



Regional Science
Association International

British and Irish Section

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39th ANNUAL CONFERENCE

*The Marriott Hotel,
Glasgow, Scotland*

25th – 27th August, 2010

Programme

Please note that the programme may be subject to minor revisions and delegates should refer to the registration desk where a daily updated programme will be posted.

Wednesday 25 August 2010

9.00 Onwards

Registration

9.30 – 11.00

Plenary Talks –Queen Elizabeth Suite

Spatial Restructuring of the Automobile Industry.

Keynote Speaker: Dr Thomas Klier, Federal Reserve Bank of Chicago

Discussant: Professor David Bailey, Coventry University and Chair, Regional Studies Association

11.00 – 11.30

Coffee /tea – Served outside the Queen Elizabeth Suite

Wednesday 25 August 2010 Continued

11.00 – 13.00 – Parallel Session 1

Space and Inter-Connectedness	Wages and Employment	Policy and Politics
<p><i>Waverly Suite (70)</i></p> <p>Inter-Connectedness In The Scottish Economy, 1998-2004 John Dewhurst</p> <p>The spatial networks of self-employed without employees Sierdjan Koster and Nardo de Vries</p> <p>Do academic conferences help boost local economic performance? Evidence from European regions Vassilis Monastiriotis and Vassilis Tselios</p>	<p><i>Ewing Suite (35)</i></p> <p>Shareholders and wage determination – bringing in “space” Marko Ogorevc and Sonja Šlander</p> <p>Structural change and regional disparities in (un)employment Uwe Blien and Oliver Ludewig</p> <p>Estimation of a Wage Bargaining Function for a Regional CGE model of the Chicago economy Soo Jung Ha, Geoffrey Hewings, Peter McGregor, Kim Swales and Karen Turner</p>	<p><i>Argyle Suite (20)</i></p> <p>Regional Economic Development Policy in the UK: Assessing the Democratic Deficit Andrew Johnston</p> <p>Evaluating Cluster Policies: A Unique Model? Lessons to be Drawn from a Comparison Between French and European Experiences Emilie-Pauline Gallie, Anna Glaser and Frédérique Pallez</p> <p>Mapping Spatial Patterns of Voting Behavior in Australia and the Relationships between the Level of Voter Support for Political Parties and the Demographic and Socio-Economic Characteristics of Local Areas Robert J. Stimson and Tung-Kai Shyy</p>
<p>Transport</p> <p><i>Newark Suite (20)</i></p> <p>The Impact of the EU – US Open Skies Agreement and the resulting British Airway's Open Skies Initiative: Passenger numbers at London, Amsterdam and Paris. David Pitfield</p> <p>Airport Hinterland Overlap in European and North American Air Transport Systems Aisling Reynolds-Feighan</p> <p>Regional Economic Impacts of Highway Projects Mark Roberts, Uwe Deichmann, Bernard Fingleton, Tuo Shi and Andreas Kopp</p>	<p>Locating Entrepreneurship</p> <p><i>Drummond Suite (20)</i></p> <p>Local Entrepreneurs in Global Clusters: The significance of spatial and relational propinquity in new firm formation Majella Giblin</p> <p>Entrepreneurial Geographies: evidence on the location of entrepreneurial activity in the United Kingdom. Andrew Ross and Linda Juleff</p> <p>The Spatial Distribution of Entrepreneurship in Wales Andrew Crawley and Steve Hill</p>	

Wednesday 25 August 2010 Continued

13:00 – 14:00

Lunch- Served in the Hotel Restaurant on the ground floor.

14:00 – 15:30 - Parallel Session 2

Mobility of Human Capital <i>Waverly Suite (70)</i>	Empirical Regional Analysis <i>Ewing Suite (35)</i> Exploring regional variations in hospitalization rates Holly Shulman, Mark Birkin and Graham Clarke Compiling Regional SUT and I-Os for Ireland Steve MacFeely and Richard Moloney Econometric Estimation of Armington import elasticities for a regional CGE model of the Illinois economy Soo Jung Ha, Geoffrey Hewings and Karen Turner	Sustainable Energy and Regional Development <i>Argyle Suite (20)</i> A Spatial Planning Framework for Offshore Wind Farms in Ireland Karyn Morrissey Multimodel Analysis of Techniques in Distribution and Generation of Electricity Devika and Debasis Patnaik Modelling the regional economic impact of biofuels development: Lessons from single-region fixed price methods Grant Allan, Peter McGregor, Kim Swales and Karen Turner
Towns and Urban Spaces <i>Newark Suite (20)</i> Town Centre Management: a solution to the current challenges facing urban centres in Ireland? Brídín McAteer Building and calibrating a new range of retail interaction models for public sector planning Hamzah Khawaldah, Mark Birkin and Graham Clarke Local Economic Assessments: the Reading Urban Area Graham Crampton	Regional Policies and Development <i>Drummond Suite (20)</i> The Evaluation Of Regional Policy In The Context Of The Institutional Approach Feyza Eldeniz Regional variation in working-time arrangements of Dutch women Inge Noback and Jouke van Dijk	

Wednesday 25 August 2010 Continued

15:30 – 16:00

Coffee /tea – Served outside the Queen Elizabeth Suite

16:00 – 17:30 – Parallel Session 3

<i>On the Move: Migration and Commuting</i>	<i>Regional Effects on Business Innovation</i>	<i>Regional Tourism</i>
<i>Waverly Suite (70)</i> The housing market geography of England: interaction of commuting and migration in urban and rural areas Mike Coombes and Colin Jones	<i>Ewing Suite (35)</i> Innovation System impact on indigenous engineering and software firm growth – an age contingent approach. Claire Mc Bride Knowledge transfer between SMEs and higher education institutions: the difference between universities and colleges of higher education. Heike Delfmann Innovation and Local Labour Market Diversity: Evidence from Ireland Helen McGuirk and Declan Jordan	<i>Argyle Suite (20)</i> Cooperation in local SMEs a competitive advantage: The case of rural tourism in the prefecture of Florina- Greece Electra Pitoska The Economic and Environmental Impacts of the UK Stages of the Tour de France. Andrea Collins, Max Munday and Annette Roberts
<i>Newark Suite (20)</i> Dispersal of Indian Industrial Growth through Grossacks Measure (Growth and Productivity Relationships in Indian Industry in an Integrated Regional Framework) Debasis Patnaik	<i>Drummond Suite (20)</i> Agglomeration Elasticities and Firm Heterogeneity David C Maré and Daniel J Graham Social Capital and Regional Social Infrastructure Investment: Evidence from New Zealand Matthew Roskruge, Arthur Grimes, Philip McCann and Jacques Poot The Spatial-Cycle Model Reconsidered John Parr	
 Does Geographical Proximity Facilitate Information Exchange only at the Cores of Knowledge Production? Jung Won Sonn and Joon Park Creating an environment for economic growth: human capital, creativity and entrepreneurship in the USA Alessandra Faggian, Ed Malecki and Mark Partridge		

Wednesday 25 August 2010 Continued

18:30

Social event: Drinks reception and Scottish themed buffet held in the Glasgow City Chambers

Thursday 26 August 2010

9.00-10.30

Plenary Talks – Queen Elizabeth Suite

The Future of Regional Policy in UK and Ireland – Roundtable Discussion

Chair: Professor David Bailey, Coventry University and Chair, Regional Studies Association

10:30 – 11:00

Coffee /tea – Served outside the Queen Elizabeth Suite

Thursday 26 August 2010 Continued
11:00 – 12:30 – Parallel Session 4

<i>ESRC 1st Grant Special Session</i>	<i>Innovation and Productivity</i>	<i>Incubation and Science Parks</i>
<i>Waverly Suite (70)</i> The impact of negative multiplier effects in local energy supply on the general versus partial equilibrium rebound effects of increased efficiency in household energy use: an integrated IO and CGE analysis Janine De Fence, Ana Guerra, Patrizio Lecca, Kim Swales and Karen Turner	<i>Ewing Suite (35)</i> Technical progress effects on productivity and growth in the Commonwealth of Nations (1991-2009) Fernando Barreiro-Pereira Innovation and Competitiveness: Measuring Behavioural Additionality across economic sectors in Mexico Juan L Martinez-Covarrubias and Helena Lenihan	<i>Argyle Suite (20)</i> Business incubation and regional development: evidence from incubation centres in Ireland Simon Stephens and George Onofrei Science parks as local innovation systems: opportunity provision and knowledge mediation in Optical Valley of China, Wuhan Tian Miao
Testing the Links Among Energy Efficiency and Sustainable Development criteria Gowri Thampi and Debasis Patnaik	The Effects of National and International Interaction on Innovation: Evidence from the Irish CIS: 2004-6 Justin Doran, Declan Jordan and Eoin O'Leary	A Preliminary Evaluation of the Technium Centre Network Lyndon Murphy, Brychan Thomas and Said Al-Hasan
Economy-wide rebound effects from an increase in efficiency in the use of energy by Scottish households Patrizio Lecca, Kim Swales and Karen Turner		
<i>Location and Regional Effects of FDI</i> <i>Newark Suite (20)</i> What Determines the Location Choice of Multinational Firms in the ICT Sector? Iulia Siedschlag, Xiaoheng Zhang, Donal Smith An Investigation into the influence of Foreign Direct Investment (FDI) on Convergence across Italian Regions from 1997-2007 Christine Reen FDI Location and Agglomeration Economies Jonathan Jones and Colin Wren	<i>Natural Resource Use</i> <i>Drummond Suite (20)</i> The ecological status of surface waters: An examination of the relationship between economic activity and river water quality Cathal O'Donoghue, Peter Howley, Stephen Hynes, Réamonn M. Fealy Efficient nutrient management across regions - A potential winner for all. Cathal Buckley A Spatial Analysis of Ireland's Coastal Economy Stephen Hynes	

Thursday 26 August 2010 Continued

12:30 – 13:30

Lunch- Served in the hotel restaurant on the ground floor of the hotel

14:00 – 15:00

AGM – All welcome: Waverly Suite

Thursday 26 August 2010 Continued

15:00 – 16:30 – Parallel Session 5

<p>Special Session for Early Career/Doctoral Students (1)</p> <p><i>Waverly Suite (70)</i></p> <p>Evolution of the Urban Distribution in the USA (1790-2000) Alasdair Anderson</p> <p>Assessing the Tendency of Spanish Manufacturing Industries to Cluster: Co-localization and Establishment Size Marta Roig Casanova</p> <p>A Social Simulation of Housing Choice and Urban Regeneration Policy René Jordan</p>	<p>Sustainable development</p> <p><i>Ewing Suite (35)</i></p> <p>Carbon Assessment of the 2010-2011 Draft Budget for Scotland Jonathan Dennis and Daniel Hinze</p> <p>A Review on Environment-Friendly City Development of Urban Regeneration and Bio-Housing Research in Korea Hang-Jib Kim</p> <p>A comparison of two Carbon (Input-Output) based estimates of the ‘sustainability’ of the Welsh economy. Christa D. Jensen, Stuart McIntyre, Max Munday and Karen Turner</p>	<p>Spatial Effects on Business Performance</p> <p><i>Argyle Suite (20)</i></p> <p>Measuring Business Linkages within a Geographic Agglomeration John Hobbs, Andrew Crawley, and Michael Walsh</p> <p>Business Networks and Firm Performance: The Impact of Regional Network Initiatives in Ireland Nicola Lynch, Helena Lenihan and Mark Hart</p> <p>Personal, institutional and spatial determinants of academic entrepreneurship in the UK Maria Abreu and Vadim Grinevich</p>
<p>Innovation Systems</p> <p><i>Newark Suite (20)</i></p> <p>Correlation Between The Regional Development And Elements Of The Knowledge Based Economy (KBE); Empirical Evidences Of A Country Of Medium Development Ryszard E. Rózga Luter</p> <p>Innovation Capacities in Advanced Economies: Relative Performance of Small Open Economies Eleanor Doyle, Fergal O'Connor and Adrian Kuah</p> <p>The externalities of openness Stephen Roper and Jim Love</p>	<p>Regional and Rural Employment</p> <p><i>Drummond Suite (20)</i></p> <p>Simulating off-farm employment by using spatial micro-simulation and GIS techniques Eveline van Leeuwen and Jasper Dekkers</p> <p>Accessibility and Employment in Rural Ireland Amaya Vega, Hugh Kelley and Cathal O'Donoghue</p> <p>On-The-Job Search: Amount, Regional, and Cyclical Variation Evidence from Great Britain Simonetta Longhi</p>	

Thursday 26 August 2010 Continued

16:30 – 17:00

Coffee /tea – Served outside the Queen Elizabeth Suite

17:00 – 18:30 – Parallel Session 6

<p>Special Session for Early Career/Doctoral Students (2)</p> <p><i>Waverly Suite (70)</i></p> <p>Changing structural transformation and labour productivity convergence: Evidence from Spain Shane Minogue</p> <p>Informality and agglomeration economies: in search of the missing links Michiel Gerritse and Ana I. Moreno-Monroy</p> <p>Modelling the folk theorem of spatial economics: a heterogeneous regional growth model Torben Klarl</p>	<p>ESRC HEIs special session</p> <p><i>Ewing Suite (35)</i></p> <p>Interregional Impacts of Scottish HEIs: A CGE Analysis of Demand and Supply Side Impacts Katerina Lisenkova, Kristinn Hermannsson, Peter.G McGregor and J.Kim Swales</p> <p>The Wider Impact of Higher Education Institutions in Scotland: A CGE analysis of higher education externalities Katerina Lisenkova, Peter.G McGregor and J.Kim Swales</p> <p>Regional Impact Analyses and the Appropriate Treatment of Regional Budget Constraints under Devolution: An Application to the Heterogeneous Impact of HEIs Katerina Lisenkova, Kristinn Hermannsson, Peter.G McGregor and J.Kim Swales</p>	<p>Industry Performance and Agglomeration</p> <p><i>Argyle Suite (20)</i></p> <p>Is Agglomeration really good for Growth? Global Efficiency and Interregional Equity Fabio Cerina and Francesco Mureddu</p> <p>Do regional clusters and networks protect firms in the German mechanical engineering industry against the fallout of the economic crisis? Martin Wrobel</p> <p>Knowledge Sourcing, Transformation and Exploitation: Evidence from the UK CIS 2002-2004 Justin Doran, Eoin O'Leary and Stephen Roper</p>
<p>Food for thought</p> <p><i>Newark Suite (20)</i></p> <p>Exploring the Geography of Food Miles: An Example from the UK Grocery Market R.J. Hughes, M.H. Birkin, G.P. Clarke,</p> <p>What Causes Waste Flows? An Interregional Analysis of Welsh Waste Shipments Christa D. Jensen and Stuart McIntyre</p> <p>Encouraging Sustainable Food Production? The Case of True Taste Wales Iain Cox and Calvin Jones</p>	<p>An Energetic Session</p> <p><i>Drummond Suite (20)</i></p> <p>An Econometric Analysis of the Determinants of Irish Residential Energy Expenditures John Eakins</p> <p>Critical Academic Literature Review of Distributed Energy Generation in the UK/Scotland Grant Allan, Igor Eromenko, Michelle Gilmartin, Ivana Kockar and Peter McGregor</p>	

Thursday 26 August 2010 Continued

20:00

Conference Dinner: St Andrews in the Square.

