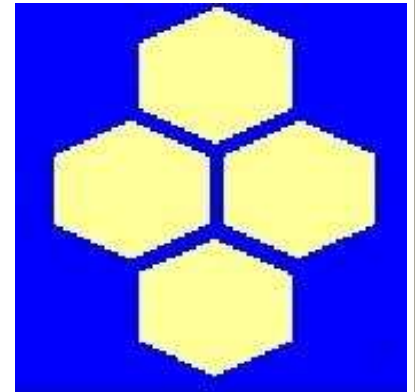


**Regional Science
Association
International**



British and Irish Section

Registered charity No. 277247

37th ANNUAL CONFERENCE

The Marine Court Hotel,
Bangor, Northern Ireland

15th – 17th AUGUST, 2006

Conference Pack

Welcome!

Dear Participant,

The Committee of the Regional Science Association International: British and Irish Section warmly welcomes you to Bangor, Northern Ireland. We hope you enjoy your stay and find the paper sessions interesting and useful. Please feel free to discuss any RSAI or conference matter with Eoin O'Leary or myself.

Don Webber

Secretary

Our Association

Regional Science is an expanding field devoted to the development of theory and method in urban and regional analysis and policy. It has a conscious aim of cutting across the traditional disciplinary approaches to these issues. The British & Irish Section of the Regional Science Association International was founded in 1968. The membership is drawn, in the main, from academics, consultants and scientists in local and national government, who share an interest in spatial issues. They come from a range of disciplines including economics, geography and planning.

Our Main Activities

- Organisation of an annual conference, workshops and seminars
- Award of an annual prize, the Moss Madden Memorial Medal
- Award of Early Career / Doctoral Prize for Best Presentation at the Annual Conference
- Award of Prize for Best Paper at the Annual Conference
- Organise joint meetings (every four years) with the Israeli Section of RSAI

The Section is run by a committee of thirteen elected members. The committee may co-opt a further three members. The Chairman and the committee are elected at the Annual General Meeting which is held during the Annual Conference each year. The conduct of the business of the Section is governed by the Constitution.

We are continually seeking new elected members of our committee. If you are interested in becoming an elected member then please contact our Chairman (Eoin O’Leary) or Secretary (Don Webber) in the first instance.

Contents:

This conference pack is split into several sections. You can identify which section you are looking at by referring to the page numbers at the bottom on the page. The sections follow the following order:

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| 1. General Information (including AGM) | p.4 |
| 2. Delegate List | p. 7 |
| 3. Conference Programme | p. 11 |
| 4. Abstracts | p. 21 |

General Information

Meeting Rooms:

The conference parallel sessions will take place in the *Bangor 1*, *Bangor 2* and the *Hamilton Suite*.

Sessions:

We would appreciate if sessions were chaired by the presenter of the last paper. Each paper has 30 minutes, comprising 20 minutes presentation and 10 minutes questions. Chairs may agree to hold questions at the end of each paper or at the end of the session. We would appreciate it if all delegates kept to the allocated time.

Dining:

Tea and coffee

These will be as timed on the programme and served in the *Nelson's Lounge*

Lunch

Lunch will be served in *Nelson's Restaurant*

Social Event:

If you have signed up for the coastal walk and BBQ then please be prepared to leave from the front of the *Marine Court Hotel* at 18.00. For those who are not interested in walking there is a bus to take you to the BBQ venue, leaving the conference hotel at 19.30. This bus will also return everyone to the conference hotel after the BBQ. Further details of this event will be announced in the welcome speech.

Conference Dinner:

If you have booked in for the conference dinner, please note that this will take place in *Nelson's Restaurant* in the *Marine Court Hotel* at 20.00.

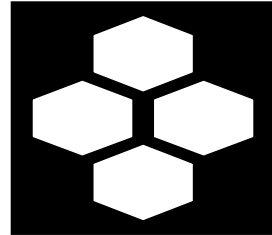
Maps:

Please note maps of Bangor are included in the accompanying pamphlets.

If you require any further information on any aspect of the conference then please do not hesitate to contact Don Webber or Eoin O'Leary at your convenience. We will endeavour to help.

**Regional Science
Association International**

British and Irish Section



Annual General Meeting

Thursday 16th August 2007: 2-3pm

Room: Bangor 2

Agenda

- 1. Minutes of 2006 AGM**
- 2. Chair's Report**
- 3. Treasurers Report**
- 4. European Matters**
- 5. Preparation for ERSA Congress 2008, Liverpool**
- 6. Report on 5th Israel/British & Irish Workshop**
- 7. Election of Chair and Committee, 2006/7**
- 8. AOB**

Members are encouraged to stand for election to the Committee. Anyone interested please contact Eoin O'Leary (Chair) or Don Webber (Secretary)

Nominations for the Committee will close at 12 noon on Thursday August 16th

Delegate List

A	Allan, Grant	University of Strathclyde
	Anderson, Alasdair	University of Lancaster
	Anyadike-Danes, Michael	Economic Research Institute of Northern Ireland
	Arthur, Julie	University of Queensland
	Augsburg, Britta	University of Maastricht
B	Barreiro-Pereira, Fernando	Universidad Nacional de Educación a Distancia
	Batey, Peter	University of Liverpool
	Bourke, Jane	University College Cork
	Brown, Peter	University of Liverpool
C	Campbell, Malcolm	Economic Research Institute of Northern Ireland
	Capik, Pavel	University of Paisley
	Catney, Gemma	Queen's University Belfast
	Champion, Tony	University of Newcastle
	Clower, Terry	University of North Texas
	Collins, Patrick	NUI, Galway
	Coombes, Mike	Newcastle University
	Corcoran, Jonathan	University of Queensland
	Crampton, Graham	University of Reading
	Crawley, Andrew	University of Glamorgan
	Crone, Mike	Queen's University Belfast
D	Darby, Julia	University of Strathclyde
	Davis, Paedar	University of Ulster
	Dewhurst, John	University of Dundee
E	Easton, Sue	University of Sheffield
F	Faggian, Alessandra	University of Reading
	Ferreira, Antonio	University of Liverpool
	Findlay, Pam	Tasmania - Australia
	Fingleton, Bernard	University of Cambridge
	Fleming, Euan	University of New England

G	Gilmartin, Michelle Gleeson, Justin Green, Anne	University of Strathclyde National University of Ireland, Maynooth University of Warwick
H	Hardy, Sally Hewings, Geoffrey Hill, Steve Hobbs, John Hua Jen, Min Huggins, Robert	Regional Studies Association University of Illinois University of Glamorgan CIT, Cork University of Imperial University of Sheffield
I	Iparraguirre, Jose Ishikawa, Toshiharu	Economic Research Institute of Northern Ireland Chuo University
J	Johnston, Andrew Jordan, Declan Juleff, Linda	University of Sheffield University of Cork Napier University
L	Little, Allan Lloyd, Chris Longhi, Simonetta Luter, Ryszard	Department of Work and Pensions Queen's University Belfast University of Essex Autonomous Metropolitan University, Mexico City
M	Mameli, Francesca Marchante, Andres McBride, Claire McCann, Philip McGregor, Peter McQuaid, Ron Monastiriotis, Vassilis Munday, Max Munyoro, Gerald Munyoro, Gerald Murphy, Aileen	University of Reading University of Malaga Dublin Institute of Technology University of Waikato University of Strathclyde Napier University London School of Economics University of Cardiff University of Dundee University of Dundee University College Cork

O	O'Connor, Declan O'Connor, Helena Ojo, Adegbola O'Leary, Eoin Ortega, Bienvenido	University College Cork University College Cork University of Sheffield University College Cork University of Malaga
P	Parr, John Phillips, Heather Pitfield, David Plotnikova, Maria Potter, Jonathan	University of Glasgow University of Strathclyde Loughborough University University of Strathclyde OECD
R	Reynolds-Feighan, Aisling Roy, Graeme Ryan, Geraldine	University College Dublin University of Strathclyde University College Cork
S	Shuttleworth, Ian Simpson, Tom Sonn, Jung Won Swales, Kim	Queen's University Belfast David Simmonds Consultancy University College London University of Strathclyde
T	Turner, Karen	University of Strathclyde
V	van Egeraat, Chris Vega, Amaya Vickers, Daniel	National University of Ireland, Maynooth University College Dublin University of Sheffield
W	Walsh, Michael Webber, Don Wenban-Smith, Hugh	CIT, Cork University of the West of England London School of Economics

Conference Programme

Wednesday 15 August 2007

09:00 Onwards: Registration

9:30 Welcome from the Chair (*Room: Bangor 2*)

9.45

Plenary Talk

Future Prospects for the Northern Irish Economy

By

Neil Gibson (Director of Regional Services, Oxford Economics)

Neil is a regular commentator in the Northern Ireland press on economic matters a contributor to the annual Regional Economic Conference. Recently he has been leading Oxford Economics' research into urban renaissance and the role and importance of cities in supporting future growth.

and

Michael Smyth (Senior Lecturer, School of Economics and Politics, University of Ulster)

Michael is a senior lecturer in economics at UU and a high profile commentator on local economic matters, appearing regularly in the regional news media.

Wednesday 15 August 2007 (cont.)

<p>11.00 – 11.30</p>	<p>Coffee / tea (<i>Nelson's Lounge</i>)</p>		
<p>11.30 – 13:00</p>	<p>A Sporty, Smokey, Musical Session</p> <p><i>Room: Bangor 1</i></p> <p>Can regional sports stadia ever be economically significant? Evidence from the Cardiff Millennium Stadium <i>Calvin Jones, Max Munday and Neil Roche (Cardiff University)</i></p> <p>An econometric analysis of smoking behaviour in Ireland <i>Aileen Murphy¹ (University College Cork)</i></p> <p>Church organists: Analysing their willingness to play <i>Don Webber and Martin Freke (University of the West of England)</i></p>	<p>Spatial Economic Analysis – Joint RSAIBIS/RSA Sponsored Session</p> <p><i>Room: Bangor 2</i></p> <p>Prediction using panel data regression with spatial random effects: Simulating the impact of mass immigration on local wage rates in Great Britain <i>Bernard Fingleton (University of Cambridge)</i></p> <p>Sketching out a model of innovation, face-to-face interaction and economic geography <i>Philip McCann (University of Waikato and University of Reading)</i></p> <p>Spatial dependence and economic connectedness: Evidence from the British labour markets <i>Vassilis Monastiriotis (London School of Economics)</i></p>	<p>Government and Cycles</p> <p><i>Room: Hamilton Suite</i></p> <p>Assessing local government wealth base <i>Peadar T. Davis, William J. McCluskey and Lay Cheng Lim (University of Ulster)</i></p> <p>Exploring pro-cyclical bias in sub-central fiscal policy: Evidence, likely causes and implications <i>Julia Darby and Graeme Roy (University of Strathclyde)</i></p> <p>The degree of synchronization in regional business cycles in Great Britain <i>John Dewhurst (University of Dundee)</i></p>
<p>13:00 – 14:00</p>	<p>Lunch (<i>Nelson's Restaurant</i>)</p>		

¹ Wednesday

Wednesday 15 August 2007 (cont.)

<p>14:00 – 15:30</p>	<p>Regional Science and Human Capital</p> <p><i>Room: Bangor 1</i></p> <p>Human capital, higher education and graduate migration: An analysis of Scottish and Welsh students <i>Alessandra Faggian (University of Reading), Philip McCann (University of Waikato) and Stephen Sheppard (Williams College, Williamstown, MA)</i></p> <p>The spatial pattern of hidden unemployment: People or place effects? <i>Allan Little (Lancaster University)</i></p> <p>Regional science or regional silence? An exploration of the relationship between gender and research topic, methodological approach and country of origin in the discipline of regional science <i>Julie Arthur (University of Queensland) and Diane O’Sullivan (University of Glamorgan)²</i></p>	<p>Geodemographics</p> <p><i>Room: Bangor 2</i></p> <p>Geodemographics Africa! <i>Adegbola Ojo, Dan Vickers and Dimitris Ballas (University of Sheffield)</i></p> <p>Geodemographics and academic research: An open relationship? <i>Dan Vickers (University of Sheffield)</i></p> <p>Urban deprivation, migration and the impact of regeneration policy: A geodemographic Perspective <i>Peter Batey, Peter Brown and Simon Pemberton (University of Liverpool)</i></p>	<p>Productivity</p> <p><i>Room: Hamilton Suite</i></p> <p>Effects of the embodied technological progress, on productivity and growth in Ireland, United Kingdom, and the European Union (1995-2004) <i>Fernando Barreiro-Pereira (Universidad Nacional de Educación a Distancia, Spain)</i></p> <p>Temporal dynamics of regional labour productivity and gross value added per head in the UK, 1975-2004 <i>Jose Luis Iparraquirre D’Elia (Economic Research Institute of Northern Ireland)</i></p> <p>Promoting a central-eastern European region: Determinants of spontaneous and strategic approaches to FDI attraction <i>Paweł Capik (University of Paisley)³</i></p>
<p>15:30 – 16:00</p>	<p>Coffee/tea (<i>Nelson’s Lounge</i>)</p>		

² not Friday

³ Wednesday afternoon

Wednesday 15 August 2007 (cont.)

16:00-17:30	Infrastructure, Ownership and Location	Environment	Devolution, Decentralisation and Spatial Structure
18:00	Social event: Walk and BBQ (We will be leaving from outside of the Marine Court Hotel at 18.00)		

Room: Bangor 1

The economics of urban infrastructure: Economies of scale, distribution costs and density effects as illustrated by water supply
Hugh Wenban-Smith (London School of Economics)

A role of the central place system in the determination of the firm's location
Toshiharu Ishikawa (Chuo University)

Influences of the entrepreneurs expected mode of exit
Bernadette Power and Geraldine Ryan⁴ (University College Cork)

Room: Bangor 2

The perceptions of environmental policy among the agricultural and food co-operatives in rural Ireland
Helena O'Connor and Nick Chisholm (University College Cork)

Accounting for spatial differences in environmental factors in estimating productivity change
Euan Fleming and Renato Villano (University of New England, Armidale, Australia)

Additional measures of progress for Scotland: An analysis of the issues and problems associated with aggregate/composite measures of sustainability
Karen Turner, Peter McGregor, Kim Swales and Janine Graham (University of Strathclyde)

Room: Hamilton Suite

Learning lessons for the future of devolved finance in the United Kingdom from its past: proposals and policies from Irish Home Rule to the devolution acts of 1998

Alex Christie and Kim Swales (University of Strathclyde)

Is fiscal decentralisation good for growth?
Graeme Roy (University of Strathclyde)

Location theory and local government
John B. Parr (University of Glasgow)⁵

⁴ Wednesday

⁵ Wednesday preferably, but Thursday morning too if poss

Thursday 16 August 2007

<p>9:00-10.30</p>	<p style="text-align: center;">Accessibility, Complementarities and Social Structures of Cities</p> <p style="text-align: center;"><i>Room: Bangor 1</i></p> <p>Self-organised criticality and complication in the UK urban distribution <i>Alasdair Anderson (University of Lancaster)</i></p> <p>Residential location and travel-to-work mode choice under centralised and decentralised employment: The case of the Greater Dublin Area <i>Amaya Vega (University College Dublin)</i></p> <p>Accessibility, daily life and urban planning practice <i>António Ferreira (University of Coimbra, Portugal and University of Liverpool) and Peter Batey (University of Liverpool)</i></p>	<p style="text-align: center;">Innovation and Clusters</p> <p style="text-align: center;"><i>Room: Bangor 2</i></p> <p>Innovation systems in Ireland and Greece <i>Patrick Collins and Dimitrios Ponitkakis (National University of Ireland, Galway)</i></p> <p>The all-Ireland innovation system: A sectoral view <i>Claire McBride (Dublin Institute of Technology, Dublin) and Stephen Roper (Aston University)</i></p> <p>Firm size distributions in Scottish industrial clusters <i>Gerald Munyoro and John Dewhurst (University of Dundee)</i></p>	<p style="text-align: center;">Rail and Air Travel</p> <p style="text-align: center;"><i>Room: Hamilton Suite</i></p> <p>Rail privatisation in Britain: An assessment after 10 years <i>Graham Crampton (Reading University)</i></p> <p>How do Ryanair and Southwest compare in their impacts on passenger numbers, market share and airline competitors? <i>David Pitfield (Loughborough University)</i></p> <p>A comparative analysis of European and US airline industry evolution, 1996-2007 <i>Aisling Reynolds-Feighan (University College Dublin)</i></p>
<p>10:30-11:00</p>	<p>Coffee/Tea (<i>Nelson's Lounge</i>)</p>		

Thursday 16 August 2007 (cont.)

