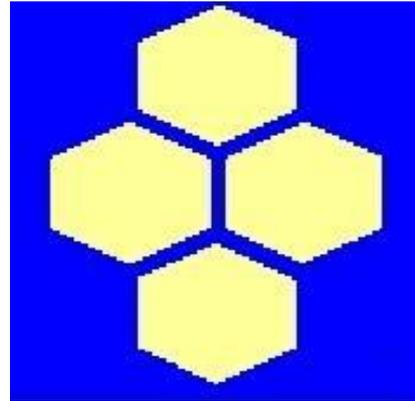


**Regional Science
Association International
British and Irish Section**

Registered charity No. 277247



38th ANNUAL CONFERENCE

The Strand Hotel,
Limerick, Ireland

2nd – 4th September, 2009

Programme

Wednesday 2 September 2009

9.00 Onwards

Registration – *Shannon Suite 1*

10.30 – 11.00

Coffee /tea – *Shannon Pre-Function Area*

11.00 – 13.00

Plenary Talks – *Shannon Suite 1*

There will be two plenary speakers.

Dr Brian Callinan, Planning Officer, Shannon Development: “The Economy of the Mid-West Region”

Mr. John Fitzgerald, Chairperson, Limerick Regeneration Agency: “Urban Regeneration: A Practitioners’ Perspective”

13:00 – 14:00

Lunch (*River Restaurant*)

Wednesday 2 September 2009 (cont.)

14:00 – 15:30

<p>Growth and productivity</p> <p><i>Room: Strand Suite</i></p> <p>“Metropolitan” status or region’s centres as a driver of economic growth Barry Harrison and Larisa Melnikova</p> <p>Decomposing labour productivity growth in the Irish manufacturing sector: A regional analysis Anne Marie Gleeson</p> <p>The impact of the embodied technical progress on the productivity and growth Fernando Barreiro-Pereira</p>	<p><u>Organized Session:</u> The impact of HEIs on local economies</p> <p><i>Room: Shannon Suite 2</i></p> <p>The supply side impact of higher education institutions on the Glasgow economy: A CGE analysis of increasing skills and the sensitivity of impacts to economic integration K Lisenkova, Kim Swales, K Hermannsson and Peter McGregor</p> <p>An investigation of how entrepreneurship education and training initiatives promote and/or impede enterprise development in Irish institutes of technology M Fenton</p> <p>Unrewarded careers in the creative class: the strange case of Bohemian graduates R Comunian, Alessandra Faggian and C Li</p>	<p>Spatial Economic Analysis – Joint RSAIBIS/RSA Sponsored Session</p> <p><i>Room: Shannon Suite 1</i></p> <p>In Search of ‘W’ Richard Harris and Victoria Kravtsova</p> <p>Estimation of a spatially interdependent system of migration and housing price dynamics P. Wilner Jeanty, Mark Partridge and Elena Irwin</p> <p>The dynamic effect of fiscal autonomy in Scotland: An applied general equilibrium analysis Patrizio Lecca, Peter McGregor and Kim Swales</p>	<p>Regional development and policy</p> <p><i>Room: City View Suite</i></p> <p>‘Doing’ regional economic development: The (potential) role of public sector entrepreneurship in the local and regional economic development process Andrew Johnston and Hannah Noke</p> <p>Exit routes: What are your options? Geraldine Ryan and Bernadette Power</p> <p>Life after Longbridge: Pathways to re-employment in a restructuring economy David Bailey</p>
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15:30 – 16:00

Coffee /tea – *Shannon Pre-Function Area*

Wednesday 2 September 2009 (cont.)

16:00 – 17:30

<p>Urban Areas and Agglomeration</p> <p><i>Room: Strand Suite</i></p> <p>Urban functions and functional regions in Ireland: New evidence from POWCAR Proinnsias Breathnach, Des McCafferty, Brendan Bartley, Justin Gleeson, Aine Rickard and Chris van Egeraat</p> <p>Geographical agglomeration: A reinterpretation from Celtic data Andrew Crawley and John Hobbs</p> <p>Cities and bridges in major European urban areas Graham Crampton</p>	<p><u>Organized Session:</u> The impact of HEIs on local economies</p> <p><i>Room: Shannon Suite 2</i></p> <p>Hither or thither? Migration patterns among UK graduates and the implications for regional economic disparities M Abreu and M Kitson</p> <p>Is higher education important for stimulating productivity? A CGE analysis of supply side impacts of HEIs in Scotland K Hermannsson, K Lisenkova, Peter McGregor and Kim Swales</p> <p>Universities, Agglomeration and Graduate Mobility Alessandra Faggian and Phil McCann</p>	<p>FDI and Location</p> <p><i>Room: Shannon Suite 1</i></p> <p>First they giveth, and then they taketh away: Foreign direct investment and cost competitive locations Patrick Collins</p> <p>The dynamics of FDI location: A Markov analysis for British Regions Colin Wren and Jonathan Jones</p> <p>Trajectories of change for mature manufacturing regions in Europe: The role of place-renewing leadership David Bailey, M. Bellandi, A. Caloffi, and Lisa De Propris</p>	<p><u>Organized session:</u> Energy Environment: Local and imported pollution generation and the sustainability of regional economic activity</p> <p><i>Room: City View Suite</i></p> <p>An interregional input-output analysis of the pollution content of trade flows and environmental trade balances between five states in the Mid-West Soo Jung Ha, Geoff Hewings and Karen Turner</p> <p>Do productivity improvements move us along the Environmental Kuznets Curve? Janine De Fence, Nick Hanley and Karen Turner</p> <p>How do labour productivity improvements in the Scottish economy affect the UK's position on the Environmental Kuznets Curve? Karen Turner and Nick Hanley</p>
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18:00

Social event: guided walk of Historical Limerick and Kings Island. This is followed by a barbecue in Nancy Blake's Bar on Denmark Street. The tour will leave from the reception area in the hotel at 6.30 pm. The barbecue location is a 10 minute walk away – the hotel is in adjacent to the city centre. A taxi would cost about €5-€6. Also enclosed in this booklet is a map with directions to the location for the barbecue.

Thursday 3 September 2009

9.00-10.30

<p style="text-align: center;">International Migration</p> <p style="text-align: center;"><i>Room: Strand Suite</i></p> <p>An analysis of regional patterns in Irish immigration during the ‘Celtic Tiger’ 1996 to 2006 Daniel Kiely and Declan Jordan</p> <p>The efficiency of the recruitment in origin for the labour insertion: The case of Catalonia Allepuz R.; Farré, M; Sala, M. and Torres, T</p> <p>Migration, relationship capital and international travel: Theory and evidence Philip McCann, Jacques Poot and Lynda Sanderson</p>	<p style="text-align: center;"><u>Organized Session:</u> Analyzing spatial patterns in Irish agriculture</p> <p style="text-align: center;"><i>Room: Shannon Suite 2</i></p> <p>An analysis of Irish farm economic scale using geographically weighted regression Caroline Crowley, Jim Walsh and David Meredith</p> <p>Regional implications of alternative greenhouse gas emissions abatement strategies in agriculture J P Breen, T Donnellan and T Johnson</p> <p>Assessing the sustainability of Irish farming across space using spatial microsimulation techniques Stephen Hynes, Emma Dillon, Thia Hennessy and Cathal O’Donoghue</p>	<p style="text-align: center;">Labour markets</p> <p style="text-align: center;"><i>Room: Shannon Suite 1</i></p> <p>Labour underutilisation in Australian functional economic regions: Individual employability and the important regional dimension Scott Baum, William Mitchell and Hoon Han</p> <p>Job seeker's allowance in Great Britain: How does the regional labour market affect the duration until job finding? Philip Ball and Ralf Wilke</p> <p>Simulating spatial variations in wages and prices using the NEG: Modelling the impact of a shock to employment Bernard Fingleton</p>	<p style="text-align: center;"><u>Organized Session:</u> Energy Environment: Economics of renewable energy</p> <p style="text-align: center;"><i>Room: City View Suite</i></p> <p>Can we predict where marine renewable energy developments will occur? The regional dimension to levelised costs and investor returns Grant Allan, Peter McGregor and Kim Swales</p> <p>The economics of the marine sector in Ireland: Linking the macro and the micro Karyn Morrissey and Cathal O’Donoghue</p> <p>The regional economic and environmental consequences of alternative energy futures: A case study for Scotland Grant Allan, Igor Eromenko, Peter McGregor, Kim Swales and Karen Turner</p>
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10:30 – 11:00

Coffee /tea – *Shannon Pre-Function Area*

Thursday 3 September 2009 (cont.)

11:00 – 12:30

<p><u>Organized session:</u> Irish Regional Futures</p> <p><i>Room: Strand Suite</i></p> <p>Future of EU regional policy and its implications for Irish regional policy Kieran Moylan and Gerry Finn</p> <p>National and regional planning: Current challenges and future priorities David Walsh</p> <p>Regional development on the island of Ireland: Future scenarios Frank Crowley and Eoin O’Leary</p>	<p><u>Organized session, in collaboration with the Irish Innovation Institute Innovation (1)</u></p> <p><i>Room: Shannon Suite 2</i></p> <p>A review of territorial innovation problems: A methodological proposal for designing innovation regions Ryszard Rózga Luter</p> <p>The role of human capital diversity for business-level innovation: Evidence from Ireland Helen McGuirk</p> <p>Absorptive capacity and regional patterns of innovation Maria Abreu, Vadim Grinevich, Michael Kitson and Maria Savona</p>	<p>Health assessment</p> <p><i>Room: Shannon Suite 1</i></p> <p>Spatio-temporal dynamics of general practice catchment areas: A case study of Southwark, London Daniel Lewis, Maurizio Gibin and Alex Singleton</p> <p>Regional organization of the health care system and regional development policy in Greece Athanasios Athanasiadis, Stella Kostopoulou and Anastasios Philalithis</p> <p>Examining access to acute and community care psychiatric services for depression sufferers in Ireland Karyn Morrissey and Cathal O’Donoghue</p>	<p><u>Organized session:</u> Energy Environment 3: Economics of renewable energy</p> <p><i>Room: City View Suite</i></p> <p>Rebound and disinvestment effects in oil consumption and supply resulting from an increase in energy efficiency in the Scottish commercial transport sector Karen Turner and Sam Anson</p> <p>Sensitivity of general equilibrium rebound effects from energy efficiency improvements to different specifications of the KLEM production function Ana Isabel Guerra Hernández and Karen Turner</p> <p>Econometric estimation of Armington import elasticities for regional CGE models of the Chicago and Illinois economies Soo Jung Ha, Geoff Hewings and Karen Turner</p>
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12:30 – 13:30

Lunch (River Restaurant)

Thursday 3 September 2009 (cont.)

14:00 – 15:00

AGM – All welcome: Room: Shannon Suite 2

15:00 – 16:30

That's life	<u>Organized session, in collaboration with the Irish Innovation Institute</u> Innovation (2)	Special Session for Early Career/Doctoral Students (1)	Forecasting
<p data-bbox="241 576 450 603"><i>Room: Strand Suite</i></p> <p data-bbox="159 639 517 756">Developing a continuous-space representation of a simulated population John Cullinan</p> <p data-bbox="159 794 517 911">Well-being and illness: Toward a regional model of morbidity H. Shulman, M. Birkin and G.P. Clarke</p> <p data-bbox="159 949 517 1034">Moving towards real-time geodemographic segmentation Alex Singleton</p>	<p data-bbox="741 576 994 603"><i>Room: Shannon Suite 2</i></p> <p data-bbox="555 639 1106 724">Are HEI Impacts local or non-local? The role of proximity in university-business collaboration Nola Hewitt-Dundas</p> <p data-bbox="555 762 1128 911">Internal and external determinants of radical and incremental innovation in SMEs: The case of Catalonia Josep-Maria Arauzo-Carod, Alessandra Faggian and Ferran Mañé</p> <p data-bbox="555 949 1106 1066">Innovation in Transition: Supporting SME innovation and high-tech growth in the Western Balkans Stephen Roper</p>	<p data-bbox="1211 576 1464 603"><i>Room: Shannon Suite 1</i></p> <p data-bbox="1160 639 1464 724">Surnames as indicators of cultural regions James Cheshire</p> <p data-bbox="1160 762 1464 815">Real time geodemographics M. Adnan</p> <p data-bbox="1160 853 1509 1002">The effects of innovation on productivity in Irish firms: An application of the innovation value chain Justin Doran</p>	<p data-bbox="1688 576 1942 603"><i>Room: City View Suite</i></p> <p data-bbox="1541 639 2024 788">Assessing the expected impacts of regional policy in Ireland using theoretical insights from spatial economics Jonathan Potter, Barry Moore and Danilo Iglori</p> <p data-bbox="1541 826 2024 943">The future for European regional policy: Lessons from the Canary Islands, Madeira and Azores triangle António Manuel Martins de Almeida</p> <p data-bbox="1541 981 2038 1066">Is plan-making today any more spatial than it was in the past? Peter Batey</p>

16:30 – 17:00

Coffee /tea – Shannon Pre-Function Area

Thursday 3 September 2009 (cont.)

17:00 – 18:30

<p>Employment, location and infrastrucation</p> <p><i>Room: Strand Suite</i></p> <p>An assessment of clusters of employment and accessibility in rural Ireland Amaya Vega</p> <p>Optimal spatial aggregation in the determinants of industrial location Josep-Maria Arauzo-Carod and Miguel Manjón-Antolín</p> <p>Population decline and infrastructure management: An analysis of the latent structure of impacts and factors Tetsuji Uemura, Susana Mourato, Masaaki Uto, Yasushi Asami and Keiichi Kitadume</p>	<p>An important field of research</p> <p><i>Room: Shannon Suite 2</i></p> <p>Social farming: Bringing people back into agriculture and agriculture back into society Aideen McGloin, Deirdre O’Connor, Jim Kinsella and Stephen Hynes</p> <p>Models of economic location: The rural economy and advanced ICT Alan Sloane and Seamus O’Reilly</p> <p>Regional and rural poverty analysis in Ireland Cathal O’Donoghue and Karyn Morrissey</p>	<p>Special Session for Early Career/Doctoral Students (2)</p> <p><i>Room: Shannon Suite 1</i></p> <p>Development of Heliongjiang Province pharmaceutical industry sector Jialiang Wang</p> <p>Multiplie dimensions of regional economic growth: The Brazilian case, 1991-2000 Guilherme Mendes Resende</p>	<p>Urban spatial structures</p> <p><i>Room: City View Suite</i></p> <p>Contrasts in the spatial structure of urban and regional systems John B. Parr</p> <p>The strength of agglomeration: A new technique for measurement Andrew Crawley and Steve Hill</p> <p>Health, environment and urban development: Revitalising public green space Anna Pawlikowska-Piechotka</p>
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19:00 – 20:00

Reception – sponsored by Spatial Economic Analysis – Shannon Suite

20:00

Conference dinner – Shannon Suite

Friday 4 September 2009

10:00 – 11:30

Clusters and agglomeration	Sustainability: Keep going! ... and That's your Lot
<i>Room: Shannon Suite 2</i>	<i>Room: Shannon Suite 1</i>
Cluster and network initiatives in a post-transition economy: The case of Germany's south eastern region Gerhard Heimpold	Is a strong indigenous industrial base a necessary condition for sustainable economic growth? The case of Ireland Bernadette Andreosso-O' Callaghan and Helena Lenihan
A balancing Act: Managing the global-local dimensions of industrial clusters through the mechanism of 'lead' organisations Majella Giblin	Polycentric cities and sustainable development: A multi-scaled GIS approach to analysing urban form Duncan Alexander Smith
An analysis of the drivers of national and regional competitiveness in small open innovation-driven economies. Claire Davis	Determinants of lottery participation and expenditure in Irish regions Frank Crowley and Declan Jordan

11:30 – 12:00

Coffee /tea – *Shannon Pre-Function Area*

12:00 – 13:00

Committee Meeting (Committee members only), *Room: City View Suite*

13:00 – 14:00

Lunch (*River Restaurant*)

15:00

Tour of Thomond Park Stadium and Munster Rugby Museum. Anyone interested can contact Declan Jordan, Local Organiser, for more information or to book. The cost is €12

End of Conference

Abstracts

Absorptive capacity and regional patterns of innovation

Maria Abreu, Vadim Grinevich, Michael Kitson (University of Cambridge)
and Maria Savona (University of Sussex)
ma405@cam.ac.uk

This paper considers whether differences in absorptive capacity at the firm-level are determinants of regional variations in innovation performance. Differences in firms' absorptive capacity are also due to sectoral and technological specificities. Both firms' absorptive capacity and sectoral structure differ widely across regions: this analysis focuses on the former while controlling for the latter aspect in order to evaluate regional differences in firms' propensity to innovate. This research shows that different forms of absorptive capacity are associated with different types of goods, service and process innovation. Furthermore, it suggests that policies that encourage the use of new management techniques, the training of managers and the development of networks across multiple geographies may improve the innovative behaviour of firms in all the regions of the UK.

