its northern (Balkan) neighbours because of borders that constitute real barriers to communication and trade. These conditions have adversely affected the structure and performance of the economy and its prospects for convergence. Although all the Balkan countries have been responding to the recent systemic economic and political changes throughout Western, Central and Eastern Europe, they continue to lag behind the rest of Europe.

In Discussion Paper No. 1620, **George Petrakos** and **Nicos Christodoulakis** examine the post-1989 developments in the Balkan region from a Greek perspective. Growth rates, development levels, economic structures, trade relations, factor movements and the spatial structure of the region are examined to detect the major trends and developments resulting from the unprecedented integration-transition processes under way in Europe. The authors conclude that Greece can overcome its isolation, and deal effectively with the challenges of European integration, by pursuing a strategy that will gradually recompose the economic space in its vicinity, with the creation of a large and accessible regional Balkan market. The appropriate policy mix should include, among other things: (1) steady and energetic encouragement to all Balkan

countries to join the EU; and (2) the promotion of a strategic EU development plan for the Balkan region, with the active participation of Greece, and special emphasis on issues of intra-regional cooperation and integration.

Economic Developments in the Balkan Countries and the Role of Greece: From Bilateral Relations to the Challenge of Integration
George Petrakos and Nicos Christodoulakis

Discussion Paper No. 1620, April 1997 (IM)

Human Resources

Wage Differentials

Rising wage inequality in many countries is proving theoretically controversial. Arguments supporting incentive contracts, and results regarding relative compensation derived from the theory of tournaments, indicate that higher wage differentials within firms should provide incentives for harder work. Theories of fairness and worker participation, by contrast, claim that too much inequality is detrimental to intra-firm human relations.

In Discussion Paper No.1621, **Rudolf Winter-Ebmer** and **Josef Zweimüller** use a data set for Austrian firms to analyse the relationship between wage structure and firm performance. They observe wages for the whole workforce over several years, and, although unable to observe the firms' financial performance, construct measures that should be related to productivity, namely standardized wages for different groups, and employment growth over time. They find that, for white-collar wages, the relationship between wage dispersion and standardized wages is non-monotonic. For low levels of dispersion, increased inequality seems to be beneficial for earnings. If dispersion grows too high, however, this is detrimental in terms of compensation. In the case of blue-collar wages, standardized wages generally rise with wage dispersion. No consistent pattern is found regarding employment growth. Winter-Ebmer and Zweimüller conclude that the observed picture is inconsistent with models of union behaviour, with Lazear's (1989) model of hawks and doves, and with simple models of incentive pay with risk-averse workers. The hypothesis that too little inequality is harmful – because incentives become insufficient – is supported, however, as is the suggestion that excessive inequality may impose a fairness constraint leading to inefficiency.

Intra-Firm Wage Dispersion and Firm Performance
Rudolf Winter-Ebmer and Josef Zweimüller

Discussion Paper No. 1621, April 1997 (HR)

Industrial Organization

Japanese Promotion Practices

The existing characterization of Japanese promotion practices, which emphasizes well-defined ports of entry for recruitment, a strong managerial preference for hiring high-school graduates and late selection, is based on a limited number of case studies of large, long-established firms in the manufacturing and banking sectors. In Discussion Paper No. 1622, **Kenn Ariga, Yasushi Ohkusa and Giorgio Brunello** investigate the hiring and promotion policies of a large, but fairly young, high-tech manufacturing firm. Their results cast doubt on some of the stylized facts about human-resource management in large Japanese firms, suggesting instead that such firms can be innovative and profitable without necessarily adopting the full menu of 'traditional' practices.

The firm in question is shown to recruit employees with fairly diverse job-experience, education and age profiles. Recruits with previous experience are placed initially in a fairly wide range of ranks, suggesting that the firm uses multiple ports of entry. Analysing individual career paths, the authors show that cohort-peer differentiation starts much earlier than in the common view. They find evidence for 'fast-track' effects, in which individuals who have been promoted faster to a given rank are also promoted faster to higher ranks. These effects are not fully explained by time-invariant individual characteristics, such as innate ability. Since this last result is difficult to justify using a pure learning model, where ability is time invariant, a richer learning model, incorporating (say) human capital considerations, would appear to be required.

Fast Track: Is it in the Genes? The Promotion Policy of a Large Japanese Firm
Kenn Ariga, Yasushi Ohkusa and Giorgio Brunello

Discussion Paper No. 1622, April 1997 (IO)

Financial Economics

Explaining Bookmakers' Odds

In Discussion Paper No. 1623, **John Fingleton and Patrick Waldon** investigate the theoretical bases of four empirically observed properties of bookmakers' odds. The properties are, first, the favourite-longshot bias, whereby the prices of favourites are relatively better value than those of longshots; second, the fact that the margin implicit in bookmakers' odds increases with the number of the runners in the race; third, the fact that this theoretical margin overstates realized operating profits; and fourth, that this margin varies greatly from country to country, even where market structures are similar. Bookmakers' prices are significantly higher (i.e. odds are lower) in the Irish market than in the UK market, for example, although the two markets differ only in size.

Extending earlier work by Shin, which explained the first two of these properties, Fingleton and Waldon develop a theoretical model of the determination of odds, which assumes varying degrees of 'inside information' (enabling some punters to identify horses that have

been underpriced by bookmakers), and incorporates both risk aversion and the possibility of anti-competitive behaviour on the part of the bookmakers. In an attempt to determine which of these variables best explains the higher bookmaker margins in the Irish market, the authors use the results of 1,696 races in Ireland in 1993 to estimate jointly the extent of inside information, the operating profits earned and the degree of risk aversion exhibited. Their results suggest that Irish bookmakers are extremely risk averse and balance their books, which is not a profit-maximizing strategy. They estimate that operating costs and monopoly rents combined account for up to 4% of turnover, and that between 3.1% and 3.7% of betting is by punters with inside information.

Optimal Determination of Bookmakers' Betting Odds: Theory and Tests
John Fingleton and Patrick Waldron

Discussion Paper No. 1623, April 1997 (FE)

International Trade

Taming the Leviathan

The notion of the Leviathan state, in which the government derives utility from using budgeted resources for its own ends, suggests that the public sector is inherently inefficient. It has been argued, however, that greater openness in an economy leads to increased public-sector efficiency. More mobile factors of production will leave jurisdictions that offer low-quality public goods (such as infrastructure) and high tax rates. The income and welfare of immobile factors will decline, leading to a loss of political support for the government, forcing the public sector to use resources more efficiently.

In Discussion Paper No. 1624, **Michael Rauscher** investigates this conjecture about the consequences of interjurisdictional competition. Using a model with many identical jurisdictions, he finds that introducing capital mobility, along with limits to lump-sum taxation, leads to lower tax rates and an under-supply of public goods. In addition, Leviathan behaviour becomes more costly as a one-unit increase in public-sector consumption induces a more-than-one-unit loss of political support. The effect on public-sector efficiency, however, is ambiguous. With high substitutability between consumption and political support, efficiency will increase. But the reduced supply of public inputs may lead to a less-than-proportional reduction in output, implying that the government can reduce its supply of socially useful inputs without reducing political support proportionately. This relaxes the public sector's budget constraint and reduces efficiency. Rauscher concludes that there are realistic values of the substitutability parameter for which efficiency worsens. The triumph of the market over the state is not assured.

Interjurisdictional Competition and the Efficiency of the Public Sector: The Triumph of the Market Over the State

Industrial Organization

Allocating Capacity and Output in Multiplant Firms

In Discussion Paper No. 1625, **Rudolf Kerschbamer** and **Yanni Tournas** investigate the determinants of plant size and interplant output allocations in a multiplant firm under conditions of demand uncertainty. They consider a model in which a firm that acts as a monopolist in the output market has the option to produce the output demanded in various plants, each acting as a profit centre with private information about its own production costs. The headquarters decides the capacity and, later, the output allocation for each plant.

Depending on demand, the firm can end up with or without excess capacity. The authors find that excess capacity generates two kinds of potential benefits: first, it allows a larger part of total production to be carried out in the least-cost facility; and second, by introducing competition among plants, the headquarters is able to limit the rents the plants can command from their private information. It may be impossible, however, to realize both types of benefits simultaneously. Moreover, in a recession, output is not necessarily assigned to the plant with the lowest production costs. The optimal capacity levels determined for the plants are compared with a 'first-best' benchmark in which the headquarters has perfect information about production costs in the various facilities. The model suggests that, if the price of capacity is low, headquarters will over-invest by comparison with the benchmark, and vice versa if the price of capacity is high. Fully utilized capacity carries more value in the benchmark than in the model, but the opposite is true for idle capacity. The authors also show that, if demand becomes more variable, then over-investment in capacity becomes more likely.

Excess Capacity as an Incentive Device
Rudolf Kerschbamer and Yanni Tournas

Discussion Paper No. 1625, May 1997 (IO)

Labour Markets

Multiple Jobs: Safety in Numbers?

Despite the surprising lack of hard empirical evidence, there is little doubt that the majority of the UK public believes, rightly or wrongly, that job security has deteriorated dramatically in the 1980s and 1990s. One empirically verifiable labour-market trend, however, is the increase, over the same period, in the proportion of workers (both male and female) who hold more than one job. Multiple job-holding hitherto has been explained either as the result of a constraint on earnings capacity in the worker's primary job or because the labour inputs supplied in the two jobs are not perfect substitutes.

In Discussion Paper No. 1626, **David Bell**, **Robert Hart** and **Robert Wright** explore a third explanation, which proposes a link between perceived job insecurity and multiple job-holding, namely that individuals may hold a second job if they believe their primary job carries a high risk of termination. This hypothesis is tested using data from four waves of the British Household Panel Study. The models are estimated separately for men and women. For men, none of the job-security variables used are statistically significant in any of the labour-supply equations. For women, however, some of the variables are statistically significant with signs consistent with the 'hedge against unemployment' hypothesis. These results provide very weak evidence (at best) in support of hedging behaviour of this type.

Multiple Job-Holding as a 'Hedge' Against Unemployment
David N F Bell, Robert A Hart and Robert E Wright

Discussion Paper No. 1626, April 1997 (HR)

Allocative Efficiency

Tournaments versus Markets

Economists have long noted that borrowing constraints can inhibit efficient resource allocation. The literature on potential remedies focus on instruments such as credit subsidies and taxes, ignoring the fact that the choice of an allocative mechanism is itself an important policy dimension. In Discussion Paper No. 1627, **Raquel Fernández** and **Jordi Galí** compare the allocative efficiency of markets and 'tournaments', the latter being a commonly used device – especially in hierarchical organizations such as bureaucracies and educational institutions – for allocating 'prizes' among individuals according to their rank order in a contest. Performance in the contest is a function both of ability and of level of expenditure. The context for the comparison is the standard problem of matching investment projects of varying quality or potential profitability with agents who differ in their ability to exploit these projects.

The authors find that, with perfect capital markets, tournaments and markets generate the same allocation and, accordingly, the same aggregate output. Yet aggregate consumption is lower under tournaments, since resources are wasted in the production of signals. Where there are borrowing restraints, however, tournaments always deliver greater output than markets.

The intuition explanation is that identical expenditures by tournament participants of different abilities do not lead to identical outcomes, in that higher-ability individuals produce higher scores/signals than lower-ability individuals. This makes higher-ability individuals effectively 'less credit-constrained'. The effect on aggregate consumption is ambiguous, as this depends on the fraction of available resources wasted in the competitive production of signals.

To Each According To.....? Markets, Tournaments, and the Matching Problem With Borrowing Constraints

Raquel Fernández and Jordi Galí

Discussion Paper No. 1627, May 1997 (IM)

International Trade

Competitiveness and Export Performance

Paul Krugman's denunciation of national competitiveness as a dangerous obsession does not blur the policy imperative of correctly appraising the impact of relative costs on export performance. Claims that EU members must abandon the options of competitive devaluations rest on labour costs having powerful effects. Others have suggested, however, that trade performance depends increasingly on technological capabilities, and that labour costs are therefore of diminishing significance.