<p>11:00-13:00</p>	<p>Labour Market Issues</p> <p><i>Room: Bangor 1</i></p> <p>Incapacity benefit claimants: Location and labour market perceptions <i>Ian Shuttleworth and Anne Green (GAP, QUB and Institute for Employment Research, University of Warwick)</i></p> <p>Temporary contracts and regional productivity in Spain <i>Bienvenido Ortega and Andrés Marchante (University of Malaga, Spain)</i></p> <p>What's in a place? Persistence in the spatial distribution of unemployment in Belfast, 1971 to 2001 <i>Michael Anyadike-Danes and Malcolm Campbell (Economic Research Institute of Northern Ireland)</i></p>	<p>Industrial Specialisation</p> <p><i>Room: Bangor 2</i></p> <p>The impact of industrial specialisation on regional city growth in US micropolitan statistical areas <i>Terry Clower (University of North Texas, Denton, Texas)</i></p> <p>Mapping of industry inter-linkages: A case study approach to Biotech in Cork <i>John Hobbs (Cork Institute of Technology), Richard Moloney (University College Cork) and Michael Walsh (Cork Institute of Technology)</i></p> <p>Establishing the statistical significance of local sector concentrations of economic activity: A comparative analysis of Welsh data <i>Andrew Crawley and Stephen Hill (University of Glamorgan)</i></p>	<p>Scottish Economy</p> <p><i>Room: Hamilton Suite</i></p> <p>Private sector performance and the presence of public sector: Evidence from U.K. regions <i>Maria Plotnikova (University of Strathclyde)</i></p> <p>The economic impact of alternative electricity generation technologies on a regional economy: an input-output analysis for Scotland <i>Grant J. Allan, Peter McGregor, Kim Swales and Karen Turner (University of Strathclyde)</i></p> <p>No more nuclear? The economic impacts of the closure of nuclear electricity generation facilities across Scotland and the UK <i>Grant J. Allan, Peter McGregor, Kim Swales and Karen Turner (University of Strathclyde)</i></p>
<p>13:00-14:00</p>	<p>Lunch (<i>Nelson's Restaurant</i>)</p>		

Thursday 16 August 2007 (cont.)

14.00-15.00	AGM – All welcome: Room: Bangor 2		
15:00-16:30	<p>Travel to Work Areas</p> <p><i>Room: Bangor 1</i></p> <p>Analysing commuting flows using spatial interaction models: Recent empirical research in Northern Ireland <i>C. D. Lloyd, I. G. Shuttleworth and Gemma Catney (Queen’s University, Belfast)</i></p> <p>Analysing directionality in human geography using GIS and circular statistics: A case study using journey to work data for South East Queensland Australia <i>Jonathan Corcoran and Robert Stimson (University of Queensland)</i></p> <p>Are all labour market areas ‘regional’ in scale in the Twenty-first Century? Challenges in updating the definition of Travel-to-Work Areas <i>Mike Coombes, Colin Wymer and Simon Raybould (CURDS, Newcastle University)</i>⁶</p>	<p>Migration and Stereotyping</p> <p><i>Room: Bangor 2</i></p> <p>Human capital, graduate migration and high-technology innovation in British regions <i>Alessandra Faggian and Philip McCann (University of Reading and University of Waikato)</i></p> <p>The commuting behaviour of recent in-migrants to rural settlements in England <i>Tony Champion and Mike Coombes (Newcastle University) and David L. Brown (Cornell University)</i>⁷</p> <p>Gender stereotyping in schools <i>Ronald W. McQuaid and Sue Bond (Napier University)</i></p>	<p>Special Session for Early Career/Doctoral Students</p> <p><i>Room: Hamilton Suite</i></p> <p>Regional income-related inequalities and inequities in Irish health care utilisation <i>Jane Bourke (University College Cork)</i></p> <p>Internal migration and residential segregation in Northern Ireland: Exploring relationships using the 2001 Census of Population <i>Gemma Catney (Queen’s University, Belfast)</i></p> <p>Modelling multiple socio-economic and geographical disadvantages on employment outcomes from longitudinal DWP data <i>Sue Easton (Sheffield University)</i></p>
16:30-17:00	Coffee/Tea (Nelson’s Lounge)		

⁶ Thursday

⁷ Not Friday **or** Wednesday morning

Thursday 16 August 2007 (cont.)

<p>17:00-18:30</p>	<p>Innovation and Agglomeration</p> <p><i>Room: Bangor 1</i></p> <p>Some territorial models of innovation and their application in Mexico <i>Ryszard Rózga Luter (Autonomous Metropolitan University, Mexico City Urban and Regional Planning Faculty, UAEM-Toluca)</i></p> <p>Spread of the SHG banking linkage programme in India <i>Cyril Fouillet and Britta Augsburg (French Institute of Pondicherry, Pondicherry, India)⁸</i></p> <p>Institutional modes, stakeholder interests and local clusters promotion <i>Mike Crone (Queen's University Belfast) and Andrew Atherton (University of Lincoln)</i></p>	<p>Regional Policy</p> <p><i>Room: Bangor 2</i></p> <p>The national impact of regional policy: Policy simulation with labour market constraints in a two-region computable general equilibrium model <i>Michelle Gilmartin (University of Strathclyde)</i></p> <p>New theoretical insights on the evaluation of regional policy: A case study of Ireland <i>Barry Moore (University of Cambridge) and Jonathan Potter (OECD)</i></p> <p>A cost-benefit approach to the assessment of regional policy <i>Kim Swales (University of Strathclyde)</i></p>	<p>Special Session for Early Career/Doctoral Students</p> <p><i>Room: Hamilton Suite</i></p> <p>Global variations in health and mortality: evaluating the relative income hypothesis <i>Min Hua Jen (Imperial College, London)</i></p> <p>Job competition and the wage curve <i>Simonetta Longhi (University of Essex)</i></p> <p>Agglomeration economies and employment growth in Italian local labour systems <i>Francesca Mameli, Alessandra Faggian (University of Reading) Philip McCann (University of Waikato, University of Reading)</i></p>
<p>20:00</p>	<p>Conference dinner at Marine Court Hotel</p>		

⁸ not in the last session on Friday – preferably moved to Thursday.

Friday 17 August 2007

<p>09.30 - 11.00</p>	<p>Complementarities and Spread</p> <p><i>Room: Bangor 1</i></p> <p>An empirical investigation of price transmission in the EU butter and skim milk powder markets <i>Declan O'Connor (Cork Institute of Technology) Michael Keane and Martin Kenneally (University College Cork)</i></p> <p>Complementarities between urban centres on the island of Ireland <i>Des McCafferty (Mary Immaculate College, Limerick and NIRSA, NUI Maynooth), Chris van Egeraat (NIRSA, NUI Maynooth and International Centre for Local and Regional Development), Brendan Bardley (NIRSA, NUI Maynooth and International Centre for Local and Regional Development) and Justin Gleeson (NIRSA, NUI Maynooth and International Centre for Local and Regional Development)</i>⁹</p>	<p>Innovation and Knowledge</p> <p><i>Room: Bangor 2</i></p> <p>Knowledge, capabilities and manufacturing innovation: A US-Europe comparison <i>Stephen Roper (Aston Business School), Jan Youtie, Philip Shapira and Andrea Fernandez Ribas (Georgia Institute of Technology, Atlanta)</i></p> <p>Sources of innovation in Irish SMEs: Evidence from two Irish regions <i>Declan Jordan and Eoin O'Leary (University College, Cork)</i>¹⁰</p>	<p>Knowledge</p> <p><i>Room: Hamilton Suite</i></p> <p>Escalation of increasing return to scale in metropolitan knowledge production: An analysis of US patent data <i>Jung Won Sonn (University College London)</i></p> <p>Benchmarking regional knowledge assets: The demand, supply and transfer of knowledge in Yorkshire and the Humber <i>Robert Huggins and Andrew Johnston (Sheffield University Management School)</i></p>
<p>11.00 - 11.30</p>	<p>Coffee/Tea (<i>Nelson's Lounge</i>)</p>		

<p>11.30 – 12.30</p>	<p>Committee Meeting (Committee members only), <i>Room: Hamilton Suite</i></p>
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<p>12.30</p>	<p>Lunch (<i>Nelson's Restaurant</i>), end of Conference</p>
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⁹ Friday
¹⁰ Friday

Abstracts

The economic impact of alternative electricity generation technologies on a regional economy: an input-output analysis for Scotland

Grant J. Allan^a, Peter McGregor^{a,b}, Kim Swales^{a,b} and Karen Turner^a

^a *Fraser of Allander Institute and Department of Economics, University of Strathclyde*

^b *Centre for Public Policy for Regions, Universities of Glasgow and Strathclyde*
grant.j.allan@strath.ac.uk

One of the most obvious relationships between the economy and environment is in the generation of electricity. Environmental responsibilities have been decentralised to varying degrees across the regions of the UK, including Scotland, which has set its own environmental targets. Vital for economic activity, there is now an important debate about the future pattern of electricity generation, as large-scale fossil and nuclear plants in Scotland, as well as across the UK, reach the end of their economically viable and design lives respectively. By 2023, both Scottish coal-powered facilities and both Scottish nuclear stations may be closed. The Scottish Executive's own figures project that generation capacity in 2023 will be only 32% of existing levels. This will have a significant impact on the ability of Scotland to continue to be a net exporter of electricity to the rest of the UK. Included in this decision are a range of renewable technologies, including wave and tidal devices, which are expected to make a contribution to future electricity generation. Scotland, with significant natural renewable resources, has a potentially important contribution to make in achieving regional targets, and also contributing to national UK targets. The Scottish Executive has set targets for renewable electricity generation of 18% of the total amount of electricity consumed in Scotland in 2020, rising to 40% by 2040. However, the economic impacts of the generation technologies currently employed are largely unknown.

To address this important issue, we propose a disaggregation of the electricity sector within the Scottish Input-Output tables for 2000. This novel disaggregation takes account of non-generation activities, and then identifies the linkages for each generation technology employed in Scotland in 2000. Multiplier analysis will show that there are important differences between electricity generation technologies. Also, there is no evidence that a simple delineation can be made between renewable and non-renewable generation technologies, and that there are similarities in economic impacts between radically different technology types. The issue of the future Scottish electricity generating mix is then addressed by constructing "hypothetical" future Social Accounting Matrices (SAMs) with different electricity generation mixes for Scotland at intervals of 5 years. Such future SAMs allow us to examine the impacts of different compositions of electricity generation at this important time for the future shape of the sector. The economic and environmental impacts of each future scenario will be identified.

No more nuclear? The economic impacts of the closure of nuclear electricity generation facilities across Scotland and the UK

Grant J. Allan^a, Peter McGregor^{a,b}, Kim Swales^{a,b} and Karen Turner^a

^a *Fraser of Allander Institute and Department of Economics, University of Strathclyde*

^b *Centre for Public Policy for Regions, Universities of Glasgow and Strathclyde*
p.mcgregor@strath.ac.uk

Recently the DTI Energy Review has concluded that nuclear power has a role to play in the future UK generating mix alongside other low carbon generating options. To allow policymakers at national and devolved levels across the UK to better understand the economic consequences of new nuclear, there is a need to understand the impacts which the existing facilities have on the UK and on the regions which host these sites. Using an inter-regional Social Accounting Matrix (SAM) for Scotland and the rest of the UK we use “hypothetical extraction” techniques to estimate the economic and environmental impacts of closing all nuclear facilities across Scotland and the UK. The SAM uses a novel treatment of the electricity sector where generation activities are disaggregated by technology and non-generation activities are identified. Our results show that there are economic impacts at the regional level through backward and forward linkages, however these are generally lower for nuclear than other electricity generation technologies.

Self-Organised Criticality and Complication in the UK Urban Distribution

Alasdair Anderson

University of Lancaster, a.anderson1@lancs.ac.uk

Self-Organised Criticality is an attribute of complex systems first identified by the physicist Per Bak to describe the behaviour of sandpiles. Subsequently, it has been applied to such diverse phenomena as forest fires, punctuated equilibrium in biological evolution, and the size and frequency of wars. By extension, it promises to cast new light on aspects of human geography.

One characteristic of criticality, self-organisation according to *power laws*, is already familiar in the guise of Zipf's Law for the distribution of settlements. Another, *scale-free behaviour*, is significant for monitoring the robustness of the aforementioned model against dramatic national population growth throughout historical time.

Although lognormal distribution applies neatly to the larger and middling ranges of U.K. cities over at least the past two centuries, persistent deviations from the strict Zipf interpretation require further explanation and qualification. These include how the primacy of London apparently leads to its exceeding the predicted value, the seeming dearth of smaller cities at the tail end, and reversals in the trajectories of cities amongst the upper echelons.

Furthermore, the notion of deepening *complication*, caused by new information, suggests how narrative and hermeneutical approaches can illumine those parts where statistical analysis cannot reach.

What's in a place?
Persistence in the spatial distribution of unemployment in Belfast, 1971 to 2001

Michael Anyadike-Danes and Malcolm Campbell

Economic Research Institute of Northern Ireland
M.Anyadike-Danes@erini.ac.uk, M.Campbell@erini.ac.uk

The population of Northern Ireland increased by only 150,000 over the last 30 years, but there have been some quite striking changes in its spatial distribution. As elsewhere in the UK, there has been a “hollowing out” of some of the most densely populated urban areas with the population spreading around the outer boundaries to form a less densely settled periphery.

The ‘flight from the inner city’ together with a range of Northern Ireland specific factors combined to reduce the population of the Belfast urban area by almost a third between 1971 and 1981, and since then it has remained roughly the same size, at about a quarter of a million. Over the same period Belfast’s unemployment numbers fluctuated widely. For example, over the 1970s, the numbers unemployed grew by more than 40% and the rate more than doubled; over the 1990s the numbers halved and the unemployment rate dropped to below its 1971 level. Our interest is investigating the evolution of the spatial distribution of unemployment in Belfast, both the numbers unemployed and the unemployment rate. Did a change in the spatial distribution of unemployment accompany the change in the spatial distribution of unemployment numbers? How different is the spatial distribution of the unemployment rate in 2001 from its distribution in 1971? To answer these questions we use a dataset which provides population and unemployment counts for consistently defined 1km gridsquares for each of the last 4 censuses (1971, 1981, 1991, 2001) to track changes in the spatial distribution of population and unemployment in Belfast over the last three decades.

Regional science or regional silence? An exploration of the relationship between gender and research topic, methodological approach and country of origin in the discipline of regional science

Julie Arthur

The University of Queensland, j.arthur@uq.edu.au

Diane O'Sullivan

University of Glamorgan, d.osulliv@glam.ac.uk

Regional science is a niche discipline based on a range of disparate knowledge sets which has developed as a professional community of practice. The role of academic conferences and journal publications in establishing and maintaining disciplinary knowledge is well established through the activities of the Regional Science Association International. When founded in 1954 to promote the “free exchange of ideas and view points related to regional science” gender was not on the agenda of neither this nor most other professional disciplines. This paper seeks to examine the representation of gender in recent research in regional science. The findings are based on an analysis of conference presentations and journal publications in three regional science association regions (United Kingdom- RSAIBIS, United States of America - WRSIAI and Australia and New Zealand - ANZRSIAI) in the period 2000-2006. Specifically the paper starts with an exploration of trends in authorship with attention to both research topic and methodologies addressed by single sex authors and mixed sex research teams. The relationship of the sex of the author and the use of different types of data, data collection methods and statistical techniques is examined. The extent of regional differences is also examined. The analysis showed that the dominant form of authorship among females is collaboration with at least one male and that there were discipline differences in the extent of collaboration across the regional science core theme areas: economics, geography, mathematics and planning. Differences in methodological approaches were found to exist across the three RSAI regions. The implications of gender bias on the knowledge base of regional science research are discussed.