Hither or thither? Migration patterns among UK graduates and the implications for regional economic disparities

Maria Abreu, Michael Kitson (University of Cambridge) ma405@cam.ac.uk

and Philip David Wales (London School of Economics)

Regional disparities in economic performance are among the most pronounced and pervasive characteristics of advanced economies. This paper examines how concentrations of human capital develop by exploring what attracts highly-skilled individuals to particular regions in the UK. Using data on the population of graduates from British universities in 2005-06, it examines the individual migration decisions of students from different regions and universities, different subjects and age groups to gain an understanding of the drivers of inter-regional migration amongst the highly-skilled. It uses a multinomial logistic model to explore how different regional economic and social conditions affect migration decisions in an explicitly spatial framework, and controls for a host of individual, academic, regional and social effects.

Real time Geodemographics

Adnan, M., Singleton, A.D., Brunson, C., Longley, P.A.
(University College London) m.adnan@ucl.ac.uk

Geodemographic classifications are created using computationally intensive clustering algorithms which partition the records of large multidimensional datasets into groupings which optimise homogeneity across attribute space. In their current form, commercial geodemographic classifications are created in silos by expert producers, most prevalently with closed methods and little documentation of the data inputs; the weighting and normalisation procedures; or, the exact methods of clustering. In this paper we present preliminary work that examines the creation of more responsive and open geodemographic information systems. There are a number of motivations for this work. Current classifications are created using static data sources which do not necessarily reflect the dynamics of population change in modern cities. Data is increasingly available in near real-time and could be integrated to create more temporally responsive systems. Application specific classifications have been successfully demonstrated across a variety of areas, and there are many more sectors which could potentially benefit if the methods of construction and interpretation were more accessible. These motivations have lead researchers to an interesting research area of making bespoke geodemographics classifications available in a real time environment. However, creation of these systems raise different computational challenges relating to integration of large spatial databases, data normalisation techniques opted, and most importantly the efficiency of clustering algorithms applied. This paper discusses the challenges for a real time geodemographic classification system. In general, it provides an overview to measure efficiency of clustering algorithms and provides architecture for a real time geodemographic classification system.

Regional economic and environmental consequences of alternative energy futures: A case study for Scotland

Grant Allan, Igor Eromenko, Peter McGregor, Kim Swales and Karen Turner
(University of Strathclyde) grant.j.allan@strath.ac.uk

While the pattern of future energy provision is the focus of speculation, we can be confident of two consequences: there are likely to be large changes in the range of technologies and methods by which future energy is provided; these changes have implications for both economic activity and future regional competitiveness. Quantifying the impacts of such changes on the regional economy requires models that are capable of dealing with the system-wide consequences of changes in the supply and demand of energy, as well as having the sectoral detail to capture the significant differences in energy intensities seen at the sectoral level. This paper seeks to contribute to this literature by using Input-Output, Social Accounting Matrix and Computable General Equilibrium models of the Scottish economy to examine the possible consequences of anticipated changes in the pattern of energy provision. The likely impacts on energy use and environmental indicators will also be tracked, allowing comparison of the scale of possible tradeoffs between regional energy targets and environmental goals.

**Can we predict where marine renewable energy developments will occur?
The regional dimension to levelised costs and investor returns**

Grant Allan, Peter McGregor and Kim Swales (University of Strathclyde)
grant.j.allan@strath.ac.uk

Levelised costs are used to provide first estimates of the relative costs of different electricity generation technologies. These are commonly estimated using assumptions on expected device operation, and expected costs of construction, fuel, operations and maintenance, decommissioning, and other private costs to the developer (e.g. pre-development costs). Net Present Value (NPV) is a conventional method from the investment appraisal literature for assessing the economic attractiveness of projects. One clear regional dimension to technology development, aside from the regional spread of the energy resources themselves, is the different financial support mechanisms for marine renewable energy technologies that are in place across in Scotland UK. Newly implemented “banded” Renewable Obligation Certificates (ROCs) seeks to encourage development of a range of renewable energy technologies, rewarding electricity generated from specific renewable technologies with increased ROCs, in place of the previously “technology-blind” support mechanism. In this paper, we focus on the extent to which costs and NPVs of marine energy projects might differ across regions and the extent to which financial support mechanisms might affect the renewable energy investor’s location decision.

The efficiency of the recruitment in origin for the labour insertion: The case of Catalonia

Allepuz R.; Farré, M; Sala, M. and Torres, T.
(University of Lleida, Spain) mariona.farre@econap.udl.cat

Recent years have seen a large increase in immigrants in Catalonia. Their insertion in to the labour market is being part of an important academic, political and social debate. In turn, the social incidences of these migratory flows are very significant and object of every type of appraisals. The characteristics of the jobs that foreign population occupies, overcoat the extra communitarian, as well as the sectors that they concentrate on, delimit a segment of labour market that answers to the characteristics of the people that occupy them as well as some specific working conditions.

In that context, social, political and academic states have made different proposals in order to improve, as much as possible, labour insertion of foreign population to reduce the negative effects that on the labour market can rise up. Since some years ago strategies of recruitment in origin have been carried out- as it is the case of the nominative recruitment and the contingents - so that the companies that need workers and had difficulties to find autochthonous manpower can have workers proceeding from other countries in a legal and controlled way. This way the recruitment in origin has turned into an instrument with double purpose: intermediating between Spanish companies and foreign workers and controlling the entry of migratory flows. In the case of Catalonia we can observe that the recruitment in origin has had different results according to the interests of the companies, foreign workers and occupied jobs.

The research that is presented is a study on the recent recruitment at origin in Catalonia. The main goal is to provide information, statistical data and appraisals of the implicated agents.

**The future for European regional policy:
Lessons from the Canary Islands, Madeira and Azores triangle**

António Manuel Martins de Almeida
(University of Madeira) amma@uma.pt

The current globalisation process along with parallel processes of technological and ideological ruptures are producing threats (as well as opportunities) to the existing *status-quo* in islands. The globalisation process is associated with the growing incorporation of peripheral geographical territories (as is the case in most islands) in the sphere of the capitalist economy. After decades of relative protection expressed in the high levels of Official Development Assistance some of the highest *per capita*, the insular peripheral economies, as with most Less Favoured Regions in Europe, are confronted with restructuring and readjustment processes, and the urgent need to promote economic growth and reduce disparities and with the need to adapt to a scenario of reduced financial transfers. Since the 90s, the Central and Eastern Europe is the emerging concern of the European Commission at expenses of more peripheral areas. Contrary to what was noted between the 1970s and the 1990s, insular peripheral regions are expected, by the European Commission to attain international standards of productivity, growth and competitiveness. This papers aims to understand the dilemmas and challenges faced by the Portuguese Autonomous regions and Canary Islands in their efforts to pursue a more endogenous development strategy. Statistical evidence and econometric estimates of the likely impact of the new European regional policy are presented. Where the development process on islands is concerned, the existence of very few viable alternatives, apart from tourism presents a problem. The challenges underlying the global economic, political and technological dynamics point to a scenario of recession, unemployment and emigration, as experienced before in islands. In order to avoid such scenario we argue for a new European Regional Policy based on market efficiencies at local level plus selective European financial transfers to sustain the on-going economic growth momentum.

Is a strong indigenous industrial base a necessary condition for sustainable economic growth? The case of Ireland

Bernadette Andreosso-O' Callaghan and Helena Lenihan
University of Limerick, Ireland. helena.lenihan@ul.ie

Industrial policy in Ireland ever since the first comprehensive plan (Department of Finance, 1958) has focussed on the promotion and attraction of FDI. More specifically in 1973, the Irish Industrial Development Authority (IDA) targeted the attraction of investments (industrialisation by invitation) in sectors such as electronics, chemicals and other high 'tech' sectors. Such a strategy has indeed contributed to the success of the Irish economy. The Irish Government's first economic plan also emphasised the need for a solid indigenous industrial sector which would exist alongside the foreign firms. In other words it did not promote the 'dualism' that subsequently emerged. It is a fair assessment to say however that Industrial Policy in Ireland has been primarily geared towards FDI and it could indeed be reasonably argued that that this has been at the expense of indigenous companies. Despite that as far back as 1982 the 'Telesis Group' highlighted an over-emphasis on foreign industry, it was not until the mid 1990s with the publication of the report from the 'Task Force on Small Business' in 1994 that the Irish government for the first time acknowledged the SME (almost synonymous with indigenous in Ireland) sector. This is astonishing given that as outlined by Andreosso-O' Callaghan and Lenihan (2006) "...even as far back as 1979, some 95% of all manufacturing units could be classified as SMEs" (P. 282).

Authors such as Bailey *et al* (2007) have argued that on seeing the limitations of solely focussing on FDI as a vehicle of growth, the Irish government also tried to develop indigenous SMEs and entrepreneurship more generally. We however, are more inclined to agree with Bailey *et al* (forthcoming) when they argue that whilst acknowledging the above, one would be more inclined to conclude that the focus on indigenous SMEs and entrepreneurship by Irish policy makers should have occurred much earlier. We see this as a 'policy' failure of the Irish industrial policy approach. We are by no means anti-FDI *per se*, and we do indeed appreciate the many benefits of FDI to a host economy such as Ireland both in terms of direct and induced effects, rather what we emphasise in this paper is that this should not come at the expense of ignoring domestic firms. More specifically, in this paper we explore the research question of whether a strong indigenous industrial base is indeed a necessary condition for sustainable development. Here we examine growth and development in terms employment; GDP; Innovation; Productivity and Competitiveness. We also explore the question as to the characteristics of firms that perform well vis-a-vis of these measures.

More generally, we explore the meaning of sustainable economic growth' in terms of what it means for a country and more importantly how it can be achieved.

Our main concern in this paper is with the case of Ireland, however so as to broaden the economic development and policy implications of our paper, we extend our analysis by also looking at the cases of economies such as Denmark, Sweden and Switzerland so as to place our work within a comparative framework. These small open economies have all relied on a mixture of indigenous and foreign firms, and have nurtured a strong indigenous manufacturing base through the development of high value added jobs. As a result, these countries have been able to withstand several economic downturns such as for example the recession in the early 1990s.

Internal and external determinants of radical and incremental innovation in SMEs: The case of Catalonia*

Josep-Maria Arauzo-Carod (Rovira i Virgili University) josepmaria.arauzo@urv.cat

Alessandra Faggian (University of Southampton) A.Faggian@soton.ac.uk

Ferran Mañé (Rovira i Virgili University) ferran.mane@urv.cat

There is a major concern in economic literature about innovation, which is the spatial distribution of innovative activities. In this paper those activities are hypothesized as being determined by some territorial characteristics like labour skills, technological infrastructure, educational facilities, agglomeration economies and industrial structure. This assumption allows understanding why those innovative activities are not spread across space and are located into specific areas. We use a detailed survey containing microdata for 497 SMEs located in Catalonia.

Optimal spatial aggregation in the determinants of industrial location

Josep-Maria Arauzo-Carod and Miguel Manjón-Antolín
(Universitat Rovira i Virgili) josepmaria.arauzo@urv.cat

This paper aims to empirically assess what is the level of geographical aggregation to be used in the determinants of industrial location. Previous studies typically use covariates measured at the available administrative level (municipalities, counties, etc.). However, this amounts to assume that the effects that some variables may have on the number of new concerns located in a particular site span on a priori fixed distances around that site. We address the validity of this assumption by comparing results from standard count data models with those obtained by calculating the geographical scope of the independent variables using different distances and alternative spatial autocorrelation measures. Our results strongly reject the usual practice of using simple official statistics and suggest that some kind of spatial correction is needed.

Regional organization of the health care system and regional development policy in Greece

Athanasios Athanasiadis (University of Crete), Stella Kostopoulou (Aristotle University of Thessaloniki) and Anastasios Philalithis (University of Crete)
kostos@econ.auth.gr

In Greece, like in many European countries, during the post Second World War decades, there has been a trend towards the regional organization of the health policy system. At the same period, regional development strategies have been largely planned and implemented, leading to decentralization towards lower levels of governance. In the Greek case, post war health and regional development decentralization patterns raise the question of whether these regionalization processes followed parallel, rather asymptotic paths, that led to failures in the public health care system.

To address this question the article reviews the strategies adopted by Greek governments for the regionalization of the health care system, as well as the regionalization of governing the economic and social development process, and discusses recent trends and future challenges so as to draw policy conclusions. Three distinct historical phases are distinguished: a) the post-war period till 1974, characterised by attempts for regional development policy and regionalization of the health care system, however, never implemented; b) the period between 1974-2000, characterised by the “Europeanization” of regional policies, a major health care reform and successive regionalization attempts, still not achieving decentralisation; and c) the recent years, that represent the mature period for regional development policy and the actual regional organization of the health care system, with the establishment of seventeen Regional Health Regions in 2001. Within the latest reforms, however, these were reduced and renamed, retaining only a coordinating function.

From our analysis we conclude that, despite the rising degree of decentralization which has prevailed in the Greek system of administrating regional development, early plans to decentralize health care services in the country failed to result in major improvements. Therefore, the equitable regional distribution of health services, even though constitutionally guaranteed, remains a challenging issue in the regionalization policy agenda.

Trajectories of change for mature manufacturing regions in Europe: The role of place-renewing leadership

David Bailey

Coventry University Business School, UK

M. Bellandi, A. Caloffi

Università degli Studi di Firenze, Italy

and Lisa De Propris

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The forces of globalisation that are impacting on local economies are both posing a threat to the existing paradigm of competences and routines, yet simultaneously offer opportunities to integrate new knowledge and learning. This is particularly pertinent with respect to Europe's 'mature regions', which are undergoing a major economic restructuring by trying to shift from traditional manufacturing activities to hybrid activities that comprise a combination of manufacturing and a higher component of intangible inputs and related knowledge service activities.