In Discussion Paper No. 1628, **Wendy Carlin, Andrew Glyn** and **Jon Van Reenen** analyse the impact of cost competitiveness and technology on export performance using a rich panel data set of 12 manufacturing industries in 14 OECD countries for the period between 1970 and 1992. Consistent with standard models, they find that changes in relative labour costs are a robust determinant of changes in export market shares. In the long run, a 10% increase in relative unit labour costs leads to a fall of 2–3% of market share. Yet the trends in national export performance cannot be fully explained by relative costs. This points to the importance of non-price factors. Extending the model to allow for technology effects on quality provides some evidence for the importance of higher relative investment rates, but an exhaustive account would probably also include human capital factors. The authors conclude that the impact of cost competitiveness varies among industries, with low-tech industries being more cost-sensitive. Exports become more cost sensitive in recessions, but there is little evidence that cost sensitivity is diminishing over time as technology or quality factors become more important. Countries differ considerably in the cost-sensitivity of their exports, with 'core' EU countries being least affected. This may explain differing national enthusiasms for EMU.

Quantifying a Dangerous Obsession? Competitiveness and Export Performance in an OECD Panel of Industries

Wendy Carlin, Andrew Glyn and John Van Reenen

Discussion Paper No. 1628, April 1997 (IT)

International Macroeconomics

Ranking Countries Through Exports

The product-cycle hypothesis of international trade suggests the existence of an ordering of commodities that a country develops and begins to export. Can countries therefore be judged to be 'advanced', or to have 'dynamic' comparative advantage, in the sense that they export goods faster than other countries? In Discussion Paper No. 1629, **Robert Feenstra** and **Andrew Rose** develop statistical techniques to estimate rank-orderings of objects using data which do not depend on strong untestable assumptions or on complete data sets. They then use these techniques to rank-order countries and commodities using US import data. Examining a large number of disaggregated goods, they rank countries by the speed with which they export a given good and find that certain countries consistently export goods faster. They gauge these countries as 'sophisticated'.

The results of the estimates are robust and consistent with the product-cycle theory. The rankings are systematically and sensibly correlated with both levels and growth rates of real GDP. The top few countries are usually Canada, Germany and Japan and poorer developing countries are ranked as 'unsophisticated'. When the rankings are added to the Hall and Jones (1996) productivity data set, country ranking is found to be significantly related to productivity. Feenstra and Rose point out that these links suggest systematic strong relationships between a country's 'competitiveness' and economic prosperity. In future work, it will be important to determine if government policy (e.g. industrial policy) affects rankings.

Putting Things in Order: Patterns of Trade Dynamics and Macroeconomics

Robert C Feenstra and Andrew K Rose

Discussion Paper No. 1629, May 1997 (IM)

Business Cycles

Money versus Involuntary Unemployment

In Discussion Paper No. 1630, **Roger Farmer** uses dynamic general equilibrium theory to assess the role of money in initiating and sustaining business cycles. The paper contests the utility of Keynes's theory of involuntary unemployment, arguing instead that economies can 'go wrong' simply because money is used as a medium of exchange. When the general price level is too high relative to the stock of money, it is rational for firms – which need money to be able to trade – to respond to the shortage of real balances by employing less labour and reducing the real wage. This situation represents an equilibrium, but it is inefficient because there is no fundamental force preventing workers and firms from increasing employment and welfare.

To illustrate this point, Farmer employs a dynamic general equilibrium model of the real business cycle in which money is held because it yields utility. The production function and values for the parameters of the utility function are selected to enable the model to replicate some key features of data from the United States. The paper shows that if a model is parametrized in a way that is 'sensible' it contains many equilibria. The equilibrium that best describes the data is one in which prices do not move rapidly from one period to another. Where there is an unexpected increase in the money supply this causes employment and output to expand in the short run, and the price level to respond in the long run. Farmer points out that these are exactly the features seen in actual data, and argues that his explanation for business cycles, utilizing the concept of inefficient equilibria, is an improvement on existing models based on the Keynesian paradigm.

Money in a Real Business Cycle Model
Roger E A Farmer

Discussion Paper No. 1630, April 1997 (IM)

Business Cycles

Role of Imperfect Financial Markets

Economists have argued that business-cycle fluctuations are likely to be amplified in economies with imperfect financial markets. When lenders are not well informed about borrowers' investment projects they devise 'second best' contracts which may induce borrowers to reveal some information. These contracts typically entail collateral requirements and credit rationing. As a consequence, real investment and consumption become highly dependent on the borrower's balance sheet position. Since several authors have observed that this kind of lending is sensitive to exogenous shocks, the existing literature has attributed the amplified propagation and variability of the business cycle to the interaction of exogenous disturbances and imperfect financial markets.

In Discussion Paper No. 1631, **Pietro Reichlin** and **Paolo Siconolfi** argue that exogenous disturbances are

not required for informational asymmetries and second-best contracts to generate business cycle fluctuations. Entrepreneurs of different 'abilities' face alternative investment projects, which differ in their degree of risk and productivity. Given asymmetric information, analysis of the Nash equilibrium contracts arising from a banks-borrowers game shows that, for a particular characterization of the game, the endogenous distribution of projects, and the 'type' of contracts (pooling or separating) can be determined as functions of the amount of loanable funds. The authors then apply this game to a general equilibrium aggregative economy with production, populated by overlapping generations of borrowers and lenders. They show that, for a range of parameter values, equilibria are characterized by persistent endogenous cycles, indicating that business cycles may be caused by imperfections in financial markets, rather than by outside disturbances.

Adverse Selection of Investment Projects and the Business Cycle
Pietro Reichlin and Paolo Siconolfi

Discussion Paper No. 1631, August 1997 (IM)

Economic Integration

Comparing Europe and the United States

In Discussion Paper No. 1632, **Mario Forni** and **Lucrezia Reichlin** investigate the degree of economic integration in Europe by studying the synchronization of regional GDP fluctuations. These fluctuations have local, national and international components, and the importance of each component is determined by the degree of homogeneity of regional economic structure and policy. The authors compare European regional data with data for US counties and states. The model they employ is an extension of the traditional dynamic factor model, and – building on earlier work of their own – they use a method of estimation based on Law of Large Numbers results, which exploits the large cross-sectional dimension of the data set.

They find that Europe has a degree of integration similar to the United States. The national dimension in Europe is not found to be important, as around 75% of output variance is explained by global and purely local dynamics. Study of the dynamic profile of the components, however, shows that Europe – unlike the United States – has no traditional business cycle. Shocks are persistent, and the bulk of the variance is in the long run. These results indicate that the difference between Europe and the United States is not so much in the level of integration, but in the structure of markets. Forni and Reichlin suggest that a common European policy, designed to target output, would be potentially effective provided that it targeted the long run, and that macroeconomic policies were complemented by market reforms.

National Policies and Local Economies: Europe and the United States

Mario Forni and Lucrezia Reichlin

Discussion Paper No. 1632, April 1997 (IM)

Capital Mobility

The Long-Run Policy 'Trilemma'

In Discussion Paper No. 1633, **Maurice Obstfeld** and **Alan Taylor** survey the evolution of international capital mobility since the late nineteenth century. They provide an overview of the empirical evidence on the fall and rise of integration in the global capital market, and discuss institutional developments focusing on the use of capital controls and the pursuit of domestic policy objectives in the context of changing monetary regimes. The authors describe a fundamental policy 'trilemma' that forces a trade-off between conflicting goals. A macroeconomic policy regime can include at most two elements of the 'inconsistent trinity' of: (1) full freedom of cross-border capital movements; (2) a fixed exchange rate; and (3) an independent monetary policy oriented towards domestic objectives. They argue that capital mobility has expanded under circumstances of widespread political support for either an exchange-rate-subordinated monetary regime (e.g. the gold standard), or for a regime geared mainly towards domestic objectives at the expense of exchange-rate stability (e.g. the recent float). The middle ground, in which countries attempt simultaneously to hit exchange-rate targets and domestic policy goals, has entailed exchange controls or other harsh constraints on international transactions.

The Great Depression stands as a watershed because it was caused by an ill-advised subordination of monetary policy to an exchange-rate constraint, leading countries to experiment – typically non-cooperatively – with alternative solutions to the trilemma. In the inter-war years, a more cooperative order was fashioned by Keynes and Harry Dexter White, but this in turn has been superseded by a solution based on freedom for capital movements, which gives the major currency areas freedom to pursue internal goals, leaving mutual exchange rates as the equilibrating residual.

The Great Depression as a Watershed: International Capital Mobility Over the Long Run
Maurice Obstfeldt and Alan M Taylor

Discussion Paper No. 1633, April 1997 (IM)

Regional Trade Agreements

Evaluating the Benefits

How can the proliferation of regional trade agreements (RTAs) over the last decade, within the context of a deepened and widened

international trading system, be accounted for? In Discussion Paper No. 1634, **Raquel Fernández** suggests that it is not possible to explain the phenomenon in terms of recent theoretical advances, or as a resolution of the debate as to whether RTAs are preferable, theoretically or empirically, to an imperfect global trading system. The amount of time and effort expended by policy-makers and bureaucrats in concluding trade agreements, however, does seem disproportionate to the gains that, at least on the face of it, could be anticipated from most of them. At the same time, there seems to be a general, if ill-defined, belief on the part of many policy-makers, and some academics, that there is more to an RTA than the traditional gains from trade.

The paper attempts to classify and assess the relative plausibility of various 'non-traditional' gains that RTAs may confer on their partners, such as credibility, signalling, bargaining power, insurance and coordination. It assesses the necessary conditions for each of these candidates to work; gives stylized examples of specific types of policy where each might be applicable; and examines real cases where the explanation might be relevant. The author concludes by comparing NAFTA with the Europe Agreements (between the Central and East European countries and the EU), viewed in this context.

Returns to Regionalism: An Evaluation of Non-Traditional Gains from RTAs
Raquel Fernández

Discussion Paper No. 1634, April 1997 (IT)

Product Attributes

Quality or Variety?

Before marketing a product, a firm has to determine its attributes. Hotelling's influential paper, *Stability in Competition*, argued that two considerations – a demand effect and a strategic effect – drive this decision. Thus firms equip their products with attributes close to consumers' preferences. At the same time, to avoid excessive price competition, they take into account the attributes of competing products and offer a variant that is not too similar. In Discussion Paper No. 1635, **Hans Degryse** and **Andreas Irmen** analyse situations where product attributes are interdependent. They use a duopoly model of product innovation, where products are described by a quality and a variety attribute, to investigate how firms' incentives to provide quality change when the level of quality affects the degree of horizontal differentiation of products. If an increase in quality reduces the variety offered in the market, quality and variety are said to interact negatively.

The results are determined by the effect attribute dependence has on Hotelling's two mechanisms. Negative interaction of a product's quality and variety attribute strengthens the demand effect and, therewith, the firm's incentive to provide quality. Consumers are

attracted more by quality improvements than by price reductions. The strategic effect is also stronger under negative dependence: price competition becomes fiercer, thus stimulating underinvestment in quality. The impact of negative dependence on the strategic effect more than outweighs that on the demand effect, however, if firms can commit to a quality level before competing in price. Consequently, an unregulated market underprovides quality, such that a minimum quality standard would be welfare improving. Positive dependence of variety and quality attributes generates the opposite results.

Attribute Dependence and the Provision of Quality
Hans Degryse and Andreas Irmen

Discussion Paper No. 1635, April 1997 (IO)

Transition Economics

Liberalization: Why Output Falls

One of the most striking stylized facts about the transition process in Central and East European countries (CEECs) has been the initial sharp fall in output. Early debates on the causes focused on the role of stabilization policies that reduce aggregate demand relative to aggregate supply. Empirical evidence shows, however, that such policies do not always lead to output falls, and may even lead to output increases. In Discussion Paper No. 1636, **Gérard Roland** and **Thierry Verdier** observe that, in most CEECs, the greatest output fall occurs in the year of price and trade liberalization. They therefore seek an explanation based on microeconomic analysis of the effects of liberalization on aggregate supply. In their model, markets do not yet exist when prices are liberalized, but liberalization creates incentives for enterprises to search for new clients and suppliers. Since existing production links can be maintained, however, this search in itself is not sufficient explanation. Thus Roland and Verdier assume further that 'relation-specific investments' take place only after a new long-term partner is found. Aggregate output may fall after liberalization because of three effects: (1) disruption of previous production links; (2) reduced investment; and (3) capital depreciation owing to the absence of replacement investment.