Effects of the embodied technological progress, on productivity and growth in Ireland, United Kingdom, and the European Union (1995-2004)

Prof. Fernando Barreiro-Pereira
Universidad Nacional de Educación a Distancia
fbarreiro@cee.uned.es

An important part of the pioneer studies on the sources of the economic growth, such as in Solow (1956) or in Jorgenson (1966) supposed that a great part of the technical progress was not incorporate to the processes of capital accumulation. Moreover, some empirical and recent evidences also contradict partly several of the stylized facts of Kaldor (1961), and they cannot be explained by means of the original framework of the neoclassical growth model. Indeed, starting from the 1970 decade a fall of the productivity per worked hour is appreciated in USA, phenomenon that is known in the literature like productivity slowdown. Also, from the 1980 decade, became more and more evident that the quality of the goods, and in particular of the durable goods, increases. This more high efficiency in the production of the goods suggests that an important part of the technical progress is already incorporated in the new capital goods. This type of technical progress is then so-called as embodied technical progress. Denison (1964) already outlined that the embodiment of the technical progress in the new capital goods (the embodiment question) could be certainly relevant if the half age of the teams had an effect on the rate of real growth of the output, what would imply that the age of the capital can play a crucial role in the correct determination of the GDP growth rate. To obtain a correct measure of growth in presence of embodied technical progress there exist two schools: the traditional growth accounting school, represented by Hulten (1992), and the equilibrium growth accounting school, which measures the balance growth, and it is represented by Greenwood, Hercowitz and Krusell (1997). The main aim of this paper is to analyze how this embodied technical progress affects the growth rate and the productivity in Ireland, United Kingdom and the European Union, in the period 1995-2004.

Urban Deprivation, Migration and the Impact of Regeneration Policy: A Geodemographic Perspective

Peter Batey, Peter Brown and Simon Pemberton

Department of Civic Design, University of Liverpool
pwjbatey@liv.ac.uk; pjbbrown@liv.ac.uk; simon.pemberton@liv.ac.uk

For more than thirty years, urban policy in Britain has focused on a series of area-based regeneration initiatives involving the channelling of resources to selected neighbourhoods within cities, picked out because of their high levels of multiple deprivation. An important aim of this urban policy is to create in these targeted areas an upwardly mobile population that uses newly-acquired skills to obtain higher paid and more secure employment, develop greater personal self-confidence, and generally to improve their quality of life. Frequently the beneficiaries of such policies may also choose to move on to more affluent residential areas in the same city and beyond. The regenerated areas may in turn attract new migrants, some of whom may expect better prospects for themselves and their families as a result of living in an area that is being successfully regenerated. This, of course, will have repercussions for the areas from which they have moved.

The availability, for the first time, of small area census migration data provides an intriguing opportunity to consider how migration affects these targeted neighbourhoods. In this paper, a new analytical approach is developed that links the analysis of this detailed migration data to geodemographic systems in which neighbourhoods throughout the country are classified according to their social, economic and demographic characteristics. This enables migration between and within geodemographic neighbourhood types to be studied. Given that geodemographic area types can be ranked on the basis of affluence, it becomes possible to identify upwardly (and downwardly) mobile migrants. The analysis considers both migration flows and 'trip ends' in comparing the performance of targeted areas with that of similar areas that have not been targeted. In this way an assessment can be made of the impact of the policy intervention.

The applicability of the analytical approach is illustrated by reference to a case study of the EU Objective 1 Pathways initiative in Merseyside, North West England. Some 38 Pathways areas were defined as part of the Objective 1 programme, 1994-99, and resources targeted to stimulate community-based economic regeneration in these areas. Using one-year (2000-2001) migration data in conjunction with a geodemographic classification (People and Places), the paper demonstrates how the impact of regeneration policy may be gauged by comparing Pathways areas with non-targeted equivalent areas elsewhere.

Regional income-related inequalities and inequities in Irish health care utilisation

Jane Bourke

Department of Economics, University College Cork, Jane.Bourke@ucc.ie

The National Health Strategy (2001) identifies the reduction of health inequalities and the provision of equitable access for all as specific policy objectives. The objective of this paper is to establish the existence and extent of regional inequalities and inequities in GP and medical specialist utilisation in Ireland. Firstly, one- and two-part models determine if regional inequalities exist in GP and medical specialist utilisation with respect to income, age, gender, education, health insurance, marital status and self-assessed health status. Secondly, concentration indices measure the extent of income-related inequalities and inequities in the eight Regional Authorities of Ireland - Border, Dublin, Mid-West, Mid-East, Midlands, South-East, South-West and West. This study is carried out using the Living in Ireland Survey (2001).

One- and two- part models allow for an analysis of total inequality, as well as first and second part inequality in GP and medical specialist utilisation. Model specification tests determine the appropriate count data models for examining the total number of GP and medical specialist visits. A logit and a negative binomial measure the probability of a GP or medical specialist visit and the conditional number of visits thereafter.

Concentration indices provide a means of quantifying the degree of income-related inequality in a specific health variable, in this case GP and medical specialist utilisation. Concentration indices will be computed for each Regional Authority Area, allowing for a comparison of income-related inequalities in health care utilisation throughout Ireland.

In order to measure the degree of income-related inequity in health care utilisation, it is necessary to compare the utilisation concentration indices with need concentration indices. Therefore, a predicted value indicating expected utilisation given an individual's need for health care is obtained from regressions of health care utilisation on age, gender and self-assessed health status. From these predicted values for health care utilisation, it is possible to calculate corresponding predicted-need concentration indices. The presence of horizontal inequity is determined by comparing the concentration indices for utilisation with the concentration indices for need. Horizontal inequity indices establish the extent of regional income-related inequities in health care utilisation in Ireland.

**Promoting a Central-Eastern European region:
Determinants of spontaneous and strategic approaches to FDI attraction**

Paweł Capik

Paisley Business School, University of Paisley, pawel.capik@paisley.ac.uk

Since the beginning of systemic change foreign direct investments (FDI) have been perceived as an important source of capital, technology and employment for the restructuring regional economies of Central Eastern Europe (CEE). Post-EU enlargement increase of FDI flows to CEE indicates growing interest of multinational enterprises in the market opportunities and exploitation of comparative advantages of the new EU entrants.

Increasing contest for lucrative FDI projects requires national and regional authorities to actively compete and promote their areas. Towns, cities and regions increasingly promote themselves convinced of their competitive place advantages (Ward 1998), yet still there is a complete lack of systematic cross-national studies identifying good practice to assist policy-making and ensure sustainable and embedded flows of valuable FDI as part of the region's development strategies (Young 2005).

This cross-disciplinary research comes from two major theoretical backgrounds – regional development theories and place marketing concept. It aims to explore the role place promotion plays in the development of the regions in Central Eastern European Countries (CEEC). Growing FDI inflows stimulate competition between nations and more importantly regions within individual country. Regional promotion practices established by the post-industrial cities of the western economies require adjustments to CEEC reality, however the level of importance assigned by the regional authorities to this still somewhat new policy tool vary across the countries.

Attempting to answer the questions about causative factors determining regions involvement in promotion activities and the determinants of the different approaches to promotion across the CEEC, the paper offers insights into possible effects of promotional strategies and their impact on FDI spatial distribution within CEEC. Essentially the paper aims to answer the question about reliability and usability of regional promotion strategies for FDI attraction purposes.

Using the data collected in census of all Czech, Polish and Slovak regional authorities this contribution explores the nature of CEE regional promotion. It suggests the measures to assess regional authorities' involvement in the process and proposes a synthetic index indicating nature of regional promotion activities. Furthermore it investigates the causative variables affecting regional authority involvement with regional promotion, thus complementing the current literature debate, it answers the fundamental question: is place promotion a cause or effect of FDI attraction? Initial findings indicate significantly divergent approaches to regional promotion, not only in different countries, but also within a single nation. Regional promotion is often characterized by ad hoc, actions and many regional authorities lack the strategic approach to FDI attraction. Prosperous and affluent regions are not necessarily the leading examples of FDI promotion. The dominant role of image creation diminishes in favour of service provision.

Internal migration and residential segregation in Northern Ireland: Exploring relationships using the 2001 Census of Population

Gemma Catney

School of Geography, Archaeology and Palaeoecology, Queen's University, Belfast,
g.catney@qub.ac.uk

Internal migration within Northern Ireland takes place within a very specific and unique context, with the prevailing political, religious and social situations, conditions and interactions likely to play a distinctive role in the migration process. Such migration is likely to adopt unique forms and patterns, influencing and influenced by the persistent, yet changing, patterns of residential segregation in Northern Ireland. This relationship between migration and residential segregation has been largely under-researched in academia, both in Northern Ireland but also in the wider academic literature. Indeed, the fluid and dynamic nature of residential segregation is often ignored, and the role of migration unaccounted for (Simpson, 2004). The relationship between internal migration and residential segregation is a complex one, and there are many different potential ways in which to explore this, and related issues. One of the problems associated with such analyses is in the employment of appropriate methods for the analysis and presentation of quantitative information. Drawing on research from Northern Ireland, a society segregated by 'religion', the present paper will explore the potential impact of migration on population concentration and dispersal.

The paper will consider the relationship between internal migration and community background ('religion or religion brought up in') in Northern Ireland, providing context through the analysis of migration rates and mobility differentials. However, the main focus of the paper will be on methods for analysing the impact of migration in changing patterns of residential segregation. This will make use of the two sources of migration data from the 2001 Census of Population of Northern Ireland: area and origin-destination (flow) data. Using area data, spatial variations in migration and changes in population concentration will be explored through the analysis of net migration rates and proportional change by community background. Following this, the relationship between in- and out-migration and residential composition will be analysed using global regression. Recognising the marked local variations in this relationship, a local regression model (in this case, geographically weighted regression) will be employed. Finally, changes in the population structure due to migration will be analysed through, for example, segregation indices. Using the origin-destination data, the final section of the paper will further explore the dynamics of migration in the 'divided society', through the employment of a spatial interaction (gravity) model. Concluding comments will reflect on the usefulness of the methods employed, and on empirical findings.

The commuting behaviour of recent in-migrants to rural settlements in England

Tony Champion and Mike Coombes (Newcastle University)
and David L. Brown (Cornell University)

Tony.Champion@newcastle.ac.uk

This paper is focused at the intersection of two important and increasingly interconnected trends which raise questions about the role and status of rural communities in England. Both increased long-distance job commuting among rural workers and the continuing exodus of residents from cities to more rural areas contribute to a more decentralized settlement pattern where work and residence are increasingly separated for a large share of working age households and where dependence on the private car is heightened. The increasing average distance of commutes is part of the infrastructure that makes population deconcentration possible, but the direction of causation runs in the other direction as well, because more people are now living in rural communities whose labour markets may be unable to provide a sufficient supply of jobs.

While there is now a substantial literature on commuting, the interrelationship between migration and commuting is still not well documented. This paper aims to fill the gap in knowledge about commuting among recent rural in-migrants. Using the Controlled Access Microdata Sample (CAMS) of the 2001 Census, it examines the distance to work patterns of employed persons who moved into settlements in rural England in the pre-census year and compares them with those of longer-term residents. Given that the characteristics of these two groups vary considerably, we then use binary logistic regression analysis to control for these variations as well as for assessing how these other factors affect the propensity of people to commute 20km or further. This analysis also explores how far commuting distance varies by the degree of rurality of people's residences, as measured in terms of the type of local authority and the size of settlement. A final analysis investigates how far commuting distance varies by the type of recent move, measured in terms of distance of move and in terms of the type of local authority moved from.

Learning lessons for the future of devolved finance in the United Kingdom from its past: proposals and policies from Irish Home Rule to the devolution acts of 1998

A.C. Christie and J.K. Swales

*Centre for Public Policy for Regions and Fraser of Allander Institute,
University of Strathclyde, alex.christie@strath.ac.uk*

The process of devolution within the United Kingdom has led to increasing scrutiny of the method by which the devolved governments receive their financial resources. This is largely by grant allocation from central government in Westminster. Academic commentators and an increasingly large band of politicians of all hues have questioned whether it is appropriate for elected assemblies and a parliament to be funded in this way. Much of the attention turns understandably on the Barnett formula and its implications (see Midwinter (1999) and Bell (2000) for descriptions and analyses of the operation of the formula). Other works focus on alternatives to the Barnett formula, drawing both from economic theory and the experiences of other countries (Darby, Muscatelli and Roy, 2002; Hallwood and McDonald, 2004 & 2006; Steel Commission, 2006). This paper seeks to show what lessons can be learned from previous attempts to devolve power from Westminster to the nations, and in Northern Ireland's case the entity, that have formed the United Kingdom in its different guises. The rich history of proposals and policies concerning devolved finances within the United Kingdom has largely been ignored in the debate to date and yet it offers a bountiful source of information on the successes and failures of various finance systems. It has the crucial advantage of being set within the United Kingdom's constitutional constraints

The Impact of Industrial Specialisation on Regional City Growth in US Micropolitan Statistical Areas

Terry Clower

University of North Texas, Denton, Texas, USA, tclower@unt.edu

In previous research Beer and Clower examined the impact of industrial specialisation on growth in Australian regional cities. The professional literature in this area presents highly varied findings with some researchers calling for industrial diversification to promote growth, and some finding that development strategies focusing on a narrow list of industrial sectors offer the best opportunity for smaller cities to survive and thrive economically. Using a modified Herfindahl index to assess industrial specialisation, we found no significant relationship between the degree of specialisation and population change or employment change. Our analysis did show that economies becoming more specialised saw improved employment and population trends. We interpreted this finding by reasserting the long-known phenomenon that economic development is a process that requires continual action and economic adaptability. In this research, a similar approach is taken to see if the Australian findings hold true in a US context. We also extend our previous analysis to examine the impacts of specialisation on economic development in US micropolitan areas. If the findings of this research prove robust in a cross national perspective, we increase our ability to develop recommendations for strategic choices in regional economic development planning.

Innovation Systems in Ireland and Greece

Patrick Collins and Dimitrios Ponitkakis

Department of Geography, National University of Ireland, Galway
P.Collins@nuigalway.ie

Two decades ago, Greece and Ireland stood passive spectators of political, economic and technological developments at the core of an emerging European Economic Community. Away from the industrial centres of Europe, the attainment and application of new ideas, it seemed, had no place among the prescriptions of policy. The pursuit of each country's comparative advantage dictated that they be net consumers of technological wares invented elsewhere. And while a lot has changed in the meantime, a great deal has also endured.

Today, innovation is no longer confined to the fringes of industrial policy; it features prominently, throughout the continent, as 'the solution' to the re-discovered riddle of competitiveness. Ideas on how to best mobilise intellectual assets for innovation abound. Theory suggests that institutions are important in shaping productive efforts towards innovation; the experiences of Ireland and Greece offer a fitting testing ground.

Ireland has made strides in the FDI route to prosperity, no longer enjoying a 'cohesion' status. Greece however faces pressing economic problems, in the aftermath of celebrated, largesse-fuelled growth. Over the period in question though, nowhere else have the differences between the two countries become more accentuated (and apparent), as in matters of innovation. We propose that the key to these differences lies with the drafting of policy and the consequent shaping of their institutions. We observe that importing solutions from abroad, with Greece looking to Brussels and Ireland to the US, was central to their respective experiences.

**Are all labour market areas ‘regional’ in scale in the Twenty-first Century?
Challenges in updating the definition of Travel-to-Work Areas**

Mike Coombes, Colin Wymer and Simon Raybould
CURDS, Newcastle University, mike.coombes@newcastle.ac.uk

This paper reflects on the implications of increased long-distance commuting among British workers for the definition of the *local* labour market areas which are known as Travel-to-Work Areas (TTWAs). Do substantially self-contained local labour market areas – which the TTWAs boundaries seek to identify – still exist? Do most workers now live and work in a ‘regional world’? This paper reports on the research undertaken to meet the challenges faced in updating TTWA boundaries with 2001 commuting data.

The existence of distinctly *local* labour markets stems from most people limiting the length of their journeys to work: so long as this remains true, and job opportunities remain clustered, then there will be localised labour market areas. Whether these areas do still exist is an empirical question, and the paper will report on the findings of comparative analyses of 1991 and 2001 commuting patterns to look answer this question explicitly. It also provides some evidence on several very important differences between the 2001 and 1991 Census datasets which affect how far analyses of the 2001 data can be seen as a direct ‘updating’ of TTWA boundaries. One implication is that some methodological development was appropriate to meet these new challenges; these developments also ensure that the TTWA definition methodology remains internationally recognised as the ‘state of the art’ for local labour market area definitions.