The objective of the paper is to discuss the concept of 'place leadership' by looking at how the embedded skills, knowledge and cumulated learning of a place can be used by its institutional infrastructure to identify sustainable growth trajectories. In other words, its aim is to explore how the economic, social, institutional and cultural aspects of places shape the opportunities for upgrading and renovation drawing upon their historical specialisation.

In this context, the paper will compare the experience of the West Midlands in the UK and of Prato in Tuscany and identify good practice and policy recommendations.

Life after Longbridge: Pathways to re-employment in a restructuring economy

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The closure of the MG Rover plant at Longbridge in April 2005 was one of the largest industrial failures seen in the UK for some twenty years, with around 6,300 workers losing their jobs when MG Rover went into administration, with several thousand more affected in the supply chain. The scale of the job losses in an already economically disadvantaged region, and the loss of the last remaining British owned car manufacturer combined to highlight the consequences of the ongoing decline of manufacturing and the associated human costs of structural change.

This paper explores how the loss of employment resulting from the closure of the MG Rover plant at Longbridge has affected the well-being of ex-workers and their families and neighbourhoods, and is based on a three-wave longitudinal survey of 204 ex MG Rover workers three years after closure along with 30 in depth follow-up interviews.

The 'good news' from our research was that three years after closure, almost 90% of workers had found new employment and most of them were in permanent jobs. However, a majority of workers reported facing difficulty in finding employment especially due to the number of people applying for the same job, age and lack of skills. Indeed, most workers had to convert to service sector work and were using different skills in 2008

Training has played a key role in ex-workers finding new jobs either in giving them confidence or in helping them learning new skills. Some 60% of workers reported having undergone some form of retraining and/or education. Two thirds took up the offer of free training places offered by local agencies and many others underwent training by their new employers.

The need for workers to change their type of job and/or occupation to find employment resulted in significant pay cuts, with average pay falling by £5,640 per year in real terms. Two thirds of workers suffered wage falls while a third reported an increase in their salaries. Overall, the 31% of workers who stayed within the manufacturing sector earned similar amounts of money, but the 60% who moved into the service sector were mostly earning less. People who found work in four sectors - wholesale and retail, real estate and business services, education, and health and social work - took average cuts of more than £6,000 in annual income. Longer term, workers also face a precarious situation. Our work suggests that the need for policies to create and sustain 'good quality' jobs remains paramount.

Beyond these general findings, each individual went through a different pathway back to work or to unemployment. Our work shows that these pathways diverged according to workers' age, qualification, occupation and the ability to commute longer distances. Workers with lower levels of qualification and/or occupation and/or older workers were more likely to experience longer period of unemployment and to have to shift to new sectors and jobs. Workers willing to travel greater distances were also more likely to find work quickly. Overall, our findings suggest a need for a more tailored policy approach to workers' needs and resources.

**Job seeker's allowance in Great Britain:
How does the regional labour market affect the duration until job finding?**

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Employing a large individual-level administrative dataset from Great Britain, covering the period 1999-2007, we analyse the factors influencing the length of unemployment benefits claimant periods with subsequent transition to re-employment. To this end, this individual-level data is merged with a bunch of regional indicators to control for relevant regional labour market characteristics. From a methodological point of view, we adopt a flexible censored quantile regression approach to estimating conditional re-employment hazards. Our results indicate that the individual characteristics of an unemployed person are generally more important than the regional labour market conditions. However, regional labour supply and demand conditions are important determinants for the length of unemployment compensation claim periods. Our analysis provides evidence that large cities such as London and Birmingham provide the worse local labour market conditions for job seekers allowance recipients, while remote regions like the Shetland islands perform among the best.

The impact of the embodied technical progress on the productivity and growth

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The productivity generated by capital goods is not uniform over time. When conventional physical capital goods exist the productivity obtained is less than that generated by quality capital goods. For this reason it can be interesting to develop a spatial analysis on the investment in capital goods in order to identify what are the differences between the productivity derived from physical capital and from quality (vintage) capital. It seems that the differences between both kinds of capital stems from the fact that the quality capital is affected by an additional form of technical progress.

The main aim of this paper is to analyze the effects of the two forms of neutral and directly embodied technical progress on economic growth and labour productivity. Our model is applied to embodied technical progress on economic growth and productivity in the UK, Ireland, EU, USA, China and India, during the period 1996-2007. To estimate the importance of embodied and disembodied technical progress on the labor productivity growth rate in each country we use multivariate time series and cointegration techniques, in special autoregressive integrated moving average and vector autoregressive models (VAR).

Is plan-making today any more spatial than it was in the past?

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In Britain and elsewhere the last ten years have seen ‘spatial planning’ become firmly embedded in the planning system. Much has been claimed for this approach, not least that it offers the opportunity to produce plans that are more overtly ‘spatial’. In this paper the notion of spatial planning is examined in some detail. What makes spatial planning different from the traditional approaches to planning? The paper then proceeds to develop a vocabulary of spatial planning concepts that one might expect to be used as part of the plan-making process: in analysing the context within which the plan is being developed; in framing policy instruments; and in describing the outcomes of policy. These concepts are then used to analyse three strategic plans prepared at different points in time for the Liverpool City region: the 1944 Longstreth Thompson Outline Plan for Merseyside, the 1965 Interim Planning Policy Statement for Liverpool, and the 2008 Draft Core Strategy for Liverpool which forms part of the city’s Local Development Framework. To what extent is this vocabulary of spatial concepts applied in these plans and what evidence is there that the most recent plan is any more spatial than its earlier counterparts? The paper ends by considering how the current generation of plans could be made more spatial and suggests some of the benefits that might flow from a genuinely spatial approach.

City size distributions in history

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In this paper we examine historical data regarding city size distributions in different parts of the world. We examine city size distributions in Asia and Europe from the Middle Ages onwards, and city size distributions in North and South America and other new-world regions from the eighteenth century onwards. Our analysis examines the extent to which these distributions themselves have evolved over long periods of historical time, and identifies whether there are differences in the estimated parameters for different regions and different time periods. We then compare these historical patterns both across and within countries with more recent estimations conducted elsewhere based on country-specific datasets.

**Labour underutilisation in Australian functional economic regions:
Individual employability and the important regional dimension**

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Concerns about job loss, unemployment and underemployment, while always present, are once again becoming front-and-centre in the minds of policy makers, government officials and the general public. In the academic literature interest in these issues has continued to evolve and introduce new ways of thinking about a range of problems associated with unemployment and underutilisation and in particular advance our understanding of the drivers of different labour market states. One area, which has seen increasing relevance in recent years, is the application of a broader way of thinking about labour market outcomes. This broader framework situates the analysis of labour market outcomes in a conceptual and empirical framework which juxtaposes the role of individual supply characteristics with labour demand characteristics. Using a combination of individual level survey data and aggregate census data this paper applies this broad conceptual and empirical to an example from the Australian situation. Taking newly formed functional economic regions we develop models which consider how individual labour market states are driven by both individual and personal characteristics and the characteristics of regional labour markets. The analysis provides an interesting new understanding of labour market outcomes in the Australian context and poses a number of interesting policy challenges and questions.

Urban functions and functional regions in Ireland: New evidence from POWCAR

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Spatial policy in Ireland, as set forth in the National Spatial Strategy (NSS), places a strong emphasis on the exploitation of complementarity, both among urban centres and between urban and rural areas, in order to achieve the ‘critical mass’ which the NSS sees as a vital prerequisite for sustainable and balanced development. Implementing this approach requires knowledge of the workings of the Irish space economy, one of the main organising elements of which is the functional region. Before significant amounts of public money are committed to infrastructural and other developments in cities, we need to know a lot more about the likely impact of that investment, not just in cities themselves, but also in their linked towns and rural hinterlands.

Until now, research in this area has been hindered by the lack of appropriate and reliable data on urban employment profiles. The Census of Industrial Production and Annual Services Enquiry are not sufficiently disaggregated geographically, while the Census of Population (which has been the most widely used source) suffers from a lack of detail in the industrial classification. More significantly, the CoP classifies workers by place of residence rather than by place of work, a feature that became more problematical for urban economic base studies as commuting volumes and distances increased rapidly in recent years, resulting in a growing disjuncture between the geographies of jobs and of workers’ residences. However, data availability has been transformed with the development of the Place of Work Census of Anonymised Records (POWCAR), based on origin and destination questions in the 2006 population census.

This new database facilitates new approaches to the classification and analysis of Irish towns in terms of their occupational and functional make-ups. The present paper classifies Irish towns in terms of daily movements in and out of commuters, thus facilitating the identification of primarily dormitory and primarily “stand-alone” centres whose economic base is internal. It then analyses the latter towns in terms of their functional configurations (based on occupational data) and generates estimates of employment in a number of key sectors, such as local government, health, education, retailing, financial services, hotels & catering, personal services, and manufacturing. Employment in central place services is related to urban hinterland size, identified with the assistance of commuting data, and adjusted for spatial variations in average disposable income. Estimates are also made of the split between central place services and basic services (especially manufacturing). The findings of the analysis provide a range of new insights into the structure of the Irish urban system.

Regional implications of alternative greenhouse gas emissions abatement strategies in agriculture

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Agriculture currently accounts for over 25 percent of total greenhouse gas (GHG) emissions in Ireland. The sector is likely to face significant pressure to reduce its emissions levels particularly in the context of the European Union (EU) commitment to reduce emissions by 20 percent by 2020. Environmental Economics literature has advanced a number of policy or market based mechanisms, such as tradable emissions permits, that may minimize the cost of reducing emissions. However, while such mechanisms may minimize the cost to the sector of reducing emissions they may also have far-reaching regional implications. Tradable emissions permits minimize the cost of reducing emissions because emissions sources with higher marginal costs of emissions abatement will purchase permits from sources with lower costs of emissions abatement. Farmers in the Border, Midlands and Western (BMW) region are predominantly engaged in drystock production (i.e. cattle and sheep) which typically has a lower cost of emissions abatement than dairy or cereals production which are more common in the rest of the country. Therefore if a market for tradable emissions permits is introduced in Irish agriculture it is likely that emissions permits will shift from the BMW region to the rest of the country, this will have implications for sectors upstream and downstream from agriculture.

The impact of allowing farmers to trade emissions permits is measured using a farm-level linear programming model. The farm-level linear programming model is constructed from Teagasc National Farm Survey data and regional weightings are applied to measure the impact of the policy reform on the value of agricultural output in the BMW region. This paper uses a Social Accounting Matrix (SAM) developed for the BMW region, to examine the regional impact of the change in the value of agricultural output as a result of the introduction of a system of tradable emissions permits in Irish agriculture.

Surnames as indicators of cultural regions

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In recent years the geography of surnames has become increasingly researched in genetics, epidemiology, linguistics and geography. Surnames provide a useful data source for the analysis of population structure, migrations, genetic relationships and levels of cultural diffusion and interaction between communities. The Worldnames database (www.publicprofiler.org/worldnames) of 300 million people from 26 countries georeferenced in many cases to the equivalent of UK Postcode level provides a rich source of surname data. This work has focused on the UK component of this dataset, that is the 2001 Enhanced Electoral Role, georeferenced to Output Area level.

Exploratory analysis of the distribution of surnames across the UK shows that clear regions exist, such as Cornwall, Central Wales and Scotland, in agreement with anecdotal evidence. This study is concerned with applying a wide range of methods to the UK dataset to test their sensitivity and consistency to surname regions. Methods used thus far are hierarchical and non-hierarchical clustering, barrier algorithms, such as the Monmonier Algorithm, and Multidimensional Scaling. These, to varying degrees, have highlighted the regionality of UK surnames and provide strong foundations to future work and refinement in the UK context. Establishing a firm methodology has enabled comparisons to be made with data from the Great British 1881 census, developing insights into population movements from within and outside Great Britain.

Continuation of this work will see the methods applied more generally to other countries in the Worldnames database in addition to finer resolution work on surname regionalization within selected urban areas. The latter can be applied to mapping ethnic segregation as surname ethnicity can be derived from the Onomap (www.onomap.org/) software created alongside the Worldnames database.

**First they giveth, and then they taketh away:
Foreign direct investment and cost competitive locations**

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In the early days of 2009 the city of Limerick in the mid-west region of Ireland was dealt a massive blow by the PC manufacturer Dell. After months, if not years of speculation, the company had finally decided to move all its European manufacturing from Limerick to Lodz in Poland. Amongst the many reasons cited, from the global economic downturn to a shifting market, cost competitiveness became the clear determining factor. The media coverage was extensive with the headline ‘Dell Closes’ bandied about in national and regional press. Though of little consolation to the 1,900 left without a job; the fact remains that Dell has not closed its Limerick operation, it will continue to employ upwards of 1,000 in sales support and research and development. We use the Dell story as an exemplar of the Irish Foreign Direct Investment (FDI) story. Comparing it to other restructurings by foreign-owned technology companies we will attempt to uncover the complexity of shifting competitiveness and competencies among branches of global operations. The case of Dell, among others may serve to back the political economy view of large multinational corporations however, we see the picture as more complex and through this work look a mixture of globalist and localist viewpoints in attempting to uncover the shifting spatial dynamics of cost competitiveness.

Unrewarded careers in the creative class: The strange case of Bohemian graduates

Comunian R., Faggian, A. and Li, C.

In recent years, the role of human capital in local economic development has been integrated with further claims on the role of the 'creative class' and bohemians occupations in creating growth. In order to investigate further the impact of creative occupations and economic spillovers, the paper focuses on the jobs and career opportunities offered to individuals with high human capital in the creative disciplines (*bohemian graduates*). Using micro-individual student data collected by the Higher Education Statistical Agency (HESA) in UK, we highlight the mismatch between bohemian graduates and creative occupations and the low economic reward received by graduates in these disciplines. The data question the role of the creative graduates as agents of knowledge spillovers and highlight the need to differentiate between different type of human capital and different job markets in order to understand better how they influence local growth.

Implications of government regulation and economics consequences: A case study

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Government interventions in the marketplace today are looking at ways of controlling markets, such as regulation. In previous years intervention was in the form of controlling price and quantity produced. With the introduction of new regulations or the amendment of existing regulations, policies result in impacts across society such as changing of behaviour and costs of firms. The aim of this paper is to establish the impact of EU Directive (2001/20/EC) and the effect it is having on the performance of Shandon Clinic, a clinical trials company based in Cork. “The purpose of these regulations is to implement Directive 2001/20/EC on the approximation of the laws, regulations and administrative provisions of the member states relating to the implementation of good clinical practice in the conduct of clinical trials on medicinal products for human use” (Department of Health, 2004).

This company is the only clinical trial company of its kind in the Republic of Ireland; hence performance cannot be benchmarked against industry profits. The benchmark for performance for this paper is company profits, in the physical year 2003 (Year before implementation of Directive) and company profits in the physical year 2005 (Year after implementation of Directive). The key purpose of this EU Directive is twofold: harmonization of clinical trial companies in all EU member states and protection of participants in clinical trials. Through the economic framework of Cost-Benefit Analysis the economic impact of the EU Directive was established through interviews, company documents and secondary data.

A direct result of the Directive is that Shandon Clinic is now subcontracting the clinical element of clinical trials to outside the EU. In 2003, 5% was subcontracted to outside the EU whereas in 2005, 42% were subcontracted. Results also showed net profit margin fell from 10.4% in 2003 to 7.9% in 2005. The conclusion of this paper is that the EU Directive is having a negative impact on the performance of Shandon Clinic.