Roland and Verdier use their model to compare 'big bang' with Chinese-style gradual liberalization. Under the Chinese dual price system, prices were liberalized at the margin, but enterprises were forced to maintain production links for given production quotas at non-liberalized prices. The authors conclude that such a gradual process may avoid the output and investment disruptions occasioned by 'big bang' policies.

Transition and the Output Fall
Gérard Roland and Thierry Verdier

Discussion Paper No. 1636, May 1997 (IM/TE)

FDI

Spanish Lessons for Transition Economies?

In Discussion Paper No. 1637, **Carmela Martín** and **Francisco Velásquez** estimate an econometric model with panel data to explore the determinants of bilateral foreign direct investment (FDI) flows in OECD countries during the past decade, with special emphasis on Spain. Spain's experience of moving from autarky to integration within the EU may provide pointers for former communist countries currently seeking to attract FDI as a way of achieving sustained economic growth and closer integration with the EU.

Martín and Velásquez find support for the hypothesis that the prerequisite for any FDI project is availability of a specific advantage (e.g. technological) on the part of the investor with respect to firms located in the host country. Beyond that, the characteristics of bilateral FDI flows are determined by, among other factors, the size and vitality of the host country's market, the quality of transport infrastructure, the availability of skilled labour and the extent of regulations with respect to foreign investment. Differences in countries' relative factor endowments have no significant effect on direct investment between them, although the effect seems to be stronger in the particular case of Spain. All these factors, together with the increased weight of EU member countries in the geographical structure of FDI received by Spain since its accession to the EU, will be significant to policy-makers in former communist countries. Finally, judging by the specific findings for Spain, advantages in labour costs may also help to attract FDI.

The Determining Factors of Foreign Direct Investment in Spain and the Rest of the OECD
Carmela Martín and Francisco J Velásquez

Discussion Paper No. 1637, June 1997 (IT/TE)

EMU

How to Set the Conversion Rates?

When the third stage of monetary union in Europe starts on 1 January 1999, the exchange rates of the participating countries will be irrevocably fixed, bilaterally and against the euro. The question of how to fix these conversion rates is the subject of Discussion Paper No. 1638, written by **Paul De Grauwe** and **Luigi Spaventa**. The authors note that the Maastricht treaty set the constraint that the procedure should not alter the external value of the Ecu, which will be converted one-to-one into the euro. They argue that this implies that the conversion rates used on 1 January 1999 will have to be the market rates observed at the end of the previous day. This holds true

whether the conversion rates are expressed bilaterally or directly in terms of the euro. Setting the conversion rates in euro, however, would have the drawback that that it is not possible to announce fixed conversion rates in advance. This effectively implies that the choice of these rates will be left to the market. If it is decided to set the euro conversion rates indirectly, by first determining the bilateral rates, the constraint becomes less severe.

De Grauwe and Spaventa suggest that agreement should be reached on bilateral rates prior to 1 January 1999, and that the countries concerned should make a credible commitment to steer market rates towards the agreed levels. Market rates should then converge to the conversion rates before the latter are irrevocably set. The market Ecu rates will then be compatible with the bilateral parities and will not be last minute outcomes of the whims of the market.

Setting Conversion Rates for the Third Stage of EMU

Paul De Grauwe and Luigi Spaventa

Discussion Paper No. 1638, April 1997 (IM)

Exchange Rates

Modelling the Yen–Dollar Rate

In Discussion Paper No. 1639, **Ronald MacDonald** and **Jun Nagayasu** model the short- and long-run movements of the Japanese yen–US dollar exchange rate over the recent floating period. The authors construct a model using the modern general-to-specific approach, which exploits multivariate cointegration methods as an econometric framework, and is derived from the model of real interest differentials originally developed by Frankel. It differs from Frankel's model, however, in that it abstracts from money market equilibrium conditions. This simplification avoids any uncertainty regarding the money-demand function, and has the advantage of assisting in the identification of the number of cointegrating vectors. Since the model attempts to explain exchange-rate movements using fundamental determinants, such as prices and interest rates, it is better suited to explaining the medium- to long-run behaviour of the exchange rate.

Among the findings are sensible and significant long-run relationships, and dynamic equations which describe the motions of the two exchange rates and satisfy a battery of diagnostic tests. The models are shown to produce good in-sample forecasting performances, and also an out-of-sample forecasting performance which dominates a simple random walk in all forecasting time horizons. The paper reasserts the importance of fundamental variables in understanding short-run exchange-rate movements. MacDonald and Nagayasu suggest that the introduction of fundamentals may give further scope to current 'market microstructure' exchange-rate models.

On the Japanese Yen–US Dollar Exchange Rate: A Structural Econometric Model Based on Real Interest Differentials

Ronald MacDonald and Jun Nagayasu

Discussion Paper No. 1639, April 1997 (IM)

EMU

The 'Ins' and 'Outs' of ERM II

When EMU begins on 1 January 1999, a new exchange-rate mechanism (ERM II) will guide exchange-rate relations between the core group of EMU members (the 'Ins'), and those countries outside the union (the 'Outs'). This raises questions about the potential stability of ERM II, compared with ERM I. In Discussion Paper No. 1640, **Paul De Grauwe** draws on new theoretical insights about the origins of speculative crises, and an historical analysis of the turbulence within ERM I, to assess whether ERM II will be more stable than its predecessor. At first glance, the likelihood of classical ('first-generation model') crises erupting under ERM II appears low, since the 'Outs' are most likely to have converged significantly in terms of underlying fundamentals (e.g. inflation rates). The existence of a 'convergence exam', however, may make speculators very sensitive to small movements in these fundamentals. Also, the structure of real exchange rates between 'Ins' and 'Outs' may not correspond to an equilibrium. In these circumstances, exchange-rate adjustments may become necessary, and speculative pressures may arise.

Will ERM II also be subject to self-fulfilling ('second-generational model') speculative crises of the type that erupted in ERM I? De Grauwe argues that the convergence dynamics may lead to such attacks, especially against currencies of countries with a large government debt. This probability is reduced if the authorities are perceived to take the next 'entrance exam' very seriously, or if there is a strong commitment from the European Central Bank to intervene in the foreign-exchange market. The large size of the band of fluctuation of ERM II and a willingness to make timely realignments may eliminate the danger.

Exchange Rate Arrangements Between the Ins and the Outs

Paul De Grauwe

Discussion Paper No. 1640, May 1997 (IM)

Explaining Development

The Role of Information Accumulation

The process of development involves not only increases in income per capita, but also changes in the nature and structure of economic relations and institutions. A crucial difference between less-developed and advanced economies is that developed societies produce large amounts of decentralized information which can be exploited in various agency relations. Consequently, capital markets will be more developed, property rights more secure, and information-intensive activities more widespread.

Why is information more abundant in developed economies? In Discussion Paper No. 1641, **Daron Acemoglu** and **Fabrizio Zilibotti** argue that society can 'accumulate' information about a certain activity by allocating resources to it, and that 'repetition' of the activity generates information on the appropriate standards for firm performance. For example, in a capital-scarce economy with a small manufacturing sector, there is limited information on the profitability of manufacturing activities and on the manner in which resources should be allocated to, and organized by, the sector. The limited availability of information, in turn, shapes the structure of economic relations, not least because it makes it harder to give the right incentives to managers and entrepreneurs. These uncertainties are substantially reduced in economies where manufacturing takes place on a large scale and the activities and performances of firms can be observed. The authors use a principal-agent framework, embedded in a dynamic general equilibrium model, to illustrate their argument. The model shows that greater availability of information permits better relative performance evaluation, and generates more incentives and, hence, increased effort and productivity. It also predicts a number of institutional and structural transformations as the economy accumulates capital and information.

Setting Standards: Information Accumulation in Development

Daron Acemoglu and Fabrizio Zilibotti

Discussion Paper No. 1641, May 1997 (IM)

Business Cycles

Effects on Long-Run Growth

In Discussion Paper No. 1642, **Gilles Saint-Paul** surveys the theoretical and empirical debate on the effect of macroeconomic fluctuations on long-run growth. Although the bulk of macroeconomists reject the idea that demand shocks have long-run effects on productivity, interest in the long-run effect of business cycles was revived recently as part of the interest in endogenous growth. Although growth was traditionally thought of as driven entirely by some unexplained trend of technical progress, endogenous growth theory explicitly takes into account the fact that technical progress itself has economic determinants. The incentives to innovate and to acquire education, and the acquisition of knowledge as a by-product of economic

activity ('learning-by-doing'), are all channels dependent on many aspects of the economy.

The author emphasises the 'opportunity cost' (OC) approach, which states that firms will intertemporally substitute productivity-enhancing activities for regular production activity during recessions. The central idea is that, although these activities are costly in terms of forgone current production (because they disrupt normal production activities), their benefit is a greater flow of future revenue. Therefore, in a recession, because output is currently low, the cost of such activities is low relative to their benefit, which includes increased production at future times when the economy is in an expansionary phase. Finally, the paper provides aggregate evidence in favour of the OC view, in line with previous studies by the author himself and by others.

Business Cycles and Long-Run Growth
Gilles Saint-Paul

Discussion Paper No. 1642, May 1997 (IM)

EMU

Transatlantic Policy Interactions

How will EMU alter interactions between its members and the rest of the world? Creating a European Central Bank (ECB) clearly will have implications for strategic interactions among the various monetary authorities, but the directions of those changes are less clear. Moreover, changes in the responsiveness of European monetary policy may also affect the behaviour of fiscal authorities both inside and outside Europe. In Discussion Paper No. 1643, **Barry Eichengreen** and **Fabio Ghironi** analyse US-European policy interactions under different assumptions about the policy-making regime and the nature of the fiscal environment. They contrast the standard Keynesian case with the 'anti-Keynesian' case suggested by recent arguments that, in the current European context, government spending cuts could well be expansionary because they will reduce tax distortions.

The authors show that, in this anti-Keynesian case, EMU may – surprisingly – enhance monetary and fiscal discipline in Europe and stabilize employment in the face of supply shocks. The ECB and central banks outside Europe, however, will have little incentive to coordinate their responses to such shocks, notwithstanding the desires of governments (the fiscal authorities) for such coordination. Moreover, if the French and German governments were to coordinate their fiscal policies – as is widely assumed to be required under EMU – governments and central banks on both sides of the Atlantic could be worse off. The results for the Keynesian case are different: EMU may reduce monetary discipline; the ECB and central banks outside Europe will wish to coordinate their response to supply shocks; and the ECB will want European governments to coordinate their policies. The paper's conclusions point to the enhanced importance of

institutional design as a means of dealing with conflicts that might arise among policy-makers.

How Will Transatlantic Policy Interactions Change with the Advent of EMU?

Barry Eichengreen and Fabio Ghironi

Discussion Paper No. 1643, May 1997 (IM)

Housing Insurance

A Natural Monopoly?

There is ample evidence that in the housing-insurance market, state monopolies outperform private insurers in a competitive environment. For example, recent observations from Germany and Switzerland show housing insurance damage rates and prices rising dramatically after the transition from state monopolies to competitive environments. In Discussion Paper No. 1644, **Winand Emons** provides an explanation for these seemingly counterintuitive observations. He considers an insurance market where houses can be of either high- or low-damage probability. Insurers use imperfect tests to determine a building's damage type. Given this framework, the insurance market is a natural monopoly: if more than one insurer is active, high-risk homeowners continue to apply to insurers until they are eventually assigned to a low-risk class.

The next question is whether the natural insurance monopoly is sustainable (in the Baumol-Panzar-Willig sense). Since the incumbent monopolist has the lowest possible damages, should it not be able to charge a price that, although high enough to preclude losses, is also low enough to prevent profitable entry? Emons's model shows that if the investment cost of reducing a building's risk rating is below a threshold value the natural monopoly is indeed sustainable, whereas if the cost is above this critical value this is no longer the case. Thus, when the monopoly is not sustainable, the model explains the stylized facts that as long as the monopoly is protected, damages are low and investments in fire prevention, etc., are high. When the market is opened to competition, there is inefficient entry and all the damage rates rise, because homeowners invest too little in their buildings.

Imperfect Tests and Natural Insurance Monopolies **Winand Emons**

Discussion Paper No. 1644, May 1997 (IO)

Industrial Organization

Contingent Ownership Structures

Contingent ownership structures, in which one party might own a firm initially but another party is given the option to buy the firm later at a predetermined price, are prevalent in joint ventures, particularly in the form of warrants and convertible securities. In Discussion Paper No. 1645, **Georg Nöldeke** and **Klaus Schmidt** offer a new explanation for this option-to-own contract. They show that if the parties have to make relationship-specific investments and if they invest sequentially, then options on ownership rights can be used to induce both parties to invest efficiently.