One final set of issues concern the future. Will the revised definition methodology prove to be as transferable to other countries as the original TTWA algorithm has over the years? More fundamentally, if the growth in long-distance commuting continues in the way it has over recent years, what might be the results from analyses of the *2011 Census* to identify labour market boundaries in the future regions of the UK?

Analysing directionality in human geography using GIS and circular statistics: A case study using journey to work data for South East Queensland Australia

Jonathan Corcoran and Robert Stimson

University of Queensland, Brisbane, Australia, jj.corcoran@uq.edu.au

Circular statistics have been described as a “curious byway of statistics...somewhere between the analysis of linear and the analysis of spherical data” (Fisher 1993, p.1). Early roots of the discipline date back to the mid-eighteenth century (Bernoulli, 1734) where circular measures were used to show that the orbital planes of the planets in the solar system could not be aligned by chance (see Mardia, 1972) and Florence Nightingale (Nightingale, 1858) who developed the rose diagram to illustrate the efficacy of improved sanitation in hospitals during the Crimean War.

Since these early beginnings, circular statistics have developed as a set of techniques that largely remains the domain of non-human related research having been applied in a number of disciplines including the physical, ecological and biological sciences, where it has been used to analyse the aspect of glaciers (Evans, 2006), wind and wave directions (Bowers et al., 2000), the distribution of plants species (see for example, Aradóttir et al., 1997), the movements of animals (Christman and Lewis, 2000) and exploration of neurone patterns (Drew and Doucet, 1991). In addition, the previous applications of circular statistics have not established formal linkages (such as a dedicated suite of circular analysis tools) between GIS and circular data analysis is yet to be fully explored for either visual data exploration or analysis.

The importance of circular statistics in analytical human geography in the investigation of spatial behavioural phenomena is two-fold, first as a technique to analyse direction (e.g. a direction of travel), and second to investigate human activity in a time context (e.g. an hour of the day). In both cases circular statistics have a potentially important role to play in uncovering the nature of the impacts of direction and time in the analysis of human spatial behaviours. Here, we define directionality to refer to as either a point on a compass (e.g. a direction of travel) or some measure of time (e.g. an hour of day).

This paper uses a disaggregate database describing Journey to Work across South East Queensland, Australia. The data takes the form of a matrix comprising one column and one row, specifically a destination code and an origin code and the total number of people travelling between each origin and destination. This is further categorised by gender, mode of travel and industry sector. Several circular measures are applied to this data to explore directionality within a GIS environment to ask questions such as: What is the mean direction of commuter travel and how does this mean direction vary from one region to the next? Does the mean direction of commuter travel of any one travel zone differ significantly by gender and mode of travel?

The paper concludes that the use of circular statistics integrated within a GIS environment advance our current tool set in analytical human geography and regional science and has the potential to revolutionise the way spatial flows and interaction data may be analysed and represented that will enable new insights in the interpretation of important human spatial behaviours such as migration flows travel patterns within cities, and household activity patterns in time and space.

Rail privatisation in Britain: An assessment after 10 years

Graham Crampton

Reading University, g.r.crampton@reading.ac.uk

The privatisation of the British railway network was one of the biggest and certainly the most complex of the privatisations of nationalised industries that were pushed through in the 1980s and 90s. It is perhaps the privatisation of most relevance to regional science. After roughly 10 years, it is worth taking stock of how it has evolved, and what could be seen as strengths and weaknesses of the (not so) new structure. The privatisation was based on the principle of the separation of rail service operation from its infrastructure. A number of the false starts and mistakes could be thought of as resolved, or having led to improvements in practice. The rail operators (TOCs, train operating companies) comprise mainly (but not wholly) British companies, which are active in other areas of public transport. Horizontal integration is therefore a feature of the new system, and there has been a tendency towards greater concentration of franchises into fewer hands. The main part of the total costs now borne by the public sector are of the same order of magnitude as the investment costs borne by the private sector. In spite of this, the total cost to the taxpayer has risen substantially, though total passenger numbers have also risen and there is much new infrastructure and vehicle stock. The paper will also speculate on the relevance of these trends for urban and regional structure in Britain.

Establishing the Statistical Significance of Local Sector Concentrations of Economic Activity: A Comparative Analysis of Welsh Data

Andrew Crawley and Stephen Hill
Glamorgan Business School, University of Glamorgan
acrawley@glam.ac.uk and shill1@glam.ac.uk

The location quotient has become commonplace within the regional economist's tool box, but its application is rarely accompanied by any quantitative gauge of its significance. Assessments derived from the economic base model typically use arbitrary cut off points such as 1.25 as the benchmark for local concentrations. This work will seek to estimate location quotient confidence intervals which allow for variance from the initial point estimate, and will demonstrate that significance is a function of two key dimensions: the levels of spatial and sectoral disaggregation. Hence a realistic benchmark would account for both of these key variables in defining significant concentrations. This approach is applied to data for South Wales in order to examine the aggregate variance for specific sectors across the region, with, perhaps, some surprising results that challenge conventional views of the distribution of economic activity.

Institutional modes, stakeholder interests and local clusters promotion

Mike Crone

Queen's University Belfast, m.crone@qub.ac.uk

Andrew Atherton

University of Lincoln

Clustering has been one of the hottest topics in regional economic development over the last 10-15 years, spanning the disciplines of regional science, economics, geography, planning, business & management, etc. One of the key issues in the clustering debate is the extent to which successful 'natural' clusters (those not consciously engineered by policy intervention) offer a transferable model or template that can be applied to enhance the economic performance of other regions. More specifically, can or should policy-makers intervene in an attempt to create or sustain local industry clusters, and, if so, how should this be done?

As Martin and Sunley (2003) have observed, policy-makers across the developed world have raced ahead with cluster-based economic development strategies, well before there was an evidence base in place to justify, or equally importantly, guide such endeavours. A review of the burgeoning clusters literature reveals very few papers dealing with the issue of practice – i.e. how to 'do' clusters policy. Further, only a handful of the numerous case study expositions of industry clusters from around the world, have examined instances where policy-makers have attempted to 'engineer' clusters; rather the majority have described and attempted a post facto rationalisation of the existence of 'natural clusters'. Thus, there is – at best - only sparse evidence to support the assertion that policy-makers can create or sustain local industry clusters. And there is even less consensus on the 'dos', 'don'ts' and 'how to' of local clusters policy (i.e. good practice and potential pitfalls).

In broad terms, this paper seeks to contribute to the small existing literature on the implementation of clusters policy at the local/regional scale, which is something of a 'black box' in the existing literature. The primary objective of the paper is to empirically test - through a case study investigation – two recently proposed conceptual models of clusters promotion and the clusters formation process. Atherton (2003 & 2006) has mapped out an empirically-derived conceptual model of 'bottom-up clusters formation'. This model depicts the contingent progression of a cluster through a number of stages, emphasising importance of thresholds in the clusters formation process and highlighting various conditions for transition from one stage to the next. Fromhold-Eisebith and Eisebith (2005)'s contribution highlighted a distinction between two prevailing 'institutional modes of cluster promotion': the explicit top-down (usually driven by policy-makers) and implicit bottom-up (company-driven) approaches.

The utility of these two models is explored in the paper through the lens of a case study of one particular cluster initiative targeting the IT sector in the North West region of Ireland. Methodologically this case study draws on two complementary sources: 1. Face-to-face interviews conducted with key stakeholders in the initiative (participating companies and institutional stakeholders); 2. A systematic desk-based analysis of key project documents from the cluster initiative, covering a five year period from its

inception in 1999. Unlike many cluster studies, an interesting feature of this case is that the cluster initiative could not be described as wholly successful (at least at the time of writing); hence the case offers the possibility of learning from ‘mistakes’ or ‘failings’.

Our empirical case study investigation finds some utility in both models. Atherton’s framework is useful in drawing attention to actual/potential ‘sticking points’ in the clusters formation process, which occur when the cluster and its participants are unable to satisfy certain ‘conditions for transition’ (e.g. unwillingness to commit own resources, difficulty identifying tangible benefits, crisis of trust/credibility). Fromhold-Eisebith and Eisebith’s framework focuses our attention on the link between the chosen ‘institutional mode’ of cluster promotion and the outcomes/achievements of a given cluster initiative. In our particular case, we identified a conflict between the explicit top-down objectives of certain institutional stakeholders and the more implicit bottom-up objectives of many (especially smaller, independent) participant companies. By subjecting the two frameworks to empirical ‘validation’ using a detailed case study we also realised the possibility of extending and synthesising the two approaches to provide a more robust, unified model, which we tentatively sketch out.

In practical terms, the paper highlights the significant gap between the apparent advantages to be derived from clustering, as per established academic theories, and the actual operationalisation of local cluster initiatives as a tool for policy intervention in the realm of local/regional economic development. In particular, we draw attention to the difficulty of mobilising a diverse group of companies and institutions, with often diffuse (sometimes even contradictory) motivations and expectations, around a set of common goals or strategic objectives. Ultimately, the study leads us to be sceptical about the scope for successful policy-led clusters promotion, particularly of the explicit top-down type. We tentatively propose some potential alternative models for policy intervention following a less explicit, bottom-up, company-focused approach to clusters promotion.

Exploring pro-cyclical bias in sub-central fiscal policy: Evidence, likely causes and implications

Julia Darby and Graeme Roy
University of Strathclyde, julia.darby@strath.ac.uk

The fiscal decentralisation literature universally recommends that automatic stabilisation should be conducted at central government level. Furthermore, efficiency concerns imply that the spending responsibilities typically allocated (devolved) to sub-central tiers of government should be largely a-cyclical in nature. However, many of the revenue sources available to sub-central governments are pro-cyclical, and opportunities to smooth fluctuations in revenue tend to be limited since most sub-central governments have restricted borrowing autonomy. Unless grant allocations from central to sub-central government offset cyclical fluctuations in other sub-central revenues, expenditure is likely to be forced to be pro-cyclical too. The literature on pro-cyclical bias in fiscal policy has not so far paid much attention to the sub-central tier of government, but the considerations highlighted above suggest that sub-central government behaviour may contribute to any pro-cyclical bias of aggregate fiscal positions.

In this paper we explore sub-central government data from IMF Government Financial Statistics for 15 OECD countries over the period 1970-2000. We assess the extent of cyclicity in sub-central tax and non-tax revenues, and check the degree to which grant finance offsets these fluctuations, if at all. We then check to see if fluctuations in sub-central revenues are indeed passed on to expenditure fluctuations, or if instead the sub-central tiers of government are able to smooth expenditure. Our results suggest that countries fall into distinct groups. Countries that rely more heavily upon grant finance show a lesser degree of pro-cyclical bias in sub-central government expenditure, while those that rely more heavily on tax revenues (either from "own" or "shared" taxes) exhibit more pro-cyclicity in expenditure.

Having explored the evidence in detail, we discuss the extent to which these findings impact on macroeconomic stability. Finally, through comparing results across countries we attempt to draw conclusions on the desirable and undesirable institutional characteristics of sub-central government finance.

Assessing Local Government Wealth Base

Peadar T. Davis

School of the Built Environment, University of Ulster, pt.davis@ulster.ac.uk

William J. McCluskey

School of the Built Environment, University of Ulster

Lay Cheng Lim

School of the Built Environment, University of Ulster

The aim of this research is to investigate the implications for local taxation revenue raising of the proposed Local Government Reform in Northern Ireland, as affected by the recently completed review of the Rating system. It will analyse a large dataset of house sales drawn from across Northern Ireland aggregated into a number of different agglomerations of current local government areas. Under the Review of Public Administration Northern Ireland the number of Councils is likely to be reduced from the present 26 to as few as seven. This reduction will have an impact on the rating base for the newly created councils. In this regard the objective of this research is to try and measure the underlying property wealth base that can be utilised by district councils in raising locally based revenue through the system of domestic and non-domestic rates. It is also important to recognise that, for domestic property, a capital value based system will be introduced from April 2007 with each property having its own assessed capital value, a change which will also alter the revenue raising capacity of the proposed new jurisdictions. Against an expectation that these new 'super councils' will have roughly similar resource requirements, the research will seek to indicate which pattern or shape of local government will be best suited to balance resource requirement with revenue raising capacity. The paper is of relevance in a local context and also in an international context, given the increasing reliance on locally raised property based taxes to underpin revenue raising for local services and decentralised local government.

Temporal Dynamics of Regional Labour Productivity and Gross Value Added per Head in the UK, 1975-2004

Jose Luis Iparraguirre D'Elia

Economic Research Institute of Northern Ireland, Belfast, Northern Ireland, UK

jose@erini.ac.uk

In a seminal work, Fan and Casetti (1994) used the expansion method (Casetti, 1972) to study the temporal dynamics of labour productivity and gross domestic product by US state. This tool allows for a decomposition of interregional inequality over time and across regional ranks, which sheds additional light to processes of convergence or divergence compared to conventional β and σ -convergence techniques. The expansion method was used, amongst others, by López-Bazo et al (1996) for both labour productivity and GDP per head across Spanish provinces and EU regions, and by Quah (1993, 1995, 1996a, and 1996b) also for EU regions. However, no published paper applied this technique to UK regional data, which is what this paper does to UK labour productivity and Gross Value Added per head data between 1975 and 2004.

The Degree of Synchronization in Regional Business Cycles in Great Britain

John Dewhurst

School of Social Science, University of Dundee, j.h.l.dewhurst@dundee.ac.uk

In this paper business cycles for the regions of Great Britain are compared. Using data on ILO unemployment rates for the regions the business cycles are estimated by use of a band pass filter. The synchronicity, or degree of co-movement, of the resulting estimates of the business cycles are examined. Using a VAR approach the degree to which the regional business cycles may be explained in terms of a common national cycle and the degree to which they are subject to region specific variations coupled with spill-over effects are estimated. The robustness of the results with respect to (a) the choice of employment / unemployment variable used, (b) the particular band pass filter used and (c) the dynamic specification of the VAR is examined. Finally the relationship between the degree of co-movement of the business cycles for pairs of regions and (a) the distance between the regions and (b) the similarities of their industrial structures is investigated.

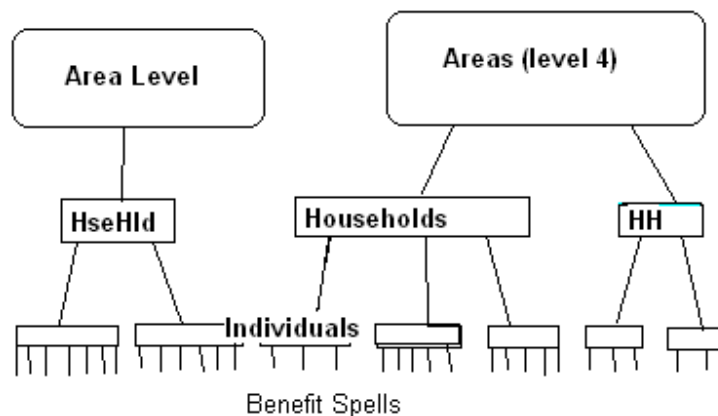
Modelling Multiple Socio-Economic and Geographical Disadvantages on Employment Outcomes from Longitudinal DWP data

Sue Easton
Sheffield University, S.Easton@sheffield.ac.uk

The aim of the proposed research to investigate the effects that multiple socio-economic and geographic disadvantages have upon the employment opportunities of individuals living in different types of localities across Britain, by analysing data from the in-house Longitudinal Study of the Department for Work and Pensions (DWP) . This longitudinal study goes back to 1998 and currently contains over 68 Million records. However, the dataset is administrative, rather than a designed social survey, which presents specific problems for analysis.

One possible methodology under consideration for modelling the data is microsimulation. With this technique, individual households in the primary dataset are matched to a secondary dataset (such as the Census) using a set of core variables (such as age, gender, ethnicity, family type, social class, housing tenure etc). Following this, different household types are re-weighted to fit the profile (numbers) in the larger survey, thereby simulating a population using the combined information of both datasets. This “simulated” population could then be mapped. However, the absence or poor quality of desired core variables for matching the datasets is a potential drawback.