Conference Dinner Presentation:

It could all have been so different: the strange tale of how we ended up with two regional research associations

Peter Batey, University of Liverpool

Friday 27 August 2010

9.30 – 11:30 – Parallel Session 7

<i>Agglomeration and Sprawl</i>	<i>Urbanisation and Localisation</i>	<i>The Variety of Regional Science</i>
<i>Waverly Suite (70)</i>	<i>Ewing Suite (35)</i>	<i>Argyle Suite (20)</i>
Measuring Sprawl Hugh Wenban-Smith	Strategic pricing of commuter railways competing with roads Tatsuaki Kuroda	Ubiquitous Geographic Opportunity and Challenges Tschangho John Kim and Sung-Gheel Jang
Commuting and Agglomeration Michiel Gerrits	What is the Economic Role of Small and Medium sized Towns? Towards a Typology of 'Secondary Centres' in the East Midlands region Liz Price and Andrew Atherton	Testing Regional Dispersal Of Indian Industries By Size Through Williamson And Self Perpetuation Hypothesis In Context Of Indian Economic Reforms Sowmya Rachiraju and Debasis Patnaik
Vertical fiscal transfers and the location of economic activity across regions Pedro E. Moncarz	Another Round of Jacobs vs Marshall: Firm-level evidence from Belgium Wouter Torfs	Interest Rate Pass-Through in Italy Alberto Montagnoli and Oreste Napolitano
Residential population location David C Maré and Andrew Coleman		
<i>Economy and Environment</i>		
<i>Newark Suite (20)</i>		
The Political Economy of International Environmental Policies Masakazu Maezuru		
A Review of EIP development strategies for improving environmental problems of industrial complexes in Korea Jeong-Seok Choi		
Atenquique's environmental and economic development shrinkage in Globalization era José G. Vargas-Hernández		

Friday 27 August 2010 Continued

11:30 – 12.00

Coffee /tea

11.30 – 13:00

Committee Meeting (Committee members only) Location TBC

13.00 – 14.00

Lunch

End of Conference

Abstracts

Life is short, art is long: from bohemian graduates to the creative class

Maria Abreu¹, Roberta Comunian², Alessandra Faggian² and Philip McCann¹

1. University of Groningen
2. University of Southampton

In recent years, the literature on human capital and regional economic development has become increasingly interested in the role of the ‘creative class’ and the ‘bohemian occupations’ in generating spillovers and economic growth. In order to analyse their impact on regional development, this paper studies the jobs and career opportunities offered to, and filled by, individuals with higher education in the creative disciplines (bohemian graduates). Using longitudinal student micro-data collected by the Higher Education Statistical Agency (HESA) in the United Kingdom, we investigate the mismatch between the supply of bohemian graduates and job opportunities in the creative sectors, and the reasons for the low economic rewards received by graduates from the bohemian disciplines. Our analysis highlights the need to differentiate between different types of human capital and different job markets, and the role of longer time-horizons in bohemian careers in explaining the observed mismatch and low salary levels in the creative sectors.

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Personal, institutional and spatial determinants of academic entrepreneurship in the UK

Maria Abreu¹ and Vadim Grinevich²

1. University of Groningen
2. University of Cambridge

In recent years universities in the UK have been encouraged to expand their societal impact through commercial links with business and community-based activities. Our paper analyses the role of personal, institutional and spatial determinants on academic entrepreneurship in the UK. The analysis is based on a recently completed survey of UK academics, providing micro-data on nearly 22,000 academics in the sciences, social sciences, arts and humanities. The data are complemented using institution-level data on financial and logistical support for entrepreneurial activities. The results indicate that while academics face a number of obstacles including lack of experience, cultural differences and time constraints, academic entrepreneurship is significant in most disciplines. The analysis shows that informal activities are common, but do not always translate into measurable activities such as patenting, licensing and spin-offs. Personal characteristics such as experience in business or the public sector are important determinants of academic entrepreneurship, as are the prevailing social norms and culture at the institutional level. We also find that the spatial dimension of knowledge-exchange activities varies by type of institution; academics in more vocational institutions are more likely to collaborate with local private, public and third sector institutions.

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Modelling the regional economic impact of biofuels development: Lessons from single-region fixed price methods

Grant Allan¹, Peter McGregor¹, Kim Swales² and Karen Turner²

1. Fraser of Allander Institute, Department of Economics, University of Strathclyde

2. Department of Economics, University of Strathclyde

Biofuels offer the possibility of serving most, if not all, of the four goals of Scottish energy policy (Scottish Government, 2009): reducing emissions; improving security of supply; improving accessibility to cheap fuels (particularly, perhaps, in remote rural areas); and offering scope for regional economic development potential. The extent to which economic development in the region is boosted is likely to depend upon the specific biofuels technology employed, and its embeddedness into the regional economy, noting any existing regional activity which is displaced by that fuel technology (if at all). These issues can be considered within appropriately disaggregated regional Input-Output (IO) models, and have been incorporated in studies for ethanol and biodiesel technologies. Such studies show the regional economic link between changes in demand for biofuels in the region and economic variables. Such models however, typically employ conventional “demand-driven” IO models. In the specific case of (first-generation) biofuels, the assumptions underlying “demand-driven” models appear to be unsuitable. This could necessitate the use of “hybrid”, or “mixed” IO modelling techniques. In this paper, we use “demand-driven” and both “hybrid” and “mixed” IO models of regions of the UK to demonstrate the differences in economic impact between these two approaches. We outline the possible advantages to using a Computable General Equilibrium modelling approach for examining these issues. We conclude by examining the lessons for future research in estimating the economic impact of the production of biofuels from algal biomass.

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Evolution of the Urban Distribution in the USA (1790-2000)

Alasdair Anderson

University College London

In order to confront the skewing effect produced by the “fat tail” of the lognormal distribution upon urban population data plots, a new technique for non-arbitrary determination of the cut-off point has been devised. Based on the principle of least squares, this method of truncation allows for the consistent application of Zipf’s Law across several data series so as to clarify the underlying historical processes. Applied to the 210-year evolution of the United States urban system, it highlights several intriguing phenomena.

While a process of deepening urban integration during the period is affirmed by increasingly shallower inclines whose norm equates to a linear trend, notable episodes of exception obtrude themselves. Most prominent amongst these is an actual *reversal* across the whole United States during the two decades preceding the Civil War, an effective “de-integration” that can only partially be explained by

rapid westward expansion. Superficially seen to be a phenomenon located chiefly in the Southern slave states, it may be isolated with more precision to the so-called “border states”, those which maintained slavery but opted to remain within the Union during the secession crisis. By contrast, cities of the Deep South states that later joined the Confederacy exhibited an *increase* in integration over the same period.

Finally, from the current evidence, it is speculated that the proportion of the population residing within cities most closely conforming to the power law distribution, when taken as a percentage of the total national population, attained a critical level around 1920 and persisted in some kind of metastable equilibrium thereafter.

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Technical progress effects on productivity and growth in the Commonwealth of Nations (1991-2009)

Fernando Barreiro-Pereira

Faculty of Economics, UNED University, Madrid, Spain

The productivity generated by capital goods is not uniform along the time. When there exist conventional physical capital goods the productivity obtained is minor than the one generated by quality capital goods. For this reason it can be interesting to develop a special 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 capital. It seems that the differences between both kinds of capital stems from the fact that the vintage or quality capital is affected by an additional form of technical progress. This minds that the bigger part of the technological progress came from the fact of to be embodied by the firms, by means of the capital accumulation process. This new type of technical progress is then so-called embodied technical progress To obtain a correct measure of growth in presence of this embodied technical progress there exist three schools: first, the traditional growth accounting school appears due to limitations existing in the measures in efficiency units of the quality of the real investment, because of the investment is not really comparable along the time. The analysis is based in to adjust the quality or productivity of the investment goods constructing hedonic prices indices. This school is represented among others by Hulten (1992), Jovanovic and Nyarko (1996), Bartelsman and Dhrymes (1998), and Gordon (1999). The second school analyzes the productivity using longitudinal micro-level data sets. The most important contributions of this school are Griliches and Ringstad (1971), Olley and Pakes (1996), Caves (1998), McGuckin and Stiroh (1999), and Tybout (2000). The third school is the equilibrium growth accounting school, which measures the balance growth by means of vintage capital models, being represented by Greenwood, Hercowitz and Krusell (1997), Campbell (1998), Hobijn (2000), and Comin (2002).

The main aim of this paper is to analyze which are the effects of the two form of technical progress, neutral and directly embodied while capital is accumulated, on the economic growth and the labour productivity. Due to the difficulties for the

construction of the hedonic prices indices and for the elaboration of the micro-level data sets, the application of the purpose above mentioned has been made into this paper following the vintage capital model school. This model has been applied to compare the responsibility of the embodied technical progress on the economic growth and productivity during the period (1991-2009) in the most representative economies of the Commonwealth of Nations, such as U.K., South Africa, Canada, Malaysia, Australia, New Zealand, and India. The application of the vintage capital model has been made taking quarterly and annual data to each country, coming from the OECD Statistics, at constant and current prices, for the GDP, gross fixed capital formation, and private final consumption expenditure. To estimate the percentages of responsibility of the 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).

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Structural change and regional disparities in (un)employment

Uwe Blien and Oliver Ludewig
Institute for Employment Research, Nürnberg

One key issue in economics is the explanation of unemployment. “Modern mainstream macroeconomics” frequently refers to institutional structures in the individual countries (e.g. Layard, Nickell & Jackman 1991, 2006; Carlin & Soskice 2006). However, unemployment *within* states varies as much as between these countries. In Germany, for example, there are regions in which even during the crisis virtual full employment prevails (e.g. Munich Area) and others which face a deep labour market crisis (e.g. Ruhr Area). Within a country, however, there are only minor differences in the institutions. Therefore the large variation in regional unemployment is puzzling.

We explain this regional variation of unemployment building on structural change and technical progress. Technical progress has two opposing effects on employment. Increased productivity allows producing a given quantity with less labour. This is the *displacement effect of technical progress*. However, technical progress decreases costs which lead to a drop in price. This in turn increases product demand and therefore labour demand rises. A *compensation effect* occurs. How strong this effect is and whether it may even “overcompensate” depends on the price elasticity of demand.

Regions have a specific industry mix and industries are regionally concentrated (Krugman 1991). Thus the mechanism price elasticity and technical progress leads through the specialisation of regional economies to different regional development paths of employment.

We show formally that a transition from the elastic into the inelastic demand function for the dominant industries can plunge a region into crisis. Empirically we estimate Marshallian type demand functions using an instrumental variables estimator and industry level data to derive the price elasticities for different industries. In a second step these elasticities and the regional industry structure

are used to explain regional (un)employment. The results support our theoretical reasoning.

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Efficient nutrient management across regions - A potential winner for all.

Cathal Buckley
Rural Economy Research Centre, Teagasc

Within the constraints of the EU Nitrates and Water Framework Directives, controlling and managing nutrient transfers to water from excessive fertiliser use on agricultural land is a significant environmental policy challenge. This paper assesses whether there is room to reduce nitrogen and phosphorus fertiliser application by exploring the extent of their over application using data envelopment analysis methodology. This paper concentrates on specialist dairy and tillage farms stratified by soil type as these agricultural systems are the most intensive and may pose the greatest risk in terms of managing nutrient transfer from agricultural land to water courses. Results demonstrate considerable inefficiency in the utilisation of nitrogen and phosphorus fertilisers across specialist dairy and tillage farms. Average over application on dairy farms compared to efficient benchmark farms ranged from 9.6 to 51.2 kg N ha⁻¹ and 1.6 to 4.1 kg P ha⁻¹. Results for specialist tillage farms indicate over application of between 16.3 to 20.7 kg N ha⁻¹ and 3.5 to 4.5 kg P ha⁻¹ in 2008. Potential cost savings across all systems on average ranged from €17 ha⁻¹ to €74 ha⁻¹. Such reductions have the potential to deliver a win-win situation by reducing the risk of nutrient leaching and diffuse pollution from agricultural land while improving economic margins.