Cities and bridges in major European urban areas

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One of the features of urban development in Europe and elsewhere is the prominent role of major rivers in the origin and growth of cities. The economic benefits of the 'bridging point' are in practice a combination of the access of demand and supply from both sides of the river, most important in earlier periods when the urban economy was dominated by agricultural and mercantile functions, with the use of a navigable river as transport infrastructure. These economic motives are mixed with the physical use of the river, first (up-river) as water supply and then (down-river) as sewage disposal facility.

This paper will first present a simple theoretical model of monocentric urban development with one or more bridges and a CBD on one side of a river. The bridges then give commuting access from the non-CBD side of the river. The infrastructure cost of bridge-building, and congestion cost associated with crossing the bridge to access the CBD both enter the model.

In addition, some empirical work is done on major European cities using Google Earth and Map, to assemble some data on how many bridges of different types are found in a sample of the leading European cities. An econometric model would involve count data as dependent, since these are positive integers. At the very least, the width of the river (proxying infrastructure cost) and urban size would be interesting explanatory variables, though the functional forms are also of interest and we would not expect them to be linear.

**The strength of agglomeration:
A new technique for measurement**

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and Steve Hill (University of Glamorgan)

Economic agglomeration has been widely researched by regional scientists over the last century. The scope of the research can be split into a number of themes, but one core area is in the identification and measurement of agglomerations of industry. The basic problem with identification is the fluid and dynamic nature of what agglomeration is understood to be. With numerous contestable definitions the ability to quantify the phenomenon becomes a considerable challenge. This work seeks to propose a new method to measure agglomeration focusing on what are asserted to be some of its core attributes, this is intra-trade and the level of specialisation. A new measure, the C-statistic, is constructed to measure the relative size of agglomeration, and then applied in the case study area of South Wales. The measure is compared to an existing statistic, the EG, to establish their comparative effectiveness. The findings show a very different picture of agglomeration than is identified by the existing statistic.

**Geographical agglomeration:
A reinterpretation from Celtic data**

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and John Hobbs (Cork Institute of Technology)

Economic Agglomeration has been at the forefront of many economic development policies in both Wales and the Irish republic over the last 15 years. Successive governments have focused regional development on the Porterian notion of clusters, pumping money into attracting large multinationals. In doing this the economic landscape of both countries has been changed. Both governments have now published documents outlining the so called “clusters” of industries seen as being at the heart of economic growth and development. This work sets out to investigate the existence of “clusters” by exploring the agglomerations of industry present in both nations and compares these results to government published data. The paper utilises statically significant location quotients along with Gi measures utilising statistical data published by the CSO (Central statistics office (Ireland)) and NOMIS (office of national statistics (UK)). The findings show a very different picture than that presently painted in both nations, with significant concentrations of industry ignored by government policy.

Determinants of lottery participation and expenditure in Irish regions

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The purpose of this paper is to analyse the factors determining regional variations in lottery expenditure in Ireland, using the most recent Irish Household Budget Survey of 2004/05. The study employs a two-part estimation model. Households' decisions to participate in the lottery and subsequently how much a participating household spends on lottery tickets are estimated using a two-part model. A probit model of the probability of a household's decision to purchase a lottery ticket is estimated followed by a multivariate regression to identify the factors affecting lottery expenditure.

Adopting a two-stage model sheds light on whether different factors affect the decision to purchase lottery tickets and how much to spend on tickets. By estimating three separate models for three Irish different regions, the study explores whether lottery participation and expenditure varies by geographic region and estimates whether lottery spending is more regressive across regions of Ireland. The factors determining lottery participation and expenditure are estimated. The models of lottery participation and expenditure are controlled for urban/rural classification and various socioeconomic and demographic indicators.

The policy implications of the results are considered. Policy makers are to obtain a better understanding of the type of households participating in the lottery market and to highlight the areas of the country that spend more on the lotto. This may be used to inform Government decisions on the regional allocation of lottery proceeds. Finally, the paper sheds light on whether lottery expenditure is drawn disproportionately from the more disadvantaged households.

Regional development on the island of Ireland: Future scenarios

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This paper explores future growth scenarios for the next 10 to 20 years for the regions served by the Atlantic Gateway city regions of Waterford, Cork, Limerick and Galway compared to the regions under the influence of the Dublin-Belfast corridor. The context for the study is the perceived increasing regional divergence within both the Republic and the North, driven in both cases by the relatively stronger growth in the capital city regions of Dublin and Belfast. An integrated regional data set for existing administrative regions in the Republic and Northern Ireland is constructed. The study begins by analysing the extent to which living standards in the Atlantic Gateways regions have converged with or diverged from the Dublin-Belfast corridor regions in the last 20 years. The drivers of living standards, including productivity and the employment-population ratio are investigated at a disaggregated level and future scenarios are developed. Using Irish commuting data, the issue of defining regions is discussed, with the concept of a functional urban region (FUR) as a way of thinking about the future development of Irish cities. The paper concludes by discussing how regional policy can best deliver the greatest possible levels of prosperity on the island of Ireland.

An analysis of Irish farm economic scale using geographically weighted regression

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Researchers who use spatial data are increasingly aware of the limitations of global regression techniques, such as Ordinary Least Regression (OLS), which by generating ‘global’ outputs may mask local variations in modelled relationships. Geographically weighted regression (GWR), a local regression technique, has been applied in many instances to successfully reveal the local relationships of socio-economic variables in a wide range of phenomena such as regional industrialisation, commuting, freight transportation network accessibility, housing market dynamics, inter-regional income migration, the distribution of food consumption and food poverty, as well as rural poverty.

This presentation outlines the application of GWR to a model that explores the economic scale of Irish farm enterprises throughout the state, and the results are compared with that of an OLS global model comprised of the same variables. The use of both global and local regression analysis provides the twin benefits of the elucidation of broad trends by the global analysis and the revelation of local deviations to those trends by the local analysis, both of which can be seen to characterize Irish farming. This research was funded by a Teagasc Walsh Fellowship completed in 2006 by the primary author, under the supervision of the secondary authors.

Developing a continuous-space representation of a simulated population

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Spatial microsimulation models typically match census of population data with nationally-representative survey data in order to simulate synthetic populations of individuals and households within small-scale geographic or administrative areas. The aim is to simulate a virtual population with personal and socio-demographic characteristics that are as close as possible to the actual population, at a small-area level, in order to analyse the spatial impact of policies. For most spatial microsimulation applications, this level of spatial precision is satisfactory. For others, more precise information relating to the location of simulated units is often required. To this end, this paper develops a continuous-space representation of a simulated population, for the very first time. More specifically, it presents a statistical matching approach for assigning simulated households and individuals from SMILE, a spatial microsimulation model for Ireland, to unique spatially-referenced residential locations using GeoDirectory, a buildings geodatabase. The approach allocates simulated households in each electoral division (ED) from the SMILE model to GeoDirectory residential locations in the same ED, based on the probability that a SMILE household unit resides in an apartment, as opposed to a house. The resulting 'geohouseholds' provide detailed information in relation to the personal, socio-economic and household characteristics and location of a nationwide simulated population and can be considered a new sub-ED level simulation-based geography for Ireland. The geohouseholds approach presented in this paper facilitates a wide range of potential applications in economic and spatial analysis. These include a new representational framework for a more efficient modelling of spatial interactions between households and agents and other subsystems such as amenities, retailers and institutions, as well as a new approach for undertaking geodemographic analysis. For example, geohouseholds can be used to estimate the number and socio-demographic characteristics of individuals residing within an estimated catchment area of a public amenity (e.g. recreation site), public institution (e.g. hospital or school), commercial enterprise (e.g. shopping centre) or any specified geographic location, when combined with GIS-based network analysis. Furthermore, geohouseholds can also be used to provide more accurate estimates of travel distances for simulated individuals to such facilities and also extend naturally to the consideration of accessibility issues for a variety of services. To date, geohouseholds have been used to model the actual and potential demand for outdoor recreation activities at existing and prospective forest sites respectively, as well as their associated access (economic) values, and these previous applications are discussed in order to illustrative the potential uses of geohouseholds.

An analysis of the drivers of national and regional competitiveness in small open innovation-driven economies.

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In December 2009, the World Bank announced that the ‘global economy will enter a recession for the first time since 1982’. It also announced that international trade will also suffer in the coming years. The OECD recognises the recent surge of academic and policy attention given to the subject of ‘competitiveness’ and there is an emerging consensus that, to survive in the new global market place, nations, regions and firms must strive to be competitive.

Currently, many regions that were historically production centers can no longer retain their competitive advantage when faced with lower cost locations. Much economic activity that took place in such regions is being relocated to higher value-added non-manufacturing industries or R&D-intensive manufacturing niches (OECD, 2007). A popular public response to such issues has been increasing attention to the importance of linking firms, people and knowledge at a regional level as a way of making regions more innovative and competitive. A popular way to do this is by supporting ‘clusters’ in a region. Porter (2008) defines clusters as ‘a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities (external economies)’. Porter (2008) also highlights that national and regional competitiveness and innovation is driven by specialisation in a set of clusters.

This paper focuses on the drivers of competitiveness in small open economies in the innovation driven development stage, as defined by the World Economic Forum’s Global Competitiveness Report (GCR). The main data source for this paper is the GCR. This paper focuses on 11 countries, Austria, Belgium, Cyprus, Hong Kong, Ireland, Luxembourg, Netherlands, Puerto Rico, Singapore, Slovenia and the United Arab Emirates. The Global Competitiveness Index (GCI), states that the drivers of competitiveness for these countries are business sophistication and innovation. This paper estimates the relative importance of these drivers along with other drivers, for example macroeconomic stability and infrastructure to discover what drives competitiveness in the above countries. It uses the GCR’s survey questions to examine the relative importance of the perceived level of clusters in the countries. Further it examines the significance of clusters to the competitiveness of regions within the countries with a view to making policy recommendations to promoting both regional and national competitiveness.

The effects of innovation on productivity in Irish firms: An application of the innovation value chain

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This paper utilises the fifth Community Innovation Survey (CIS5) data set to explore the innovation value chain of Irish businesses. The innovation value chain describes the process whereby businesses' source knowledge, transform this knowledge into innovation output and then exploit this innovation output to generate increases in productivity or performance. This is the first such study of this topic using the CIS5 data for Ireland, which contains over 4,000 observations, across a wide range of sectors, from businesses in the Republic of Ireland.

There is a growing literature regarding the importance of innovation and its affects on productivity. However, to date there is little empirical evidence on the innovation value chain of Irish businesses. Roper's (2008) study of the innovation value chain of Irish manufacturing companies is an exception to this. However, this paper expands on Roper's (2008) analysis by analysing companies across a wide range of sectors and also by utilising the CIS5 data set.

This paper also uses the available information in the CIS5 data to assess whether proximity to external interaction agents affects the knowledge sourcing and knowledge transformation sections of the innovation value chain

Universities, Agglomerations and Graduate Human Capital Mobility

Alessandra Faggian and Philip McCann

In this paper we examine one aspect of agglomeration, namely the geography of human capital. In some contexts, human capital may be very mobile, and understanding local agglomeration processes therefore requires us to consider inter-regional flows of human capital. In particular, here we discuss the flows of students in Great Britain from domicile into university and then the flows of graduate human capital from university into first employment. We then estimate the local/non-local pattern of these flows as a function of the characteristics of the university, of the student population, and of the local region. Our findings suggest that university attendance in Great Britain is generally associated with very significant levels of human capital mobility, and only certain types of higher education institutions (HEIs) play a significant employment role in their local economies.

Do productivity improvements move us along the Environmental Kuznets Curve?

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The Environmental Kuznets Curve (EKC) hypothesis focuses on the argument that rising prosperity will eventually be accompanied by falling pollution levels as a result of one or more of three factors: (1) structural change in the economy; (2) demand for environmental quality increasing at a more-than-proportional rate; (3) technological progress. Here, we focus on the third of these. In particular, energy efficiency is commonly regarded as a key element of climate policy in terms of achieving reductions in CO₂ emissions over time. However, the growing literature on rebound effects suggests that improvements in energy efficiency will lead to changes in effective and, where there is local supply of energy, actual energy prices. This, in turn, may give rise to rebound (or backfire) effects that partially (or wholly) offset energy savings from efficiency improvements. Where efficiency improvements are aimed at the production side of the economy, the net impact of increased efficiency in any input to production will depend on the combination and relative strength of substitution, output/competitiveness, composition and income effects that occur in response to changes in effective and actual factor prices, as well as on the structure of the economy in question. In this paper we consider whether increasing efficiency in one of the other factors of production will have a more beneficial, or more predictable, impact on CO₂/GDP ratios, particularly through substitution effects in favour of other factors over energy as an input to production. We do this by using CGE models of the Scottish regional and UK national economies to analyse the impacts of a simple 5% exogenous (and costless) increase in energy or labour augmenting technological progress.

An investigation of how entrepreneurship education and training initiatives promote and/or impede enterprise development in Irish institutes of technology

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Higher Education Institutes are an integral part of national and regional economies and are increasingly expected to demonstrate how they create value within such economies in addition to their more established role of teaching and research. Entrepreneurship education is becoming a panacea for generating employment and economic prosperity (Nabi *et al.*, 2006, Matlay, 2005) and the Irish government is placing particular emphasis on Institutes of Technology (IoTs) to support enterprise development.

This paper aims to investigate how entrepreneurship education and training initiatives promote and/or impede enterprise development in IoTs. The central hypothesis is that given the applied focus of IoTs, they should, through undergraduate and postgraduate education and training initiatives, promote enterprise development amongst students and graduates. The researcher will conduct case studies of three IoTs namely Waterford, Sligo and Tralee to investigate their role and performance in promoting enterprise development. The research results will show whether the Irish government's confidence in the IoT sector as a driver of regional enterprise development is vindicated.

**Simulating spatial variations in wages and prices using the NEG:
Modelling the impact of a shock to employment**

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The NEG model provides data on prices and nominal wages that can be used to calculate real wages. However it excludes house prices. The paper attempts to incorporate house prices within an NEG framework to give a more realistic welfare measure. The NEG model is a simplified version with all expenditure going to firms under a monopolistic competition market structure. A feature of the model is the introduction of labour efficiency units. Estimation of labour efficiency is via an ancillary spatial econometric model that uses market potential from the NEG model as an explanatory variable. Likewise house prices are the outcome of a house price model based on income levels from the NEG model. The paper illustrates the methodology by estimating wages and prices for small administrative areas in Great Britain, and uses the model as a basis for simulating the effects of exogenous shocks on wages and prices.

A balancing Act: Managing the global-local dimensions of industrial clusters through the mechanism of ‘lead’ organisations

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Traditionally, research on industrial clusters has focused on the internal mechanisms at work in a regional cluster. It has been argued that geographical proximity facilitates transactional and non-transactional interaction among the cluster members that enhance the innovativeness of the firms and region alike (e.g. Porter 1990, Keeble and Wilkinson 1999, Maskell 2001). However, more recently the role of permanent geographical proximity or co-location has been scrutinised (e.g. Lorentzen 2007, Wickham and Vecchi 2008) as it is acknowledged that in an increasingly globalised environment, firms engage in inter-organisational networks on a global rather than solely local scale in order to remain competitive. While some authors argue that the use of global networks reduces the significance of the local milieu (Wickham and Vecchi 2008, Lorentzen 2007), other scholars propose that the local and global aspects of clusters may reinforce one another (Bathelt et al. 2004).