A further option is to model the primary dataset hierarchically using discrete time analysis, where benefit episodes belonging to one individual are nested within households, and households within the areas (eg wards):



This technique involves modelling the residuals (sometimes called “error”) in the regression equation in order to “partition out” explanatory effects at different levels. In this case a model could be constructed to estimate the probability of an individual claiming benefit depending on a range of different factors such as age, ethnicity, gender, social class, education, disability / health Status, length of time on benefits, family type, household type and geographical area.

The advantage of modelling hierarchically is that the effects of variables at different levels of the model can be compared and contrasted, demonstrating which have the greatest effects (individual level variables, area level variables, household level etc).

Human Capital, Graduate Migration and High-Technology Innovation in British Regions

Alessandra Faggian* and Philip McCann**

* *Department of Economics, University of Reading, a.faggian@reading.ac.uk*

** *Department of Economics, University of Waikato, pmccann@waikato.ac.nz; and
Department of Economics, University of Reading, p.mccann@reading.ac.uk*

With the aid of a geographical information system, our paper constructs a three stage least squares simultaneous equation model to investigate the interrelationships between the interregional flows of human capital, and the high technology innovation dynamism of a region. In order to do this, we model the interregional migration behaviour of British university graduates from university into first employment, and we relate these human capital flows to both the labour market characteristics and the knowledge characteristics of the employment regions. Our results indicate that in Great Britain, after controlling for the two-way causality between the interregional human-capital employment-migration flows of recent university graduates and regional high technology innovation performance, the migration effects of embodied human capital appear far more important than local university-industry spillovers, as an explanation of regional high technology learning effects.

**Human Capital, Higher Education and Graduate Migration:
An Analysis of Scottish and Welsh Students**

Alessandra Faggian* Philip McCann** and Stephen Sheppard***

**Department of Economics, University of Reading*

***Department of Economics, University of Waikato and*

Department of Economics, University of Reading

****Department of Economics, Williams College, Williamstown, MA 01267, USA*

In this paper we model the sequential migration behaviour of some 76,000 Scottish and Welsh students, from their domicile location to the location of their higher education and on to their employment location. We employ a probit model methodology to analyse the choice of the location of the university attended, whether inside or outside of Scotland or Wales. Then, within a GIS framework we estimate migration-on migration correlations and elasticities in order to identify the mobility effects of human-capital acquisition. Our results confirm the DaVanzo hypothesis that subsequent migration is related to previous migration, and also the Sjaastad-Becker hypothesis that higher human capital individuals are more geographically mobile. However, there are institutional differences between the two countries which mean that mobility effects of human-capital acquisition have to be interpreted carefully in the light of other economic, geographic and social influences.

**Re-thinking accessibility planning:
A multi-layer conceptual framework and its policy implications**

António Ferreira
University of Coimbra, Portugal and University of Liverpool,
A.C.Ferreira@liverpool.ac.uk

Peter Batey
University of Liverpool, pwjbatey@liv.ac.uk

This paper examines the concept of accessibility using a set of analytical layers. The layers address the mobility, demand-related, temporal, perceptions-related and institutional features that influence accessibility levels. These can promote specific types of accessibility that decision-makers consider the most appropriate for the characteristics of each place or group of people. The paper reviews how accessibility has been addressed in the planning literature, and points to its flaws. An alternative perspective is proposed in which the analytical layers are used in a modified sequence. This reflects the complex processes associated with accessibility agendas. The proposed alternative use of the layers is held to promote accessibility which has a number of social and environmental repercussions. These are capable of inducing more sustainable and inclusive communities. Based on these claims the authors propose a policy shift for the accessibility planning paradigm.

**Prediction using panel data regression with spatial random effects:
Simulating the impact of mass immigration on local wage rates in Great Britain**

Bernard Fingleton
University of Cambridge, Bf100@cam.ac.uk

This paper uses spatial panel data regression to predict the effects of mass immigration on income levels in local authority areas of Great Britain. The econometric model is motivated by urban economic theory, resulting in a reduced form in which the wage level depends on the density of employment in each area. This relationship captures the increasing returns to urban density deriving from internal increasing returns for firms under a monopolistically competitive market structure. In addition wages depend on the efficiency of the labour force, modified by in-commuting, leading to a reduced form with an endogenous spatial lag. Heterogeneity across local authority areas and unmodelled spatial autocorrelation are accounted for via an SAR process for the error vector. The reduced form involves parameter constraints that are satisfied by an iterative estimation procedure, within which is nested GMM, nonlinear least squares and spatial FGLS. The simulations based on the estimated model can be seen as part of a model-based evaluation of the cost and benefits of mass immigration. Under the scenarios considered, the results point to mass immigration increasing employment densities and wage levels, but the key variable is the level of efficiency assumed for the migrant labour. Wage levels fall with unqualified immigrants, but increase if immigrants have qualifications.

Accounting for Spatial Differences in Environmental Factors in Estimating Productivity Change

Euan Fleming and Renato Villano

School of Economics, University of New England, Armidale, Australia
efleming@une.edu.au

Changes in productivity and efficiency in the production of goods and services are typically measured in two ways: the parametric approach of estimating stochastic frontier production or distance functions; and data envelopment analysis, based on linear programming. Practitioners applying both methods have long recognised the potentially complicating effects of different production conditions on each production unit, but have taken few steps to account for their impacts on individual estimates of productivity and efficiency. In some instances, the environmental differences are technologically based but in most cases they are a function of spatial variations in the environmental conditions in which firms operate. This is especially true in resource-based industries such as agriculture where biological and climatic conditions in which farmers operate can vary widely even for farmers are operating the same enterprise.

In this paper, we highlight the potential for incorrectly estimating productivity changes in agricultural production in two instances, wheat production in Iran and wool production in regions of Australia, by failing to account for spatial environmental differences. Using these case studies, we show how the estimation of a deterministic stochastic metafrontier production function model that envelops the stochastic frontiers of the different growing regions is defined by all observations in the different regions in a manner consistent with the specifications of the stochastic frontier model. This approach enables us to estimate the environment-technology gap ratio, which measures the ratio of the output for the frontier production function for each region relative to the potential output that is defined by the metafrontier function. In this way, we demonstrate how it is possible to take account of spatial differences in the environment (and differences in production technology that are induced by these environmental differences) in which the wool and wheat enterprises are operated in each region in their respective countries. As a result, a more accurate estimation is possible of changes in total factor productivity between farms in different regions.

Clearly, agriculture is a prime candidate for the application of this method. But it should also prove useful for estimates of productivity change in all industries where spatial differences in the environment influence the performance of individual production units.

Spread of the SHG Banking Linkage Programme in India

Cyril Fouillet

French Institute of Pondicherry, Pondicherry, India, cyril.fouillet@ifpindia.org

and Britta Augsburg

University of Maastricht, britta.augsburg@governance.unimaas.nl

For the past years, a visible body of literature that documents and monitors the Self-Help Group (SHG) movement has been accumulating. Based on macro data or household survey data, previous studies on empowerment, income generating or other socio-economics indicators have provided important insights on the evolving pattern of SHG impact in India. Nevertheless, very little research has been done on the spatial dimension of the microfinance sector development in India. There is a need to address such questions as: what do you know about the spatial characteristics of the SHG development? Does SHG banking linkage programme reach his main objective, i.e. to complement the formal banking sector to serve the financial needs of low income clientele, and the increased demand for credit from rural households?

My communication will attempt to fill this void by applying the recently released district data and through mapping and qualitative analysis to empirically explore the spread of microfinance in India. To provide a view of the variation relative to the size of the data measures we employ picture maps for selected years are plotted using Arc View GIS, which links with the main database for this study. This article investigates the evolution and distribution of the microfinance sector in India. Through the example of SHG methodology, the spatial dimension and dynamics at work in the process of microfinanciarization will be described and the influencing factors of this development, such as macro-economic variables as well as of interactions among neighbouring regions, will be empirically tested for.

The conventional idea that SHG movement is more developed in regions with a weak banking sector and less developed in regions with a strong banking exclusion may not be accurate and needs to be reconsidered. Findings on the spatial variation and changes of microfinance development sector enhance our understanding of the complex processes of regional development under way in India today and can contribute to the formulation of innovative regional development policies.

The National Impact of Regional Policy: Policy Simulation with Labour Market Constraints in a Two-Region Computable General Equilibrium Model

Michelle Gilmartin

*Fraser of Allander Institute and Department of Economics, University of Strathclyde,
michgilmartin@hotmail.com*

UK governments generally advocate regional policy as a means of reducing regional disparities and stimulating national growth. However, there is limited comprehension regarding the effects of regional policy on non-target economies. This paper considers the system-wide effects on the Scottish and rest of UK (RUK) economies of an increase in labour market efficiency in the Scottish traded sectors. The shock being considered relates closely to the direct impact expected from one of the policy priorities identified by the Scottish Executive: to improve Scottish economic growth by increasing productivity levels and thus the competitiveness of the Scottish economy relative to other countries.

The research is carried out in an inter-regional Computable General Equilibrium framework of the Scottish and RUK economies, under alternative hypotheses regarding wage determination and inter-regional migratory behaviour. The findings suggest that regional policy can have significant national spillover effects, even when the target region is small relative to the RUK. Furthermore, the configuration of the labour market is important in determining the post-shock adjustment path of both economies. In particular, while Scottish economy results are sensitive to alternative versions of how regional labour markets function, RUK region effects prove to be even more so.

Mapping of Industry Inter-linkages: A Case Study Approach to Biotech in Cork

John Hobbs*, Richard Moloney** and Michael Walsh*

**Department of Management and Marketing, Cork Institute of Technology*

***Centre for Policy Studies, University College Cork*

john.hobbs@cit.ie; r.moloney@ucc.ie; michael.pwalsh@cit.ie

In recent years the impact of geographic agglomeration of economic activity has captured the interest of the research community. A large portion of this interest focuses on the locational decision of firms. Why do firms locate in a specific area or region? In the global economy it seems distance is no longer an issue, as capital, expertise and inputs can be accessed at high speed. Therefore, it is reasonable to expect that economic activity may become more spread out geographically. However, researchers have observed a tendency for spatial concentration of economic activities. Some of the most notable of these concentrations of economic activity are Northern California's Silicon Valley and Boston's Route 128, which have become known as being highly innovative world leading regions. One of the key elements to the success of these regions is said to be person to person interaction and knowledge sharing across R&D and innovation functions.

In Ireland the IDA (Industrial Development Agency) has responsibility for securing new investment from overseas in manufacturing and internationally traded service sectors. In a press conference announcing their end of year statement for 2006, IDA chief executive Sean Dorgan states "Ireland is now seeking and winning high-value investments that add to our innovation and support regional development". "IDA-supported companies spent almost €15bn in the Irish economy in 2006 from annual sales of €77bn and paid over €2.8bn in corporation tax". The agency noted that in order to sustain this momentum there needs to be a critical mass of talent, supporting infrastructure and sophisticated business services in cities and regions of Ireland.

In an attempt to document some of the supporting infrastructure and sophisticated business services spoken of by IDA this paper presents findings from a **case study** designed to map the nature and extent of individual biotech company linkages with other industry members and academia. Input and output interactions have been traced for four companies (2 Foreign, 2 Domestic) and are presented in this paper, together with their innovation, R&D and employment related interactions. A case study approach has been used previously quantitatively by Sivitanidiou (1999) and qualitatively by Saxenian (1994). By ascertaining from companies which linkages with other industry members and/or academia are important to them, we are able to make inferences about how linked or rooted they are, to the region in which they operate. The paper reports how linkages are initiated and nourished, and the kind of business benefits they produce.

A Role of the Central Place System in the Determination of the Firm's location

Toshiharu Ishikawa
Chuo University, ishiy@tamacc.chuo-u.ac.jp

This paper investigates the relationships between the manufacturing firm's location and the central place system. When the manufacturer plans to construct a factory, the manufacturing firm may search for the potential sites for the factory in a vast area encompassing many countries. In the decision-making of the location, the following four processes are taken by the manufacturer: 1) Decision of a promising area, 2) Selection of a region in the area, 3) Selection of a central place such as city or town in the region, 4) Determination of a site for the location within the city. In this paper chaotic phenomenon is used in making decisions for the promising area for the possible factory's location. Then, it is shown that central place system plays a significant role in firm's selection of the region because the central place system supports workers' daily lives and has a strong relationship with firms' profits. Based on the examination of the relationships between the central place system and the firm's location, this paper investigates how the manufacturer determines the location of the factory in a vast area.

**Benchmarking Regional Knowledge Assets:
The Demand, Supply and Transfer of Knowledge in Yorkshire and the Humber**

Robert Huggins and Andrew Johnston

Sheffield University Management School
A.Johnston@Sheffield.ac.uk, R.Huggins@sheffield.ac.uk

Knowledge is increasingly advocated as the key component in economic growth. Thus, the knowledge assets of a region are considered key to the innovativeness and competitiveness of its economy. Successfully exploiting these assets is the stated aim of regional development policies across the UK, in a bid to develop modern knowledge driven economies able to compete internationally. This paper aims to analyse and benchmark the knowledge assets of the Yorkshire and Humber region of Northern England. It draws on a range of survey data collected from firms, universities, and knowledge transfer intermediary institutions in the region. One of the key components of the analysis of this data draws on the fact that knowledge assets are examined in terms of both the demand and supply of knowledge. The paper focuses on the knowledge stock and the knowledge creating capacity of both firms and knowledge creating organisations, such as universities. It also examines the capacity of the region to transfer this knowledge, and the role of intermediary institutions. The main aims of the paper are to examine: the creation of knowledge within firms and other knowledge creating organisations in the Yorkshire and Humber region; the propensity of firms to absorb knowledge from external sources; the mechanisms through which the transfer of knowledge between agents occurs; and barriers to knowledge creation, transfer and absorption which may exist in the region.

Global variations in health and mortality: evaluating the relative income hypothesis

Min Hua Jen

Imperial College, London, m.h.jen@imperial.ac.uk

There has been increasing interest in recent years in the macro-determinants of health. In particular, it has been argued that in advanced economies it is relative income in the form of societal inequality that is a key determinant of life expectancy. This talk briefly reviews the evidence and argues that a multilevel model with individuals and places is needed if an aggregative fallacy is to be avoided. Empirical evidence will be provided of changing global mortality analysed in a latent group trajectory model, and of global variations in self-rated health analysed in a multilevel model with individual and country measures of income and income inequality.

The latent group trajectory modelling as an exploratory technique; that is let the technique uncover the patterns without to much imposed structure. It is applied on a longitudinal analysis of life expectancy at birth for some 196 countries across thirty years and used to reveal groups of countries with distinctive trends and these trends are then related to changing GDP and income inequality. There are big differences between countries and this has not gone away over time; there has not been convergence to the global mean for mortality. Using this aggregated data, support is found for the Wilkinson hypothesis in that in developed countries life- expectancy is related to income inequality but not to GDP.

The other study based on individual level data derived from the World Values Survey. It provides a direct test of the Wilkinson hypothesis using micro data on individuals, and macro data on relative inequalities analysed simultaneously. They investigate the individual self-rated health associated with country income and inequality data. In summary, with this improved methodology (multilevel model), it is found that the Wilkinson hypothesis is not supported in terms of income inequality over and above individual factors. Income inequality does not have the hypothesized pattern of egalitarian societies reporting better health. Also there are substantial differences between countries in self-reported health after taking account of age and sex. Individual income has clear effect that poorer people report worse health. There remain substantial differences between countries even after taking account of micro and macro variables; in particular, the Former Communist report high levels of poor health.

Can Regional Sports Stadia Ever Be Economically Significant? Evidence from the Cardiff Millennium Stadium

Calvin Jones², Max Munday^{1,2} and Neil Roche²

¹*BRASS Research Centre, Cardiff University*

²*Welsh Economy Research Unit, Cardiff Business School*
jonesc24@cf.ac.uk

There is an extensive academic literature suggesting that sports stadia have negligible or even negative economic impacts upon their hostcity or region. This paper suggests that in some specific cases the picture may not be so clear cut. It examines the operations of the Wales Millennium Stadium since its inception in 1999 and suggests that the stadium has in fact had a positive impact upon economic demand and hence employment and value added in Cardiff. Moreover, the research suggests that much of this increased demand originates from visitors resident outside Cardiff and Wales, and hence the stadium functions as a notable ‘exporter’ for the city, and is moreover critical to its tourism performance. Conversely, the paper finds that stadium effects are limited in scale compared to city and regional economic activity in aggregate and concludes that the stadium’s relative economic importance is driven by its atypical operation compared to other stadia.