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Assessing the Tendency of Spanish Manufacturing Industries to Cluster: Co-localization and Establishment Size

Marta Roig Casanova
University Jaume I

In this paper, we evaluate the spatial location patterns of Spanish manufacturing firms and we assess the different tendencies to cluster in each industry relative to the whole of manufacturing. To do this, we use a distance-based method (Marcon and Puech, 2003; Duranton and Overman, 2005), more concretely the Ripley's K function, which measures concentration by counting the average number of neighbours of each firm within a circle of a given radius. This method allows us to treat space as continuous, analysing simultaneously multiple spatial scales and avoiding the shortcomings of the administrative scale. In addition, we employ a polygonal envelope to improve the delimitation of our area of study, substituting the rectangular shape used by other authors and thus avoiding the nuisance of empty spaces.

We apply this method to Spanish manufacturing sectors at two-digit and four-digit level, isolating like this the different behaviours of spatial distribution of each subsector caused by 'spillovers' characteristic of each activity and also preventing compensation effects due to previous aggregation. Furthermore, we examine the co-localization between horizontally-linked and vertically-linked industries to assess the importance of these spillovers across industries and, finally, we try to answer what type of establishment, depending on its size, is the driver of the Spanish industrial agglomeration.

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Is Agglomeration really good for Growth? Global Efficiency and Interregional Equity

Fabio Cerina¹ and Francesco Mureddu²

1. CRENoS and University of Cagliari
2. CRENoS

We propose a New Economic Geography and Growth (NEGG) model able to reconcile theory with empirical evidence and current regional policy rules. By extending Baldwin et al. (2001) with an additional non-tradable services sector which benefits from localized intersectoral knowledge spillovers coming from the industrial sector, we show that aggregate growth and interregional equity do not necessarily conflict. In particular, we show that an equal distribution of industrial activities among regions is good for aggregate real growth when: 1) the importance of services in agents' preferences 2) the spatial range of localized intertemporal knowledge spillovers and 3) the intensity of localized intersectoral knowledge are all large enough. Unlike other NEGG works, these results are consistent with the empirical evidence according to which the trade-off between aggregate growth and interregional equity loses relevance in more advanced stages of development. Moreover, our model provides a theoretical basis to EU and US regional policies which favour dispersion of industrial activities. Finally, an important by-product of our model is that we show that regional growth rates of real income always diverge when agglomeration takes place, being lower in the periphery. These results have strong policy implications as they suggest that concentrating industrial activities in only one region may be welfare-harming for both the less industrialized region and at the aggregate level.

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A Review of EIP development strategies for improving environmental problems of industrial complexes in Korea

Jeong-Seok Choi
Joongbu University

Industrial complexes have been used as a major tool of industrial policy in Korea. In the middle of industrial development, some industrial complexes have been blamed as major causes of environmental problems. In response to social and environmental requests, researchers and policy makers have tried to introduce a brand-new type of industrial complexes which can deal with environmental problems and economic efficiency at the same time.

As a result of efforts, ‘Eco-industrial Park(EIP)’ projects have already started by the central government of Korea. EIP approaches based on industrial ecology are dealing with firms' production systems and environmental management by a network of mutually beneficial symbiosis that mimics natural ecosystem.

We've already developed 5 EIPs and are scheduled to develop more EIPs across the nation. Throughout the EIP developments, we came to know that there have been some issues and problems in the national EIP development projects. To be successful and more efficient, the existing Korea's EIP development projects and strategies should be reviewed and be made amendments so that industries could have motives for participating in EIP projects.

Therefore, the purpose of this study is to review EIP projects started up recently by the central government and to find solutions to the problems that have been identified over the past EIP developments. Throughout this study, I hope to find better policy implications to deal with environmental problems as well as industrial growth of industrial complexes in Korea.

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The Economic and Environmental Impacts of the UK Stages of the Tour de France.

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This paper will present the findings of an economic and environmental analysis of the UK stages of the 2007 Tour de France.

The nature of the event, its geographical spread, and with a particular visitor profile, made gaining an appreciation of impacts difficult. The paper attempts to link the economic effects to a series of environmental externalities. In particular the paper will provide estimates of the carbon consequences of visitor travel and consumption activities connected to the event, and their ecological footprints.

The impacts will be considered in the context of the sustainable development objectives of the event, and the paper will discuss the issues associated with

estimating these environmental externalities. The conclusions will explore the extent to which practical policy prescriptions can be developed from the analysis.

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The housing market geography of England: interaction of commuting and migration in urban and rural areas

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The paper begins by summarising theoretical approaches underpinning three main options in the definition of sub-regional housing market areas (HMAs). These three options centre on the analyses of alternative datasets: commuting or migration flows, and house prices.

Extensive and innovative empirical research of the whole of Britain will be drawn upon to show how the patterns of commuting and migration flows complement each other in complex and uneven ways. Whereas it is fairly well recognised that in more urbanised regions most migrants move short distances while the number of long distance commuters has grown, this new research has discovered that in more rural and peripheral parts of the country the patterns are very different. Over and above this unexpected urban-rural contrast, there is a strong north-south gradient in the likelihood of people migrating longer distances.

These complex patterns create methodological challenges for any regionalisation analysis to generate boundaries of HMAs covering all of England. To achieve this, innovative software was developed and this methodological work will be summarised. The migration and commuting and datasets used were from the Population Census whilst the research has also analysed the Land Registry data on house prices.

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Encouraging Sustainable Food Production? The Case of True Taste Wales

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Food systems have been increasingly identified as having the potential to address a number of social, health and economic development policy agendas, and with these developments perhaps particularly visible at smaller (regional and city) scale. Meanwhile, the central position of food systems in driving unsustainable behaviours globally is unarguable. Encouraging the transformation, and especially relocalisation, of food systems might therefore result in multiple ‘wins’ in terms of

reducing environmental impact whilst increasing localised socio-economic impacts. Notwithstanding, the appropriate extent, nature and indeed objectives of any policy intervention to encourage this transformation remain debateable. We examine one policy intervention at the regional scale; the Welsh Assembly Government's sponsoring of the True Taste of Wales Sustainable Development Award over the last three years, intended to reward companies that "*not only produce a product that satisfies the taste criteria but can also, through their processes, intentions, designs or packaging, demonstrate a sustainable approach to their practices that ultimately benefits the environment for all*". A key-actor interview programme with the three former winners of the award, plus representatives from sponsoring agencies examines key factors including the nature, extent and rationale behind sustainable actions in winning companies; and the way in which the award relates to the True Taste programme in general, and wider regional public policies. The paper then focuses specifically on how the award might perform in future in encouraging (rather than reporting on) sustainable actions in the local food sector, and on how such interventions might be best placed within what is a rapidly developing regional food policy context.

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Local Economic Assessments: the Reading Urban Area

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Under the Local Democracy, Economic Development and Construction Act, passed late in 2009, it became a statutory obligation for higher level local authorities to carry out Local Economic Assessments (LEA), with the intention of generating a consistent statistical data base that can be used to inform policy priorities. (There are different arrangements for Scotland, Wales, and Northern Ireland.) This paper will summarise the preparation of the Local Economic Assessment for the Reading area. Since the County of Berkshire was abolished as a local government level in the 1990s, Berkshire consists of 6 unitary authorities, and an area known locally as the 'Reading Diamond' is to be the basis of the Local Economic Assessment. It consists of the unitary authorities of Reading, Bracknell, and Wokingham, plus two Wards from West Berkshire. A team at Reading University will be doing this work for the Reading urban area.

The indicators to be assembled for the LEA would be grouped under Demography, Skills, Employment, Productivity, Enterprise, Inclusion, Housing, and Environment. A large set of data downloads can be routinely done, but since the 2001 Census is now quite old, a priority is also to obtain more up-to-date data (mid-year estimates, etc), and carry out proper analysis and discussion. In addition, we have agreed to carry out some Focus Group interviews, especially with representatives of the important local IT industry. The Reading Diamond area is economically buoyant, and the local SWOT analysis involves emphasis on the costs of rapid central employment growth with accompanying severe traffic congestion. Other areas in England have adopted a more passive 'wait and see' approach to LEA, but in the Reading area things have been proactive and the local University has been keen to be involved in the work.

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The Spatial Distribution of Entrepreneurship in Wales

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Entrepreneurship is a key factor in creating continued economic prosperity within a country. New ideas and innovations provide critical economic capital to allow continued growth and development of both a locality and a nation alike. An interesting factor often over looked in traditional entrepreneurial studies is relative spatial locality. It maybe hypothesised that the supply of entrepreneurs, in a nation, follows a normal distribution. This research wishes to test this hypothesis and in doing so wishes to investigate what the spatial distribution of entrepreneurship is in Wales today. The common problem within spatial work is the issue of defining rural and urban areas. This paper uses the Ri measure of rurality (Crawley and Hill, 2010) and establishes the measure for unitary authorities in Wales. Although the spatial areas are large they allow comparable findings with other existing studies. As well as this, the work utilises spatial statistics and specialisation measures to ascertain the correlation between rurality and the level of entrepreneurial activity. The work utilises the Global Entrepreneurship Monitor (GEM) data set. The findings show that rurality has a strong correlation with Entrepreneurship.

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The impact of negative multiplier effects in local energy supply on the general versus partial equilibrium rebound effects of increased efficiency in household energy use: an integrated IO and CGE analysis

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There has recently been increasing interest in both the academic and policy arenas regarding what have come to be known as “rebound” and “backfire” effects. A literature examining how demand-side responses to decreased energy prices drive the rebound effect in both partial and general equilibrium contexts has emerged in recent years. Generally, studies have found that if there is any degree of price responsiveness in the system at all, there will be positive rebound effects. However, more recent empirical CGE analyses for Scotland and the UK suggest that the supply-side response to changing energy demands and prices is also important, particularly where energy services are a locally produced commodity/input. In this paper we further investigate previous findings of economy-wide negative rebound effects (proportionate decreases in total energy consumption in the target economy that are greater than the proportionate

increase in energy efficiency), resulting from negative multiplier effects in local energy supply sectors.

We begin our analysis using the simplest multi-sectoral general equilibrium framework: an input-output (IO) model of the UK economy. This framework allows us to identify the negative multiplier effects in local energy supply sectors from the reduction in demand for the outputs of these sectors that occurs when local households (split into different income groups) increase efficiency in their use of energy. In the IO framework we are guaranteed negative multiplier (and thus negative rebound) effects if we introduce an increase in energy efficiency. This is because a conventional IO model is silent on prices, so that there is no price responsiveness in the system to falling effective and/or actual energy prices to trigger rebound effects. In order to examine price-induced rebound effects from increased energy efficiency we employ a CGE model of the UK economy (which uses the IO tables as its core database). However, the IO results are integrated into the CGE analysis, where they allow us to distinguish between general and partial equilibrium rebound effects.

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Knowledge transfer between SMEs and higher education institutions: the difference between universities and colleges of higher education.

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Knowledge transfer has been widely recognized as a key element of innovation that drives competitive advantage and regional development in knowledge-driven economies. In this respect the role of institutes of higher education is essential, as they generate knowledge. The vast majority of research on the topic of transferring knowledge focuses on universities. In the case of the Netherlands however, because of their binary system, colleges of higher education make up a great deal of the complete higher education system. We argue that these colleges of higher education are better suited to address the needs of small businesses than universities. Colleges have a more practical educational approach, they are closer related to the industry, which enhances their accessibility and approachability for small firms. This paper explains the difference in knowledge transfer between the two types of higher education institutes. The main goal of this research is to provide a classification of SMEs who take part in the knowledge transfer process of specifically colleges of higher education compared to universities. This paper presents the results of a recent study using a survey among small organisations in the area of Groningen, the Netherlands. Using Groningen as a case study we were able to collect data from a region with one university and one college of higher education of similar size.

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Carbon Assessment of the 2010-2011 Draft Budget for Scotland

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The high-level assessment of the Draft Budget uses a Scottish Environmental Input-Output model to estimate domestic emissions and a 'closed economy' UK model for emissions associated with imported goods and services. Each budget spending line is attributed to one of 126 industry sectors within the Input-Output model on a 'who receives the money' basis. The direct, indirect and (domestic) induced output changes relating to this expenditure are estimated in the IO model. Given the output changes for each industry, the emission consequences are estimated using the emissions-to-output ratios which are derived from ONS Environmental Accounts data on GHG emissions by industry. The assessment allows the Scottish Government to place the carbon impact of its use of goods and services within the wider context of the national and global economy. It helps raise awareness of the carbon impact of spend in different areas (by identifying the carbon emissions from upstream inputs, as well as those generated directly). By attributing the 'carbon content' of spending to the originating industry (energy or transport) it confirms the key targets for carbon abatement.