The authors model the idea in the following terms. Suppose A owns a firm initially, but B has the option to buy it after A has undertaken an investment but before the surplus is realized. For example, A may have to invest in the development of a new product or a new production technology. Thereafter, B may have to invest in the marketing of the good to be produced by the firm. The more A invests, the higher will be B's valuation of the firm. Thus, if the option price is chosen appropriately, B will exercise the option to buy if and only if A's investment is sufficiently high. Not only is A induced to invest the optimum amount – no more, no less – but so also is B, at least in certain circumstances. The authors show that an option contract is robust with respect to the possibility of renegotiation. Finally, they introduce uncertainty into the model, and show that contingent ownership options still generate first-best outcomes, provided the uncertainty is not too large.

Sequential Investments and Options to Own **Georg Nöldeke and Klaus M Schmidt**

Discussion Paper No. 1645, May 1997 (IO)

Exchange Rates

Volatility and Country Size

European monetary integration is without historical precedent and, hence, surrounded by uncertainties. The size of the zone created by EMU, however, will be bigger than European countries taken separately. In Discussion Paper No. 1646, **Philippe Martin** analyses how country size affects exchange-rate policy and volatility and uses the theoretical and empirical results to describe how the incentives to use monetary policy to influence the exchange rate may change under EMU. Martin develops a two-country model in which unanticipated exchange-rate changes can help countries stabilize their economy when shocks occur. A large country will have less incentive than a small country to use monetary policy strategically to stabilize its economy, because its output depends less on the exchange rate. Hence large countries should have more stable exchange rates than small ones. For 'very small' countries, however, exchange-rate variability causes more output variability than domestic shocks, and such countries will use monetary policy to stabilize their exchange rates.

Given the size of the EMU zone, this 'hump-shaped' relation between exchange-rate volatility and country size suggests that the euro exchange rate should be more stable than existing European currencies. Tested on a cross-section of 210 bilateral OECD-country exchange rates in 1980–95, the hypothesis seems to be confirmed. Martin also uses the model to make a 'back-of-the-envelope' prediction of dollar/euro variability compared with the past dollar/Deutsche mark rate. He predicts lower volatility, with the decrease more important the larger the size of EMU.

The Exchange Rate Policy of the Euro: A Matter of Size?

Philippe Martin

Discussion Paper No. 1646, May 1997 (IM)

Macroeconomics

Explaining Real Interest-Rate Trends

In the early 1980s, real interest rates appeared to be very high, following a period of low, even negative, real rates in the inflationary 1970s. Several possible causes of high real rates have been considered, including the effects of US fiscal expansion, tight monetary policies around the world, higher profitability of capital investment and shifts in portfolios.

In Discussion Paper No. 1647, **John Driffill** and **Andrew Snell** use a structural time-series analysis to analyse the properties of *ex-ante* real interest rates of the five major OECD economies (France, Germany, Japan, the United Kingdom and the United States) in relation to temporary and permanent shocks to real output over the period from 1957 to 1994. The relationships of rates to these shocks appear to be qualitatively consistent with predictions of stochastic general-equilibrium models of business cycles driven by both real and nominal disturbances. Real and nominal shocks originating in the United States are found to be the most important causes of persistent movements in *ex-ante* real interest rates, but of the two only nominal shocks cause movements in rates that are coherent across all countries. Further results indicate that the rise in real interest rates experienced by these countries in the early 1980s was due mainly to nominal shocks in all five countries; real shocks played little or no role.

Real Interest Rates, Nominal Shocks, and Real Shocks

John Driffill and Andrew Snell

Discussion Paper No. 1647, May 1997 (IM)

Stock Markets

Bid-Ask Spreads and 'Fair' Prices

On the New York Stock Exchange, bid and ask prices for individual stocks are set by specialists who enjoy the exclusive right to determine these prices. At the opening of trading, the imbalance of market orders is private information to the specialist, who determines a 'fair' price to clear all market orders and can add a market order. This exclusive right to determine opening prices grants market power to the specialist. Recent empirical work suggests that specialists can exploit their market power profitably in short-term trading. Despite this 'monopoly' position in determining prices for a particular security, however, the specialist faces potential competition from trades which circumvent the specialist, from trades in related securities and from other sources. In Discussion paper No. 1648, **Thomas Gehrig** and **Matthew Jackson** study the indirect competition between specialists in an effort to identify the conditions under which such competition narrows the bid-ask spreads and improves welfare.

The authors' model shows that, for some constellations of initial portfolio holdings and asset covariance, it is socially preferable to have competing specialists, while for others, it is socially preferable to have their actions coordinated (or to have one specialist controlling several assets). In a simple factor model, the optimal specialist-control structure depends on whether the assets trade as substitutes or complements. In some situations, it is beneficial to have specialist power concentrated within industries, but in other situations, across industries. In yet other situations, it is preferable for power not to be concentrated at all.

Bid-Ask Spreads with Indirect Competition among Specialists

Thomas Gehrig and Matthew Jackson

Discussion Paper No. 1648, May 1997 (FE)

Corporate Finance

Multiple Bank Borrowings

A puzzling feature of the structure of bank-firm relations in some countries is that firms generally borrow from many banks, rather than – as might be expected – from a single informed lender. Single-bank borrowing appears typical in the United States, but Italian firms usually borrow from a number of different banks, with even quite small firms averaging around ten banking relations. The contrast is the more remarkable given the similar regulatory environments, with direct ownership of shares by commercial banks prohibited by law in both countries. In Discussion Paper No. 1649, **Enrica Detragiache**, **Paolo Garella** and **Luigi Guiso** address two questions: How do firms benefit from multiple banking relations? And why do these benefits apparently outweigh the costs in some countries, but not in others?

The authors develop a model in which firms may choose multiple banking relationships to reduce the risk that financing might be denied because of liquidity problems in 'relationship banks'. Inability to refinance from relationship banks signals unfavourable quality information about a firm's project, which may also prejudice credit from other banks. The model shows that, if the 'lemons' problem is severe, it is optimal to establish a relationship with more than one bank in spite of higher transaction costs. The severity of this 'lemons' problem depends directly on the inefficiency of bankruptcy procedures and inversely on the fragility of the banking system. The paper concludes with a comparison of bank-firm relationships in Italy and the United States. The evidence is that bankruptcy costs are significantly higher, and banks less fragile, in Italy than in the United States, suggesting that the factors identified by the theoretical model are relevant in practice.

Multiple Versus Single Banking Relationships
Enrica Detragiache, Paolo G Garella and Luigi Guiso

Discussion Paper No. 1649, May 1997 (FE)

Portfolio Management

Characterizing Risk Aversion and Prudence

The concept of risk aversion has proved extremely fruitful in the analysis of economic behaviour under uncertainty in general, and investors' optimal portfolio management in particular. An investor's risk aversion summarizes his attitude to the trade-off between risk and return. The related concept of prudence describes the investor's attitude to risks over time. It measures the strength of the precautionary saving motive, i.e. the motive to save when confronted with unavoidable uncertainty about future income. In Discussion Paper No. 1650, **Fatma Lajeri** and **Lars Tyge Nielsen** investigate risk aversion and prudence in the mean-variance framework, where the investor's preferences can be expressed in terms of the mean and the variance (or standard deviation) of future wealth or consumption.

The authors show that, in order to determine whether one decision-maker is more risk averse than another, it is sufficient to consider their attitudes towards a given two-parameter family of risks. When all risks belong to this family, useful comparisons of risk aversion can be made even in situations of 'background risk'. Since expected utility becomes a function of mean and standard deviation, risk aversion can be measured in a natural and intuitive way by the marginal trade-off between mean and standard deviation. This trade-off measures how big an increase in expected wealth is required by the investor to compensate for a given increase in risk. A utility function exhibits decreasing risk aversion, for example, if and only if, this slope is a decreasing function of the mean. Finally, the concept of

prudence is used to show that in the case of normal distributions, utility is concave as a function of variance and mean, if and only if, it exhibits decreasing prudence.

Parametric Characterizations of Risk Aversion and Prudence

Fatma Lajeri and Lars Tyge Nielsen

Discussion Paper No. 1650, May 1997 (FE)

Investment Behaviour

Analysing Risk Aversion

The standard paradigm for analysing economic behaviour under uncertainty is the expected-utility hypothesis. This assumes that a rational investor's choices maximize the expected value of a utility function, the shape of which reflects the investor's attitudes to risk. It follows that optimal investment behaviour depends on how risk averse investors are. In analysing risk aversion, however, economists have relied on assumptions that go beyond the rationality of investor choice based on the existence of this theoretical utility function. Risk aversion is usually expressed instead in terms of 'Arrow-Pratt coefficients', which are simple quantitative measures of investors' degree of risk aversion, depending on their level of wealth. Such measures are not always meaningful, however, because the utility function may not be sufficiently smooth to allow for their computation.

In Discussion Paper No. 1651, **Lars Tyge Nielsen** seeks to resolve this problem for the case of monotone risk aversion. Two varieties of risk aversion – namely absolute and relative – are commonly distinguished, the difference being whether the risks considered are measured in dollar (absolute) terms, or in percentage (relative) terms. Nielsen observes first that decreasing (or increasing) risk aversion is a property only of the investor's choice behaviour. He then asserts that, where this property is present, monotone risk aversion can be expressed also in terms of the Arrow-Pratt coefficients. Hence monotone absolute or relative risk aversion, defined in purely behavioural terms and combined with the expected-utility hypothesis, implies that the Arrow-Pratt coefficients of risk aversion make sense, can be computed and are monotone. Nielsen further argues that his analysis permits a complete characterization of all utility functions, whether embodying increasing or decreasing absolute or relative risk aversion.

Monotone Risk Aversion

Lars Tyge Nielsen

Discussion Paper No. 1651, May 1997 (FE)

Portfolio Selection

Revisiting the Optimal Portfolio

Standard analysis of dynamic optimal portfolio management suggests that optimal portfolios comprise three elements: (1) a 'growth-optimal' component, constructed to maximize the long-run expected rate of return; (2) depending on the degree of risk aversion, a short-term low-risk investment component; (3) a number of hedge-fund holdings. The market investment opportunities are described in statistical terms by short-term expectations, variances and covariances of the returns to the available securities, and investors are assumed to hedge against any possible changes in these variables.

In Discussion Paper No. 1652, **Lars Tyge Nielsen** and **Maria Vassalou** seek to simplify the theory by providing a new characterization of the changes in investment opportunities against which investors need to protect themselves. They argue that, at most, investors need to hedge against changes that affect the global trade-off between risk and return. This trade-off is described by 'the instantaneous capital market line' (or the 'mean-variance efficient frontier'), which shows, at each instant of time, the maximum expected return an investor can get, based on how much risk he is willing to accept. The authors argue that if the instantaneous capital market line is constant, then investors will simply hold a possibly time-varying combination of two funds that span the line: the riskless asset and the growth-optimal portfolio. It follows that if investors deviate from the two-fund strategy and hold additional hedge funds, they are doing so to hedge against changes in the capital market line. The authors further show that, by aggregating over investors, it is possible to derive a market-wide capital asset pricing model (CAPM).

Portfolio Selection and Asset Pricing with Dynamically Incomplete Markets and Time-Varying First and Second Moments
Lars Tyge Nielsen and Maria Vassalou

Discussion Paper No. 1652, May 1997 (FE)

EMU

Monetary and Fiscal Policy Interactions

The fiscal criteria surrounding the transition to EMU raise many questions about the behaviour of monetary and fiscal authorities. For example, how do fiscal authorities respond to government debt? And how do tight (or loose) fiscal and monetary policies impinge on each other? To address such questions, **Jacques Mélitz**, in Discussion Paper No. 1653, analyses pooled data for 19 OECD countries, and separate data for 14 EU members. Mélitz measures monetary policy by the authorities' intervention rate on the money market and fiscal policy by the primary surplus as a percentage of potential output. Both

policies are assumed to depend partly on initial information and partly on current developments.