Sources of Innovation in Irish SMEs: Evidence from Two Irish Regions

Declan Jordan and Eoin O'Leary
Department of Economics, University College, Cork

This paper uses original survey data of the level and sources of innovation in small and medium-sized enterprises (SMEs) located in the South-East and South-West NUTS 3 Regions in Ireland. It draws on the insights of the regional innovation systems, business innovation and agglomeration economies literatures. These suggest that interaction is a source of knowledge for innovation for SMEs that do not have adequate resources dedicated to in-company R&D. It uses an innovation production function approach to investigate the relative importance of R&D activity, interaction with customers, suppliers, competitors, third-level institutes and innovation-supporting agencies and measures of localisation and urbanisation economies for the level of product and process innovation. Logit models of the probability of innovating are estimated and support the argument that interaction is an important source of knowledge for innovation in SMEs in the regions. However, there is less evidence to support the contention that agglomeration or cluster-effects are important for innovation. Each estimation is controlled for a range of business-specific characteristics and sector. The paper concludes by critically evaluating the Irish regional, innovation and enterprise policies which have involved a misplaced emphasis on geographically concentrated clusters.

The Spatial Pattern of Hidden Unemployment: People or Place Effects?

Allan Little
Lancaster University

Incapacity Benefit claimants are the primary target group in the next phase of the Government's Welfare-to-Work strategy. In this paper we perform a decomposition to statistically account for the part played by area-based and individual-based factors, in differential rates of employment, unemployment, inactivity and recorded sickness, across NUTS level 2 areas. Spatial variation in long-term sickness and disability cannot simply be attributed to prevailing population structures, and is more likely to be a manifestation of regional imbalances in labour demand and supply. The implication is that the success of supply-side policies is likely to be constrained by the concentration of Incapacity Benefit claimants in demand-deficient areas.

Analysing commuting flows using spatial interaction models: Recent empirical research in Northern Ireland

C. D. Lloyd, I. G. Shuttleworth and G. Catney

School of Geography, Archaeology and Palaeoecology, Queen's University, Belfast.

c.lloyd@qub.ac.uk

Employment policy often relies on reliable information about spatial variation in commuting flows across a region. Consideration of the degree to which different variables relate to the size of commuting flows is therefore important. This paper explores the use of a variety of methods for analysing commuting flows in Northern Ireland. Previous research has explored the relationship between average commuting distance and a range of explanatory variables using data from the 1991 Northern Ireland Census of Population (Lloyd and Shuttleworth, 2005; Shuttleworth and Lloyd, 2005). The present analysis expands on previous research, and makes use of origin-destination data provided as an output from the 2001 Census of Population. The main part of the analysis is based on a spatial interaction model used to relate flows between wards to a variety of potentially important explanatory variables. The first stage of the analysis entails the use of an unconstrained spatial interaction model to explore the relations between the size of flows between Census wards and a range of other variables for each origin and destination. In addition to the distance between wards, independent variables used include the number of workers resident per ward, the number of jobs per ward and a religion variable that indicates the difference between sending and receiving wards, in terms of the percentage of their populations who are Catholic by community background ('religion or religion brought up in'). It is shown that the coefficient for the number of jobs per ward has a large positive value, indicating that, as expected, large flows correspond to more jobs per destination ward. The coefficient for the religion variable is negative, indicating that as differences between sending and receiving wards by community background decrease, worker flows increase, other factors in the model being equal. This result suggests that community background may be an important factor in commuting patterns. For example, individuals who live in predominantly Catholic areas may be more likely to work in predominantly Catholic areas. The shortcomings of the unconstrained spatial interaction model are demonstrated with reference to the prediction residuals, and the analysis is expanded through the use of an attraction (or destination) constrained model. Finally, possible ways of expanding and enhancing the analysis are considered.

Job competition and the wage curve

Simonetta Longhi

ISER, University of Essex, slonghi@essex.ac.uk

The 'wage curve' literature suggests a negative relationship between regional unemployment rates and regional wages (e.g. Blanchflower and Oswald, 2005). The most widely accepted explanations for this relationship are efficiency wage and labour turnover costs theories (Card, 1995; Nijkamp and Poot, 2005). In such a framework the unemployment rate is interpreted as a measure of job competition, of how difficult it is for workers to find a (new) job if they quit or are fired. The unemployment rate as a measure of job competition, however, neglects the possibility that a number of workers might be dissatisfied with their job or might be in a temporary job which is close to an end, and therefore engage in on-the-job search. On-the-job search is a relevant phenomenon: in the UK, for example, only less than half of people who are actively looking for a job are unemployed; the other half already has a job.

It has been found that individuals who look for a job while working receive more job offers than the unemployed (Blau and Robins, 1990), and that in periods of 'high hiring' on-the-job search tends to increase and to reduce the outflow from unemployment (e.g. Burgess, 1993). Furthermore, some groups of people do more on-the-job search than others (Pissarides and Wadsworth, 1994). For these reasons, the unemployment rate is likely to be a biased measure of job competition in the local labour market; the bias might vary in a complex way over the business cycle and across groups of people.

If the efficiency wage and labour turnover costs theories are valid explanations for the wage curve, then the negative relationship with wages should be robust to the inclusion of on-the-job search in the measure of job competition. This paper tests the robustness of the wage curve to the inclusion of on-the-job search using data from the UK Labour Force Survey for the period 1993-2005. Measures of job competition based only on unemployment are compared to more complete measures taking into account on-the-job search as well as regional accessibility.

Some Territorial Models of Innovation and their Application in Mexico

Ryszard Rózga Luter

Autonomous Metropolitan University, Mexico City
Urban and Regional Planning Faculty, UAEM-Toluca
rrozga@uaemex.mx and rrozga@correo.xoc.uam.mx

This paper has two objectives. The first objective of satisfying the necessity of systematizing the wide literature on the topic of territorial conformations that takes the areas where the technological innovation is carried out. The books and papers that deal with the problem of the territorial conditions of innovation have been published, at least, from the late eighties or may be earlier.

Then the wave of the publications continued through out the 1990, when undoubtedly such authors like E. J. Davelaar, Ann L. Saxenian and M. Castells marked the pattern of researches about the territorial and regional problems of the development of the high-technology areas. By the end of nineties the discussion led to the problem of influence of the globalisation processes and the knowledge based economy on the regional systems of innovation.

However the discussion on the territorial problems of innovation acquired new impulses at the beginning of the XXI century. On the one hand, it began to highlight the importance of the local atmospheres of innovation and, on the other, the discussion reached also the level of methodological systematizing and the construction of the Territorial Models of Innovation. With the following work we try to get involved in this task of systematizing these Territorial Models of Innovation.

Regarding the second objective that is mainly the description and analysis of the application of these models in the researches on the territorial development of innovation in Mexico, the conclusion is that there are the three perspectives in this context: (i) the agglomerations of industry, territorial clusters of innovation and Industrial Districts; (ii) the Poles of Innovation and regional spaces of innovation and, (iii) Regional and Local Systems of Innovation.

However, it seems that these problems of the regional innovation systems and, difficulty of identify the local innovation systems, will be the basic topics of the researches in the next years.

Agglomeration economies and employment growth in Italian local labour systems

Francesca Mameli*, Alessandra Faggian* and Philip McCann**

*Department of Economics, University of Reading, f.mameli@reading.ac.uk

**Department of Economics, University of Waikato, New Zealand and
Department of Economics, University of Reading

The aim of this paper is to investigate the determinants of local labour growth in Italian Local labour Systems (LLSs) over the period 1991-2001. Employing a Glaeser et al. (1992) and Combes (2000) modelling framework we try to assess whether knowledge spills over between firms within the same sector or between firms in different sectors, what is the role of competition as well as introducing new potential determinants of local growth. Our research is also interested in testing the sensitivity of the model to different model specifications, the inclusion of new variables, different levels of aggregation, and different estimation methods. In particular, in our analysis we propose an innovative estimation technique based on mixed models, which allows exploiting the information coming from our two cross-sectional dimensions, areas and sectors, by using both fixed and random effects.

The all-Ireland Innovation System: A sectoral view

Claire McBride
Dublin Institute of Technology, Dublin, Claire.mcbride@dit.ie

Stephen Roper
Aston University, s.roper@aston.ac.uk

This paper aims to map and evaluate i) the innovation systems on the island of Ireland and ii) characteristics and properties of the sectoral innovation systems of Northern Ireland and Ireland which are consistent with the existence of an all-island system or sub-system.

National Systems of Innovation (SI) have been defined as; “that set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process” (Metcalfe, 1995, pp. 461-462). The OECD Report on Managing National Innovation Systems (1999) in its analysis of IS variants, cites Sectoral, Regional and Functional Clusters.

In an evaluation of the Systems Innovation approach, Edquist (2001) refers to seminal work in the area by Freeman (1987), Lundvall (1992) and Nelson (1993) and poses questions as to ‘the state of the art’ with regard to the role of the State and the usefulness of the approach as a framework for innovation policy design. Edquist’s (2001) evaluation highlights a number of weaknesses in the SI framework, not least of which is the role of the State, “since the state and its agencies are obviously important determinants of innovation in any SI” (p.3).

In their Ten Countries Innovation Project report ‘An All-island System or Innovation – Myth or Reality?’ O’Malley, Hewitt-Dundas and Roper (2006) emphasise the validity of innovation as a continuing policy objective in both Ireland and Northern Ireland. Using the characteristics of an innovation system developed by Edquist (2004), they point to a lack of evidence of system properties in the all-island context. The question arises as to whether an all-island sectoral or subsystem applies.

In its recently published Strategy for Science, Technology and Innovation 2006-2013, the Irish Government state that transnational cooperation brings together resources, disciplines, and scientific excellence, thus achieving critical mass, which could not be attained at national level (the latter presumes reference to Ireland as distinct from Northern Ireland). For example, the average research expenditure of an EU-25 country is just over €7bn per year; no more than many of the individual large multinational companies. With respect to North/South Cooperation, the report notes significant collaboration in the sectors such as Agriculture & Food, Health, Energy and Environment taking place to good effect.

Complementarities between Urban Centres on the Island of Ireland

Des McCafferty

Department of Geography, Mary Immaculate College, Limerick and National Institute for Regional and Spatial Analysis (NIRSA)

Chris van Egeraat

National Institute for Regional and Spatial Analysis (NIRSA), Department of Geography, NUI Maynooth and International Centre for Local and Regional Development (ICLRD)
chris.vanegeraat@nuim.ie

Brendan Bardley

National Institute for Regional and Spatial Analysis (NIRSA), Department of Geography, NUI Maynooth and International Centre for Local and Regional Development (ICLRD)

Justin Gleeson

National Institute for Regional and Spatial Analysis (NIRSA) and International Centre for Local and Regional Development (ICLRD)

Complementarity between urban centres is a key element of the Republic of Ireland's (RoI) National Spatial Strategy (NSS) and Northern Ireland's (NI) Regional Development Strategy (RDS). Both documents encourage the development of complementary roles for urban centres, at both the intra-regional and intra-national scale. In addition, at the intra-regional scale, different roles and functions are accorded to different types of urban components (Gateways, Hubs, County Towns and Small Town in the RoI and Cities, Main Hubs, Local Hubs and Small Towns in NI). Although the documents do not define complementarity, in most cases the term appears to signify functional distinctiveness/specialisation of urban centres. Such complementarity can be defined at different levels of functional aggregation. Both documents are vague as to the level of aggregation and provide few clear suggestions as to the different roles or functions that are accorded to the various urban components.

This paper presents the result of a study conducted by members of NIRSA. Expanding on and using the methodology of previous work conducted in the context of the RoI, the study is a first attempt to establish the current level of specialisation and potential complementarity of urban centres on an all-Ireland basis. In this first attempt, specialisation and complementarity are investigated at the level of the "industrial group".

Using data from the Republic's 2002 Census of Population and the Northern Ireland 2001 Census we establish the areas of specialisation of each urban centre above 1,500 inhabitants and graphically represent the result. We subsequently analyse the results in terms of the existence of groupings of complementary urban centres at different spatial scales.

Sketching Out a Model of Innovation, Face-to-Face Interaction and Economic Geography

Philip McCann

*Department of Economics, University of Waikato, NZ; pmccann@waikato.ac.nz
and Department of Economics, University of Reading, UK; p.mccann@reading.ac.uk*

This paper investigates the links between face-to-face interaction, the promotion of innovation, and the location behaviour of innovative firms. While face-to-face contact is an essential feature of most innovation behaviour, the importance of the frequency of face-to-face contact for innovation varies significantly according to different firm types. We therefore construct a simple optimisation model in order to examine the relationship between the frequency of face-to-face interaction, the costs of land use, and the location of innovative firms. This allows us to distinguish between the types of firms which will be clustered together in space in order to foster innovation, from those innovating firms which will be more geographically dispersed. It will be seen that the model produces theoretical results which are largely consistent with both orthodox neo-classical urban economic models of location and also with much of the theoretical and empirical literature on the geography of innovation. Importantly, however, many aspects of the location of innovative firms which cannot be predicted on the basis of orthodox urban economic models are captured by this model.

Gender Stereotyping in Schools

Ronald W. McQuaid and Sue Bond

Napier University, Edinburgh, r.mcquaid@napier.ac.uk

This paper examines the determinants of occupational preferences among 13-15 year school pupils and discuss the implications of the findings for encouraging greater numbers of boys and girls into gender opposite occupations. There has been little change in school leaver or graduate destinations by gender over the last 10 years. An analysis of School Leaver Destination statistics in Scotland between 1992 and 2002 suggest little change between young men and women in their employment and training destinations. Over 1,000 school students were surveyed and gender stereotyping analysed in terms of socio-economic characteristics, subject preferences and academic ability. Results and policy implications are discussed.

Spatial dependence and economic connectedness: Evidence from the British labour markets

Vassilis Monastiriotis

European Institute, London School of Economics, v.monastiriotis@lse.ac.uk

Recent developments in spatial statistics and spatial econometric techniques have brought the issues of spatial connectedness and dependence in a much more central stage in economics analyses and in regional studies. However, with the increased attention to the statistical properties of spatial dependence, attention on the economic meaning of spatial connectedness is becoming rather superficial and disassociated from economic theory. Thus, spatial association is often reduced to a simple correlation between local and geographically proximate values, but with very little attention to the economic variables and processes that condition such correlations. This paper tries to address this problem by examining the empirical relationship between spatial correlation and economic connectedness across the local and regional economies of Britain. Because information on product and capital flows are hard to obtain, the analysis focuses on labour flows (commuting and migration). A set of spatial correlation coefficients across Britain are estimated for regional incomes and unemployment for alternative spatial scales and various spatial clusters are identified. These are then contrasted to clusters resulting from more traditional measures of connectedness (e.g., migration). The paper tries to identify the differences and similarities obtained from this comparison and then examines the influence that a number of unaccounted factors (including patterns of sectoral specialisation, labour supply and skill shortages, etc) play for the identified differences. This analysis allows us to draw informed conclusions about the type and nature of spatial associations captured by the two distinct approaches and thus also helps elaborate on the interpretation of spatial dependence related to each of these.

New Theoretical Insights on the Evaluation of Regional Policy: A Case Study of Ireland

Barry Moore
University of Cambridge, bcm1@cam.ac.uk

Jonathan Potter
OECD, jonathan.potter@oecd.org

Regional policy interventions can be expected to simultaneously influence both national growth and spatial equity. However, assessing the impacts on both growth and equity, together with the trade-offs between them, represents an important challenge for regional policy evaluation. This paper seeks to illustrate the challenge and show how new theoretical insights on the nature of spatial economic development can be brought to bear using the current regional policy approach in Ireland as a case example.

The paper will start by briefly outlining evidence on the scale and nature of regional disparities in Ireland in terms of production, employment, skills and inward investment flows. This demonstrates the strong gap between the Greater Dublin Area and the rest of the country. Mapping of regional clusters will also be presented to throw light on the opportunities and potential costs of encouraging future development outside of Dublin.