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Inter-Connectedness in the Scottish Economy, 1998-2004

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The measurement of inter-connectedness in an economy using input-output tables is not new, however much of the previous literature has not had any explicit dynamic dimension. Studies have tried to estimate the degree of inter-relatedness for an economy at a given point in time using one input-output table, some have compared different economies at a point in time but few have looked at the question of how inter-connectedness within an economy changes over time. The publication in 2009 of a consistent series of input-output tables for Scotland offers the researcher the opportunity to track changes in the degree of inter-connectedness over the seven year period 1998 to 2004.

The paper is in three parts. Various measures of inter-connectedness are discussed in the first part of the paper and previous work regarding the individual measures strengths and weaknesses summarised. In the second part of the paper the extraction method is applied to an eleven sector disaggregation of the Scottish economy in order to estimate how interconnectedness has changed over time for each industrial sector. It is shown that for the majority of sectors the degree of interconnectedness with the rest of the Scottish economy has grown for others, in particular Financial Services and Energy and Water Supply it has not.

The final part of the paper discusses the policy implications of the results and also compares the results obtained for Scotland with those obtained in a similar study of Australia by Wood and Lenzen, 2009.

Reference

Wood, R. and M. Lenzen, 2009, "Aggregate measures of complex economic structure and evolution", Journal of Industrial Ecology, Vol.13, No.2, pp 264-282

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Knowledge Sourcing, Transformation and Exploitation: Evidence from the UK CIS 2002-2004

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This paper analyses the innovation value chain for a sample of UK firms using the UK CIS: 2002-2004. A distinction is made between three types of innovators; firms which introduce both product and process innovations and firms which only introduce either product or process innovation. In doing so it facilitates an analysis of whether the innovation value chain of these three distinct types of innovators varies.

The tradition CDM model is estimated using R&D as the sole source of knowledge for innovation and treats process innovation as an exogenous variable. This paper contributes to the literature by extending the CDM model to include a comprehensive range of external interaction agents and by estimating the model simultaneously for process innovation incorporating feedback effects from firm performance.

It finds a strong inter-connectedness in knowledge sourcing, with firms using the full depth of the network. External linkages are found to be an important determinant of firms' innovation decision. However, when quantitative measures of innovation output are utilised external interaction is found to be relatively unimportant. Feedback effects are found to be vital for both product and process innovation, with more productive firms being more innovative and *vice versa*.

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The Effects of National and International Interaction on Innovation: Evidence from the Irish CIS: 2004-6

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This paper analyses the effects that geographically proximate and distant interaction have on the innovation process of Irish firms. The study utilises data from the Irish Community Innovation Survey (CIS) 2004 – 2006. This data set contains information on the innovation activities of approximately 2,000 Irish firms as well as a range of measures of inputs into the innovation process.

The CIS data allows for an analysis of the effects of the geography of interaction on both product and process innovation. A total of seven potential external agents are analysed. Interaction is defined as formal cooperation between a firm and an external agent for the purposes of generating a new innovation. The external agents considered are within group interaction or interaction with customers, suppliers, competitors, consultants, universities or public research institutes. Interaction with these external agents is analysed at the national and international level.

The work of Krugman (1991), Porter (1990) and Scott (1988) suggests that knowledge flows take place more easily over shorter distances, primarily due to the advantages of face-to-face interaction (Gordon and McCann, 2005). However, Boschma (2005) and Bathelt, Malmberg and Maskell (2004) suggest that geographically distant interaction agents may also stimulate innovation. Thus, business innovation might benefit from interaction with external agents located close by and at a distance. This paper attempts to analyse whether national or international knowledge sources are more important for Irish business innovation.

The approach utilised by this paper is based on modified innovation production functions. Initially, the nature of the relationship between external interaction agents is analysed. It is postulated that external interaction agents may act to complement each other or may act as substitutes. Following this, the effects of the geography of external interaction on innovation output is analysed.

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Innovation Capacities in Advanced Economies: Relative Performance of Small Open Economies

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This paper offers an empirical examination of the determinants of innovation, measured as patents, across a sample of twenty three advanced economies, consisting of a sample of OECD countries and Singapore. The approach employed is based on estimating National Innovation Capacity that focuses on the long-run ability of economies to produce and/or commercialize innovative technologies, in

the spirit of Furman, Porter and Stern, (2002). The time period of our analysis covers 1993 to 2005 incorporating panel estimation.

Motivated by differences in the rate of innovation between economies with different economic structures we examine the Small Open Economies (SOEs) chosen from this country sample to assess whether there is a significant difference between the determinants of Innovative Capacity in SOEs and the other developed economies. A number of alternative specifications are estimated.

We find that advanced SOEs and larger economies do not differ substantially in their determinants of patenting activities and, notwithstanding the limitations of patents as measures of innovative activity, we conclude that policy choice and variation plays a key role in determining the productivity of R&D, when measured as patenting activity.

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An Econometric Analysis of the Determinants of Irish Residential Energy Expenditures

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This paper analyses the determinants of Irish residential energy expenditures using the most recent household budget survey data set (2004/05). The methodology employed assumes that households undertake their purchasing decision in two steps, firstly a participation decision and secondly a consumption decision and focuses on the use of censored regression techniques such as the tobit, double-hurdle and two-part model. This methodology has previously been applied to analyse commodities such as food, alcohol and tobacco but this is the first time such a methodology has been applied to Irish household energy expenditure data. The energy items that are analysed include gas, electricity, oil, coal, turf, lpg, petrol and diesel. Expenditures for these items are related to location factors including urban-rural location and regional location as well a variety of house and household characteristics such as age of the head or house, type of dwelling and extent of energy durable appliances in the home.

Preliminary results suggest some justification for the approach with certain factors affecting participation and not consumption and vice versa. Location, both urban-rural and regional, strongly influence the type and level of energy purchase. Other significant factors include household size and house size and the type of central heating, water heating and cooking appliance present. Income as measured by total household expenditure is significant in the majority of regressions. The estimated elasticities are however much lower when compared to previous research. This may be due to the inclusion of non-economic factors in the model.

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The Evaluation Of Regional Policy In The Context Of The Institutional Approach

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With respect to development strategies accompanied by institutions, many regions sustain balanced economic growth whereas other regions with the poor strategies lag behind, resulting from the exploration of disparities among the regions. On the basis of the relevance of this gap, regional development theories have been existed to eliminate socio-economic differences. With reference to institutional restructuring, regional policies have been theorized under the certain paradigms. Theoretical frameworks were articulated by exploring intersection between institution and regional economic development under the regulatory system. As lying at the centre of the study, this academic paper puts forward the argument of the regional policy in 3 ways: (1) top-down policy by analyzing Keynesian Accumulation Regime, constituting social welfarist arrangements and neo-liberal programs by imposing deregulation and liberalization. (2) bottom-up policy reaction by emphasizing the diverse institutional settings in the new era and a new regulatory system of competitive inter-local relations. (3) new regionalism by configurating potentially regions with their innovative performance and internal characteristics of institutions. In this sense, the traditional applied regional policies' validity started to be questioned in terms of following the radical changes. Therefore, regional policies have been operated around new regional development paradigms. In the light of changing economic and social conditions, the theories have been evolved.

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Critical Academic Literature Review of Distributed Energy Generation in the UK/Scotland

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This paper overviews literature on distributed generation (DG) research in the UK/Scotland, published in academic journals. It covers such issues, as formal definition of DG, environmental, social and behavioural aspects of it, as well as sector-specific modelling of micro-cogeneration. Some critique of drawbacks, inherent to the reviewed studies finalise the paper.

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The ‘Creativity’ and Mobility of Graduate Human Capital: Evidence from the UK *Destinations of Leavers from Higher Education* Survey

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The human capital endowment has long been perceived to be of paramount importance to regional growth and development. In recent years, there is also a widely held belief that creativity, going hand in hand with innovation and knowledge creation, readily translates into regional competitiveness. Therefore attracting quality human capital and cultivating creative industries/class have been given an unprecedented level of significance in regional policies. Amongst all forms of human capital, that contained in graduates is of superior class yet highly mobile at the same time; and therefore the attraction and/or retention of such graduate flows holds the key to deepening creative human capital in a region. It follows that the issues concerning which factors and to what extent they determine the migration behaviour of graduates have clear implications for policy making. In addressing these issues and advancing our understanding of the relationship between creativity and mobility of human capital, this study provides the first empirical analysis of the role played by graduates’ subject background (i.e. creative vs. non-creative subjects) in influencing their migration choice in the UK.

Our data employed in this paper primarily draw on the *Destinations of Leavers from Higher Education (DLHE)* Survey 2005/06, collected by the UK’s Higher Education Statistic Agency. We have also merged the *Students in HEIs* data into our dataset to incorporate auxiliary information covering individual characteristics, such as age, gender, degree class, subject background, etc. Following Faggian and McCann (2006), graduates are classified into five categories based on their distinct migration activities (from domicile to university and then onto workplace), viz. non-migrants, late migrants, return migrants, university stayers and those that migrated twice. A multinomial logit model is estimated to identify the determinants of each type of migration patterns (vis-à-vis non-migrants as the benchmark group). Separate models have been estimated for undergraduates and postgraduates given their known differences, and our overall findings suggest that graduates had a higher propensity to migrate if they were male, educated full-time in Russell Group or other older universities, receiving first-class degrees and usually younger (e.g. the age of 25 seemed to be a threshold beyond which mobility started to decline). In terms of the impact of subject background, those with business/management and more importantly engineering/technology background had a remarkably higher likelihood to migrate twice; in contrast, subject background in creative arts, education or law did not appear to have any statistically significant impact on graduates’ mobility. Lastly, we have also discovered rather pronounced regional effects.

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Creating an environment for economic growth: human capital, creativity and entrepreneurship in the USA

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The question of what are the key drivers of economic growth has been at the heart of economics since its very beginnings. Centuries of studies on the subject have produced a plethora of complementary (and sometimes competing) theories, but a high degree of uncertainty still remains. What it is undisputed, however, is that the skills of the workforce matter. Especially as we progressed towards a ‘knowledge-based’ economy, it became clear that the abilities of the workforce are a crucial feature for economic growth.

What ‘abilities’, however, are most important and how should we call them? Schumpeter in 1911 pointed out that entrepreneurial skills are paramount. An increase in the number of entrepreneurs leads to economic growth. Becker (1964) pointed out that what matters is the collective workers’ know-how and skills, referred to as “human capital”. A well educated workforce will result in enhanced productivity which is the key for economic growth. More recently Florida’s contributions (2002, 2006) popularised the term ‘creativity’ as the key driver for economic success. However, local economic development officials and politicians often try to attract favoured sectors and clusters, rather than trying to build a self-sustaining development in which economic growth organically arises. There are many examples including high technology of the 1980s and 1990s (e.g., Silicon Valley); bio-technology from a decade ago; or alternative energy today.

So, how are these concepts interrelated? And, are they complements or substitutes? What happens when we consider all of them simultaneously? Does one element stand out as being more relevant than the others?

The aim of this paper is to analyse the role of sectoral-policy, entrepreneurship, human capital and creativity in creating an environment for regional economic growth in the case of the USA. In order to appraise the competing role of each, we use a unique database which combines information from a variety of sources at both county and metropolitan level. In our model we test jointly the effect of entrepreneurship, human capital and creativity measures, while controlling for a series of other possible explanatory variables.



Evaluating Cluster Policies: A Unique Model? Lessons to be Drawn from a Comparison Between French and European Experiences

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Although there is a consensus concerning the need for public policy evaluation, there is no stable doctrine regarding the way such assessments should be carried out. Different models coexist or succeed one another; it is, for example, possible to schematically oppose a ballistic model of evaluation “of the action” to an emergent model of evaluation “in the action”. The aim of this article is to analyse the evolution in public policy evaluations and the difficulties inherent in them by studying the French cluster evaluation undertaken in 2008. This evaluation was planned from the beginning as a component of the cluster policy, with the aim of modifying the policy in the light of its initial results.

We first put into perspective the doctrines and methodologies underpinning public policy evaluation in general and cluster evaluation in particular. We then study the procedures used in the French cluster evaluation, comparing them to four international cases (Germany, Belgium, Finland and Austria). The analysis is based on a detailed examination of documents relevant to the evaluation, on our empirical knowledge of the French clusters, and on discussions with territorial and national actors involved in the cluster policy.

The article reveals the inherent difficulties in cluster evaluation processes. These difficulties are mostly related to the systemic, multi-actor and heterogeneous characteristics of the object “cluster”. Analysing the usage and the effects of the evaluation on the various actors allows us to conclude that cluster evaluation in France is a learning source for the progressive construction of a cluster doctrine and a doctrine of its management. The evaluation, grounded in an interactive approach, becomes part of a larger process, a knowledge process benefiting both the government and the local actors concerned. Integrated from the outset into the cluster management system, the evaluation becomes a tool amongst others; it is therefore less consistent with a model of objective, incontestable and independent knowledge production than with an instrument to help decision-makers forge their choices.

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Informality and agglomeration economies: in search of the missing links

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The informal sector absorbs on average 50% of employment in developing countries. However, it has not been considered in New Economic Geography (NEG) models that try to explain urbanization and agglomeration in developing countries. In a first attempt to bridge this gap, we develop a NEG model that incorporates the informal sector. Empirical evidence shows that the informal

sector is mainly composed of relatively small firms that are unskilled labor intensive, face capital restrictions and that, given scale limitations, do not trade interregionally or internationally. Thus, besides an increasing returns to scale manufacturing sector, our model allows for an informal services sector with constant returns to scale and high transport cost. We investigate competitive as well as complementary roles for the informal sector and the manufacturing sector. To do so, we model competition on the demand side by allowing substitution between manufacturing and informal sector goods and complementary linkages on the production side, in the form of input requirements in manufacturing from the informal sector. Labor is mobile between industries and locations. The model predicts where informal employment flourishes. An informal sector arises at every location, but depending on manufacturing transport cost and preferences, the industrial or the rural location hosts the larger share of informal production. Vice versa, the size and characteristics of the informal sector have an effect on the long run outcome of the model. Not only does the informal sector influence the model's centripetal forces, but informal supply shocks (and regulation) may also determine the selection of one of multiple long run equilibria. Thus, an expanding informal sector can have both structural and long-run consequences for economic activity. In terms of policy, the paper shows that recommendations regarding rural-urban migration in developing countries are sensitive to agglomeration effects.