Against this debate, the recognition of ‘leading’ firms in industrial clusters is significant in the literature. The presence of such organisations has been conceptualised both to promote industrial clustering and to affect the degree to which firms connect with global networks. For example, while the presence of ‘anchor’ firms is argued to enhance knowledge spillovers and the availability of skilled labour and suppliers among firms in a cluster (Feldman 2003, Agrawal and Cockburn 2003), it is also maintained that such dominant firms can create ‘non-cluster economies’ (Yeung et al. 2006) and can increase the likelihood that other firms in the cluster will internationalise through outward FDI (Mariotti et al. 2008).

By explicitly examining ‘leading’ organisations in a region this paper addresses the questions of how certain organisations can occupy a ‘lead’ position and how – if at all – such organisations generate an agglomerative effect, given that firms engage in extra-local linkages to remain competitive. Investigating two cases of high-technology clusters in the west of Ireland this study shows that when large firms enact a leading role by influencing the technological trajectory of the region and stimulating the local dynamic they can generate agglomerative effects thereby enhancing the relevance of clusters. Most significantly, it shows how leading organisations act as a facilitator connecting the global and local dimensions of clusters even in the absence of extensive local formal linkages. While the study substantiates previous research on the significance of temporary and organised forms of proximity it also shows the value of permanent geographical proximity, thereby contesting recent research that downplays the relevance of the clustering institution.

Decomposing labour productivity growth in the Irish manufacturing sector: A regional analysis

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Ireland is a small highly globalised economy which hosts a large number of foreign owned enterprises that have contributed significantly to the growth of the Irish economy in the last 20 years. Most FDI in Irish manufacturing during this period has been export-platform investment, reflecting the fact that the small Irish domestic market is not the primary attraction for much of the investment. For example, US MNEs locating in Ireland export 94% of their output, 76% of which is bound for EU destinations (IDA, 2004). As a consequence of the small size of the Irish economy and its dependence on FDI we decompose the contributions to aggregate manufacturing productivity growth by region, exporting and ownership status. The aims of this paper are to discover how the pattern of Irish manufacturing labour productivity growth is distributed across the regions; to uncover the regional dynamics of this productivity growth; to determine the contributions of exporters relative to non-exporters, and finally how these contributions are divided between indigenous and foreign owned firms.

We use a plant level data set constructed from the Irish annual Census of Industrial Production for the period 1997-2005 to conduct dynamic decompositions of aggregate manufacturing productivity growth. The data set and methodology allow us to distinguish the shares of productivity growth in the Irish manufacturing sector attributable to continuing, entering and exiting plants on the basis of exporting and ownership status for each region.

The spatial focus of this paper not only allows us to assess the contribution of each region to overall labour productivity performance in the manufacturing sector but also to see how regional productivity performance patterns relate to exporting activity and ownership. Consequently this study will highlight regional imbalances, if any, in productivity performance, export participation, and FDI. These issues are relevant to current policy initiatives under the National Spatial Strategy 2002 which provides the framework for the most recent National Development Plan covering the period 2007 to 2013. The Plan incorporates the “high level objectives” of supporting enterprise, innovation and productivity together with balanced regional development.

Sensitivity of general equilibrium rebound effects from energy efficiency improvements to different specifications of the KLEM production function

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In this paper we use an empirical general equilibrium framework to investigate the conditions under which rebound effects may occur in the UK national economy. Rebound effects occur when improvements in energy efficiency stimulate the direct and indirect demand for energy in production and/or consumption. This phenomenon occurs through the impact of the increased efficiency on the price of energy and may act to partially (rebound) or wholly (backfire) offset reductions in energy use due to the pure efficiency effect. Previous work for the UK and Scotland has suggested that rebound effects will occur even where key elasticities of substitution in production are set close to zero. Here, we carry out a systematic sensitivity analysis, where we gradually introduce relative price sensitivity into the system, but focusing specifically on elasticities of substitution in production in order to determine conditions under which rebound effects become a likely outcome. We extend on previous sensitivity analyses of rebound effects for the UK (or any economy) by examining whether the structure of the production function itself (i.e. how energy is introduced as an input to production) has an impact on the presence and magnitude of rebound effects.

An interregional input-output analysis of the pollution content of trade flows and environmental trade balances between five states in the Mid-West

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In this paper we attempt an empirical application of the multi-region input-output (MRIO) method in order to enumerate the pollution content of interregional trade flows between five Mid-West regions/states in the US –Illinois, Indiana, Iowa, Michigan and Wisconsin – and the rest of the US. This allows us to analyse some very important issues in terms of the nature and significance of interregional environmental spillovers within the US Mid-West and the existence of pollution ‘trade balances’ between states. Our results raise questions in terms of the extent to which authorities at State level can control local emissions where they are limited in the way some emissions can be controlled, particularly with respect to changes in demand elsewhere in the Mid-West and US. This implies a need for policy co-ordination between national and state level authorities in the US to meet emissions reductions targets. The existence of an environmental trade balances between states also raises issues in terms of net losses/gains in terms of pollutants as a result of interregional trade within the US and whether, if certain activities can be carried out using less polluting technology in one region relative to others, it is better for the US as a whole if this type of relationship exists.

Econometric estimation of Armington import elasticities for regional CGE models of the Chicago and Illinois economies

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Our current research program is concerned with developing regional and interregional energy-economy-environment single-region and interregional computable general equilibrium models for Chicago/Illinois and the Midwest respectively. One of the main concerns associated with regional CGE modeling is determination of the empirical parameters of models, particularly elasticities and share parameters. A common problem is the lack of appropriate regional data for econometric estimation. Consequently, it is important to identify key parameters that are likely to be important in determining quantitative results and prioritise these for estimation where appropriate data are available.

In this paper we focus on estimating regional trade (import) substitution parameters, both because these will generally be important in analysis for regional economies, which tend to be more open than national economies, and also because one of the main areas of our current research is to model the pollution content of trade flows between regions and the impacts on pollution 'trade balances' in response to changes in activity. While our work will eventually encompass the five Midwest states of Illinois, Indiana, Michigan, Ohio and Wisconsin, our first step in the process of parameter estimation for our intended suite of regional and interregional CGE models is to estimate commodity import elasticities for the Illinois economy (to be applied also to our single region Chicago model, in the absence of appropriate data for region-specific estimation at that level). We apply a model where we take account of market size and distance in estimating the substitutability between commodities produced in Illinois and other US states.

In Search of 'W'

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This paper provides a survey and critique of how spatial links are taken into account in empirical analysis by applied economists/regional scientists. It begins by considering the likely importance of spatial spillovers and spatial interrelationships between economic variables (e.g. unemployment, GDP, etc) especially because of the importance of local knowledge diffusion and the role of inter-regional exports and imports (which potentially act to diffuse technology). Since most empirical economic studies ignore spatial autocorrelation they are thus potentially mis-specified. This has led to various approaches to taking account of spatial spillovers, including econometric models that dependent on specifying (correctly) the spatial weights matrix, W . The paper discusses the standard approaches (e.g., contiguity and distance measures) in constructing W , and the implications of using such approaches in terms of the potential misspecification of W . We then look at more recent attempts to measure W in the literature, including: Bayesian (searching for 'best fit'); non-parametric techniques; the use of spatial correlation to estimate W ; and other iteration techniques. The paper then considers alternative approaches for including spatial spillovers in econometric models such as: VAR models, constructing (weighted) spillover variables which directly enter the model; and allowing noncontiguous spatial variables to enter the model. An empirical example (based on UK innovation data) is used to show the consequences of these different approaches.

“Metropolitan” status of region’s centers as a driver of economic growth

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The paper presents some results of investigating the contribution of “metropolitan status” into the economic development of those regions/subjects of the Russian Federation that were appointed to be administrative centers of federal okrugs (large territorial units that appeared in 2002, in the course of the administrative reform performed by the federal government of Russia)

It is well-known that in Russia financial resources are concentrated in Moscow. The current statistical data gives evidence that similar trends appear in some “capitals” of the federal okrugs. Is it possible that the centralization of power at the sub-federal level reproduces the federal phenomenon?

The purpose of this paper is to make a comparative analysis of economic growth in “metropolitan “ regions and those regions that perform well for other reasons, such as a favorable state of foreign markets.

We specify a notion of “metropolitan status” of regions as the capability to concentrate and re-distribute financial resources of federal okrugs. The set of indicators is proposed for qualification of this feature with the aim of identifying some basic factors of the retrospective economic development of “metropolitan” and “ordinary” regions/subjects of the Russian Federation for the period of 2002-2006. We perform an analysis of the degree of similarity in the type of economic development of “old” capitals (Moscow and Saint-Petersburg) and new, “appointed” centers of large administrative regions. The analysis is based on the regional statistics of the value added, of taxes, of budgets and of real investments.

Cluster and network initiatives in a post-transition economy: The case of Germany's south eastern region

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The contribution is focused on cluster and network initiatives which have been established during the post-transition period in the south eastern part of Germany, in and around the cities of Leipzig, Halle, Dresden and Chemnitz. The research focus is of relevance, since the collapse of the centrally planned East German economy has led to a disruption of networking between the formerly state-owned enterprises. In the second half of the 1990ies, regional policy began to put a stronger focus on support for clustering and networking. The contribution analyses main characteristics of cluster and network initiatives evolved in the territory mentioned. As main characteristics, the targets, the industrial and spatial coverage and the inclusion of public research units were analyzed. The investigation reveals the state of cluster and network initiatives as of the end of 2007/beginning of 2008. The findings show that not all of the cluster and network initiatives under consideration are backed by an actual economic potential. Regions which suffer from a particularly strong industrial decline show relatively poor clustering and networking activities. The findings indicate that regional policy targeted at enhancing cluster and network initiatives should be stronger oriented on the existing economic development potentials and avoid “wishful thinking”.

The data used were gathered as a part of a study on the development perspectives of the Leipzig city region which was conducted on behalf of the Leipzig Chamber of Industry and Commerce. The database built up by the author stems from an exploration of Internet-sources of respective cluster and network initiatives, specific information provided by the Ministries of Economics of the States of Saxony and of Saxony–Anhalt, of Economic Chambers and from interviews with local and regional experts.

Is higher education important for stimulating productivity? A CGE analysis of supply side impacts of HEIs in Scotland.

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There have been numerous attempts to assess the overall impact of Higher Education Institutions on regional (and national) economies in the UK and elsewhere. However, these have typically focused exclusively on the demand-side effects of HEIs, exerted through university's and student's expenditures within the local economy.

In this paper we explore the link between the concentration of higher education graduates in the labour force and regional productivity of labour. A sizeable literature exists which suggests that the wage premium of higher education graduates is an indication of their greater productivity over unskilled workers. If this can be attributed to the education these individuals undertook at University then there is a clear and direct supply side impact of HEI activities. Furthermore opinions differ as to what extent the graduate wage premium reflects innate abilities (and serves as payment for signalling) and to what extent it can be attributed to the training undertaken in higher education.

We use an HEI-disaggregated computable general equilibrium model of Scotland to estimate the supply side impact of HEIs interpreting information on the graduate wage premium in Scotland as an indicator of productivity enhancement (at least partially). The robustness of our results is assessed through a range of sensitivity analyses relating to differing views on the interpretation of the graduate wage premium.

Are HEI Impacts local or non-local? The role of proximity in university-business collaboration

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Conceptualisations of the innovation process increasingly identify innovation as a multidirectional and iterative process involving multiple actors. One actor that has received increased attention in recent years has been universities, with Government policy in many countries seeking to foster greater university-business engagement. Much of this policy has been directed towards the region, focused on nurturing networks and strengthening the innovation system at the regional level. If innovation is interactive and dependent on social learning then do businesses collaborate predominantly with local universities? In other words, does distance matter in university-business collaboration?

In this paper we explore the role of proximity in university-business collaboration, and compare those businesses that collaborate with local universities with those collaborating with non-local universities. In particular we examine if differences exist in terms of businesses underlying characteristics, absorptive capacity, innovation capability and activity. In addition, we also consider if public sector support for innovation affects the geography of university-business collaboration. Finally, measures of the local university sector such as quality of nearest research university, concentration of universities in 100 mile radius and distance to nearest university are also included.

Data analysis is based on the fourth UK Community Innovation Survey augmented with information on the profile of UK universities. A regression model with sample selection is used with the results suggesting that the geography of university-business collaboration is conditioned by factors reflecting businesses' internal capability as well as the type of public sector support received for innovation and the university environment in which businesses are located.

Assessing the extent and benefit of innovation Networks: A comparative analysis of small and larger businesses in Ireland

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In recent years, policy has focused increasingly on attempts to nurture stronger networks between organisations, at various sectoral and geographical levels. Underlying this is the belief that through interaction, the co-production of knowledge occurs and this acts as a key driver of R&D, innovation, economic growth and competitiveness. Evidence that businesses are increasing their use of external knowledge sources is seen in an increase in licensing, collaborative alliances and the outsourcing of research activities. Further, studies on 'open innovation' have pointed to large multinationals such as Proctor & Gamble or IBM and again emphasised a growth in patents and licensing, spin-outs and joint ventures etc., again formal measures of innovation networks. Yet, these measures are less appropriate for small firms and instead there is a need to include informal networks in any examination of networking activity. In this paper, we look beyond a strict definition of innovation networks in terms of formal networks, to include informal networks also. A broader definition of innovation networks enables us to examine differences between small and larger businesses in their use of external partners in innovation and the extent to which these networks are having a positive effect on innovation activity and success.

Three questions are addressed in the paper. First, are there differences in the extent and profile of innovation networks used by small and larger businesses? Second, do small businesses that engage in inter-organisational networks differ from other non-networked and larger businesses? Third, what is the effect of these innovation networks on the success of innovation and the competitiveness of small businesses?

The analysis draws on the Irish Innovation Panel (IIP), which provides information on the innovation, technology adoption, networking and performance of manufacturing and tradable services businesses in Ireland and Northern Ireland over the period 1991-2008. Significant differences are identified through the empirical analysis with implications for both small businesses and policy makers identified.

Assessing the Sustainability of Irish Farming across Space Using Spatial Microsimulation Techniques

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The concept of sustainability has emerged in the past thirty years as a leading framework for understanding economic development, community development, and natural resource management around the world. Sustainable agriculture is defined as a practise that meets current and long-term needs for food, fibre, and other related needs of society while maximizing net benefits through the conservation of resources to maintain other ecosystem services and functions, and long-term human development. In this paper we use spatial microsimulation techniques to examine the sustainability of Irish farming across space.

The farm level spatial microsimulation model employed in this paper uses one of many combinational optimization techniques - simulated annealing - to match the Irish Census of Agriculture to the 2005 Irish National Farm Survey (NFS). Using the spatially disaggregated farm population microdata this paper then develops Economic, Environmental and Social indicators of sustainability in order to present a benchmark measure of the current sustainability of Irish farming.

There exist distinctive farming regions within Ireland, whose boundaries span unevenly across county limits. These are undergoing different processes of change depending on their resource base, their responses to economic imperatives, and the policy environment. As such it is vital that the sustainability of Irish farming is measured across space. The NFS is a nationally representative sample of Irish farms but it is not representative at any unit of spatial jurisdiction below that. This paper demonstrates that an effective way to measure the variation in the sustainability of Irish farming across space is to combine the NFS data with small area agricultural census data in a spatial microsimulation framework.