The second section will examine the current Irish regional policy approach. This clearly aims for more balanced spatial development with a view both to improve the prospects of lagging regions and to relieve inflationary pressures in the capital. European Union Structural Funds support is directed to assisted regions, the National Spatial Strategy designates Regional Hubs and Regional Gateways as focal points for the diffusion of economic growth, substantial investment is being made in national transport improvements and Regional Strategic Agendas identify priority sectors for development in each region. However, the impacts on national growth and spatial equity are difficult to assess without an understanding of the nature of the agglomeration economies and diseconomies involved.

The third section will argue that economic theory from the new economic geography and city systems literatures can be used to throw light on these agglomeration economies and diseconomies and that this theory can be applied to guide evaluation in dealing with a number of difficult issues in assessing the impacts of current Irish regional policy. These issues include the need to take account of the degree of transport and communications costs, the spatial extent of knowledge spillovers, the location of existing and potential industry clusters, and a series of cumulative causation processes.

The conclusion will briefly identify further work that will be required to operationalise the approach in the evaluation of regional policies in Ireland and other countries characterised by uneven regional development.

Firm Size Distributions in Scottish Industrial clusters

Gerald Munyoro and John H. Li Dewhurst
University of Dundee, G.Munyoro@dundee.ac.uk

In the last paper which was presented in Jersey, Channel of Islands in August 2007, the attention was focused on the significance of identifying industrial clusters in Scotland, whereas in this paper the focal point is turned on the investigation of the firm size distributions in the Scottish industrial clusters. The main objective for this study is that, since the empirical evidence on the relationship between industrial cluster activity and firm size distribution in Scotland is scarce, this study will try to address this area by offering evidence on the association or otherwise between the organization of economic activity in clusters and the firm size distribution.

First and foremost the study will use the industrial clusters that were identified in chapter four. These clusters are in the following industrial sectors namely Information, Communication and Technology Industrial sector; Financial Services Industrial sector; Biotechnology Industrial sector; Creative Industrial sector; Oil and Gas Industrial sector and Mechanical Engineering Industrial sector. One thing that can be noticed from these industrial sectors that is out of ordinary, is that they are all technology driven and strong demand industries. For each cluster a comparison will be made between the size distribution of firms within the industrial cluster and the size distribution in the rest of Scotland. A chi-squared statistic will be calculated to examine the significance or otherwise of any difference. This will be achieved by testing, for particular sectors, whether the distribution of firm sizes in Scottish industrial clusters is significantly different from the distribution in the rest of Scotland. In cases where such a difference exists, the study will examine in what ways the size distributions differ from one another. The study will compare the results of 2005 with the 1997 ones because they were the earliest and most consistent annual employment survey data available from the National Online Manpower Information System (NOMIS) (DTI, 2001).

Firm size distribution (FSD) can be shown as a histogram showing the number of firms within a size band plotted against the size band. de Wit (2003) define firm size distribution as the cumulated result of the underlying firm dynamics involving entry of new firms and growth, decline, and exits of incumbent firms. As suggested by Jovanovic in 1982, the expectations in every industrial sector is that firms start at less than optimal size and only over time acquire their abilities and either grow or exit the industrial sector. This pattern basically arises because firms initially face financial constraints and, therefore, only over time grow to reach their optimal size (Barrios et al, 2005).

An Econometric Analysis of Smoking Behaviour in Ireland

Aileen Murphy

Dept of Economics, University College Cork, aileen.murphy@ucc.ie

This paper presents an analysis of smoking behaviour throughout Ireland. The aim of which, is to identify which socio-economic factors, including regional factors, influence Irish smoking behaviour and its frequency. Thereby focusing on the economics of smoking from an individual perspective and identifying commonalities among smokers, including location, to which the Government should target to further reduce and eliminate smoking throughout Ireland.

Tobacco smoking has adverse effects on health causing cancers, respiratory disease etc. which amounts to increased public health costs as well as pain and suffering inflicted on society. While anti-smoking campaigns and policies have in the past reduced the number of smokers considerably in Ireland, the effectiveness of these has weakened. Thus a more focused strategy is required. This paper through identifying the socio-economic and location factors influencing Irish smoking behaviour and frequency, aims to distinguish who is most at risk as an actual and potential smoker in Ireland. Thus identifies whom and where anti-smoking campaigns and policies should be targeted at.

While identifying the socio-economic factors influencing smoking and its frequency, this article also includes an examination of the significance and importance of location factors on smoking in Ireland. Previous studies have found location factors to be a significant variable with respect to smoking behaviour in Spain for example where an urban location had a positive influence on smoking (Manrique et al, 2004).

Using data from the 2001 Living in Ireland Survey a Logit model is first applied to identify the socio-economic factors, including location, which influence smoking behaviour. Secondly, count data models are applied to identify which socio-economic factors, including location variables, influence the frequency of smoking behaviour among cigarette, cigar and pipe smokers throughout Ireland.

The results of the Logit model and count data models will subsequently be analysed. In doing so Long and Freese (2001) listcoef function is applied so as to interpret the results in terms of percentage changes. The main findings with regard to the frequency of smoking different tobacco products are expected to differ for each product. Thus, reinforcing the outlined need for more focused anti-smoking campaigns and strategies in order to eliminate smoking behaviour among the different groups who are at risk around Ireland.

An Empirical Investigation of Price Transmission in the EU Butter and Skim Milk Powder Markets

Declan O'Connor,
Cork Institute of Technology, declan_oconnor@ucc.ie

Michael Keane and Martin Kenneally
University College Cork

In this paper a spatial price transmission study which examines the price linkage in both EU butter and skim milk powder (SMP) wholesale prices in four founding member EU countries is presented. Butter and SMP are commodities which are traded in a number of different locations throughout the EU. Economic theory suggests that the law of one price (LOP) should hold in these markets. The law of one price (LOP) states that identical goods sold in different geographical areas must sell for the same amount when expressed in a common currency and net of transfer costs. Furthermore wholesale markets in these locations are subject to a common policy regime, the Common Agricultural Policy (CAP). One of the fundamental principles of this policy is market unity, where a single market with common prices exists.

Using the Johansen cointegration approach, prices in Germany, France, Belgium and the Netherlands are considered for each market. While a number of recent spatial price transmission studies have employed non linear (threshold) models to test for price transmission, the Johansen cointegration approach is favoured in this paper. This approach allows all four price series to be modelled simultaneously in a framework where exogenous variables and dummy variables are easily incorporated into the specification. This provides for a departure from most studies of this nature, as both trade and policy variables are also incorporated into the analysis.

The results show that prices at different locations in the EU exhibit a long run relationship indicating that the objective of the European Commission to create a single market has been achieved. However perfect price transmission is not observed and thus the LOP is rejected indicating that the aspiration of common prices has not been realized. As such these results add to the growing body of research which fails to support the LOP. The results also show that EU and World butter and SMP prices are not integrated and that the German butter price is exogenous in the butter system and only enters the short run dynamics of the system. The results demonstrate that the use of export refunds to act as a 'shock absorber' against lower and more volatile World prices has been successful and these refunds form an important part of the short run dynamics in both the EU butter and SMP markets.

The perceptions of environmental policy among the agricultural and food co-operatives in rural Ireland

Helena O'Connor and Nick Chisholm
University College Cork, h.oconnor@ucc.ie

This paper presents early findings from a research project supported by the EPA which aims to examine the opportunities and constraints presented by emissions trading to the Irish agricultural and food processing sector in the context of the new EU emissions trading regime and the implementation of the Nitrates Directive. It also focuses specifically on the co-operative sector and will analyse whether the co-operative model provides a particularly appropriate institutional structure to capture benefits of emissions trading for farmer members.

A preliminary survey of 92 co-operative entities in the agricultural and food processing sectors is being conducted. This survey aims to gauge the level of awareness of and activity in the EU-Emissions Trading Scheme (EU-ETS) amongst the food co-operatives in the country.

The paper is primarily based on an analysis of the survey responses, which also put the co-operatives' ability to respond to the EU-ETS in the context of broader changes in the economic and policy environment which co-operatives face.

Increasingly environmental policy is playing a role in development in rural areas. Farmers are being impacted by these policies, e.g. the Rural Environmental Protection Scheme (REPS) and the Nitrates directives. In addition reforms of the Common Agricultural Policy are impacting on farmers' incomes and lifestyles. There are reductions in the numbers of farms and increases in the level of part time farming.

Given the historic position of agriculture and these co-ops as key stakeholders socially and economically in rural communities, the paper discusses the potential impact of the new environmental agenda on these participants in the rural economy.

Temporary contracts and regional productivity in Spain

Bienvenido Ortega and Andrés J. Marchante

University of Malaga, Spain, ortega@uma.es and marchante@uma.es

Evidence shows that Spanish regions differ significantly in their economic performance. In 2003, labour productivity in Extremadura was 68% of that in Navarra, the highest productivity region. Moreover, the process of regional convergence in labour productivity has practically stopped since 1985. If the drivers of productivity (investment, skills, innovation enterprise and competition) worked effectively, regional productivity would catch up. However, when regional market failures exist (in product, capital or labour markets), regional differences in performance regarding each of these drivers cannot fully explain regional productivity disparities. Because of the 1984 employment protection reform in Spain, there is evidence that the share of temporary contracts (with low severance pay) surged in the second half of the 1980s – staying above 30% since 1990 – in a clear regional divergence process, thus being far from EU standards (10% – 15%). In this context, the aim of this paper is to investigate the hypothesis that this surge in temporary contracts has a negative impact on regional productivity growth. Thus, an aggregate regional production function model is proposed in which labour force is represented by the shares of permanent, temporary and non-salary workers. The estimations results of the empirical model at the NUTS 2 level over the period 1987-2000 show that, in addition to under-investment in technological capital, differences in regional economic performance would be explained by the negative effect on productivity of the conversion of permanent contracts into temporary contracts in very segmented regional markets.

Geodemographics Africa!

Adegbola Ojo, Dan Vickers and Dimitris Ballas,
Department of Geography, University of Sheffield, d.vickers@sheffield.ac.uk

In countries like Britain, the United States of America and Canada, the segmentation of consumers according to their neighbourhood types is common practice among a wide range of commercial organizations. These organizations have transited from mass marketing to niche marketing by using spatially referenced information aligned on demographic and socio-economic attributes of people and their residential areas. The academic community and practitioners in the public sector are also increasingly beginning to exploit the power of geodemographic classifications for a number of positive reasons among which is their ability to simplify complex socio-economic information-like the national census and provide clearer understanding about the variations existing within geographic areas.

The expansion of commercial segmentation systems has seen some other European and Asian countries benefit from the methods used to build geodemographic classifications. Most of these systems are focused principally on marketing and customer targeting. The African continent is yet to have taste of this sophisticated innovation called geodemographics.

Nigeria is faced with significant socio-economic challenges which make planning, resource allocation and policy making important issues for sustainable development. Over time, Nigeria's statistical departments have accumulated volumes of national data relating to socio-economics and demography. These have been under-utilized.

This paper summarizes the spatial distribution geodemographic systems across the globe and argues the case for an urgent need to develop a general purpose geodemographic classification system for Nigeria. This will form the first of its kind in the African continent and will condense the national Census using well established techniques. The results will also add value to the Census. The potential benefits of this are manifold especially in areas of poverty alleviation, resource allocation and education and research and development.

Location Theory and Local Government

John B. Parr

University of Glasgow, UK, J.B.Parr@socsci.gla.ac.uk

The concern of this paper is with the spatial structure of administration (at the level of local or regional government) in relation to the spatial structure of a functional system. The relationship between the two spatial structures is not a straightforward one, and has probably not received the attention that it deserves. Each spatial structure has its own distinctive logic, and it is only on rare occasions (observed and theoretical) that the two are identical. To approach this question, the administrative structure is compared and contrasted with a model of functional structure. For both the functional and the administrative structure, two hierarchical levels are considered. The primary level contains relatively few centres with correspondingly large service areas, while the secondary level comprises more centres and therefore smaller service areas. Within this two-level structure, the primary level is taken as given, and the concern is with the spatial configuration of the secondary level. This contrasts with the upward perspective, where the secondary level is taken as given. In addition, the shape of all service areas is assumed to be square, at least initially.

Within the paper, consideration is given to a set of criteria that might reasonably be required of an efficient administrative system. These include, inclusion, centrality, concentricity, centre coincidence and administrative coincidence. Certain of these criteria are related to the nature of administrative organisation, while others take account of the fact that administrative system does not exist in isolation from the functional system. Attention is focused on three approaches, each of which examines the extent to which the various criteria can be satisfied. In the first, the administrative system is required to correspond exactly to the functional system, and this generally produces an unsatisfactory outcome. In the second, the administrative system co-exists with the functional system, though is not wholly independent of it, and a more satisfactory outcome emerges. In the third approach, aspects of the previous two are combined in a sequential fashion, in order to illustrate an important facet of administrative structure. This occurs when the “span of control” of the primary administrative level is relatively extensive.

How do Ryanair and Southwest compare in their impacts on passenger numbers, market share and airline competitors?

David E. Pitfield

Loughborough University, D.E.Pitfield@lboro.ac.uk

The Southwest effect has been known for some time in terms of the US airline's impact on pricing, competition and traffic volumes. But a precise estimate of the impact on traffic and market shares does not exist. This desiderata can be addressed by applying Autoregressive Integrated Moving Average (ARIMA) models with Intervention analysis to key domestic air routes in the USA where Southwest has started service.

The paper first deals with the choice of routes to be examined and, after a preliminary statistical description of these, applies the ARIMA models. These results are examined for both their statistical qualities and their reasonableness and the impacts are compared to those previously determined for Ryanair's routes from London.

**Private sector performance and the presence of public sector:
Evidence from U.K. regions**

Maria Plotnikova

Strathclyde University, maria.plotnikova@strath.ac.uk

Performance of the Scottish economy under devolution and the effect of the expansion of the public sector on growth has been subject of discussion in academic and policy community. Public spending in Scotland has grown rapidly under devolution underscoring the spectre of the ‘crowding out’ phenomenon: the potential negative impact of the growth of the public sector on the economic performance of the private sector in Scotland and by implication on the growth of the economy as a whole.

We use a theory-grounded random effects model of private sector productivity to help clarify the relationship between private sector performance and the degree of public sector presence in the economy of U.K. NUTS2 regions. Correcting for endogeneity we establish a generally complementary relationship between levels of public sector productivity and private sector productivity; we also report an empirical regularity of negative association between private sector GVA-based productivity measure and the share of public sector component in total GVA.

Influences the entrepreneurs expected mode of exit

Bernadette Power
University College Cork, b.power@ucc.ie

Geraldine Ryan
University College Cork, g.ryan@ucc.ie

For entrepreneurs who start a new firm, sooner or later, there comes a time when they choose, or are required by circumstances, to retire. We assess firm-specific and regional influences on the expected end-games (i.e. family succession, trade-sale, management buyout, or asset disposal) of a sample of Scottish entrepreneurs.

The European Commission estimates that over the next decade 690,000 small and medium sized enterprises in Europe will have to be transferred to new owners (i.e. around 2 million jobs) (European Commission, 2006). In the United Kingdom, one-third of businesses are vulnerable to age-related transfer failure. These failed business transfers result in job losses and a reduction in economic growth. In less favoured regions this can lead to high social costs (Thwaites and Wynarczyk, 1996).

Previous research has primarily examined intergenerational succession in family businesses (Kimhi, 1997). Little evidence exists on factors influencing other forms of end-games pursued by small firms. Relevant work with respect to management buyouts and trade-sales in the area of occupational choice has focused on the influence of several variables (e.g. borrowing constraints, human capital etc.) on the entrepreneur's mode of entry (e.g. via business takeover or new start) (Parker and Van Praag, 2006). We explore these endgames from the perspective of the entrepreneur seeking to retire. We examine firm-specific and regional influences on the entrepreneur's expectations for its end-game strategy.

Evidence was collected on the entrepreneur's expected end-game strategy in face-to-face interviews with entrepreneurs in Scotland (N=63). Additional variables were obtained from secondary sources on the number and characteristics of the potential pool of buyers in the regions in which these entrepreneurs operated their business. Variables on the attractiveness of the region were also examined in the estimation. A multinomial logit model is developed which predicts how firm-specific and regional characteristics influence the entrepreneur's expected end-game strategy.