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Commuting and Agglomeration

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This paper adds commuting between regions and a housing market to a two-region New Economic Geography model. Because commuting occurs between relatively nearby cities, the focus is on the costs of commuting and input goods, rather than price differences of consumption goods. This allows for a solvable model with analytic expressions for all equilibrium outcomes. In the short run, the location of residence is given and workers face a commuting decision. In the long run, workers choose their region of residence, so the land market plays a role in the long-term outcomes. In general, the larger region's firms can outbid the wage in the smaller region if sufficiently many people commute to the large region. However, at a certain firm concentration, centrifugal forces of the land market and peripheral demand dominate the agglomeration externality. Therefore, short-run equilibrium predicts a stable distribution of industry that may be either spread or incompletely concentrated. In the long run with residence choice, the concentrated equilibrium emerges as the first stable equilibrium with incompletely concentrated inhabitants. It is always associated with a net commuting flow into the region. We show analytically how the agglomeration externality allows workers to relocate to the periphery following low land prices but supply labor in an industrial region. Under stricter assumptions, the long run non-commuting equilibrium with spreading firms and household becomes stable. In contrast to trade cost in integrated economies, a lowering of commuting cost may decrease regional disparities. Therefore, we investigate the role of a government in investing in infrastructure with capacity constraints and with preferences for residences or industry.

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Local Entrepreneurs in Global Clusters: The significance of spatial and relational propinquity in new firm formation

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This paper explores the significance of local proximity for new firm formation in particular industries. Within the literature, entrepreneurs are viewed as critical to industrial cluster formation and development in regions, while at the same time clusters are assumed to foster entrepreneurship by providing established linkages and access to knowledge flows. Entrepreneurship is therefore modelled as an inherently local process within industrial clusters. However, given that firms, particularly in high-tech sectors, are often 'born-global' the significance of local proximity both geographically and relationally is ambiguous. The particular research questions addressed in this paper are; How 'local' are entrepreneurs operating in regional clusters in terms of their prior work experience and skills development, and in terms of the networks they create to establish their companies? How significant is being located in a cluster for an entrepreneur when establishing a start-up firm?

To answer these questions start-up firms within two cases of industrial clusters, that is, the software and medical technology clusters in the western region of Ireland were analysed. Data was gathered from forty semi-structured interviews with entrepreneurs, representing twenty start-up firms from each cluster. Preliminary analysis shows that even though many of the firms are 'born global' the entrepreneurs use co-location with locally-based large multinational corporations to access international networks. In this sense the cluster facilitates these start-up firms in establishing linkages globally. The paper adds to the debate on the significance of regional clusters for start-up firms even in the absence of extensive trading linkages locally and also addresses the issue of the geography of entrepreneurship.

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Econometric Estimation of Armington import elasticities for a regional CGE model of the Illinois economy

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One of the main concerns associated with the development and use of regional computable general equilibrium (CGE) models is the 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 then to prioritize these for estimation where appropriate data are available.

In this paper, the focus is on the estimation of the 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 need to model the pollution content of trade flows between regions and impacts on trade balances in response to changes in activity. In this first step, the commodity import elasticities for the Illinois economy are estimated and applied also to a single region Illinois model. 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. We then test the impact of introducing these estimates in a series of scenario simulations using the Illinois CGE model.

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Estimation of a Wage Bargaining Function for a Regional CGE model of the Chicago economy

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This paper is a first step in parameterising a regional computable general equilibrium (CGE) modeling framework for the Chicago economy. We estimate a regional wage bargaining function characterized by a negative relationship between the regional real regional consumption wage and unemployment. Six alternative model specifications are estimated, which give us a range of potential parameter values for the unemployment elasticity of the regional wage under the bargained real wage closure of the CGE model. We select the highest of these to investigate the maximum impact of introducing a region-specific parameter value for Chicago on the results of simulating an illustrative demand shock in the CGE modeling framework.

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Measuring Business Linkages within a Geographic Agglomeration

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Economic agglomeration has been at the forefront of economic development policies in both Wales and the Republic of Ireland since the 1970s. Successive governments have pursued a focused regional development strategy based on targeting and attracting inward investment.

Brennan and Breathnach (2009) note that since the 1980s, 'branch plant industrialisation' became the subject of growing criticism. Many began to question the quality of the jobs created, the very limited extent of the 'knock-on' effects locally and the instability of industrial plants. Plants became viewed as 'snatchers' rather than 'stickers', 'pulling out' when faced with unfavourable conditions or where superior alternatives became available elsewhere, having availed of benefits such as cheap labour, grants, subsidies and tax incentives (Dicken et al. 1994).

Embedding branch plants more deeply into their host economies has become a desirable component of regional development strategies in the 21st century. The most favoured embedding mechanism, according to Turok (1993) is the development by branch plants of local linkages. Such linkages are noted to increase the commitment of branch plants to the locality, add further employment in those firms acting as suppliers to branch plants, and facilitate the transfer of technological know how from branch plant to supplier.

This paper sets out to assess the frequency and types of linkage between firms and other actors within geographical agglomerations in Ireland and Wales. The paper proposes a novel technique for the measurement and presentation of inter-firm linkage data. Linkages are assessed in nine linkage categories and at three geographical levels e.g. local, national and international. The measurement tool the '4 i linkage scale' allows the number and perceived significance of local linkages to be compared and contrasted with linkages outside the boundaries of the agglomeration.

This work utilises data from the biotechnology sector in county Cork, Ireland, and from the automotive sector in South Wales. The results paint a significantly different picture from the theoretical benefits of operating within an agglomeration alluded to by van Egeraat (2006).

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Exploring the Geography of Food Miles: An Example from the UK Grocery Market

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The growth in food movement throughout the UK has provoked widespread interest in food miles. This has major implications for the UK's rural economy and UK farming in general. Concerns surrounding the negative impacts of long-distance food transportation have been voiced by a range of stakeholders, and consumers have become increasingly interested in the impacts of their grocery purchases. It is widely agreed that the solution to the problems associated with food miles is to source products from as close to where they will be consumed as possible. Hence, UK grocers are currently facing the challenge of facilitating more 'local sourcing' from rural Britain. The UK's second largest grocery retailer, Asda, has developed nine local consolidation hubs (largely in rural areas), which are intended to encourage and enable local sourcing. Each hub serves as a single point of delivery and consolidation for small, local suppliers, from which their products can be distributed to nearby Asda stores for sale. With only 2% of its total sales currently in local products, Asda has committed to developing its 'local' range and

improving UK rural economies. However, in order to ensure the success of future growth, it is essential that a full evaluation of the company's local supply chain is conducted. This paper will investigate the effectiveness and efficiency of Asda's local infrastructure. A set of spatial interaction models will be used to simulate the flow of foods from supplier to local hub, and from local hub to store. Changes to the supply chain will then be modelled to determine what would happen if, for example, the number or location of the local hubs were to change, or if Asda were to alter its definition of 'local'. This is very novel in spatial interaction modelling: it is rare that alternative sets of destinations or distribution systems can be evaluated. The impacts of different supply chain scenarios, in terms of food miles and other related indicators, will then be quantified. Through drawing on the key findings of the research, suggestions will be made as to how Asda's local supply chain could be improved.

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A Spatial Analysis of Ireland's Coastal Economy

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In order to develop a policy framework and guidelines for improving a national approach to the management of Irish coastal regions and associated resources one first needs to be able to define what is meant by 'a coastal region' in an Irish context and secondly to know how the socio-economic characteristics of Irish coastal populations differ from the national perspective. This paper contains a range of official socio-economic statistics, from a range of existing statistical domains, compiled for the first time in terms of Irish coastal regions. These coastal regions are defined at a number of alternative levels of spatial aggregation. The compilation of such data is also important when one considers the recommendations of the European Council and Parliament concerning the implementation of Integrated Coastal Zone Management and the requirements of policies such as Integrated Maritime Policy for the European Union and the EU Marine Framework Strategy Directive.

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What Causes Waste Flows? An Interregional Analysis of Welsh Waste Shipments

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Much of the waste flow literature focuses on international waste trade and oftentimes solely on trade in hazardous wastes. However, data is often available for waste flows within national borders and these flows could yield just as much information on the relationships that exist between origins and destinations. In a world where waste creation, transport, and disposal is becoming a global problem, understanding and modelling these flows is becoming increasingly important.

This paper uses a gravity model approach and data on commercial waste shipments between Local Authorities within Wales to examine the characteristics that are responsible for origin-destination waste flow relationships. We focus on transactions costs and economic characteristics as well as socioeconomic and demographic characteristics that may play a role in interregional Welsh waste trade. The results and conclusions from this analysis can help Welsh policymakers and the Waste Strategy Branch of the Welsh Assembly Government as they implement zero waste strategies over the next decades. Understanding the relationships embodied in waste flows within Wales can give policymakers the tools they need to implement sustainable waste management and/or recycling systems in addition to minimizing waste generation.

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A comparison of two Carbon (Input-Output) based estimates of the ‘sustainability’ of the Welsh economy.

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The paper uses a regional input-output (IO) framework and data on direct CO₂ (as carbon) generation by industry (and households) to examine Welsh regional accountability. We focus on a series of carbon attribution methods that permit greater accountability of local public and private final consumption as the main exogenous driver of regional carbon generation. We argue that using a domestic technology assumption (DTA) to consider the regional ‘carbon footprint’ of local regional consumption permits greater focus on the local production, technology and consumption decisions that fall under the jurisdiction of regional policymakers.

For comparative purposes, we also estimate the indicative ‘Balance of Emissions Embodied in Trade’ (BEET) between Wales and the RUK. The first stage is the measurement of the emissions embodied in Welsh exports to the rest of the UK assuming the use of Welsh production and pollution ‘technology’. The second stage is the estimation of the emissions embodied in Welsh imports from the rest of the UK, utilising UK production and polluting ‘technology’. Using these calculations we determine the balance of emissions transfers between these two regions.

This analysis allows us to assess the emissions interdependence between these two regions, and we can also determine the extent to which Wales trades in sustainability with the rest of the UK. Further, it allows us to compare two different measures of sustainability, both trade related, but one which looks at the trade balance in emissions (the BEET measure), and another that looks at the impact of trade patterns for the sustainability of the Welsh economy (the DTA analysis) in sustaining Welsh consumption.

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Regional Economic Development Policy in the UK: Assessing the Democratic Deficit

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The past decade has seen the devolution of the delivery of UK regional economic development policy from central government to local (or regional) organisations. As Kettl (1997) notes, government is not a business, instead the job of government is to pursue public interest. In terms of local and regional economic development this means ensuring that citizens are able to participate in this process. Drawing on the work of deLeon and deLeon (2002), who argue that citizen participation should be encouraged at all stages of the policymaking process, this devolution power to local policymakers should be accompanied by a greater level of democracy in order to ensure that policymakers take into account the views of the people and that the policies implemented and the strategies followed are in the public interest. This paper examines the existence and strength of the links between regional economic policymakers and the local population in order to assess whether a democratic deficit exists and whether regional economic policymakers can be made more accountable.

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FDI Location and Agglomeration Economies

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Foreign Direct Investment is an important feature of the global economy over the past thirty years, and the extent to which agglomerative forces have shaped the location of this investment within countries is the subject of a large number of

empirical studies. The agglomerative forces include technological external effects (e.g. externalities in the form of knowledge and technology spillovers) and pecuniary or market-based effects in the form of backward and forward inter-firm linkages. However, while evidence has been found for the presence of agglomeration economies, it is not clear whether these are due to technological or pecuniary external effects. In this paper we take data for over 12,000 foreign investments over 1985–2007 to investigate this issue. The data are for the British regions, but disaggregated to the two-digit industry level, and including both manufacturing and services.

To measure the technological effects terms are included for both the intra- and inter-industry effects (i.e. MAR and Jacobs externalities), which are measured by the foreign plants locating in the regions in preceding periods but over different time frames, i.e. 1, 3 and 5 years. It is well-known that spillovers flow between foreign-owned plants, and potentially are an important location determinant. To measure the market-based effects we include terms for industrial linkages based on Input-Output tables, but calculated in several ways to include or exclude the household sector. Other terms are included to control for ‘classical’ locational factors (wage rates, demand, transport costs, grants, etc) and for the nature of FDI (source, start-ups). The regressions, using GMM and conditional logit, are for the number of projects and investment size.

The results at this time are preliminary, but they show both technological and pecuniary effects are a significant factor in location. The market-based effects appear to be less important, of which the backward inter-firm linkage terms perform better. In the case of the externalities, the intra-industry effects are significant, but decay rapidly between about 3 and 5 years. Further work is needed to explore these results by industry, but they offer further evidence on the locational determinants of FDI.