Three basic results emerge. First, rising government debt provokes remedial fiscal policy action, not only through taxes but also through decreased expenditures. Second, monetary and fiscal policy interact negatively in that loose fiscal policy leads to tight monetary policy and vice versa. Third, both monetary and fiscal policy respond in a stabilizing manner to the business cycle with a one-year lag. The response of fiscal policy to current economic activity is surprising. Taxes move in a stabilizing manner, but governmental expenditures do not. Mélitz concludes that there is less strength in automatic stabilisers and a greater role for discretionary fiscal policy than is traditionally assumed. This has conflicting implications for EMU – the greater relative importance of discretionary fiscal policy leaves more room for fiscal-policy coordination, but the fiscal criteria of the Maastricht Treaty and the Stability Pact in fiscal policy can be expected to limit discretionary behaviour more than automatic policy.

Some Cross-Country Evidence about Debt, Deficits and the Behaviour of Monetary and Fiscal Authorities
Jacques Mélitz

Discussion Paper No. 1653, May 1997 (IM)

Industrial Organization

Explaining Research Joint Ventures

Research Joint Ventures (RJVs) are often associated with the creation of a more cooperative business environment and are financially supported by governments in both the United States and Europe. The literature on RJVs has emphasized internalizing spillovers from R&D activities and cost-sharing as motives for firms to engage in research cooperatives. In Discussion Paper No. 1654, **Hendrik Röller**, **Mihkel Tombak**, and **Ralph Siebert** develop two additional explanations: product market complementarities, and firm heterogeneity.

The authors analyse a model of RJVs with asymmetric firms and differentiated products. They consider how product differentiation affects firms' incentives to cooperate on research and show that firms producing complementary goods are more likely to form an RJV. They also argue that, on the one hand, because RJVs affect market structure and market power, firms inside an RJV may have increasing market power at the expense of outside firms, thus leading to an asymmetric industry structure. On the other hand, market power considerations imply that large firms have less incentive to form an RJV with smaller firms, thus creating further asymmetries. The authors go on to test these various explanations for RJV formation using data available through the US National Cooperative Research Act. They conclude: (1) that cost-sharing is an important

incentive for RJVs; (2) that firm size affects the likelihood of RJV formation; and (3) that firms producing complementary products do appear more likely to form an RJV.

Why Firms Form Research Joint Ventures: Theory and Evidence
Lars-Hendrik Röller, Mihkel M Tombak and Ralph Siebert

Discussion Paper No. 1654, May 1997 (IO)

Developing Country Debt

Creditor Bank Size and Secondary Market Prices

Since secondary market prices for government and government-guaranteed debt are often taken as indicators of the value of the outstanding debt of developing countries, the factors influencing the value of a country's debt and, hence, secondary market prices are clearly of importance. Various theoretical and empirical determinants have been suggested, but these have not hitherto included variations across countries in the characteristics of their creditor banks. Creditor banks are far from being a uniform group, and one of many ways in which they differ is in their relationships with debtor countries. In Discussion Paper No. 1655, **Raquel Fernández** and **Sule Özler** examine the possibility that differences in the degree to which a country's debt is split between large money-centre banks (which often have branches in the debtor countries) and numerous smaller banks can affect secondary market prices.

Using quarterly data for the period 1986–8 for 41 countries (21 of which had traded debt), the authors find that higher debt concentration in the larger banks leads to significantly lower secondary market discounts. This suggests that as the degree of concentration increases, secondary market prices increase. The authors offer a theoretical explanation for this finding in the context of a bargaining model that endogenizes the level of the maximum penalty that banks can credibly threaten to impose on a recalcitrant debtor. They show that the banks' bargaining power increases with the degree of debt concentration, which, in turn, increases repayment and secondary market prices (and hence lowers discounts).

Debt Concentration and Bargaining Power: Large Banks, Small Banks and Secondary Prices
Raquel Fernández and Sule Özler

Discussion Paper No. 1655, June 1997 (IM)

Regional Integration

Sequencing Trade Liberalization and Labour Mobility

Imperfect labour mobility among nations and increased economic integration are hallmarks of the EU. In Discussion Paper No. 1656, **Rodney Ludema** and **Ian Wooton** examine the effects of these two characteristics on industrial concentration. The authors note that economic geography models suggest that increasing returns in manufactures can lead to industrial agglomeration as workers migrate to an industrial core, thus creating demand linkages. Where there is imperfect labour mobility, however, the usual outcome is incomplete agglomeration with some manufacturing retained in the periphery of the region. This would suggest that, compared with the United States, the lower labour mobility in Europe should result in less concentrated industry and higher wage differentials among countries.

The authors consider the consequences for this argument of trade liberalization. They find that liberalization may result in three phases of industrial production: diversification, followed by partial agglomeration, with a final return to diversification. These effects are qualitatively different from the case when labour is perfectly mobile, both in the temporary nature of the agglomerated equilibria and in the gradual adjustment that takes place as industry concentrates then diversifies. This suggests a sequential approach to integration, with trade barriers being eliminated prior to reductions in impediments to factor mobility. This would avoid the possible swings to and from agglomeration that might otherwise arise from consequential labour movements. Once free trade in manufacturing is established, however, barriers to factor mobility could be reduced with no ill effects. This policy prescription matches what is already followed by the EU in admitting new member states.

Regional Integration, Trade and Migration: Are Demand Linkages Relevant in Europe
Rodney D Ludema and Ian Wooton

Discussion Paper No. 1656, June 1997 (HR/IT)

Transition Economies

Why Chinese Officials Support Private Firms

Local officials in China have strongly supported new private firms – which have been the key source of economic growth – yet other officials in transition countries (former USSR and Eastern Europe) have often strongly hindered them. In Discussion Paper No. 1657, **Roger Gordon** and **David Li** argue that these differences in official behaviour are due to differing sources of government revenue. Since officials can draw on public funds for personal use, they have a

strong financial incentive to increase future tax revenue. In China, local tax revenue comes primarily from profits taxes and fees on new entrants, while in Eastern Europe it has come largely from taxes on old state enterprises. Hence the incentives for Chinese officials to raise the profits of new firms, and for officials in other transition economies – where collection of revenue from new private firms remains difficult – still to favour financial assistance to old state firms.

The key alternative explanation for the obstructive behaviour of East European officials is voter pressure. The authors argue, however, that if voters recognise that elected officials face strong incentives to aid existing state firms, they will elect parties whose ideology supports such firms. The explanation is that, under such a government, bribes will be fewer and smaller and efficiency will improve. Thus incentives created by the existing tax system affect the behaviour of both voters and officials. Altering the source of tax revenue such that private firms are relatively more important will increase government interest in private firm performance, as the Chinese experience suggests. The best way to induce officials to support new private firms is to raise the effective tax rate on these firms.

Taxes and Government Incentives: Eastern Europe versus China
Roger H Gordon and David Li

Discussion Paper No. 1657, June 1997 (TE)

International Trade

The Benefits of Barter

During the international debt crisis of the 1980s, the volume of international barter trade increased substantially. More recently, Russia and the former Soviet Republics turned to more international and domestic barter when their creditworthiness deteriorated. Barter is commonly explained by shortages of cash and credit. In Discussion Paper No. 1658, however, **Dalia Marin** and **Monika Schnitzer** use institutional analysis to argue that this explanation is misleading and that agents might choose to pay in goods rather than money to solve incentive problems, which would otherwise prevent trade from taking place at all.

The authors argue that, since goods can be more easily marked as collateral, they can have superior credit enforcement properties to 'a promise of money'. Thus goods can act as 'special purpose money' and can be used as a medium of exchange in barter, provided they have certain attributes. Specifically, they should be relatively liquid and exhibit a low degree of anonymity. Basic goods are more liquid than consumer or investment goods because of the absence of asymmetric information problems concerning quality. This explains why the pattern of specialization in barter trade differs significantly from that in conventional trade. The authors use survey data on 230 barter contracts signed by OECD firms between 1984 and 1988 to test

whether the liquidity of the goods traded is affected by the country's relative creditworthiness. They find that the larger the debtor's incentive problem in the credit relationship, the more likely the collateral good used as payment will rank high on the liquidity scale and low on the anonymity scale. Thus East European countries have used investment goods in barter, whereas less creditworthy developing countries predominantly use the most liquid goods.

The Economic Institution of International Barter
Dalia Marin and Monika Schnitzer

Discussion Paper No. 1658, June 1997 (IT)

Regional Integration

FDI Impacts

The relationship between regional integration and foreign direct investment (FDI) is complicated by the multidimensional character of the issue. In Discussion Paper No. 1659, **Magnus Blomström** and **Ari Kokko** present a conceptual framework for identifying what to expect from any specific regional integration agreement (RIA) and case studies of the effects of three different kinds of RIAs involving north-north, north-south and south-south integration. They contend that the stronger the induced environmental change, and the stronger the locational advantages of the country or industry, the more likely it is that the integration agreement will lead to inflows of FDI from outside and from within the region.

The empirical evidence in the paper provides some support for this hypothesis. First, the Canada-US Free Trade Agreement (CUSFTA), where the consequent environmental change was limited and there was already substantial cross-investment, illustrates a case where the RIA appeared to have little impact on FDI inflows to Canada. Second, Mexico's accession to the North American Free Trade Agreement (NAFTA), which was accompanied by significant institutional reforms and major new market opportunities, had a profound impact on FDI inflows. Third, evidence from regional integration in the Southern Cone, though patchy, shows that a strong investment expansion coincided with the growth of MERCOSUR. In this case, however, the countries with the strongest locational advantages – Argentina and Brazil – have been the main beneficiaries, and the authors suggest that their improving macroeconomic stability may have been a more important determinant than regional integration. Thus the findings suggest that the most positive impact on FDI has occurred when regional integration agreements have coincided with domestic liberalization and macroeconomic stabilization in the member countries.

Regional Integration and Foreign Direct Investment
Magnus Blomström and Ari Kokko

Discussion Paper No. 1659, June 1997 (IT)

European Research Workshop in International Trade

CEPR's annual European Research Workshop in International Trade (ERWIT), organized jointly with the Tinbergen Institute of Erasmus Universiteit, was held in Rotterdam on 25/28 June 1998. The workshop organizers were **Richard E Baldwin** (Graduate Institute of International Studies, Geneva, and CEPR), **Joseph Francois** (Erasmus Universiteit, Rotterdam, and CEPR), **Anthony J Venables** (London School of Economics and CEPR) and **Ian Wooton** (University of Glasgow and CEPR). The following papers were presented:

'Agglomeration and Economic Development: Import Substitution vs. Trade Liberalization', **Diego Puga** (CEPR, London School of Economics and CEPR) and **Anthony J Venables** (London School of Economics and CEPR)

'Economic Geography and Comparative Advantage', **Rikard Forslid** (Lunds Universitet and CEPR) and **Ian Wooton** (University of Glasgow and CEPR)

'Agglomeration and Trade Revisited', **Gianmarco Ottaviano** (Università di Bologna, CORE, Università Bocconi, Milano, and CEPR) and **Jacques-François Thisse** (CORE, Université Catholique de Louvain, CERAS-ENPC, Paris, and CEPR)

'Self-reinforcing Agglomerations? An Empirical Industry Study', **Karen Helene Midelfart-Knarvik** (Norwegian School of Economics and Business Administration, Bergen) and **Frode Steen** (Norwegian School of Economics and Business Administration and Foundation for Research in Economics and Business Administration, Bergen)

'Tariff Strategies and Small Open Economies', **Pascal Raimondos-Møller** (EPRU, Institute of Economics, Copenhagen) and **Alan D Woodland** (University of Sydney)

'Importing Jobs and Exporting Firms? A Close Look at the Labour Market Implications of Italy's Trade and Foreign Investment Flows', **Riccardo Faini** (Università degli Studi di Brescia and CEPR), **Anna M Falzoni** (Università degli Studi di Bergamo and Università Bocconi, Milano), **Marzio Galeotti** (Università degli Studi di Bergamo), **Rodolfo Helg** (LIUCC and Università Bocconi, Milano) and **Alessandro Turrini** (CESPRI, Università Bocconi, Milano, CORE and Università degli Studi di Bergamo)

'Job Creation, Job Destruction, and the International Division of Labour', **Marion Jansen** (Universitat Pompeu Fabra, Barcelona) and **Alessandro Turrini** (CESPRI, Università Bocconi, Milano, CORE and Università degli Studi di Bergamo)