Preliminary results suggest that factors which influence the entrepreneurs expectations for its end-game include the value of the enterprise, the pool of buyers, legal dispositions, geographic location, attitudes to risk, the level of diversification of the business and both personal and emotional aspects.

This paper presents novel evidence on the impact of key variables on entrepreneurial expectations for its end-game strategy. Each of these end-games or harvesting strategies has different consequences for the continued operation of the mature small firm. The characteristics of the region in which the business chose to locate have a significant impact on these expectations. Specific support mechanisms for business transfers should be targeted to combat regional disadvantages to promote the longevity of established small businesses.

A Comparative Analysis of European and US Airline Industry Evolution, 1996-2006

Aisling Reynolds-Feighan

School of Economics, University College Dublin, aisling.reynolds@ucd.ie

This paper characterises and compares the spatial distribution of air traffic in the US and Europe across the network of airports for both continents in the period 1996-2006, using annual airline schedules from the Official Airline Guide databases. Several measures of concentration are examined in terms of their sensitivity to changes in network size and their decomposition components. By decomposing the overall spatial distribution of traffic, aspects of individual airline behaviour may be measured and contrasted, along with measures of multi-market contact among groups of carriers. European and US airlines are characterised in terms of their network strategies and the extent of competition that they face. The paper looks at European carrier network evolution since liberalisation in 1997 and speculates on patterns and impacts of mergers in the European market in the next five years.

Knowledge, Capabilities and Manufacturing Innovation: A US-Europe Comparison

Stephen Roper

Aston Business School, Birmingham, s.roper@aston.ac.uk

Jan Youtie, Philip Shapira and Andrea Fernandez Ribas

Georgia Institute of Technology, Atlanta, USA

In this paper we report a comparative analysis of the factors which contribute to the innovation performance of manufacturing firms in Georgia, and the UK regions of Wales and the West Midlands. Enabled by comparable survey data, our analysis is based around the notion of the innovation production function relating firms' innovation activity to their links to external knowledge sources, the strength of their internal resource base, absorptive capacity and the availability of public support for innovation. Multivariate probit models are estimated to identify the determinants of product, process, marketing and organisational innovation and the adoption of advanced manufacturing techniques (AMTs).

Three main empirical conclusions result. First, higher levels of knowledge sharing activity, and more extensive knowledge transfer from public sector knowledge sources (universities), are contributing to higher innovation propensity among firms in Georgia. In Georgia we also see the only significant positive contribution from public knowledge sources to innovation and this again is likely to be contributing to higher innovation propensity in the US, particularly in terms of process change. Other factors, such as firms in-house R&D and training and investment as part of firms' innovation activities prove important in each of the four study regions. Second, UK firms prove more effective at capturing complementarities between their innovation activities than US firms. Potential explanations relate either to stronger functional separation in management in US firms – and therefore a failure to capture or transfer knowledge from one aspect of innovation to another – or to a more focussed approach to innovation in US and Catalan firms than that adopted in the UK. Third, we would argue that stronger association between firms and a more positive contribution from public knowledge sources are contributing to a more supportive innovation milieu in Georgia than in either of the UK study regions.

One way of integrating these results is in terms of the standard notion of the product or process innovation funnel which illustrates the process by which an initial set of ideas are evaluated, tested and finally result in innovation. The shape of the innovation development funnel can then be used to provide an indication of the breadth of the set of initial ideas being considered by a firm and the degree of attrition during the innovation process. In Georgia, the greater connectivity of firms suggests a broader set of knowledge inputs to the innovation process than in the UK study regions, however, the more focussed approach to innovation being adopted in Georgia also suggests greater attrition or the elimination of innovation ideas. In the UK study regions, the lower level of connectivity suggests a narrower range of initial knowledge inputs to the innovation process; while the less focussed approach to firms' final innovation outputs suggests less attrition, or a development funnel which narrows more slowly. Catalonia is yet another case. Neither the use of external knowledge sources, nor the level of synergies across innovative activities appear to be high. The lower external connectivity, as seen in the UK regions, is not per se inhibitory in further development of complementarities, but in this case it seems to be connected.

Our results suggest the potential for mutual learning. For the UK study regions there are lessons in terms of the way in which the universities in Georgia are supporting innovation. For firms in Georgia the potential lessons are more strategic or organisational and relate to how they can better capture potential complementarities between their innovation activities. Policy implications for innovation measurement and knowledge base development are proposed.

Is Fiscal Decentralisation Good for Growth?

Graeme Roy

Department of Economics, University of Strathclyde, graeme.d.roy@strath.ac.uk

The relationship between fiscal decentralisation and economic growth is an important but highly controversial issue. The theoretical literature fails to deliver a clear outcome either in favour of or against greater regional and local fiscal autonomy. On the positive side, the granting of fiscal powers to regional and local governments can assist regional economic development, generate dynamic allocative efficiencies, encourage inter-governmental tax competition and reduce public sector inefficiencies. However, theory also alludes to potential negative effects from possible increased macroeconomic instability, exacerbation of regional inequalities, distortion of market forces and high administrative costs. Unfortunately, the lack of hard and robust empirical evidence from cross-country and single country case studies does little to lessen the uncertainty on whether the positive or negative effects dominate. In this paper we investigate the reasons for the conflicting results in the econometric literature. By determining the sensitivity of the evidence to estimation techniques, sample selection, measurement of regional autonomy etc we conduct an important reassessment of the relationship between fiscal decentralisation and economic growth. We find that the size and direction of any link found is sensitive to the estimation techniques adopted and more critically, on the sample of countries used in the analysis. The paper also provides an appraisal of both methodological and data issues which need to be addressed in future research.

Incapacity Benefit Claimants: Location and Labour Market Perceptions

Ian Shuttleworth and Anne Green

GAP, QUB and Institute for Employment Research, University of Warwick

I.Shuttleworth@qub.ac.uk

The number of Incapacity Benefit (IB) claimants in the UK is currently over three times as high as the number of JSA claimants despite general improvements in health. UK policy for a number of reasons has therefore become increasingly focussed on reducing IB claimant numbers through a variety of initiatives such as Pathways to Work. The evidence base on IB claimants is growing through analyses of administrative data and evaluations of Department for Work and Pensions (DWP) programmes and initiatives, including the Pathways to Work pilots. At local level household surveys have added to the evidence base on worklessness and our understanding of transitions to IB and on barriers to employment. Government research has tended to concentrate on individual and household circumstances insofar as they shape IB uptake and on evaluation of labour market programmes to move claimants from welfare to work. In contrast, the geographical and labour market context from the perspective of IB claimants themselves is downplayed, although regional differentials have been discussed (McVicar 2005) and it has been illustrated how unemployment can be 'hidden' as economic inactivity, especially in the slackest labour markets (Armstrong 1999; Mackay 1999; Beatty et al 2000).

The paper builds on this context by reporting the results of a survey of 900 IB claimants in selected locations across Northern Ireland (NI). Urban/rural differences in IB claimant characteristics and attitudes are explored as are differentials between high and low labour demand areas. The relative importance of spatial context, as contrasted with individual and household characteristics, is assessed to investigate the extent to which local labour demand (or its lack) is significant in shaping the fortunes of IB claimants. Further analysis also examines the views of 'local' held by IB claimants in order to understand more about the spatial scale of labour market decision making for IB claimants. Additional background for the survey analysis is provided through the use of secondary administrative data sources. The new insights provided into the attitudes of IB claimants, alongside their individual and household characteristics in different local contexts in NI, are important in understanding the nature of any connections to, and distance from the labour market, and so in shaping and informing policy.

Escalation of Increasing Return to Scale in Metropolitan Knowledge Production: An Analysis of the US Patent Data

Jung Won Sonn

Bartlett School of Planning, University College London, j.son@ucl.ac.uk

It is rather counter-intuitive that the role of the city in knowledge production is still important despite the rapid development that has taken place in the telecommunication infrastructure. Recent research in regional science finds evidence that knowledge production increases more than proportionally to the city's size (external economy of scale or increasing return to scale [IRS]). It has not, however, been systematically researched whether IRS has been historically increasing or decreasing. This question is an important one because even if IRS still exists, if it is decreasing, it is likely to be a residual from the past that will eventually disappear. On the other hand, if IRS is increasing, in spite of improvement in telecommunication, questions about how and why that increase happens would be cast.

In this context, this paper analyses U.S. patent data based on Zipf's law and Bayesian Information Criteria to find out 1) whether IRS has increased or decreased in recent decades and 2) what the causes of that increase or decrease are.

I first estimated two models to answer the first question. The first of these models assumes changes in IRS while the second does not. Using Lefty Equation 26 to compare their explanatory powers, I found that IRS has increased over the last three decades. Therefore, the current IRS is not a residual of the past but rather a phenomenon that is likely to accelerate, or at least persist.

Then, to determine the causes of this increase, I conducted an OLS regression with control variables. These variables were derived from episodic evidence in existing regional science and economic geography literature. One of the factors is the increasing importance of urbanisation economy. Economists of innovation have found that inter-sectoral information exchange is increasingly important in knowledge production. Therefore, spatial proximity that facilitates inter-sectoral knowledge spillovers is becoming a more important source in improving the efficiency of knowledge production. This effect might be causing IRS to increase. Secondly, small firms' increased share in knowledge production is contributing to an increase in IRS. Because small firms do not have as many opportunities for intra-firm knowledge exchange as large firms do, they are more likely to be dependent upon the local innovative milieu. Therefore, the increasing share of small firms in knowledge production is likely to result in an increased importance of local networks' exploitation. It was also found that cities with fewer previous knowledge production activities are more likely to grow (beta convergence).

These findings have implications on the understanding of firms' locational behaviour and the future of the city. They show that firms are even more strongly attracted by a city's innovative milieu and, thus, at least from an innovation point of view, cities are likely to grow even further in the coming decades.

A Cost-Benefit Approach to the Assessment of Regional Policy

Kim Swales

Fraser of Allander Institute, Department of Economics, University of Strathclyde
j.k.swales@strath.ac.uk

This paper outlines the application of cost benefit principles to the assessment of regional policy. Cost benefit analysis is presented as a way in which efficiency and equality considerations can be incorporated in a common assessment framework. The paper outlines the welfare foundations of cost benefit and adopts a market failure approach to the understanding of regional problems. The importance of shadow prices in the cost benefit method is stressed. Short-cut approaches to the appraisal of discretionary policy are demonstrated and the Political Economy barriers to the use of cost benefit are discussed.

Additional measures of progress for Scotland: An analysis of the issues and problems associated with aggregate/composite measures of sustainability

Karen Turner, Peter McGregor, Kim Swales and Janine Graham
University of Strathclyde, karen.turner@strath.ac.uk

A central part of the sustainability question is the argument that National Income as currently measured is not sustainable income, as it does not aim to capture well-being or quality of life issues, and does not account for environmental assets or the impacts of environmental degradation. This has led to efforts to find ways of adjusting or supplementing conventional measures of national income, in particular GDP, to capture a wider range of issues. However, due to problems of aggregation and valuation of components where markets do not exist, or are imperfect or incomplete, the idea of replacing the conventional system of national accounting with a 'Green GDP' or 'sustainable income' is problematic and controversial and no consensus has emerged on accepted measures of progress in this broad sense.

To deal with this, many countries have introduced systems of satellite accounts, which exist alongside conventional national income accounts, providing information to help manage economic activity in a way that is sustainable. A key element of satellite accounting has been the adoption and use of 'baskets' of individual sustainability indicators, which involves systematic and regular reporting of movements in a number of economic, environmental and social indicators. Where valuation is difficult, as in the case of environmental factors, in contrast to the concept of a fully integrated Green GDP or sustainable income, satellite accounts allow measurement in physical units, with no necessity that these be converted to monetary units.

However, the practice of monitoring and reporting on sometimes very large sets of individual indicators is a complex one and, despite the reservations noted above, the issue remains as to whether it is reasonable to attempt to measure sustainability in a single or composite measure. In the case of Scotland, the question arises in Section 14 of 'Choosing Our Future: Scotland's Sustainable Development Strategy' where the Executive states a commitment to "review the evidence on the options for additional and improved ways of measuring progress". As a first step in this process, the purpose of this paper is to consider the broad set of issues and problems associated with adopting aggregate measures of sustainability.

Residential location and travel-to-work mode choice under centralised and decentralised employment: The case of the Greater Dublin Area

Amaya Vega

School of Economics and Geary Institute, amaya.vega@ucd.ie

The extraordinary growth in population and employment that the Greater Dublin Area has experienced during the last decade had significant repercussions for travel behaviour and residential location patterns.

The aim of the paper is first, to study the determinants of the joint choice probability of residential location and travel mode choice in the Greater Dublin Area and second, to analyse the effects of road traffic congestion and travel-specific variables on home location and travel mode choice under two spatial employment patterns: centralised and decentralised. Geographical Information System (GIS) visualisations and network analysis are used to generate choice sets based on the definition of spatially aggregated alternatives. In this paper, a joint probability cross-nested logit (CNL) model of residential location and travel-to-work mode choice is formulated and estimated using a sample from the 2002 Irish Census of Population. Discrete choice models are estimated for each of the different types of spatial employment patterns and direct and cross elasticities with respect to travel time and travel cost are presented. A final simulation exercise is carried out to illustrate that the effects of road traffic congestion on residential location and travel-to-work mode choice vary considerably under both, decentralised and centralised spatial employment patterns.

Geodemographics and Academic Research: An Open Relationship?

Dan Vickers

Department of Geography, University of Sheffield, d.vickers@sheffield.ac.uk

This paper explores the usefulness of geodemographic classifications to academic researchers and equally importantly whether systems with closed methodologies can be used in academic research. If we relate commercial geodemographic systems to the long held belief of “garbage in, garbage out”, a commercial geodemographic system we have to label as ‘don’t know what goes in’. This leaves us with a fundamental question to answer if we “don’t know what goes in” can we trust what comes out? I argue “that no we can’t”, and that if we want to use geodemographic type systems in academic research we need to know what goes into them and how they are built. If this cannot be achieved with commercial systems we need to use ‘open geodemographic’ systems by either creating them ourselves or using non commercial systems with open methodologies such as the National Statistics classification of 2001 Census output areas.

Church Organists: Analysing their Willingness to Play

Don Webber and Martin Freke
Bristol: University of the West of England
Don.Webber@uwe.ac.uk

There currently exists a scarcity of church organ players even though they have traditionally been paid. This paper presents an empirical investigation into the factors that affect the church organ player's willingness to play. Results suggest pay does not attract the organ player to the position but being paid *in situ* increases their willingness to play, as do larger choir sizes and a better instrument quality. We also identify that organ players should be taught when they are young, as the younger the church organ player started learning the instrument then the greater their willingness to play.

The economics of urban infrastructure: Economies of scale, distribution costs and density effects as illustrated by water supply

Hugh Wenban-Smith

London School of Economics, wenban@globalnet.co.uk

The role of infrastructure does not feature prominently in urban economics although the accumulated investment in infrastructure is enormous. Insofar as it does feature, the dominant assumption is that infrastructure is characterized by economies of scale. However, this overlooks the effect of distribution (or access) costs, which introduce a trade-off between economies of scale and the cost of bridging distance.

Urban infrastructure can be viewed as either (a) Area Type (e.g. water supply, electricity, transport) or (b) Point Type (e.g. offices, hospitals, schools, museums). The former type involves distribution costs; the latter access costs. Taking urban water supply as a case study, the trade-off between economies of scale in the production unit (water treatment plant) and diseconomies of scale in water distribution is investigated by testing the predictions of a simple model using data from water companies in England & Wales and in the USA.

Strong confirmation of economies of scale in water treatment is found. As for distribution, the concept of economies (or diseconomies) is not straightforward as there is more than one dimension of scale to consider – numbers of connected properties, size of service area and average consumption. However, it is found that larger settlement size is generally associated with higher unit distribution costs, other things equal. Perhaps more importantly, it is found that higher density is associated with lower unit costs. This suggests that it is the higher density of urban settlements as much as their larger size that enables them to take advantage of economies of scale in production, overcoming the cost penalty of distributing over a larger area.

A concluding section considers how far these results can be generalized to other Area Type infrastructure and (with access costs in place of distribution costs) to Point Type infrastructure also.