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A Social Simulation of Housing Choice and Urban Regeneration Policy

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Dynamics in the housing market can be recreated and examined using computer modelling and simulation. Understanding how this market works is important and can aid in assessing the effectiveness of various government initiatives and policies. Housing policies, such as urban regeneration, seek to address problems of deprivation in segregated neighbourhoods by introducing the concept of mixed communities. However, when housing choice behaviour is considered, the creation of mixed communities, using regeneration policy, is questionable.

In this paper, agent-based modelling is used to simulate housing choice behaviour in a community undergoing regeneration. Using the East and South-East Leeds (EASEL) area as the case study, individual level behaviour is simulated and outcomes are used to draw conclusions about the effectiveness of regeneration policy.

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Building and calibrating a new range of retail interaction models for public sector planning

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Retail impact assessment (RIA) remains a crucial part of the planning process. For any new retail development it is important that planners understand how much revenue will be deflected from existing retailers and hence what the longer term impacts on local businesses will be. Traditionally, spatial interaction models (designed for this purpose) have not been used in the public sector after falling out of favour in the 1970s. However, paradoxically, interaction models have seen a marked increase in use in the private sector. The aim of this paper is to first provide a critical examination of current RIA techniques, especially from a UK perspective. However, the bulk of the paper will discuss a number of issues that need to be resolved if spatial interaction models are to see a revival in public sector planning applications. The case study is Silverburn, a new major out-of-town shopping centre opened in 2007 south of Glasgow. We shall show how a recently acquired major customer shopping survey can be used to calibrate and disaggregate the models to capture complex spatial interaction behaviours of different types of consumer. This new data, and the experience drawn from private sector applications, gives optimism for a new set of more accurate spatial interaction impact assessment models.

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A Review on Environment-Friendly City Development of Urban Regeneration and Bio-Housing Research in Korea

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Urban regeneration and sustainable design are the one of the main stream of 21st spatial planning paradigm. The urban planning is becoming more sensitive to enterprise needs and desire for economic vitality and environment-friendly design in recent years. This paper will provide review and synopsis of the 'Urban Regeneration Project' and 'Bio-Housing R&D Project' in Korea through its best projects in environmental city planning. Urban Regeneration Project and Bio-Housing Project have been strategic projects of Korean Government ever since 2005.

Urban regeneration in Korea means the sustainable city which harmonize working place with living place and playing place. Korea has very quickly built an industrial society through compact growth by about 30 years from 1960s. In this economic process, Korean cities became a base of economic production rather than living place. So, Korean cities are still experiencing high density, congestion, degeneration of city centre, urban sprawl and insufficiency of road and green space until present times.

But since 2005, the policy has changed from new development in city to redevelopment and regeneration of facilities, industry and especially city centre.

As a part of this policy, Urban Regeneration Project has been commenced by central government in 2007 and Bio-Housing in 2005. Therefore, the ultimate purpose of these projects are forming sustainable and viable city in Korea through citizen participation and environment-friendly redevelopment.

By supporting and incentives of central government, many local city plan and community plan have been made from a viewpoint of regeneration, citizen participation, environment and quality of life. These environment-friendly urban planning projects in urban regeneration and bio-housing research are the main theme in this paper. Therefore, this paper will summarize the concept of Korean urban regeneration and bio-housing, its best practice in environment area and its meaning on Korean urban planning system.

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Ubiquitous Geographic Information: Opportunity and Challenges

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In this paper, Ubiquitous Geographic Information (UBGI), which is a relatively new set of concepts, practices, and standards, is introduced and described, and its possible ramifications are analyzed in detail. The paper begins with the definition of UBGI – geographic information that exists *anywhere and anytime*. However, the chapter attempts to convince readers that the true goal of UBGI is to make the use of geographic information easy and transparent.

The emergence of UBGI needs to be understood within a broader context of both paradigm changes in computing technologies (i.e., centralized, distributed, mobile, and ubiquitous computing) and the advancement of information and communication technologies (ICTs), which make UBGI services feasible. Thus, the paper reviews how computing technologies have evolved, and introduces the technological breakthroughs of each computing technology, which overcome place and time constraints and enable the realization of UBGI services in everyday life.

A few enabling ICTs are then described and existing UBGI initiatives are introduced. Issues on the technical developments of UBGI services are addressed and recent standardization efforts on UBGI are introduced as well. Lastly, the ramifications of UBGI on future lifestyles, particularly in future cities, are discussed.

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Modelling the folk theorem of spatial economics: a heterogeneous regional growth model

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During the last year, the research field of spatial economic has rapidly increased. There is consensus that the economic performance of a region depends not only on its own potential, but also on the development of their neighbouring regions. Knowledge spillovers, which are non constant over space, should influence the evolution of the region specific productivity. The so called "folk theorem of spatial economics" states, that increasing returns to scale are essential for explaining the uneven economic distribution of specific economic activity, which implies that knowledge spillover, agglomeration and distribution of per capita productivity are closely linked. Thus, the aim of this paper is, to introduce a spatial regional growth model, which links first time knowledge spillover, agglomeration, distribution of per capita productivity and the grasp of spillovers. Further, it is shown in a simulation study, how different regimes of returns to scale and grasps of knowledge affect agglomeration and distribution of per capita productivity. One of key findings is, that grasp of knowledge affects dynamic distribution of per capita productivity. Moreover, the simulation study particularly finds support for the "folk theorem of spatial economics".

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The spatial networks of self-employed without employees

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In recent years, the Netherlands have witnessed the emergence of a new type of entrepreneurs, the self-employed without employees (in Dutch: 'Zelfstandigen zonder personeel' or 'ZZP-ers'). This group of entrepreneurs offers their services to firms on a contract basis and they rely primarily on their human capital in order to provide these services. The 'firms' of the self-employed without employees are therefore by definition capital extensive. Using this definition, it has been estimated that there are close to 400.000 self-employed without employees in the Netherlands. This amounts to approximately 5% of the total labour force.

Despite the fact that the relevance of this specific type of entrepreneurs is increasing, little is known about this group. Research that does exist has focused mainly on legal issues trying to assess whether the group should be regarded as a 'flexible employee' or a small business owner. The actual economic impact and the economic behaviour of the group remain largely unexplored. This study tries to take a first step in filling this gap by addressing the (spatial) networks in which self-employed without employees participate.

Networks are particularly important for this type of entrepreneurs because, apart from their human capital, they have very few resources. Therefore, they are likely to depend heavily on their professional networks for acquisition and mobilizing

additional resources if necessary. Using survey data from the Netherlands, this paper first explores the characteristics of the networks of the self-employed without employees. In a next step, we explore whether the properties of the networks influence performance and resilience to the economic bust.

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Strategic pricing of commuter railways competing with roads

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In the literature of urban economics, transport costs are given exogenously by technological condition and equilibrium land rents are obtained through some competition among economic agents such as firms or households. This type of setting seems natural for the commuting with automobile and freeway system, which is common in U.S. For the railways, however, their prices are often determined monopolistically or politically in most countries where many workers commute by public transportation. This paper assumes an urban area where both of railways and roads are used for commuting from suburban area to CBD, yet the railways are controlled by monopolistic firm(s) or the city government. Automobiles can be used for commuting yet they need a certain lot for parking in CBD. Hence, monopolistic or political pricing of the railways could affect the parking cost for automobiles through the equilibrium land rent, which is based on the commuting costs at certain location in the urban area. We analyze the outcome for the cases of a monopoly firm, monopolistic competitive firms, and a city government maximizing welfare. Furthermore, availability and limitation of some regulation for the firms shall be discussed as well.

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Economy-wide rebound effects from an increase in efficiency in the use of energy by Scottish households

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Previous literature on economy-wide rebound effects from increased energy efficiency focuses mainly on the impacts of increased efficiency in the use of energy in production. However, given that household energy use accounts for 30 per cent of all energy used in the UK and 22 per cent in Scotland, it is becoming extremely important to assess the extent to which policies aimed at increasing efficiency in household energy consumption produce the expected reduction in energy use.

In this paper, we study the economy-wide impacts of an exogenous (and costless) increase in energy efficiency in household energy consumption, with particular attention to the conditions under which rebound (or backfire) effects may occur. We apply an intertemporal variant of the AMOS computable general equilibrium

(CGE) modelling framework for Scotland, where forward looking expectations are incorporated for each of five household income groups (quintiles).

In contrast to increased efficiency in production, the efficiency improvement simulated here is confined to the demand side of the economy. As a result, the energy efficiency improvement does not directly impact the productive capacity of the economy. Consequently, under circumstances where total adjustment of labour and capital stocks is possible, we would expect to observe no real price changes in the long-run (i.e. long run input-output results would be observed).

We find that the magnitude of the economy-wide rebound effect is governed mainly by the elasticity of substitution between energy and non energy goods at the household level. Where this is inelastic, there is a net decrease in energy consumption. However, a net increase in energy consumption (a backfire effects) if observed in cases where this elasticity of substitution is greater than one.

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Regional Impact Analyses and the Appropriate Treatment of Regional Budget Constraints under Devolution: An Application to the Heterogeneous Impact of HEIs

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There have been numerous studies of the “impact” of HEIs on their host regions. These have typically focused on the demand for goods and services in the host region. The best of these studies employ regional input-output analyses. However, there has developed a “policy scepticism” about the value of such analysis based on notions of either demand-side (binding budget constraints) or supply-side (binding resource constraints) “crowding out”, to the point where the demand side impact of HEIs is regarded as negligible. In this paper we provide a systematic critique of this policy scepticism.

While we reject the extreme form of policy skepticism we do acknowledge the importance of binding public sector budget constraints under devolution, and argue that such constraints should be accommodated in future impact studies. We focus our own impact analysis on the HEI sector’s impact net of its public income by simulating the effect of switching public expenditure funds between HEIs and other activities using a modified HEI-disaggregated input-output model. This exercise reveals that conventional impact studies do overestimate the impact of HEIs, but importantly that the policy scepticism that treats the demand-side impact of HEIs neglects some important impacts of these institutions, in particular their export intensity.

Furthermore, we extend this analysis to individual institutions and show that the impact of this constraint varies significantly among HEIs. HEIs that appear to

have qualitatively similar expenditure impacts if they are (implicitly) assumed to be funded outwith the host region are shown to have rather more distinctive impacts when the budget constraint is imposed.

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Interregional Impacts of Scottish HEIs: A CGE Analysis of Demand and Supply Side Impacts

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While there have been many studies of the regional impacts of HEIs, the vast majority of these focus on the impact of HEIs on their own, or host, region. In fact, however, UK HEIs are an integral part of a linked interregional system of HEIs. Furthermore, the regions of the UK are themselves linked through trade, migration, union bargaining systems and financial markets. This paper is a first attempt, at least in a UK context, to explore the impacts of Scottish HEIs on the economies of Scotland and the Rest of the UK.

We proceed by exploring the system wide impacts of HEIs demand-side (expenditure) impacts through simulation of an HEI-disaggregated computable general equilibrium model of Scotland and the rest of the UK. The supply side impacts of HEIs are also investigated, though the impact of HEIs on labour and general factor productivity. The robustness of our results is assessed through a range of sensitivity analyses relating to the evidence of the transmission mechanisms of such effects and the nature of the Scottish labour market. The scale and composition of interregional impacts is compared with own-region estimates to assess the importance of the conventional neglect of impacts of HEIs other than those on the host region.

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The Wider Impact of Higher Education Institutions in Scotland: A CGE analysis of higher education externalities

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The impact of higher education on regional economies has been the focus of a wide range of literatures. In this paper we concentrate on the wider impacts of HEIs on their host regional economies: the external benefits of higher education. These impacts that are often neglected, no doubt in part because of the practical

difficulties involved in quantifying them, but according to some authors these represent a substantial part of the total returns to education.

As a base for our calculations we use estimates from McMahon (2004, 2009). He attempts to determine a possible range of external benefits of education combining existing literature with own analysis. According to his calculations education externalities constitute between 37% and 61% of total returns to education in the OECD countries. We use the graduate wage premium as a measure of direct private monetary benefits.

The system wide impacts are estimated with an HEI-disaggregated computable general equilibrium model of Scotland. The robustness of our results is assessed through a range of sensitivity analyses relating to different estimates of the external benefits and of the graduate wage premium. The analysis demonstrates that the external benefits of higher education can have a substantial positive impact on the host region.

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On-The-Job Search: Amount, Regional, and Cyclical Variation Evidence from Great Britain

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Recent theoretical and empirical models of job search and job matching include on-the-job search as one of the relevant variables and implicitly or explicitly assume that on-the-job search increases in periods of growth and decreases in economic downturns. Because of lack of suitable data, however, such assumptions have not yet been tested empirically.

This paper uses individual data from the British quarterly Labour Force Survey to estimate the number and the proportion of employed people engaging in on-the-job search, how these vary across regions, and over the business cycle. These measures of on-the-job search are also compared to proxy measures commonly used in the literature, such as job-to-job moves.

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Business Networks and Firm Performance: The Impact of Regional Network Initiatives in Ireland

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In an attempt to achieve national competitiveness, policymakers have endeavoured to promote competitiveness at the regional level (Braga 2004). One tool promoted by policymakers to achieve this is business networks, where business networks can be described as a group of firms or organisations that work together to overcome common problems, share knowledge or resources, and reach new markets (Ffowcs- Williams 2000). Business networks can have a positive impact on the employment and competitiveness of a region according to Sprenger (2001). Policymakers in the Emilia-Romagna region of Northern Italy for example provided incentives for groups of firms to work together in a collaborative network in the 1970s. These initiatives, while not only sparking the interest of other policymakers in business networks, helped the Emilia-Romagna region to become the second wealthiest region of Italy and was subsequently recognised as the seventh most prosperous region within the EU (Forfás 2004).