**The relationship between urban primacy and economic development:
A cross-national reexamination**

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Based on a widely held belief since the 1960s, inspired by the theories of neoclassical economic equilibrium and polarized development, patterns of (sub-)national (i.e. urban and regional) spatial systems have been thought to be dynamically transmuted in keeping with the levels of (sub-)national economic growth and development until a rather balanced and efficient hierarchy of city-sizes is realized. That is to say, at the initial phase of development, economic growth of a nation leads to resources and population concentration in a few core cities, known as “primate cities,” where economic production and growth can best be realized, and this is followed by the second phase of development when a sufficient degree of economic growth and expansion, coupled with some emerged diseconomies due to excessive agglomeration and congestion in addition to negative externalities such as immoderate pollutions and ecological deficits in these cities, lead to resources and population dispersal throughout the nation. Since then, numerous cross-national researches using various indexes, have empirically investigated the existence and behavior of the mentioned interrelation via examination of urban “primacy” or concentration’s relationship with economic development among countries which were at different levels of development. But upshot of these researches is contradictory and inconclusive up to now. This paper aims at elucidating and probing into the mentioned disputation. So, for comprehensiveness and also controlling the probable distortions caused by the diversity of primacy and development indexes employed in previous studies, this study uses four primacy indexes and three development indexes of 67 countries in the year 2000. My cross-national statistical tests along with varied curve-fitting functions (i.e. linear and non-linear) reveal that, without any considerable difference in the results gotten from various types of indexes, there is not any statistically significant (cross-national) link between urban primacy and economic development.

Estimation of a spatially interdependent system of migration and housing price dynamics

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Identifying the local interactions between housing prices and population migration is complicated by their simultaneous and spatially interdependent relationship. Higher housing prices may repel households and push them into neighboring areas, suggesting that separately identifying interactions within versus across local neighborhoods is important for understanding the underlying spatial dynamics. Aggregate data and standard econometric models are also unable to address the multiple identification problems that arise from the simultaneity, spatial interaction, and probable unobserved spatial correlation. These concerns can generate biased estimates that can be counter to economic theory. Using Michigan Census tract-level data, we estimate a spatial simultaneous equations model that jointly considers population change and housing values, while also explicitly modeling interactions *within* neighborhoods, spatial interactions *across* neighborhoods, and controlling for unobserved spatial correlations. We find strong evidence of spatial spillovers. After controlling for simultaneity and spatial error autocorrelation, the results show that average tract-level housing values are positively associated with average housing values of neighboring tracts and that population gains in neighboring tracts have a positive influence on population gains in the “own” tract. OLS and standard 2SLS models miss these spatial spillovers, producing very different findings. The results underscore the importance of accounting for spatial interdependencies between population change and housing values.

'Doing' regional economic development: The (potential) role of public sector entrepreneurship in the local and regional economic development process

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Examining entrepreneurship and regional economic development has traditionally focussed on the private sector, specifically activities such as new venture creation or developing new markets, and how these activities can affect regional growth. However, this focus concentrates on just one facet of entrepreneurship, the 'occupational notion,' i.e. the acts of creating, owning and managing one's own business (Sternberg and Wennekers, 2005). In contrast, the 'behavioural notion' of entrepreneurship, which refers to the seizing of opportunities, is not necessarily linked with firms at all (ibid). Indeed, entrepreneurship is increasingly recognised as an activity that is not exclusively limited to entrepreneurs (Atherton, 2004). Therefore, this paper seeks to examine and conceptualise the extent to which entrepreneurship within the public sector can promote local and regional economic development.

To some extent entrepreneurship is viewed as a panacea for transforming public sector organisations, which are viewed as a "bureaucratic, conservative and disingenuous" (Sadler, 2000). Transforming the public organisations into more enterprising agencies is the central theme of a number of widely cited works (Eisinger, 1988; Osborne and Gaebler, 1993). Entrepreneurship often involves creating new ventures, seeking profits, and the freedom to take risks (Casson, 1982), which, when applied to the public sector, seem to be out of place. The public sector involves statutory responsibilities and the use of public money for which public sector managers are held to account (Currie et al. 2008), possibly constraining the level of entrepreneurship that is feasible within the public sector.

While scholars have focused extensively on processes of regional growth (Henley, 2005), or regional governance and politics (Harrison, 2006), this paper aims to take a micro viewpoint and examines the role of the individuals involved in delivering regional economic development policy. We first outline the notion of public sector entrepreneurship and then examine its potential contribution to local and regional economic development. We then set out a number of constraints on public sector entrepreneurship and, finally develop a number of research questions to enable this research to be taken further.

An analysis of regional patterns in Irish immigration during the ‘Celtic Tiger’ 1996 to 2006

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The Irish ‘Celtic Tiger’ period was characterised by a remarkable growth in population, which rose above 4 million people for the first time in over 130 years. This population growth was driven primarily by rising net migration, which by 2006 accounted for almost 70% of the annual population increase. Between 1996 and 2006 net migration was consistently positive, with significant increases in immigration, due to strong Irish economic growth, a resulting strong demand for labour and increased labour market mobility through EU enlargement.

The regional patterns of immigration were not uniform. This paper sheds light on the regional similarities and differences in immigration from outside Ireland between 1996 and 2006, using the Sample of Anonymised Records (COPSAR) from Irish Census data in 1996, 2002 and 2006. The data contains 48,000 observations on non-Irish nationals across the three censal periods.

This paper presents descriptive statistics on immigrants to Ireland on a regional basis, including age, level of educational attainment, length of time in Ireland, marital status, employment status, occupation and industry in which employed. The changes in the profile of immigrants in each region over the course of the ten years to 2006 is presented. The structure and profile of the non-Irish population is compared to the structure and profile of the indigenous population across regions. This sheds light on whether immigrants are over or under-represented by occupation and industry and how immigration affects the regional labour skill-mix.

The structure and profile of immigrants by region has important implications for the regional and national economy. As Ireland copes with a post-‘Celtic Tiger’ recession there is a need to understand the profile of recent immigrants to Ireland, their mobility, perhaps indicated by age, education and marital status, and the implications for them, given occupation and industry sector, of slower economic growth.

Local government cooperation of last chance: A case study of Poland

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EU funds were designed to equalize the level of regional development and to make regions cooperate. Results of research on convergence and interregional cooperation are still ambiguous. This research concentrates on presenting the “regional scale effect”. In general, there is positive relationship between aggregation level (NUTS0 or NUTS1) and convergence strength together with amount of joint projects. On the low level of self-government (NUTS4 or NUTS5) one can observe divergence and cooperation disappearing. Decentralisation of power and tasks is a source of competition. Only poor regions decide to make joint projects, taking this as a last chance for development. Richer local governments, in fear of losing local competitive position, avoid cooperating. Poor local governments are not able to provide citizens with most desired - basic - public goods (like infrastructure, water, gas, sanitation, roads, labour market institutions, health care) and the limited financial resources are spent on “luxury” second-need projects (like quality of citizen service in government office, development of cultural institutions, cleanness and esthetics etc) and are cheaper to implement. This mechanism results in further regional divergence, quicker development of “locomotive” regions and marginalisation of poor ones.

The dynamic effect of fiscal autonomy in Scotland: An applied general equilibrium analysis

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We investigate on the potential benefit of full fiscal autonomy in Scotland. We focus especially on the impact of a balanced-budget fiscal expansion on employment and migration. The effects are examined numerically with the help of an applied general equilibrium model.

The model incorporates forward looking behaviour for agents that allow us to study the dynamic effects of unanticipated and anticipated increase in taxes. Furthermore, we extend the analysis discussing the effect of public investment, financed through taxation, on other key macro-economic variables, namely employment and growth. In this respect, we distinguish two cases: an increase in the public capital stock raises only aggregate output and the case in which it also raises the productivity of all other factors of production through positive externalities. In the latter case, labour market condition can make a difference in the resulting outcomes. Competitive labour market with vertical labour supply leads to an increase in real wage, increasing the labour cost of production. In imperfect labour market the impact may change according to whether the model allows or not for migration.

**Spatio-temporal dynamics of general practice catchment areas:
A case study of Southwark, London**

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Many of London's inner boroughs have highly diverse and dynamic populations; and as such the usefulness of the 2001 census for decision making is eroded. For this reason much research in public health is turning towards increasingly sophisticated techniques to identify individuals, areas and sections of the population with particular health care needs derived from dynamic data sources. For many public health issues, including teenage pregnancy, breast screening and diabetes, recent advances in targeting that incorporate spatial characteristics have proved effective.

The primary point of access for primary health care services in the UK is the General Practice (GP) who are managed by the Primary Care Trust (PCT) infrastructure under the authority of the National Health Service (NHS). Registered GP population data is collected through a national but locally managed information system, 'Exeter', which records new patient registration in something approaching near real time. This paper will firstly introduce ongoing work with Southwark Primary Care Trust aimed at providing a realistic, quantitative framework for assessing and visualising the catchment areas of General Practice registered populations and their change over time. Secondly, an analysis of the changing socio-spatial characteristics of these catchments will then be presented, and the implications on public health discussed within the Southwark context.

**The supply side impact of higher education institutions on the Glasgow economy:
A CGE analysis of increasing skills and the sensitivity of impacts to economic integration**

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The economic impacts of Higher Education Institutions (HEIs) have been studied widely in the UK and elsewhere – typically focussing on the demand side (spending) impacts. More recently attention has turned towards the potential supply side impact of HEIs, where various channels have been suggested such as technology spillovers, improved skills and innovation. We apply a Computable General Equilibrium (CGE) model to estimate the supply side impacts of HEIs on a sub-regional economy, the city of Glasgow. We focus on a single source of supply side benefits – the increased skill level of the labour force. Initial estimates suggest skill-induced productivity improvements could provide significant long term economic impacts. However simulations are sensitive both to assumptions underlying the supply side impact and the setup of the model. We begin exploring these sensitivities by examining the role of different labour market closures and the degree of the host economy's product market integration with its trading partners, which significantly affects overall impacts. These results support the view that local impacts of HEIs not only depend on the activities of the institutions but also the workings of the labour market and the ability of the local economy to utilise potential benefits. To a large extent outcomes are contingent upon interaction with the rest of Scotland which suggests interregional dimensions should be explored further.

Migration, relationship capital and international travel: Theory and evidence

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In this paper we consider how international migration is related to the frequency and duration of trips to the home country. For many migrants, international migration triggers a series of trips to visit the home country that allow for a replenishment of the depleted relationship capital with family and friends back home, but these trips incur travel costs and foregone earnings. Given plausible assumptions about the depreciation and replenishment of home country relationship capital, a steady-state level of average maintained relationship capital implies that the optimized travel frequency is inversely related to the distance and the transportation costs, and positively related to the psychological costs of separation. The total time spent at home is increasing in the trip frequency, but with an elasticity that is decreasing in cultural proximity. Empirical evidence in support of these theoretical predictions is found in a unique longitudinal sample of international travel of 13,674 New Zealand citizens and 6,882 UK citizens who migrated to Australia between 1 August 1999 and 31 July 2000.

**Social Farming:
A means of re-connecting people with agriculture and agriculture with society?**

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Social Farming is an emerging phenomenon across Europe, which has the potential to offer solutions to public service provision in rural areas and to re-connect farmers with their community and wider society and consequently may be seen as a dimension of multifunctional agriculture. The concept of multifunctional agriculture states that a farm may fulfil many different roles over and above its primary aim of food/fibre production. Social Farming has emerged from a confluence of issues around this role of agriculture; the challenges of social service provision in rural areas and the demands of people that use services for control of resources allocated for their care and the right to choose services that fulfil their needs.

Social Farming (also known as 'Green Care'/'Care Farming') is based on the recognition that working with animals, plants, soil and being in contact with nature has special value for peoples' wellbeing. Across Europe, it is being utilised as a service option for people with mental health difficulties, people with disabilities (intellectual, physical and sensory), drug/ alcohol rehabilitation services, prisoner rehabilitation services, services for older people, therapeutic activities for children etc. In many of these countries social care providers have linked up with private farmers to offer this service- the opportunity to spend time on farms. In Ireland, Social Farming is not readily understood or known. The research outlined in this paper represents the first attempt to ascertain the nature and extent of Social Farming practices in Ireland. These services have often emerged in an ad hoc manner, more often than not, reliant on the development skills and commitment of individual actors in complete or relative isolation from other Social Farming services. This autonomous mode of development does not allow for shared learning or the extension of social farming to private farms (as in Europe) and the development of local/regional or indeed a national policy on Social Farming.

As will be discussed, the research seeks to facilitate stakeholders from the fields of agriculture, rural development, health, social services etc., to work together to progress the development of Social Farming in Ireland. It uses Institutional Analysis Mapping, which is an established methodology that enables stakeholders to map interrelationships with each other (individuals and/or institutions); to identify their own roles and to clarify their perceptions about the roles of other stakeholders in a given arena.

Social Farming-bringing people back into agriculture and agriculture back into society.

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Social Farming is an emerging phenomenon across Europe, which has the potential of offering solutions to public service provision in rural areas and re-connecting farmers with their community and wider society through a multifunctional role of agriculture. The concept of multifunctional agriculture states that a farm may fulfil many different roles notwithstanding its primary aim of food production. Social Farming has emerged from a confluence of issues around the role of agriculture; the challenges of social service provision in rural areas and the demands of people that use services for control of resources allocated for their care and the right to choose services that fulfil their needs.

Social Farming (also known as 'Green Care'/'Care Farming') is based on the recognition that working with animals, plants, soil and being out in the natural environment has special value for peoples' wellbeing. Across Europe, it is being utilised as a service option for people with mental health difficulties, people with disabilities (intellectual, physical and sensory), drug/ alcohol rehabilitation services, prisoner rehabilitation services, services for older people, therapeutic activities for children etc. In many of these countries social care providers have linked up with private farmers to offer this service, offering the opportunity to spend time on farms, whether on the basis of improving quality of life or for specific therapeutic purposes. In Ireland, Social Farming is not readily understood or known. The research outlined in this paper represents the first attempt to ascertain the extent of Social Farming practices in the Ireland and in what form they arise. These services have often emerged in an ad hoc manner, more often than not, reliant on the development skills and commitment of a principal actor(s) in complete or relative isolation from other Social Farming services. This autonomous mode of development does not allow for shared learning or the extension of social farming to private farms (as in Europe) and the development of local/regional or indeed a national policy on Social Farming.

As will be discussed, the research sought to facilitate stakeholders from the fields of agriculture, rural development, health, social services etc to work together on the issue of Social Farming.

Institutional Analysis Mapping is an established tool for understanding the potential roles of stakeholders and institutions involved. It is also useful for identifying potential coalitions of support for a project and for strategy building and when carried out with the participation of stakeholders, the procedure can be useful for creating ownership and group development. An institutional analysis map was developed to assist stakeholders to understand the web of relationships that are/may be available to them as a means to stimulate Social Farming in Ireland.

The role of human capital diversity for business-level innovation: Evidence from Ireland

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This paper considers whether diversity in human capital stock positively contributes to innovation. External knowledge has been identified as an important source of innovation. For a firm to learn and recognise the benefits of external knowledge the 'organisation needs prior related knowledge to assimilate and use new knowledge' (Cohen & Levinthal, 1990:129). Innovation is a complex process and the creativity and knowledge required for innovation rests with people. There is a sizeable literature that suggests that diversity in the labour market (outside the firm) in which the firm is located is associated with greater creativity and innovation (Jacobs, 1966, Florida 2002). So far, there is little research on the importance of diversity within the firm. This paper contributes to this literature.

This paper explores whether a diverse stock of human capital promotes innovation, based on original survey data from SMEs in the south of Ireland. The extent of human capital diversity in a firm and its effect on innovation is considered after controls for; R&D and other internal variables; external interactions; the local/regional labour market characteristics, using secondary official data. This paper moves beyond educational attainment of persons employed as a measure of human capital, by including age, gender balance, nationality and physical capabilities as well as industry experience, length of service to the company and industry-related continuous training.