'Victims of Progress: Economic Integration, Specialization, and Wages for Unskilled Labour', **Joseph Francois** (Erasmus Universiteit, Rotterdam, and CEPR) and **Douglas Nelson** (Tulane University, New Orleans and CREDIT, Nottingham University)

'Non-Scale Growth in an Open Economy', **Theo S Eicher** (University of Washington, Seattle) and **Stephen J Turnovsky** (University of Washington, Seattle)

'A Two-Region Model of Redistribution, Migration, and International Trade', **Harry Huizinga** (Tilburg University and CEPR)

'International Competition for Multinational Investment', **Jan I Haaland** (Norwegian School of Economics and Business Administration, Bergen, and CEPR) and **Ian Wooton** (University of Glasgow and CEPR)

'Capital Market Integration, Growth and Income Distribution: A Dynamic Analysis', **Jean-Marie Viaene** (Tinbergen Institute and Erasmus Universiteit, Rotterdam) and **Itzhak Zitcha** (Tinbergen Institute and Tel Aviv University)

'Foreign Direct Investment Responses of Firms Involved in Antidumping Investigations', **Bruce Blonigen** (University of Oregon)

'Will Labour Intensive Industries Always Locate in Labour Abundant Countries?', **Mary Amity** (La Trobe University, Australia)

'Competition and Trade Policy in an Open Economy', **Joseph Francois** (Erasmus Universiteit, Rotterdam, and CEPR) and **Henrik Horn** (World Trade Organization, Geneva, and CEPR)

'Did Late 19th Century U.S. Tariffs Promote Infant Industries? Evidence from the Tinplate Industry', **Douglas A Irwin** (Dartmouth College)

'On the Empirical Distribution of Revealed Comparative Advantage 1: Shape and Time', **Jeroen Hinloopen** (De Nederlandsche Bank) and **Charles van Marrewijk** (Erasmus Universiteit, Rotterdam)

Assessing Northern Policies

Since direct migration controls are often ineffective in the medium to long run, how can industrial countries best design policies to discourage massive, and largely unwanted, population flows from developing countries? In Discussion Paper No. 1660, **Ricardo Faini, Jean-Marie Grether and Jaime de Melo** use simulation analysis to explore the efficacy of alternative direct and indirect mechanisms for reducing migration flows. For example, foreign aid can boost growth in developing countries directly, thereby reducing the incentive to emigrate, and trade liberalization and regional trade arrangements can limit the incentive indirectly by fostering factor price convergence.

The authors consider two archetypal developing economies – one low income (LI), one middle income (MI) – and investigate two issues. First, are direct and indirect measures qualitatively different in their effects on southern migratory pressures? Second, does a given policy have different effects in LI and MI economies? Their simulation results show that direct measures (including increased migration costs) do alleviate south-north migratory pressures for both archetypes. Owing to differential exchange-rate movements, however, trade liberalization elicits different migratory responses from LI and MI economies. In LI economies, liberalization is likely to be accompanied by exchange-rate depreciation and increased migratory pressure. The opposite is true for MI economies. Overall, the paper suggests that trade and migration policies cannot be assessed separately. The authors conclude that those opposing trade liberalization with developing countries should reflect on the fact that protection breeds further migration, both by discouraging labour-intensive exports in sending countries and by boosting the demand for foreign labour in receiving countries.

Globalization and Migratory Pressure From Developing Countries: A Simulation Analysis
Ricardo Faini, Jean-Marie Grether and Jaime de Melo

Discussion Paper No. 1660, June 1997 (IT)

Trade and Immigration

Substitutes or Complements?

Whether trade and factor mobility are substitutes or complements is a question of obvious policy relevance to governments concerned with migration in a globalizing economy: if they are substitutes, then trade liberalization between rich and poor countries will reduce international migration pressures. There is, however, no unambiguous theoretical answer to the question. Moreover, surprisingly few efforts have been made to investigate it econometrically. In Discussion Paper No. 1661, **William Collins, Kevin O'Rourke and Jeffrey Williamson**

attempt to find an empirical answer using data for the Atlantic economy between 1870 and 1940. Given a regime switch around World War I, they anticipate greater complementarity before that date, and a substitution relationship following the closure of the 'new world' frontiers in the inter-war period.

The authors apply three research strategies. First, they regress the volume of trade on the volume of international capital and labour flows, average tariffs and transport costs for ten countries. Second, they look at longer-run relationships by treating the ten countries as a panel and using decadal averages. They regress the ratio of trade to GDP on the same variables, together with a measure of the gap between countries' factor endowment and factor consumption points. In the third strategy, New World countries are assigned a numeric score, depending on how restrictive they were with respect to trade and immigration. These are then regressed on a number of explanatory variables. The authors reject the thesis that trade and factor mobility were substitutes for the period examined, although complementarity is not ruled out. They note, however, that policy-makers never behaved as if they viewed trade and immigration as substitutes.

Were Trade and Factor Mobility Substitutes in History?
William J Collins, Kevin H O'Rourke and Jeffrey G Williamson

Discussion Paper No. 1661, June 1997 (HR)

Transition Economies

Characteristic Features

Both before and during economic reform in the transition economies, distributional concerns played an important role in policy. Before the transition, governments pursued strong distributional objectives, mainly by direct controls over state-enterprise wage rates and hiring decisions, yielding a highly compressed wage distribution. During the reform they maintained similar controls, but had to take into account competition from the new, and largely control-free, non-state sector. In Discussion Paper No. 1662, **Roger Gordon and David Li** explore this competition between state and private firms to derive a series of common attributes of transition economies.

The authors note that the starting point is low productivity in state firms occasioned by high implicit tax rates. During reform, skilled workers are attracted by new private firms, leaving the least skilled in state firms. Private-enterprise output is far higher, because productivity levels are higher and the comparatively lower tax rates generate higher incentives for workers. The shift from state to private firms, however, leads to lower tax revenue which can be remedied only by appropriate tax and transfer adjustments. Private firms are often prevented (through budgetary transfers) from laying off unskilled workers, who are paid wages above their marginal product. Two opposing forces leave the

consequences for state productivity ambiguous: there is a clear tendency for a drop in the level of skills in the state sector; but declining implicit taxes might provide improved incentives. Many of these attributes result from redistribution via transfers between firms rather than through income tax and welfare programmes, as in most market economies. Until such tax/transfer systems are put in place, these are likely to remain characteristic features of transition economies.

Government Distributional Concerns and Economic Policy During the Transition from Socialism
Roger H Gordon and David D Li

Discussion Paper No. 1662, June 1997 (TE)

Portfolio Performance Evaluation

Testing Stochastic Discount Factors

The increased attention now being paid to portfolio performance evaluation can be traced to two developments in the asset-pricing literature. The first is the use of efficient benchmark portfolios that provide yardsticks for comparison of portfolio returns. This is a useful tool, but it can cause ambiguity in the evaluation if inefficient benchmarks are used. The second development is the use of conditional information variables in tests of asset-pricing theories. This points to the fact that, when assessing expected performance, allowance should be made for returns and risk to vary over time. The use of some dynamic analysis is thus deemed important.

In Discussion Paper No. 1663, **Magnus Dahlquist** and **Paul Söderlind** seek to build on these developments by constructing a 'stochastic discount factor' – which is based on the no-arbitrage assumption and which prices all benchmarks – and applying it to portfolio performance evaluation. The authors assert that this is equivalent to investigating whether adding additional assets (mutual funds) enlarges the opportunity set and can ultimately help distinguish superior from normal returns. They then discuss performance evaluation in this setting, using efficient benchmarks and allowing for dynamic strategies, and they relate it to traditional mean-variance analysis. They go on to examine the small sample properties of generalized method of moment (GMM) estimators, using a series of Monte Carlo simulations. They find evidence in favour of using weekly non-overlapping returns, instead of monthly returns. Finally, the authors apply the methodology to Swedish-based mutual funds, offering an evaluation that allows for passive as well as dynamic strategies, but they cannot find strong evidence of non-neutral performance. The evidence that funds may have had superior performance over the sample period becomes slightly stronger, however, when the conditional (instead of unconditional) evaluation is undertaken.

Evaluating Portfolio Performance with Stochastic Discount Factors

Magnus Dahlquist and Paul Söderlind

Discussion Paper No. 1663, June 1997 (FE)

Fiscal Policy

Evaluating Budgetary Rules

Policy-makers' concern with fiscal deficit reduction is heightened by the perception that the conduct of fiscal policy may have an inherent bias, of both an 'institutional' and a 'political' nature, towards budget deficits. These issues have shaped the fiscal policy debate in both industrial and developing countries and – as exemplified by the balanced budget proposal in the United States, the Maastricht and 'stability pact' criteria for EMU in the EU – have led to consideration of legislative measures to constrain governments' policy decisions. In Discussion Paper No. 1664, **Gian Maria Milesi-Ferretti** discusses the literature on the political economy of budget deficits and fiscal rules and examines a number of budgetary reform proposals put forward in Italy.

The literature justifies the imposition of fiscal rules on two grounds: first, because governments with a short and finite life span are myopic; second, because of unresolved disagreements over who should bear the costs of fiscal adjustment. The paper reviews both the theoretical and empirical literatures on two already extant ideas for improving fiscal discipline, namely numerical limits on fiscal variables and rules and regulations governing the budgetary process. With regard to the proposals to reform Italian budgetary institutions, the author concludes that simple reliance on a constitutional rule on budget deficit targets would have limited effectiveness, since the Italian problem is defined by lack of transparency and accountability in the budgetary process and difficulty in monitoring and controlling spending and tax decisions.

Fiscal Rules and the Budget Process
Gian Maria Milesi-Ferretti

Discussion Paper No. 1664, June 1997 (IM)

Bank Failures

Interactions Between Market Structures and Portfolio Uncertainty

In Discussion Paper No. 1665, **Ramon Caminal** and **Carmen Matutes** analyse the impact of market structure on the probability of banking failure when banks' loan portfolios are subject to aggregate uncertainty. Given that, in a dynamic set-up, the mechanism that determines optimal levels of risk is well understood, the authors choose to adopt a static approach. Their model combines three ingredients.

First, they emphasize that the bank can reduce informational asymmetries by monitoring borrowers once long-run ties have been established. Second, they assume that monitoring and credit rationing are imperfect substitutes from the point of view of the bank. Last, they note that large loans are more sensitive to aggregate uncertainty.

The authors use this model to examine two extreme market structures: monopoly and Bertrand competition. They find, unsurprisingly, that when banks enjoy greater market power, they set higher lending rates, although the interest-rate differential between monopoly and competition is smaller than in the case of complete information. The relationship between interest rates and loan sizes depends on the net effect of two countervailing forces: (1) for a given level of monitoring, a higher rate of interest worsens the firm's incentive problem which, in turn, tightens the credit constraint; and (2) a higher interest rate induces banks to exert more monitoring effort and thus decreases the proportion of credit-constrained borrowers. If the second effect is sufficiently strong, they obtain the counterintuitive result that higher lending rates are associated with higher average investment levels.

Bank Solvency, Market Structure and Monitoring Incentives
Ramon Caminal and Carmen Matutes

Discussion Paper No. 1665, June 1997 (IO)

Wage Rigidity

Nominal Contracts in the Presence of Risk

Anominal price rigidity is a central feature of 'New Keynesian' macroeconomics and of most applied macromodels. Work on the microfoundations of nominal wage contracts has followed two strands, one focused on the problems of indices, the other on the costs of contract transaction. In Discussion Paper No. 1666, **Patrick Minford** and **Eric Nowell** pursue the first strand, but in a somewhat different way, looking for a theoretical justification of nominal wage contracts in household diversification of risk.

Minford and Nowell start by arguing that wage indexation to the general consumer price index is wrong in principle because consumer tastes are heterogeneous, implying that this is not the correct index for any individual consumer. Instead, either employers could monitor employees' spending patterns separately (though this would be costly), or individuals could specify in advance a set of weights for their price index and adjust as their spending patterns change. The authors apply these assumptions to a model of a 'typical' household and firm plus a government. They further assume that households do not resort to financial markets to smooth their living standards because of uncertainty and risk-aversion. Firms and the government, however, transact in all markets. The authors ask whether wage contracts are nominal, indexed or neither, as the variability of

nominal shocks rises relative to that of real shocks. Their model predicts an overwhelmingly nominal wage structure. Assuming contracts are decided by households on their own, only when nominal shocks are more than twice as variable as real shocks do indexed contracts gain a share about 1–3%. This increases rapidly, however, reaching about 10% when nominal variability is triple that of real variability and about 20% when it is seven times higher. If contracts were to be decided cooperatively (e.g. by unions), the dominance of nominal contracts would be greater and far more resistant to rising nominal variability. The authors also assess the sensitivity of their results to the assumptions imposed.