From an Irish perspective, business networks have also been used as a tool to promote growth at both a regional and national level. According to InterTradeIreland's report (2005) of business networks on the island of Ireland, there are 110 networks in operation in Ireland incorporating almost 10,000 firms. The promotion of business networks has been highlighted as a means to achieving improved Irish performance (Building Ireland's Smart Economy 2008). Regionally, networks are supported by regional development agencies as a means to achieving economic growth. This paper, based on a random sample of firms involved in regional business networks, will provide evidence on the operation of the range of regional networks in Ireland. Univariate and bivariate analysis will provide an indication of the types of firms participating in the networks, their motivations for doing so and their perceptions of anticipated and achieved benefits and costs. Regression analysis will also be used to assess whether participation in the network has had an impact on the performance of the business.

This paper has the potential to provide some interesting insights; Firstly, from a methodological perspective, the paper will develop a regression model to address how best to assess the impact of regional networks. Secondly, using the case of Ireland the paper also has the potential to provide some valuable policy lessons and implications relating to the promotion of regional business networks.



Compiling Regional SUT and I-Os for Ireland

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Regional policy in Ireland since the 1950's has been ad-hoc, inconsistent and has lacked cohesion. A succession of National Development Plans has identified balanced regional development as a priority. Yet each subsequent plan has re-defined what this means. An important contributor to the continuation of this situation has been the lack of available regional data to properly formulate and assess regional policy.

Specifically, the lack of regional Supply & Use (SUT) and Input-Output (I-O) tables, prohibits the construction of robust regional economic models. Regional SUT and I-O tables are constructed for Ireland at the NUTS 2 level, consistent with the national tables and regional accounts. These tables are constructed using a bottom-up approach i.e. in the same manner used by national accountants when building the national tables, rather than using modelling techniques such as location quotients. This approach yields a more robust, subtle and credible set of tables.

The methodology used and some key findings will be presented.

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Residential population location

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2. Motu Economic and Public Policy Research

This study examines the determinants of residential location choice for individuals entering the Auckland Urban Area. Residential location choice entails a tradeoff between three potential competing factors. First, people choose residential locations that allow them to be close to locational amenities ('proximity'). Second, they may choose to locate near people with attributes similar to their own ('social sorting'). Third, they will choose places that, *ceteris paribus*, have lower land prices. The study will estimate the strength of influence of each of these three factors. The study uses full population data from the New Zealand Population of Census and Dwellings at a very fine geographical level – that of Census meshblocks. Estimation of the factors influencing location decisions is carried out using a count-data (negative binomial) regressions. Covariates include a range of consumption, accessibility, and population composition measures, defined by distance from each meshblock. Separate estimates are presented for a range of socioeconomic groups, to reveal differences in location preferences and choices .

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Agglomeration Elasticities and Firm Heterogeneity

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This paper estimates the relationship between agglomeration and multi factor productivity at the one digit industry level and by region using longitudinal firm level data for New Zealand. A key focus of the paper is on methods to represent firm level heterogeneity and non-random sorting of firms. The panel structure of the data allows us to control for it at the level of local industries or enterprises. We obtain a cross-sectional agglomeration elasticity of 0.171, which falls by 70% when we use local industry controls, and by 90% when we impose enterprise fixed effects. Using industry specific production functions, we find that the ‘within local industry’ estimates are similar, though slightly larger than the cross sectional estimates (~0.070), suggesting negative sorting between areas, combined with positive sorting within areas. The within-enterprise estimates yield a small elasticity of 0.010. Our results indicate that the imposition of a common production technology across all industries is not a valid assumption. While cross-sectional estimates may overstate the true impact of agglomeration on productivity in the presence of positive bias from sorting, the within enterprise approach (which is increasingly common in the literature) can suffer from identification problems due to the highly persistent nature of agglomeration variables and may underestimate the true causal effect of agglomeration on productivity. We thus rely on the ‘within local industry’ estimates as providing the most reliable indication of agglomeration elasticities.

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Innovation and Competitiveness: Measuring Behavioural additionality across economic sectors in Mexico

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Given the need to account for the use of public resources in R&D supporting programmes, it is argued that traditional additionality concepts do not effectively capture the impact of the public intervention on the innovation process itself. “A fundamental drawback of the result-based measures is that the relevant dimension of innovation outcome cannot be easily attributed to intervention, while resourced-based measures leave the crucial transformation process of innovation input to innovation output within the black box” (Falk , 2007:667). Behavioural additionality arises as an alternative notion of additionality. It deals with “...the difference in firm behaviour resulting from ... a government... intervention” (Georghiou, 1997:13). Behavioural additionality allows for a more efficient transformation of innovation inputs into innovation outputs, assuming that firm behaviour is changed for the better. These changes are considered a catalyst of the innovation activity and are expected to be permanent.

In developing countries there have been early attempts to introduce policies to encourage innovation activity. This is the case with a number of initiatives to improve the design and implementation of Mexico's science, technology and innovation (STI) policy¹ since 1999 (OECD, 2009). Research and Development (R&D) subsidies and R&D tax breaks are the main instruments within the Mexican STI policy. A primary data collection survey has been administered, covering the period 2006-2009, to determine the extent to which these innovation policies have achieved their objectives. This research approach considers firms' characteristics and how firms perceive barriers to innovation. Behavioural additionality has been estimated (in terms of scale, acceleration, scope and cognitive capacity) using conventional descriptive methods and limited dependent variable models. Some firm characteristics proved to be highly relevant, such as economic sector and size, whereas for other firm characteristics there is no evidence to support its relevance, such as ownership. In summary, the current paper contributes to an important date which attempts to look at measures/methods to determine the impact of public support for innovation.

¹ The National Council for Science and Technology (CONACYT) is the governmental body in Mexico responsible for coordinating the innovation and science and technology policies in Mexico.

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The Political Economy of International Environmental Policies

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This paper investigates the political determination of international environmental policies with regard to transboundary pollution accumulation. First, we present a dynamic model of transboundary pollution accumulation. Emitted pollutants will remain in the environment and add to the existing pollution level. Each country controls the amount of pollutants it emits. Second, we consider how governments interact with various interest groups with regard to environmental policies.

This paper presents a model that incorporates transboundary pollution accumulation and analyzes the political determination of international environmental policies using a differential game approach. We employ the Markov perfect Nash equilibrium to analyze the effect of current political decisions on future outcomes. In conclusion, this paper shows that environmental lobbying may improve the global environment.

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Town Centre Management: a solution to the current challenges facing urban centres in Ireland?

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A consequence of the unprecedented growth in the economy in the Rep. of Ireland between 1998 and 2005 is unsustainable development trends in urban development. As a consequence of the economic downturn urban centres are encountering difficulties. These difficulties include, but are not limited to: infrastructure deficits; incomplete housing projects; disenfranchised population groups; and unsustainable retail developments. A strategic approach is now required to enable towns to adapt to the changing economic environment. Town Centre Management (TCM) is a system in which the vitality and viability of towns and regions is fundamental to planning and development. In order for TCM to work the management of planning and development issues must include stakeholders from both the public and private sectors. The literature suggests that the partnership approach of TCM can ensure sustainable, strategic development. This study presents the findings of qualitative research conducted to explore the experiences of Town Centre Managers in Northern Ireland. The result is multiple perspectives on the purpose, process, benefits and challenges of TCM, specifically the TCM initiative in Northern Ireland. The findings which emerge offer insights into how TCM could aid the development of urban centres in the Rep. of Ireland.

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Innovation System impact on indigenous engineering and software firm growth – an age contingent approach.

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There is recognition in the economic development literature of the need for proportionality in sector-based consideration of the impact of low, medium and high technology innovation on firm output and economic growth. Policy debate appears to diminish the relationship between and value added output among medium and low technology firms, focusing attention on the high tech sector with its perceived research intensity and potential scale effects. In addition to blurred output differentials, there has been limited concentration on firm evolution, technological intensity and how the institutional environment enables or inhibits growth.

Through an examination of indigenous engineering (fabricated metal and machinery) and software firms in Ireland, this paper evaluates product, service, process and organisational innovation, employing the theories of firm age and systems of innovation. The analysis is based on eighteen face-to-face interviews with managing directors in both sectors segmented by three age classes relative to indigenous sector maturity. The approach constrains the scope for variation across sectors while drawing distinctions between age, markets, skills profile, innovation types, capital intensity inter-firm and institutional interaction.

The paper explores how mismatches between the firm, market and institutional environments are mediated by organisational age, leading to iterative change. The degree of iteration is characterised by different types of innovation across the sectors, moderated significantly by the lifestyle or growth orientation of the firm. Findings are related to innovation systems policy including implications for social and spatial consideration.

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Innovation and Local Labour Market Diversity: Evidence from Ireland

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This paper estimates the effect on business-level innovation of diversity within local labour markets. Using data from two waves of the Irish Innovation Panel and Irish Census of Population Sample of Anonymised Records, the paper explores whether levels and diversity of human capital at county-level in Ireland is associated with innovation output. Diversity in age, nationality, educational attainment and level of occupation is measured using a Blau Index, which has not been used in regional literature previously. There is a growing literature on the relative importance of regional diversity and specialisation for knowledge generation and sharing, leading to business innovation. Recently there have been attempts to synthesise these two effects. To date the emphasis in regional economic literature on the effect of diversity on innovation has focused on industrial structure and diversity in business sectors within a region. This paper considers diversity in local labour markets. While it has been suggested that diversity may increase knowledge generation, and in turn, innovation through the new combination of complementary knowledge, it may also be the case that diversity hinders the sharing of knowledge where this diversity fosters a lack of trust or communication barriers.

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The Travel To Work Limits Of Parents

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This paper models how long parents are willing to travel to an existing or new job. Using data for over 12,000 parents it finds that many characteristics were associated with being less likely to be willing to travel to work for at least an hour (roundtrip) using logistic regression models. The factors include: women, those out of work, having children under 5, being a lone parent and using formal childcare. Professionals and associate professions were more willing to travel for longer periods. In terms of location, those in accessible small towns and rural areas were willing to travel more than those in larger urban areas and those in remote rural areas willing to travel most. Policy implications are also set out.

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Science parks as local innovation systems: opportunity provision and knowledge mediation in Optical Valley of China, Wuhan

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This paper aims to develop a theoretical understanding and to assess the role of science parks (SPs) as instruments of innovation promotion and sustainable development in China from the standpoint of local innovation system. It argues that the existing theoretical criticism - that SPs are posited on linear model - is itself linear and static, while existing empirical studies are mainly political evaluations which neglect temporal and spacial differences and the multi-dimensions of these SPs. Innovation system theory is more promising because it offers a more comprehensive and updated understanding of the SPs, but its macro-centric tradition and its silence regarding entrepreneurship need to be remedied by combining functional view of the innovation system with an extended resource-based view of firms.

A four-quadrant dynamic conceptual framework is thus presented as a synthesis and heuristic for linking the core and the supportive institutions of the innovation systems. The core of the system (firms) located in the upper-right quadrant distinguishes between its internal resources and its entrepreneurial strategies. The interactions between firms' entrepreneurship and opportunities and the transfer of external resources to firms' internal resources are analyzed in the upper-left and lower-right quadrants respectively. The capability of the systems to balance uncertainty and stabilization is treated in the lower-left quadrant.

The role of SPs is illustrated in the process of firms' networking with external resources to leverage their own innovation capabilities in the face of opportunities. Three issues are explored, based on case study of Optical Valley of China, Wuhan (OVC): first, the innovation capabilities of firms on and off OVC; second, opportunities provided by OVC and the influences on firms' entrepreneurship; third, the resources provided by OVC and the influences on firms' internal resources. Initial empirical results, based on archives, focus groups, questionnaire surveys, and in-depth interviews, will be presented.

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Changing structural transformation and labour productivity convergence: Evidence from Spain

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Recent literature on convergence overlooks the importance of structural transformation. Neoclassical theory suggests that poor regions will 'catch up' with rich regions due to capital deepening and knowledge spillovers, however evidence shows that a considerable amount of economic development is attributed to structural transformation. This paper examines the convergence of 17 Spanish NUTS2 regions from 1980 – 2007 using a model which takes the current weighting of sectors and the growth rate of each sector over the period studied to account for

structural transformation. According to neoclassical theory the convergence process takes place independently of differences and changes in economic structures and that when taken account of convergence will still occur. This study will add to the convergence debate with a model of conditional beta convergence that has not been utilized in studies of Spanish regions before. In addition to this the study has implications for policy makers and academics in explaining why regions are converging.

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Do academic conferences help boost local economic performance? Evidence from European regions

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Emerging concerns about climate change have led to questions, within academic circles, about the scope and usefulness of international academic conferences, given the carbon footprints they generate. In an era of fast and cheap e-communication methods, where personal contacts and dissemination can be maintained seamlessly, is there still a rationale for organising 'circus conferences' across Europe and beyond? One of the arguments in favour of this is that academic conferences help stimulate local economies, not only by raising demand temporarily (through the inflow of delegates) but also more permanently, by raising the profile of the host city/region (branding), bringing-in sponsorship (funding) and upgrading local human capital (skilling). This is more so for thematic conferences that focus more on regional development issues. We investigate the extent to which such effects are discernable, by estimating the growth effects of academic conferences across a dataset of European regions for a 30-year period. We compare the results obtained from the conference of two regional-studies associations (RSA and ERSA) against those of two economics associations (EEA and EALE), as well as of a set of other academic associations for which data are available, within the context of regional growth regressions. We examine whether the effects vary over time, by type of region, by academic discipline and by conference size. We discuss the implications of our results for the structure and scope of international academic conferences and for local strategies concerning the hosting of academic events.