Examining access to acute and community care psychiatric services for depression sufferers in Ireland

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The World Health Organisation (WHO) predicts that world-wide, depression will be the second largest source of burden of disease by 2020. It is currently estimated that approximately 300,000 Irish people experience depression. To date no research has been carried out on the small area incidence of depression in Ireland. Although research has looked at access levels to acute psychiatric hospitals for each electoral division (ED) in Ireland, there is currently no research on the accessibility of mental health services to individuals with depression. This paper aims to address this gap in the literature. First, a simple logit model is used to identify the determinants of depression at the national level. Secondly, the spatial distribution of individuals with depression is estimated at the small area, ED level using a spatial microsimulation model. Finally, a spatial interaction model is used to analyse access to acute inpatient facilities at the national level and community-based facilities for individuals with depression at the sub-national level. The policy implications of these results are discussed in relation to both the health care literature and current Irish health care policy.

The economics of the marine sector in Ireland: Linking the macro & the micro

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The aim of this paper is to provide a methodological framework for the economic analysis of the marine sector in Ireland at both the macro and micro level. It is currently estimated that the marine sector contributes approximately €3 billion to Irish GDP. However, in contrast to European counterparts such as Norway, Denmark and the Netherlands the marine sector is greatly underdeveloped in Ireland. The marine sector is a diverse sector and includes a variety of sub-sectors including among others fisheries, shipping, seaweed cultivation, aquaculture and renewable energy. Of interest to current public policy is the role each of these sub-sectors in both the marine and the broader economy. As such, a methodology which combines a newly constructed input-output table for the marine sector and a CGE model will be formulated. This framework will provide a complete picture of the marine economy in Ireland and allow 'what-if' simulations through the adjustment of parameters within the CGE model at the aggregate level. Secondly, the aggregate model is linked to a microsimulation model at the small area level in Ireland. Linking the macro to the micro allows one to examine the economic influence of the marine economy at the individual level in Ireland. Furthermore, various what-if simulations may be run to examine the effect of changes in the marine sector (for example, an increase in renewable energy) at the individual and/or small area level.

Future of EU regional policy and its implications for Irish regional policy

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EU regional policy has had a deterministic effect on Irish regional policy and Irish public administration over the past two decades. EU regional policy has also given regional bodies a place alongside the Member State, in the preparation, administration and monitoring of investment programmes – a form of multi-level governance. In addition to the transfer of substantial resources to Ireland, EU regional policy has also enhanced the policy planning process in public administration and strengthened institutional capacities. The reinforcement of the competitiveness agenda within EU Regional policy recognises that the foundations of competitiveness are at regional level. The implications of a reformed EU regional policy for Irish regional policy are considered in this context.

The many factors that drive consideration of EU regional policy reform at EU, national and regional level are reviewed, with reference to the implications of this for Irish regional policy. The paper argues that the EU agenda for reform will be driven by budgetary considerations, the renewed emphasis on EU-wide objectives relating to the Lisbon and Gothenberg Agendas, the debate on the rationale for regional programming in non-objective 1 (convergence) regions and addressing future challenges such as globalisation, climate change, the energy challenge and demographic shifts. EU regional policy has also contributed to the legitimacy and visibility of the EU across all Member States.

From an Irish national perspective, the budgetary implications of any proposed reforms, both as a contributor and as a beneficiary, will be paramount. The loss of differential regional funding across the NUTS II regions post 2010 and the likely levels of CAP receipts will also be factors. The Interreg programmes (now under objective 3) have been very beneficial in addressing common challenges particularly in mitigating the effects of the border with Northern Ireland.

The particular administrative system that has been put in place in Ireland to plan, implement and deliver co-financed operations is described and its appropriateness is considered in view of the diminished scale of EU structural funds now being received by Ireland. An alternative, simplified region-led programme management and administration system is proposed that would confer greater additionality and visibility and regional relevance of EU co-financed programmes. The paper concludes with recommendations on the future of EU regional policy and on the administration of programmes in Ireland.

The paper draws on the author's wide experience in the preparation, management and monitoring of a range of EU programmes including the Regional Operational Programmes 2000-06 and 2007-13, Interreg programmes 2000-06 and 2007-13 (across all 3 strands), Innovative Actions Programmes 2002-04 and 2006-2008 and the PEACE programmes.

Regional and rural poverty analysis in Ireland

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Accounts of the extent and distribution of poverty in rural Ireland are often complicated by problems of defining poverty and locating the poor. Over the last 30 years attempts to map poverty have been hindered by the use of aggregate data for large spatial units which have tended to conceal poverty at local level. Using fully calibrated data produced by a spatial microsimulation model and a number of poverty and inequality measures, the aim of this paper is to provide an insight into rural poverty in Ireland at the small area level. It argues that portraying income poverty in rural Ireland can be achieved through the use of small area estimation maps which can deepen our understanding of the determinants of poverty and lead to improvements in the design of policies tailored to local conditions. Results show regional disparities of income levels throughout the country and highlight the potential of small area estimation maps in mapping not only monetary poverty but deprivation and social exclusion.

Contrasts in the spatial structure of urban and regional systems

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The analysis of spatial structure is frequently undertaken at the level of the individual city or region. A drawback of this single-entity perspective is that it may divert attention away from important regularities that exist across cities or across regions, the emphasis of the following discussion. For cities this will involve a national urban system, while for regions the focus will be on a system of regions that collectively forms the entire nation. With the first case the concern is with the urban population of the nation, while in the second case it is with the total national population. The primary aim of this paper is to impose a common framework on these two national systems, thus enabling their spatial structures to be compared. In particular, the areal extent of the city and the region are each related to its average density and total population. The starting point is the spatial structure of the individual city, an approach which leads on to the situation within an urban-system or multi-city setting. Attention next moves to a system of regions (nodal regions or city-regions), where similar aspects of spatial structure are explored. However, these are shown to display forms that are fundamentally different from their urban-system counterparts. There follows a preliminary speculation as to why such variations in the spatial structure of the two systems might occur.

Health, environment and urban development: Revitalising public green space

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Urban 'smart growth' leads to the idea of public space designed with everyone alike in mind. This means not only planning new facilities, but also revitalising historic public green space to produce recreation possibilities for community members with special needs. These changes are necessary to follow constant transformations of public life and call to improve quality of urban environment.

Our research (Ministry of Education: DS-114 AWF, 2007-2008) encompassed field surveys in the selected historic parks and gardens (Warsaw) and the design of park revitalisation proposal. This project, conducted by the author of this paper, was also aimed as doctoral seminars (AWF University). The data collection comes from the Central Statistic Office and from our field survey.

Some historic parks and gardens are now under the revitalising projects and landscape design for disabled should be there considered. Our field survey in Warsaw (2007-2008) showed that members of the local community are very understanding and concerned. Based on the local community support, the project proposal with several improvements was prepared. It deals with social 'open' space provision and park infrastructure designed to be used also by disabled citizens. Our proposal includes as well special facilities for children play ground - provisions recommended for the 'integrated public space'.

Assessing the expected impacts of regional policy in Ireland using theoretical insights from spatial economics

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This paper examines the anticipated impacts of the current regional policy approach in Ireland from the perspective of spatial economic theory. It uses the rapidly expanding literature on the impact of agglomeration economies on economic growth and the spatial distribution of production and the literature on the distribution and growth impacts of transport and communications infrastructure investment to examine how the current regional policy package is likely to play out over time. This enables an assessment of whether the current package is likely to meet its stated objectives and the development of a suggested evaluation approach for reviewing how far the anticipated impacts are realised.

The paper starts by setting out the nature of the regional policy problem in Ireland. The focus is on the evolution of regional disparities and the contribution of changes in productivity growth and labour force growth to changes in disparities and growth. It points to strong disparities between the Dublin city-region and the rest of Ireland. The current Irish regional policy package is then outlined in terms of the nature and objectives of its three key elements: cluster policy, spatial planning and transport infrastructure investment.

Theory is then employed to examine the likely impacts of the package on the Irish regional problem. Important issues are raised about a potential trade-off between spatial efficiency and equity, whereby greater agglomeration could increase the national growth rate at the expense of greater regional disparity. It is also pointed out, however, that if the Dublin area is congested then dispersal policy could promote both equity and efficiency, depending on the nature of the policy. Theory also points to the potentially counter-intuitive result that transport improvements may increase regional disparities. It is argued that these questions can only be resolved with reference to empirical evidence and a suggested evaluation programme capable of addressing these issues is set out.

Arsenic exposure on health in South Asia: Evidence from Bangladesh

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Pollution of water resources by high arsenic concentrations is well known environmental problem that can pose severe human health implications such as arsenicosis diseases, cancer, neurological damage and skin pigmentation as well as creating widespread social and psychological problems. Levels of arsenic in drinking water are so high that the World Health Organization describes arsenic contamination of Bangladesh is the largest poisoning of a population in history. This paper is to provide a spatial status on the basis of ground water arsenic contaminations for arsenic exposure on human health in Bangladesh. I find positive spatial correlation in arsenic exposure risk on human health across neighboring districts and divisions but the strength of this spatial correlation varies considerably by districts and divisions. My findings have policy implications both at regional and national level for taking appropriate steps in mitigating the present arsenic crisis and to ensure arsenic free water in Bangladesh.

Multiple dimensions of regional economic growth: The Brazilian case, 1991-2000

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This paper seeks to understand how and why the determinants of economic growth (including spatial spillovers) in Brazil may manifest themselves differently at different spatial scales (municipalities, micro-regions, spatial clusters, and states) between 1991 and 2000. Analysing this issue, it sheds light on the geography of the structural process underlying the economic growth at different scales. It means that the definition of each scale level could have a well-defined role in the economic growth process. A complementary approach is related to the Modifiable Areal Unit Problem (MAUP) and Ecological Fallacy Problem. These two measurement problems stem from the fact that there is an aggregation problem which might prevent us from identifying the actual scale at which processes operate. This paper suggests a general framework that allows dealing with multiple spatial scales, spatial autocorrelation and model uncertainty. The analysis reveals that if single regression is estimated at the different scale levels, the results change as scale level changes. However, the robustness test was able to identify variables that are simultaneously significant at different spatial scales: higher education and health capital and better local infrastructure are related to higher economic growth rates. Among other results, this paper identifies that spatial spillovers are operating especially at finer scales. At municipal level, several variables exhibit externality effects across space in Brazil, such as physical capital, education and health capital and local infrastructure. Finally, the study also concludes that Brazil is a country that regions (at all scale levels) converged too slowly over the nineties.

**Innovation in Transition:
Supporting SME innovation and high-tech growth in the Western Balkans**

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The transition economies of the Western Balkans face significant challenges in increasing competitiveness and productivity. At the same time global trends in terms of increasing collaboration in innovation – the move towards more ‘open’ innovation – creates new pressures and opportunities. In this paper we examine the challenges which firms across the Western Balkans face in undertaking innovation and the policy measures which different countries are adopting. Econometric analysis of data from the World Bank Enterprise Survey provides the starting point for the paper. This highlights constraints on firms’ innovation activity and identifies the limitations of current policy support regimes. Analysis is based around the notion of an innovation production function reflecting firms’ introduction of new and improved products and services. The econometric analysis identifies significant differences between the barriers to innovation in different countries. Common issues, however, are shortages of innovation finance, skills and regulatory challenges. Clear market failures emerge justifying public intervention although policy responses differ substantially with some countries (most notably Serbia and Croatia) having relatively well developed support frameworks for innovation while others provide relatively little focussed support. Lessons from the innovation policy success of European economies provide an indication of potential development priorities for the Western Balkan economies.

A review of territorial innovation problems: A methodological proposal for designing innovation regions

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There has recently been a bibliography development about territorial problems of innovation. From the first works in the 80's, the pioneer *Geography of Innovation* by Maryann Feldman in 1994, to *Economic Geography of Innovation* by Karen Polenske in 2007 there is a gap of 20 years. This period meant an important development in the analysis of the territorial aspects of innovation in such a way that nowadays we can say that no serious research about problems of innovation, technology and, recently, knowledge should forget to take into account the spatial aspects.

This work aims to present a brief development of the literature on the topic. In the second part, it attempts to present an approach of the taxonomy proposal of the innovating regions following the approach of Regional Innovation Systems that we can claim consist of five subsystems:

- Subsystem of Education (institutions of higher education, tertiary and technique education);
- Subsystem of Research and Development (institutions which produce knowledge, innovation, and technological innovation);
- Productive-innovative subsystem (technologically advanced companies);
- Subsystem of Diffusion and Promotion (centers that give diffusion and promote technology);
- Subsystem of Financing (institutions that finance the innovation).

The analysis of the RIS subsystems, aims to measure and classify the regional systems. The classification of Mexican regions according to its innovative capacities has to start from the premises and attempts to make these subsystems operative into some categories. This process allows us to find some kind of measures. These measures ultimately have to end up in some indicators.

Exit routes: What are your options?

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There comes a time when owner-managers of small firms choose, or are forced, to retire. This decision gives rise to a succession problem. This predicament can be resolved through family succession; by selling the firm; or by shutting down the business. Closure of these viable businesses represent transfer failures which have consequences for the contribution of these small firms to employment and output in the regions in which they are located.

Failed business transfers pose a particular problem for several European countries (Small Business Service, 2004). The European Commission (2006) estimates that over the next decade 690,000 small and medium sized enterprises in Europe will have to be transferred to new owners. Through fieldwork, this paper examines the exit routes of small enterprises in Ireland.

Little is known on what determines the owner-manager's choice of end-game. Previous research has primarily examined intergenerational succession in family businesses (Bennedsen *et al.*, 2006; Burkart *et al.* 2003; Miller *et al.*, 2003; Bjuggren and Sund, 2002; Dyck *et al.*, 2002; Santarelli and Lotti, 2005). Attributes of alternative succession routes of small firms have only received scant attention in the past (Zajec *et al.*, 2006; Howarth *et al.* 2004). This paper explores firm and market specific characteristics on the entrepreneur's expectations for its end-game strategy.

Evidence was collected on the entrepreneur's expected exit strategy in telephone interviews with entrepreneurs in Ireland (approx 500 firms). This sample of firms provides a good representation of the relevant population of small firms in Ireland. We find evidence that the age of the firm, the size of the firm, the pool of potential buyers, the firms location, access to a key airport and access to a highly educated workforce influence the entrepreneurs expectations for its' end-game. The evidence suggests that specific support mechanisms for business transfers should be targeted to address regional disadvantages to ensure the longevity of established small businesses.

This paper presents novel evidence on the impact of key variables on entrepreneurial expectations for its exit strategy. Each of these 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. We suggest that policy makers have perhaps an educational and advisory role in increasing the awareness of older small firms of other potential endgames which are perhaps available to it.

Well-being and illness: Toward a regional model of morbidity

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A major policy of the NHS in the UK is to provide more service provision into communities, especially in large urban areas. These include ambulatory centres for a range of public health services, such as stop smoking clinics, as well as covering for minor accidents and emergencies (thus helping to reduce workloads in major hospitals and provide more direct care in suburban communities). One of the difficulties, however, is the lack of data on morbidity (to plan effectively for such provision). The aim of this paper is to outline a microsimulation model for estimating morbidity and well-being at the household/individual level for the region of West Yorkshire. This will be based on survey data available in the Health survey of England. Effectively, the model will 're-weight' this survey to fit small area geodemographics across the region. Hospital Episode Data will be used to partly test the validity of the results by examining variations in region hospitalisation rates. However this episode data is also likely to show that individuals in certain parts of the region do not receive hospital treatment in the same proportions as those in other parts of the region (after accounting for age, sex, social class etc). This could in fact be as much to do with hospital locations, access and GP referral behaviour as individual morbidity. The paper will explore these issues and present some preliminary findings.