Nominal Contracts as Behaviour Towards Risk
Patrick Minford and Eric Nowell

Discussion Paper No. 1666, July 1997 (IM)

Interbank Settlements

Do US Banks Have a Cost Advantage?

The recent rapid expansion of financial transactions has increased awareness of the risk involved in interbank settlement systems. Most payments have long been handled in the designated time net settlement system, with a time lag between payment order and actual transfer of money. The receiver faces a credit risk, however, if the sender becomes insolvent before fulfilling its obligation. To cope with this risk, the systems in most economies have been redesigned so that large-sized payments are now settled in the real time gross settlement (RTGS) mode – with the payment order and transfer of money carried out simultaneously – although small payments are still handled by the net settlement system. Yet RTGS imposes substantial costs of maintaining intra-day liquidity on participants, which has created a fear among European and Japanese banks that they might lose competitiveness against their US counterparts, whose main settlement system, Fedwire, does not require collateral.

In Discussion Paper No. 1667, **Shuji Kobayakawa** examines the participating bank's costs to assess if there is an economic rationale for the coexistence of the two systems. Three cost components are identified – the costs of settlement failure, settlement delay and liquidity maintenance – and the bank's profit in the settlement system is the revenue obtained from interest-bearing assets minus the relevant costs. Assuming the bank's strategy is to choose the settlement timing in RTGS and the level of credit limit in the net settlement system, the equilibrium can be derived and the profit levels in the two systems compared. The results suggest that coexistence is well explained from the participant's cost-benefit perspective, and that it can be misleading to conclude that the RTGS system is always more costly.

The Comparative Analysis of Settlement Systems
Shuji Kobayakawa

Economic Growth

The Role of Natural Resources

The empirical literature on the complex phenomenon of economic growth has identified only the growth rate of per capita GDP across countries, initial GDP and the investment/GDP ratio as robust determinants of growth. Numerous other variables have been suggested, including (negatively) the economic preponderance of the primary sector. In Discussion Paper No. 1668, **Thorvaldur Gylfason, Tryggvi Thor Herbertsson and Gylfi Zoega** hypothesize that an abundance of natural resources, and a corresponding preponderance of primary production, inhibit growth by discouraging investment in human capital. The authors seek to shed further light on the contribution of human capital to economic growth by pointing out the possible role of sectoral differences in human-capital creation in explaining cross-country differences in growth. In particular, they claim that the primary sector may need -- and generate -- less human capital than services and manufacturing, thus explaining why countries with a comparative advantage in primary production often experience less growth.

The authors extend the 'Dutch disease' argument in a two-sector stochastic endogenous growth model in which learning-by-doing and knowledge spillovers occur only in the secondary sector. Secondary-sector growth, however, is inhibited by the productive, low skill-intensive primary sector, which causes real currency appreciation and volatility, thus reducing investment and learning. Cross-section and panel regressions based on data for 125 countries in the period 1960–92 confirm a statistically significant inverse relationship between the size of the primary sector and economic growth, though not between the volatility of the real exchange rate and growth.

A Mixed Blessing: Natural Resources and Economic Growth
Thorvaldur Gylfason, Tryggvi Thor Herbertsson and Gylfi Zoega

Discussion Paper No. 1668, July 1997 (HR)

EMU

Assessing the Stability Pact

The essence of the 'stability pact', which applies to all prospective EMU members, is to penalize countries whose fiscal deficit is deemed excessive. In Discussion Paper No. 1669, **Roel Beetsma and Harald Uhlig** offer a formal analysis of

the role and significance of the pact as a basis for disentangling the various strategic issues involved.

The authors assume that future elections will induce national policy-makers to have a short time horizon and to raise too much debt relative to some objective function for society as a whole. This problem will become even worse under monetary union, where governments will ignore the impact of their actions on central bank policies. The pressure on central banks to become less inflation averse will thus increase – an undesirable outcome from any perspective. The stability pact represents one way of countering the incentive to create excessive deficits. The authors consider the impact of the degree of punishment on national fiscal deficits and find that, provided the penalties are not too high, national governments will be strictly worse off with a stability pact in the absence of monetary union, but strictly better off with monetary union. In the case of random shocks to the budget, national governments appear strictly worse off if they join EMU without a stability pact, but strictly better off if they join EMU with a stability pact. The conclusion, therefore, is that a stability pact is a necessary ingredient for successful monetary union in Europe.

An Analysis of the 'Stability Pact'
Roel M W J Beetsma and Harald Uhlig

Discussion Paper No. 1669, July 1997 (IM)

Financial Markets

Interregional Income and Consumption Smoothing

Regions within a country that face idiosyncratic output risk may increase their welfare by sharing risk and – by lending and borrowing – smoothing consumption among themselves. Knowledge about the institutions that provide such cross-sectional income and consumption smoothings at the macro level, however, is limited. In Discussion Paper No. 1670, **Bent E Sorensen and Oved Yosha** seek to develop understanding of the channels of risk sharing, by asking how much income and consumption smoothing is achieved within subgroups of US states, and whether the amount of risk sharing within regions or groups of 'similar' (e.g. rich and poor) states is different from that achieved nationwide.

By decomposing the cross-sectional variance in gross state product, the authors find that income insurance levels within geographical regions are similar to those between regions. This implies that capital markets operate on a national level. Credit markets, however, appear to be more regional in nature, since consumption smoothing occurs mainly within, rather than between, regions. Smoothing within the club of rich states is accomplished mainly via capital markets, whereas consumption smoothing is dominant between poor states. The results are consistent with the idea that lending and borrowing work better 'among neighbours',

where peer monitoring and social ties mitigate informational asymmetries and reduce transaction costs. The authors then investigate the welfare implications of these risk-sharing patterns. They find that, for plausible values of the intertemporal discount factor, the welfare gains are substantial, thus confirming earlier research results. They also find that US regions are sufficiently heterogeneous for exploiting most potential gains from mutual insurance without insuring nationwide. Limited risk sharing between regions therefore does not imply a major loss of welfare.

Income and Consumption Smoothing Among US States: Regions or Clubs?
Bent E Sorensen and Oved Yosha

Discussion Paper No. 1670, July 1997 (FE)

R&D Spillovers

Open Economy Policy Implications

The conventional 1990s view of R&D spillovers as pervasive, quantitatively important and a justification for industrial policy differs little from the views held by Marshall and by Pigou. In Discussion Paper No. 1671, **Dermot Leahy** and **Peter Neary** ask what we have learned in the intervening hundred years, particularly from the theory of international trade policy. The authors note that most recent discussions of R&D spillovers have been located in two literatures. First, open-economy endogenous growth models, assuming free entry and no strategic interdependence between firms, have led to relatively simple conclusions: domestic R&D spillovers generate a positive externality that should be subsidized, and international spillovers that benefit foreign firms should be taxed. Second, models of intra-industry spillovers in closed economies, although acknowledging strategic behaviour, have tended to treat all firms as symmetrical.

Leahy and Neary argue, however, that when firms engage in strategic behaviour in open economies, nationalistic governments may care more about the profits of home firms, and the spillovers may be either local or international, and either inter- or intra-industry. The qualitative and quantitative properties of the optimal policy will depend crucially on which combination applies. Using a two-period oligopoly model with two industries, in each of which a home and a foreign firm export to a third country, the authors show that many of the expected results are overturned. Local R&D spillovers to other domestic firms may justify an R&D tax rather than a subsidy; R&D cooperation by local firms over-internalizes the externality and also justifies an R&D tax; and international spillovers which benefit foreign firms may justify a subsidy. Claims that R&D spillovers necessarily strengthen the case for assisting domestic firms in oligopolistic markets therefore warrant healthy scepticism.

R&D Spillovers And The Case For Industrial Policy In An Open Economy
Dermot Leahy and J Peter Neary

Discussion Paper No. 1671, July 1997 (IT)

Purchasing Power Parity

'Commodity Points' and Imperfect Arbitrage

Since both the law of one price (LOOP) and purchasing power parity (PPP) fail dramatically in the short run under floating exchange rates, most recent research has focused on their usefulness as long-run propositions. Despite the deployment of more powerful estimation methods, however, even studies favourable to long-run PPP or LOOP suggest an extremely slow decay rate for international price differentials. In Discussion Paper No. 1672, **Maurice Obstfeld** and **Alan Taylor** offer evidence that price differentials net of transaction costs may be narrowed much more quickly than previous estimates suggest, but that incomplete arbitrage persists because international trade costs, combined with uncertainty, create bands within which relative prices can fluctuate with no central tendency.

Drawing on Heckscher's original insight that international transaction costs should create some scope for deviations from LOOP and PPP, the authors propose that explicit account should be taken of the possibility of 'commodity points', analogous to the gold points regulating specie flows under the classical gold standard. These can be interpreted as resulting not only from concrete shipping costs and trade barriers, but also from sunk costs of international arbitrage and the resulting tendency of traders to respond only to sufficiently big price differentials. The authors' econometric method for identifying such commodity points treats price adjustment as a non-linear process, and a threshold autoregression (TAR) offers a parsimonious specification within which both thresholds and adjustment speeds are estimated by maximum likelihood methods. Their model performs well with post-1980 data, yielding reasonable parameter estimates. The estimated commodity points appear to be positively related to objective measures of market segmentation, notably nominal exchange-rate volatility.

Non-Linear Aspects of Goods-Market Arbitrage and Adjustment: Heckscher's Commodity Points Revisited
Maurice Obstfeld and Alan M Taylor

Discussion Paper No. 1672, July 1997 (IM)

EMU

How Volatile will the Euro be?

Although the conventional wisdom generally suggests that the euro will be a strong currency, there has been less certainty about the likely effect on the euro's value of the conduct of the new monetary and fiscal policies. In Discussion Paper No. 1673, **Daniel Cohen** argues that, although – by definition – monetary policy will behave differently, fiscal policy will also change course, and the new economic policy regime in turn will have a major impact on the value of the euro. Cohen considers that these regime shifts render it unlikely that the euro will be less volatile than existing European currencies.

The core of Cohen's theoretical argument is that, since Europe as a whole is less open than the representative European country, monetary policy will be less constrained by trade disequilibria than it is now, and hence less accommodating, and this will make the euro potentially more volatile. Cohen goes on, however, to qualify this 'benign neglect' view in two ways: first, openness needs to be defined by the degree of substitutability of European goods with rest-of-the-world products rather than through the simple average ratio of imports or exports to GDP; and second, less openness will imply a more volatile exchange rate in response to shocks relating to price determinations (Phillips curve shocks) rather than those affecting aggregate demand. The paper also offers empirical simulations of the value of the euro. It demonstrates that the euro's current value is fairly well explained by the macroeconomic fundamentals of Europe, and then simulates the effects of a less accommodating monetary policy towards these shocks. Although simply illustrative, these results support the suggestion that the euro might become more volatile than European currencies today.

How Will the Euro Behave?
Daniel Cohen

Discussion Paper No. 1673, July 1997 (IM)

Social Security

Accounting for Welfare

In Discussion Paper No. 1674, **Michael Orszag** and **Dennis Snower** present a proposal for reforming the provision and finance of welfare services, interpreted broadly, via a set of complementary institutional changes that would permit an expansion of the welfare system while simultaneously promoting economic activity. The authors propose replacing the current tax-and-transfer system by a system of compulsory saving involving a set of four 'welfare accounts' for every person in a country: a retirement account (covering pensions); an unemployment account (covering unemployment support); a human capital account (for education and training); and a health account (for insurance against sickness and disability). Whereas existing welfare services are financed predominantly by general taxes, under the proposed system individuals would make ongoing, mandatory contributions to each of their welfare accounts. The balances in the accounts would then be used to cover people's major welfare

needs, with the government setting mandatory minimum contribution rates and maximum withdrawal rates.

Government would thus operate within two budgetary systems, with non-welfare expenditures financed through existing taxes, and public spending on welfare services financed through payments from people's welfare accounts. The government might redistribute income across individual's welfare accounts, but would be constrained by a requirement that total (economy-wide) taxes on each of the welfare accounts must equal total transfers into each of the accounts. The public and private sectors would provide welfare services on an equal footing, setting prices for these services and competing with one another for the custom of the welfare account holders. The authors argue that a move to such a system would reduce unemployment, encourage labour force participation, promote skills, reduce budgetary pressures, cushion people against economic risk, ensure efficient provision of health and education services, provide social safety nets and redistribute incomes more efficiently.

Expanding the Welfare System: A Proposal for Reform

J Michael Orszag and Dennis J Snower

Discussion Paper No. 1674, July 1997 (HR)

Employment Vouchers

Differentiating by Age?

Should government employment support depend on the ages of the unemployed job searchers? In Discussion Paper No. 1675, **Michael Orszag** and **Dennis Snower** argue that age is indeed one of the factors that is relevant for employment policy. Starting from the assumption that the government aims to minimize unemployment subject to a government budget constraint, the authors focus on one family of policy instruments for reducing unemployment, namely, hiring subsidies for the unemployed, which reduce firms' labour costs and thereby stimulate labour demand. The authors refer to these instruments collectively as 'employment vouchers'.

The paper argues that the characteristics of optimal employment vouchers for unemployed youth may differ from those for adults for three reasons: first, because of youth-adult differences in hiring and separation rates, in the absence of the vouchers; second, because of youth-adult differences in the hiring effects of the vouchers; and third, because of the displacement of adult unemployed by the subsidized new recruits. In the authors' view, finding the determinants of the optimal differential between vouchers for youth and adult unemployed is not only one of the most fundamental problems facing government policy towards youth unemployment, but also one that hitherto has received little, if any, attention in the analytical employment policy literature. Using an overlapping generations model, in which workers are either young or old, the paper finds that young workers should receive higher vouchers as

displacement of the old rises and as the deadweight loss from providing vouchers to the old increases.

Youth Unemployment and Government Policy
J Michael Orszag and Dennis J Snower

Discussion Paper No. 1675, July 1997 (HR)

Asset Prices

Extracting Market Expectations

Extracting market expectations from asset prices is a question which has recently attracted a great deal of interest, among both market participants and central bankers. In Discussion Paper No. 1676, **Carlo Favero, Francesco Giavazzi, Fabrizio Iacone and Guido Tabellini** use the example of the term structure of interest rates to estimate the probability the market attaches to a particular country joining EMU at a given date. The authors start from the presumption that the term structure contains valuable and relevant information. They select Italy for their case study because, in the survey regularly conducted by Reuters, the probability that Italy would join EMU in 1999 fluctuated between 0.07 and 0.15 in the first months of 1997, whereas the measures computed by financial houses — based on the term structure — ranged between 0.5 and 0.7 during the same period.

The authors propose a new method for computing these probabilities and argue that the discrepancies between the survey and market-based measures are the result, not of market inefficiencies, but of incorrect use of the term-structure information. Thus they find that the probabilities computed by the existing market-based 'EMU Calculators' are biased upwards, because they are based on average, rather than instantaneous, forward rates. The same technique can be used to distinguish between convergence of probabilities and convergence of fundamentals, i.e. to discern whether an observed reduction in interest rate spreads signals a higher probability of joining EMU at a given time, or simply reflects improved fundamentals. The paper also argues that the technique could be applied, more generally, to extract information on imminent changes in an exchange-rate regime from asset prices.

Extracting Information from Asset Prices: the Methodology of EMU Calculators
Carlo A Favero, Francesco Giavazzi, Fabrizio Iacone and Guido Tabellini

Discussion Paper No. 1676, July 1997 (IM)

EMU

Euro Indeterminacy Problems

Two conditions have been attached to the determination of the irrevocably fixed conversion rates between the euro and the national EMU currencies on 1 January 1999: the chosen rates must not modify the external value of the Ecu (Maastricht Treaty); and, at the time of conversion, one euro must equal one Ecu (1995 Madrid Summit). These conditions effectively constrain the authorities to select only the Ecu rates prevailing in the market on the day before conversion. In Discussion Paper No. 1677, **Paul De Grauwe** argues that this creates an indeterminacy problem, since the market will lack a fixed point and infinite possible Ecu (and, hence, euro) rates could emerge. Moreover, the indeterminacy will spill over into the exchange rates of outside currencies with EMU currencies (e.g. the dollar/Deutsche mark rate), and the problem cannot be solved by announcing fixed bilateral conversion rates in advance. All this increases the likelihood of turbulence in foreign-exchange markets during the approach to EMU, and the emergence of speculative bubbles — with an attendant risk of destabilizing the price level in the euro area — cannot be excluded.

Any solution to this problem must involve steps towards providing an anchor in the markets. De Grauwe discusses three possible choices. The first — announcing fixed euro rates in advance — may create legal problems since it would necessitate a change to the currency composition of the Ecu. The second — fixing (or constraining) the dollar/Deutsche mark rate during the period May–December 1998 — would require, in turn, agreement between the US and German monetary authorities, which would be politically difficult. The third — reinterpreting the Maastricht Treaty provision to mean that only the outside currencies (e.g. dollar, sterling) should not change their value against the Ecu — may require realignments between the 'ins' and 'outs' among the existing Ecu currencies.

The Indeterminacy of the Euro Conversion Rates. Why it Matters and How it Can be Solved
Paul De Grauwe

Discussion Paper No. 1677, July 1997 (IM)

Financial Economics

Preferences and Risk Premia

The Lucas formula for the basic trade-off concerning financial asset prices — the size of the premium consumers require to hold a risky asset — was based on a set of consumer preferences and the dividend stream of the financial asset. Given these ingredients, the formula computes the price (or, alternatively, the expected return) of the asset. The vast majority of empirical tests, however, have rejected the model. As argued by many, the Lucas formula requires an extremely high coefficient of relative risk aversion in order to generate sizeable risk premia, when preferences are in the class of constant relative risk aversion utility functions. This theoretical failure of the model is known as the equity premium puzzle.

Risk premia in the consumption capital asset pricing model depend on both preferences and dividends. In Discussion Paper No. 1678, **Martin Lettau** and **Harald Uhlig** develop a decomposition which allows for the separate treatment of both components. The authors show that preferences alone determine the risk-return trade-off measured by the Sharpe-ratio. In general, the risk-return trade-off implied by preferences depends on the elasticity of a preference-based stochastic discount factor for pricing assets with respect to the consumption innovation. Depending on the particular specification of preferences, the absolute value of this elasticity may coincide with the inverse of the elasticity of intertemporal substitution or the coefficient of relative risk-aversion. The paper demonstrates that preferences based on a small elasticity of intertemporal substitution, such as habit formation, produce small risk premia once agents are allowed to save. Departing from the complete markets framework, the authors show that uninsurable risk can only increase the Sharpe-ratio and risk premia, if dividends are correlated with individual consumption.

Preferences, Consumption Smoothing, and Risk Premia

Martin Lettau and Harald Uhlig

Discussion Paper No. 1678, July 1997 (FE/IM)

Irish Labour Market

Increased Earnings Dispersion

The substantial increases in earnings inequality and in returns to education in the United States and the United Kingdom in recent years have not been replicated in other OECD countries. Although the increase in demand for skilled labour, relative to unskilled labour, which appears to have contributed to this increase in inequality, has probably affected all OECD countries, some other factors clearly are required to explain their different experiences. Two such factors have been suggested. First, if the relative supply of skilled labour in a country increases, then the price effect of the relative demand growth would be reduced. Second, institutional structures could act to reduce the tendency for dispersion to increase in response to the increased demand for skilled labour.

In Discussion Paper No. 1679, **Alan Barrett**, **Tim Callan** and **Brian Nolan** claim that since both of these factors are highly relevant to the Irish labour market – Ireland's supply of skilled labour has increased sharply in recent years, and it has had a highly centralized wage-bargaining structure – any growth in inequality and in returns to education would be expected to be relatively small. When the authors examined the distribution of earnings in 1987–94, however, they found surprisingly large growth in earnings dispersion. Using a decomposition technique, they find that much of this is accounted for by increasing returns to education. This

result appears to demonstrate the strength of the growth in demand for skilled labour.

The Earnings Distribution and Returns to Education in Ireland, 1987–94

Alan Barrett, Tim Callan and Brian Nolan

Discussion Paper No. 1679, July 1997 (HR)

International Monetary System

How Significant was the Great Depression?

What would the world have been like had the Great Depression not occurred? In Discussion Paper No. 1680, **Michael Bordo** and **Barry Eichengreen** speculate about how the international monetary system would have evolved, assuming that the two major post-Depression political and economic upheavals – World War II and the Cold War – had still occurred. The authors argue that, without the Depression, the gold-exchange standard of the 1920s would have persisted until the outbreak of war, but would have been suspended during both the war and a subsequent reconstruction period, before being restored in the early 1950s. There would have been no Bretton Woods Conference, and no system of pegged-but-adjustable exchange rates and restrictions on capital-account convertibility. The restored, but unreformed, gold-exchange standard, however, would have collapsed even earlier than did the Bretton Woods system, and the ensuing move towards floating exchange rates would have taken place well before 1971.

Bordo and Eichengreen then construct a model of their counterfactual international monetary system from 1928 to 1971 and simulate its implications for the determination of the world price level and the durability of the gold-exchange standard. Based on regressions for a 61-country panel, they also examine the implications for economic growth and resource allocation of allowing 1920s-style international capital mobility after World War II. Their best guess is that freer post-war capital mobility would have had little effect on growth in the advanced industrial countries, across which capital/labour ratios and productivity did not differ greatly, but that it would have permitted a more efficient allocation of resources in the developing world. Overall, however, they surmise that the Great Depression may have made less of a difference than is commonly supposed.

Implications of the Great Depression for the Development of the International Monetary System

Michael Bordo and Barry Eichengreen

Discussion Paper No. 1680, July 1997 (IM)

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Conferences and workshops are indicated in grey and attendance is *by invitation only*.

Lunchtime meetings, however, are *open* and are indicated in orange.

1999 ▼

28/31
JAN

Core Competencies, Diversification and the Role of Internal Capital Markets (Conference), Naples.

29 JAN

Scotland and EMU, David Begg (hosted by the Royal Society of Edinburgh), Edinburgh.

4 FEB

ESRC Regulation Workshop (with the Economic and Social Research Council (ESRC)), London.

25 FEB

ESRC Finance Network Workshop: Real Options (with the Economic and Social Research Council (ESRC)), London.

26/28
FEB

The New Economics of Inequalities (Conference hosted by the Instituto de Estudios Económicos de Galicia, Pedro Barrié de la Maza), La Coruña.

8
APRIL

ESRC Workshop: Finance Network (with the Economic and Social Research Council (ESRC)).

9/10
APR

Twenty-Ninth Economic Policy Panel Meeting (Conference), Frankfurt.

17/26
MAY

Annual Transition Economics Workshop for Young Academics (hosted by the Central European University).

26/30
MAY

European Summer Symposium in Macroeconomics (hosted by the Banco de Portugal), Evora, Portugal.

27/29
MAY

CEPR/JFI Symposium on Competition, Regulation and Financial Integration (hosted by INSEAD), Fontainebleau.

4/5
JUN

International Seminar on International Trade (ISIT) – New Issues in the World Trading System (Conference, ISIT with the National Bureau of Economic Research (NBER)), Cambridge, MA.

24/27
JUN

European Research Workshop in International Trade (ERWIT) (hosted by the Norwegian School of Economics and Business Administration), Bergen.

28 JUN
/9 JUL

European Summer Symposium in Economic Theory (hosted by the Studienzentrums Gerzensee), Studienzentrums Gerzensee.

12/23
JUL

European Summer Symposium in Financial Markets (hosted by the Studienzentrums Gerzensee), Studienzentrums Gerzensee.

10/11
SEP

Foreign Direct Investment and the Multinational Corporation (Workshop hosted by the IMOP, Athens University of Economics and Business), Athens.

13/19
SEP

European Summer Symposium in Labour Economics and Public Policy (hosted by the IZA, Universität Bonn), Ammersee.

10/12
OCT

Marginal Labour Markets in Metropolitan Areas (Conference), Dublin.