Moving towards real-time geodemographic segmentation

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Geodemographic classifications are created using computationally intensive clustering algorithms which partition the records of large multidimensional datasets into groupings which optimise homogeneity across attribute space. In their current form, geodemographic classifications are created in silos by expert producers, most prevalently with closed methods and little documentation of the data inputs; the weighting and normalisation procedures; or, the exact methods of clustering (One exception is the National Statistics Output Area Classification). This paper presents preliminary work that examines the creation of more responsive and open geodemographic information systems. There are a number of motivations for this work. Current classifications are created from static data sources which do not necessarily reflect the dynamics of population change in modern cities. Data is increasingly available in near real-time and could be integrated to create more temporally responsive systems. Application specific classifications have been successfully demonstrated across a variety of areas, and there are many more sectors which could potentially benefit if the methods of construction and interpretation were more accessible. This paper represents initial work on clustering efficiency which will be essential if classifications are to be created within a time period acceptable to end users. Ultimately it is hoped that these users will have access to an online tool which manages both the specification, creation and testing of segmentations tailored for specific purposes. This begins to represent a new method of creating geodemographic classifications which fundamentally challenges the prevailing view of segmentation produced by a limited number of expert producers.

Models of economic location: The rural economy and advanced ICT

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This paper addresses the situation of the modern “multi-functional” rural economy within the framework of general conceptual models of location and economic activity. It also considers the implications of reconfiguration of such models under the influence of advanced Information and Communications Technologies, such as Broadband Internet service.

This topic is of significance in the context of general discussions of the “death of distance” and the “end of geography”. It also engages with debates on policy and practice in Ireland in the re-emerging concern about “footloose industries” and FDI-led economic growth. For the rural economy the current economic downturn has raised questions about the viability of “survival strategies and re-focuses rural development strategies on so-called “multi-functional” approaches.

The paper begins by reviewing research on the counter play of forces of agglomeration and forces of dispersal. It discusses conceptions of economic and social processes underlying the processes of agglomeration and dispersal, within the context both of Marshall’s original insights and those of modern scholars, including those in the “Italian School” (Becattini et al 1990), the “California School” (Scott 1993, Saxenian 1994), “GREMI” (Aydalot and Keeble 1988) and Scandinavia (Lundvall & Johnson 1994, Maskell and Malmberg 1999).

These studies have pointed out the central structuring role played by knowledge, innovation and the development of competitive advantage. As Maskell (1998) has pointed out, these qualities are not the sole preserve of “high-technology” activities, but are also crucial in traditional and “low-tech” activities. The paper considers the types of knowledge; how knowledge is elaborated and communicated; incremental improvement versus innovation; and the role of spatial or social proximity in these processes.

The paper next turns to consideration of two particular conceptual models – the first due to Malmberg et al (1996), and the second due to Storper (2000). Both of these models construct a two-dimensional space determined by axes that correspond to aggregations of dispersive and agglomerative forces. The paper considers possible placement of strategies for rural economic development within the delineations of these models. Using this conceptual framework we consider how access to broadband in rural areas might re-structure such locational influences on rural economic activity and enable novel strategies to be adopted by rural economic actors.

**Polycentric cities and sustainable development:
A multi-scaled GIS approach to analysing urban form**

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The built environment influences how we live, work and travel in cities. Urban form evolves over time, shaped by changing socio-economic systems and transportation technology (Hall, 1999). The capital-intensive durable nature of the built environment means that this evolution is slow, and structures can persist for centuries. It is vital therefore that urban planning decisions are made with a long term perspective, particularly in light of the challenges of urban sustainability.

Currently city-region scale analysis of the built environment is somewhat limited (Talen, 2003). Direct measures of urban form and function are seldom used due to a lack of widespread access to real estate data, and a lack of techniques to geocode and spatially aggregate this data for the analysis of large urban areas.

This research develops a spatial database of commercial property in Greater London, at a series of scales from individual addresses to a 500m raster grid. This is achieved through address matching and spatial join techniques. This data can be used in a variety of applications such as mapping the structure of urban economic activity, property analysis, and monitoring urban development. Furthermore urban form measures are a key component of sustainable travel indicators (Banister, 2005) as the density of the built environment, mix of uses and public transport accessibility are all significant factors in promoting efficient travel patterns. Urban form and the degree of polycentrism are assessed, then compared to commuting data to analyse relationships between urban form and travel behaviour.

Rebound and disinvestment effects in oil consumption and supply resulting from an increase in energy efficiency in the Scottish commercial transport sector

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In this paper we use an energy-economy-environment computable general equilibrium (CGE) model of the Scottish economy to examine the impacts of an exogenous increase in energy augmenting technological progress in the domestic commercial Transport sector on the supply and use of energy. We focus our analysis on oil, as the main type of energy input used in commercial transport activity. We find that a 5% increase in energy efficiency in the commercial Transport sector leads to rebound effects in the use of oil-based energy commodities in all time periods, in the target sector and at the economy-wide level. However, our results also suggest that such an efficiency improvement may cause a contraction in capacity in the Scottish oil supply sector. This ‘disinvestment effect’ acts as a constraint on the size of rebound effects. However, the magnitude of rebound effects and presence of the disinvestment effect in the simulations conducted here are sensitive to the specification of key elasticities of substitution in the nested production function for the target sector, particularly the substitutability of energy for non-energy intermediate inputs to production.

How do labour productivity improvements in the Scottish economy affect the UK's position on the environmental Kuznets curve?

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The application of multi-region environmental input-output (IO) analysis to the problem of accounting for emissions generation (and/or resource use) under different accounting principles has become increasingly common in the ecological and environmental economics literature in particular, with applications at the international and interregional subnational level. However, while environmental IO analysis is invaluable in accounting for pollution flows in the single time period that the accounts relate to, it is limited when the focus is on modelling the impacts of any *marginal change* in activity. This is because a conventional demand-driven IO model assumes an entirely passive supply-side in the economy (i.e. all supply is infinitely elastic) and is further restricted by the assumption of universal Leontief (fixed proportions) technology implied by the use of the A and multiplier matrices. Moreover, where disturbances take the form of supply-side shocks, these are not easily introduced in an IO framework. Where analysis of marginal changes in activity or supply-side disturbances is required, extension from an IO accounting framework to a more flexible interregional computable general equilibrium (CGE) approach, where behavioural relationships can be modelled in a more realistic and theory-consistent manner, is appropriate. Our argument is illustrated by introducing an illustrative increase in labour productivity to the Scottish economy to an interregional CGE model of the UK economy. This application is of particular relevance in the context of the Environmental Kuznets Curve (EKC) debate, where improvements in technological progress are hypothesised to reduce the CO₂ intensity of GDP and move the economy in question along the EKC (improving the sustainability of economic development). However, recent developments in the EKC literature raised the issue of whether this will still be the case if emissions are accounted for from a consumption rather than a production perspective (the 'pollution leakage' hypothesis) – i.e. taking account of indirect pollution generation embodied in trade flows rather than just domestic emissions generation.

Population decline and infrastructure management: An analysis of the latent structure of impacts and factors

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Since 2006, the population of Japan has been in decline. It is expected that population decline will affect various aspects of social policy. Of these, infrastructure management will likely be significantly affected. Nowadays, several papers have analysed this issue. However, the discussions have not yet explored the latent structure of impacts of population decline on infrastructure management. This study builds on the existing literature and aims to analyse the latent structure of the impacts of population decline on infrastructure management, as well as the significant potential factors. We use the structure equation modelling computed by “R”.

This study considers the following potential impacts: “decline in the number of users (DeclUser)”, “increase in user charge (IncrUserCharge)”, “decline in maintenance level (DeclMainteLevel)” and “merge and abolition of infrastructures (MeregeAbolition)”. In terms of the potential factors we consider the following: “population decline for the latest 20 years (PDR)”, “population size of municipality (PopSize)”, “the area of municipality (Area)”, “the rate of population in density inhabit district (DIDPop)”, “the rate of habitable area within municipality (HabitArea)”, “the rate of engaged people in the primary industry(1stIndustry)”, “reviewing public service(ReviewPublicService)”, “downsizing finance size of the municipality (DownFinance)”. Furthermore, the consciousness of infrastructure manager (municipality’s officers in many cases) was assumed as a latent variable. The relation between the latent variable and impacts, population decline and administrative reform were assumed.

This analysis concluded that the significant relations among variables in the significant model were the following: IncrUserCharge <-DeclUser, DeclMainteLevel <-> InclUserCharge, DeclUser <- PDR, DeclMainteLevel <- ReviewPublicService, MergeAbolition <- DownFinance, DeclMainteLevel <- DownFinance. The assumed latent factor was not included in the significant structure model.

Co-operation and conflict between firms, communities, new social movements and the role of government

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The aim of this paper is to analyze relationships of cooperation and conflict between a mining company and the involved communities, New Social Movements and the three levels of government. The mining company begun operations for an open pit mine of gold and silver supported by officials from the local, state and federal government. The inhabitants of these communities supported by environmental groups and NGOs argue that the project will pollute sources of fresh water besides of perturbing the environment and the ecology of the region.

The presence of the mining company (MSX) in Cerro de San Pedro has caused a severe social conflict among the inhabitants of San Pedro, Soledad y San Luis and has called the attention of all who are concerned by historic heritage, cultural and environmental issues. At the center of the controversy is the cheap and efficient technology. Federal and state Laws were violated. It is quite evident the lack of sensitivity of foreign mining companies toward the consequents of their activities upon the communities and environment. This case also shows the lack of negotiation between firms, communities, new social movements and governments.

Information about externalities and future costs of company activities is crucial but more crucial is formulation and implementation of more sensitive policies to avoid damage of the environment, biodiversity and health of population. Governmental institutions must be aware that their decisions may affect the community quality of life of actual and future generations only for a small increment in economic growth and large increase in private benefits of a small group of investors.

More informed citizens tend to be more active protestors, such as the case of the students in San Luis. Contact between informed individuals of diverse groups and organizations help to exchange experiences and create public opinion in favor of mobilizations. Community participation and involvement in decision making of community development planning is quite limited by the lack of critical information. This fact is critical when the local government cannot provide the right information because there are other interests affecting the process.

An assessment of clusters of employment and accessibility in rural Ireland

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The present paper investigates patterns of employment clustering by industrial group in rural Ireland. Research has shown that the peripheral disadvantages of rural areas such as the increased transport costs resulting from remoteness to the main centres of population and industrial activities, and the absence of firms' agglomeration in space has a major effect on rural economic performance. This paper attempts to understand how a region's accessibility to central markets affects firm localisation in rural areas. The objective is to assess whether less accessible rural areas systematically lie outside clusters of industrial activities. Spatial cluster analysis and GIS are used to identify and map a number of clusters of employment across rural areas in Ireland. Accessibility measures based on road network distance and travel time between employment locations and centres of economic activity are used for the analysis.

Development of Heilongjiang Province pharmaceutical industry sector

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This paper focuses on the development of industrial clusters in China with a specific analysis of the development of the Development of Heilongjiang's Pharmaceutical Sector. The research analyses the pharmaceutical industry in Heilongjiang Province in term of national policy, statistical trends and the development process during last two decades. Heilongjiang's pharmaceutical industry has gradually developed since 1980 and has become to the one of the main production and manufacturing bases of antibiotics, water injections and powder injections of traditional Chinese medicine, as well as medicinal starch and healthcare products. Since the 1990s, the Harbin Pharmaceutical Group has led the drugs industry, which is developing fast. Some other small companies also run at that time but they were just at the beginning stage and not standard and established in all departments and they located separately without any interaction which they are already on mature stages in the Harbin LiMin Pharmaceutical Industry District. In 2000, Heilongjiang Provincial Committee (the CPC) threw its weight behind pharmaceuticals as the major industry to develop in the province. The strategy included the Northern Medicine Development and Construction of Medicine Base, which was pushed forward to develop the industry quickly. In 1999, the total output value of the province's pharmaceutical industry was 6.3 billion Yuan (US\$797 million), with an after-tax profit of 600 million Yuan (US\$76 million). By the end of 2004, the total output value of the province's pharmaceutical industry was 22.496 billion yuan (US\$2.8 billion), with sales revenue of 10.194 billion Yuan (US\$1.3 billion), and an after-tax profit of 1.504 billion Yuan (US\$190 million). Since year 2000 the pharmaceutical industry has been re-constructed the structure, the Harbin Pharmaceutical has still been the leading company and merged about 10 other congeneric pharmaceutical, its inside structure and system has been updating and perfecting and to be more standardization and internationalization. About 15 other companies already moved in the Limin industry district which the government energetically boost the form during last ten years. Heilongjiang's pharmaceutical industry has 116 certified businesses providing a solid foundation for its future development. Heilongjiang has given its support to the development of a batch of small- and medium-scale private pharmaceuticals firms according to the development trends of these firms. Now it is already the largest scale pharmaceutical company in Heilongjiang province. The whole structure of the pharmaceutical has been updated and resource optimized. Today Heilongjiang has 233 medical firms and 34 universities, scientific and research academies and institutes engaged in medical research. With relevant data analysis, we can get some preliminary findings about the Heilongjiang pharmaceutical industry structure development well these years and with the government's impetus the trends of all aspects keep increasing comparing with the previous circumstance when the government was not push it.

The dynamics of FDI location: A Markov analysis for British Regions

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The paper examines the location of inward foreign direct investment (FDI) across the regions of Great Britain over the period 1985-2005, making use of a unique project-based panel dataset of over 11,000 investments. The purpose of the paper is to investigate the importance of agglomeration in the regional location of FDI and the extent to which FDI builds-up across regions over time, leading to patterns of convergence or divergence. The paper uses Markov chains to analyse convergence in the location of FDI, which is perhaps the first time that this issue has been analysed in such a framework. The use of Markov chains is appropriate as agglomeration is a dynamic process, and advantageous given the well-known difficulties of using the traditional β -convergence approach. Given that FDI may exhibit different locational patterns as it matures, the analysis is carried out by four industry sub-groups showing different FDI growth profiles over 1985-2005, and which disaggregate the manufacturing and service sectors.

The paper shows that regional shares of FDI have converged for both manufacturing and service industries, but overall demonstrates the importance of agglomeration economies in location. The paper finds a reduction over time in the number of regions with relatively large or small FDI shares, but uncovers different spatial agglomeration processes at work for the manufacturing and service industries. For manufacturing, convergence has been achieved by a shift of new FDI from the periphery to the southern regions, suggesting that convergence has been at the expense of the periphery. However, convergence in services is associated with a shift in FDI from the core South East region to contiguous regions in the south, indicating the presence of diseconomies at the core. These findings have interesting implications for regional policy. In the case of manufacturing it reflects a weakening of UK regional grants policy, which seems no longer able to overcome the agglomerative pull of the southern regions. For services, while FDI has spread out geographically from the core, it is only as far as contiguous regions within the south of England, suggesting that there is scope to develop regional policy in relation to service FDI. This is especially the case as service-based FDI has accounted for the majority of foreign inward investments since the late 1990s.