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Vertical fiscal transfers and the location of economic activity across regions

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Argentina is constitutionally organised as a federal country, with both national and state levels of government having tax and expenditure powers. For a long time now, state governments have authorised the national government to raise taxes and to distribute them among local governments according to some fixed criteria, including the explicit target of achieving a convergence in development and growth among sub-national regions. Despite this compensatory aim, it is still

possible to observe a great level of asymmetries among the country regions, asymmetries that in some cases have even increased in recent times.

Extending Martin and Rogers' Footloose Capital Model to include the production of non-tradable goods and public employment, we analyse the effect on the location of economic activity that follows to changes in the distribution of vertical fiscal transfers from the national to state governments. Our results show that an increase in the share of transfers a region receives has a positive effect on the production of footloose activities (i.e. manufactures) the higher are transaction costs of goods produced under increasing returns to scale, the higher is the share of transfers that goes directly to consumers instead of local governments, and the higher is the elasticity of substitution between manufactures goods.

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Interest Rate Pass-Through in Italy

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There is a vast amount of literature which examines the interest rate pass-through at a national level (see e.g. Cottarelli and Kourelis, 1994; Mojon, 2000; Sander and Kleimeier, 2004; De Bondt, 2005; Kleimeier and Sander, 2006; Egert et al., 2007); in this type of analysis the monetary policy actions are assumed to have a single, uniform national effect. In reality, a single nation consists of diverse regions with different economic structures that are linked but which might respond differently to interest rate changes.

The purpose of this paper is twofold; first we assess the speed of adjustment of regional retail interest rates to monetary policy changes; second we investigate the presence of non-linearity. The empirical analysis is based on a quarterly panel of long and short regional interest rates published by the Bank of Italy. The sample period is 1998-2009. The Italian case is of particular interest; in fact, despite the rapid development of financial markets and the liberalization policy implemented in Italy which has allowed greater competitiveness and lower credit costs, the domestic banking sector still provides the bulk of total financial flows to the private sector.

We conclude our analysis estimating the degree of convergence across the regional interest rate; we utilise two commonly used measures of convergence, namely β - and σ -convergence, to assess the speed and degree of integration.

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A Spatial Planning Framework for Offshore Wind Farms in Ireland

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The focus on renewable energy by government and industry is directly related to a number of issues. The primary issues centring on security of supply and the reduction of greenhouse gas emissions (GHGE). However, of late, another impetus for both government and industry to become involved in the renewable energy market has emerged - the global economic downturn. The creation of a new economically and environmentally sustainable industry sector may be seen as a means of stimulating many stagnate economies. In terms of existing renewable marine technology, offshore wind power is currently the most developed energy throughout the world. In Ireland, the Arklow bank is the first offshore wind farm and is generated 25MWs of power in 2007. Offshore wind farms have clear advantages both economically (in terms of employment creation, industry expansion through downstream effects) and as is well documented, environmentally. However, offshore wind farms also have negative effects, primarily on the marine environment. These negative effects range from disturbance of animals and habitat, collision with birds, noise generation and shadow flickering. These effects vary strongly with location and spatial dimension. As such, this paper presents a spatial framework for the planning of offshore wind farms, taking into account the need to maximise economic and ecological constraints. We find that if carefully planned, both profitability and environmental considerations can be maximised.

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A Preliminary Evaluation of the Technium Centre Network

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The aim of the research paper is to complete an evaluation of the Technium network of business incubation centres in Wales. To date, evaluation of the Technium project has tended to have a quantitative bias. Typically, evaluation projects have focused upon survival rates of firms and the cost per job created. The paper attempts to evaluate the less tangible products of the Technium project. For instance, the 'attempt to fuel cultural change in Wales' (Clements (2005) as a potential outcome of the Technium network. The evaluation is to be achieved via research into the relationship between social capital, such as networks, norms and trust and levels of innovative activity.

To achieve the project aim mixed methods are employed. A positivist stance is adopted to measure the innovation outcomes from the Technium project. To explore the impact social capital has upon innovation the approach adopted is a positivist statistical analysis of social capital influences and a phenomenological

interpretation of stakeholder views relating to the extent social capital constructs and their impact on levels of innovation.

The quantitative evaluation of the Technium network indicates varying degrees of success in terms of business throughput, utilisation and development of capacity. However, the cost per job created may be questioned if a value for money criteria is applied. Arguably, activity at Technium centres contributes to higher order, less tangible objectives of creating virtuous circles of social capital. In particular, evidence of bridging social capital is exposed and related to innovation outcomes.

The research will be of academic and practical significance, contributing to the body of understanding of the role of innovation policy/programmes to support SME innovative activity.

The paper will offer a unique evaluation of the Technium network. The exploration of the wider network outcomes is likely to be of benefit to both policy makers and Technium network managers. It is understood that a research into the impact social capital has upon levels of innovation activity is yet to be undertaken for the Technium network in Wales.

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Regional variation in working-time arrangements of Dutch women

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The employment rate of women in the Netherlands has rapidly increased from 30 per cent in the early eighties to 60 per cent in 2008, thereby reaching the 2010-target of the Lisbon summit. The increase in participation is largely the result of married women who entered the labour market and remain in the labour force throughout their working lives. Three of the main reasons for the increase in female employment are; a growth of jobs in the 'female-dominated' service sector, flexible working-time arrangements and an increase of highly educated women, who have better opportunities in the labour market. Despite these changes the position of Dutch women in the labour market deviates from women in neighbouring countries. The majority of Dutch women work part-time, regardless of educational attainment or the presence of children. One of the consequences of working part-time is the poor upward mobility of Dutch women. In this paper working-time arrangements of Dutch women will be explained

using micro-data. Until now developments in working-time arrangements are mainly studied at the national level. However, individual labour force decisions often entail also regional attributes such as unemployment, accessibility regional culture and the sectoral composition of the regional economy. Earlier studies show that there is substantial regional variation in the female participation rate. In this study we want to explain variation in working-time arrangements at the individual level by including individual characteristics as well as regional characteristics.

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The ecological status of surface waters: An examination of the relationship between economic activity and river water quality

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This paper, using Ireland as a case study, examines the relationship between economic activities and river water quality. The stipulation from the EU water framework directive (WFD) that all surface waters in the EU must be of 'good ecological status' by 2015 necessitate a quantitative understanding of the major determinants of water quality. The Environmental Protection Agency has indicated that the water quality of Irish rivers is currently at a level below that required by the WFD. Given the multiple potential sources of poor water quality, it is important to examine the effect of a diverse range of factors on the ecological quality of water resources. Within this context, this paper combines a number of spatial datasets relating to agricultural, residential and industrial activities as well as the level of forest cover to examine the major economic influences on the ecological quality of rivers. The main factors associated with water quality in Irish rivers are then assessed using an ordered probit model. It is hoped that providing a comprehensive understanding of the effect of a variety of economic activities that influence the ecological quality of water will be an important tool in the management of risk and will allow for more appropriate land use planning aimed at restoring and maintaining river water quality as required by the WFD. The model results highlight the important relationship between land use and water quality. In particular, the level of forestry, construction activity, population density, the intensity and type of agricultural activity and the type of wastewater treatment in an area are all critical factors affecting the quality of our water sources. Moreover, the results highlight the importance of a spatial dimension to any analysis as the principal factors affecting water quality will often differ across river catchments.

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Shareholders and wage determination – bringing in “space”

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Multinational firms transfer to their foreign affiliates superior technology, leading to higher productivity of their workers and therefore to higher wages, or so the often cited rent-sharing theory of multinational firms explains. But studies have shown that oftentimes, this results not from foreign ownership per se, but from other characteristics, which are positively related to wages and are more prevalent in foreign than in domestically owned firms (for example size, capital intensity, focus on high wage industries, ...). Furthermore, recent research argues that large shareholders (foreign or domestic) differ from each other, and that changes in a firm's policy are greater in the presence of specific groups of active blockholders (Bertrand and Mullainathan (2003), Cronqvist and Fahlenbrach (2007)).

The aim of our paper is to disentangle the relationship between ownership and wages for the population of Slovenian joint stock companies, while accounting for “spatial” dependencies in wage determination. We have managed to augment the concept of space which in this paper is not considered in a geographical context, but as a set of ownership relations between firms. We apply methods of spatial econometrics – the spatial error model, while introducing the creation of “shareholder” spatial connectivity matrix.

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The Spatial-Cycle Model Reconsidered

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Approximately three decades ago the Spatial-Cycle Model (SCM) was introduced, as a means for coming to grips with population change in urban and regional systems. Since then interest in the model appears to have fallen away in a rather dramatic manner, and the reasons for this are not entirely clear. The SCM is concerned with population change in an area that can meaningfully be divided into two sections: a core and ring. The core is typically viewed as some economic and social focus, while the ring represents a territory surrounding the core, usually in all directions. The two sections of the area are closely linked in terms of one or more interactions, involving trade, commuting, capital movements, migration, etc. Central to the SCM is a series of particular population changes in the core and the ring, which define a set of unique stages of spatial change. These exist in an ordered sequence to form a cycle, through which an area is expected to proceed over some specified time horizon, comprising a number of time intervals.

The SCM may be applied to at least three types of area: the built-up area of a city or metropolitan area; the extended city; the functional urban region. The model is generally represented in diagrammatic form, from which it is possible to track the trajectory of an area through the stages. A weakness of the model is that it does not always accord with reality. Examples of this include an area: remaining at a stage for an indefinite period; skipping a stage; reverting to an earlier stage; exiting from the system of areas; entering the system. A further weakness of the model is that the outcomes are extremely sensitive to the definition of the core and the ring, and also to the length of the time intervals. However, the primary weakness of the SCM is that it is more concerned with the process of change than with the explanation of change. For this reason it cannot be regarded as a satisfactory framework for urban and regional analysis. Nevertheless, as long as these weaknesses are recognised, the model can be employed as a useful preliminary background for approaching the question of population change over space.

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Dispersal of Indian Industrial Growth through Grossacks Measure (Growth and Productivity Relationships in Indian Industry in an Integrated Regional Framework)

Debasis Patnaik

This issue of measurement of industrial economic development in a manner that tackles issues of efficiency and equity simultaneously has not been adequately tractable in economic literature. Most of the studies pertain to growth, productivity or dispersal measures across industries &/or states and not available in an integrated manner either at the level of Indian empirical exercises or at international levels.

Linkage analysis of industrial development attempts to study growth, productivity issues along with All India state- wise industrial dispersal by using Grossack measure. There are several stages of this work. Data was collected from Central Statistical Organization, New Delhi for twenty (20) 2digit industries for All India level from 1956-95 that covered 40 years of Indian industrial development planning. Data was tested and corrected for possible multi-collinearity. Growth rate of Net Value Added and Employment of each of the 20 2 digit industries at appropriate levels of aggregation was calculated. Then growth rates of capital intensity, K productivity, labor productivity, Total factor Productivity using Solow measures for each industry was calculated.

Then data from all the states were collected for all the above 20 2 digit industries for the same time period and Coefficient of Variation and Herfindahl-Hirsh Index was used to calculate regional dispersal of each industry that provided similar results.

Dispersal measures were used and graphed to find out whether they justified Williamson and /or self Perpetuation Hypothesis to find patterns of concentration and dispersal of Indian Industry so that regional industry specific policy recommendations can be an outcome.

Then data and results were used to find a Grossacks measure to find out the strength of linkage in a multi stage regression framework. Industry specific results were an outcome. Finally whether the current recession in Indian industry can be provided alternative policy recommendations based on the strength of this linkage effect through Grossack measure and therefore influence of independent variable on dependent variable need to be considered in industry specific regional planning exercises after considering both industrial dispersal and use of Williamson and Self Perpetuation explanations.

The paper takes a long term view of industrial development to test this Grossack measure as a possible linkage instrument for growth productivity and regional dispersal of industries and whether growth, productivity and dispersal measures yielding policy suggestions are substantiated by this use of linkage instrument in independent regression exercises. If this methodology is accepted then it can serve as an effective instrument for sector specific integrated economic development within/across economies.



Multi model Analysis of Techniques in Distribution and Generation of Electricity

Devika and Debasis Patnaik

This paper argues for a region specific set of models: techno-economic and institutional in the context of specificity of regional pattern of development and domestic consumption to mitigate the severe demand supply gap in electricity availability in India. Therefore a multi model approach to address the regional economic infrastructure issue has been undertaken in the context of a potentially rich state of Madhya Pradesh (MP). The acute demand supply gap in electricity sector has been brought out by governmental data sets in a decentralized setting hindering the cause of economic and social development. Four approaches were used to provide possible insights into the cause of unevenly distributed regional power situation across India.

Use of small (2-20 MW) biomass power plants was examined as a method of distributed generation. The tariff information was taken for MP region, as proposed by the Biomass Association of MP. Cost benefit analysis of a 5 MW biomass power plant gave a payback period of 4 years, due to which it was inferred that biomass is a viable opportunity for private sector power generation.

For distribution, cost benefit analysis showed that replacement of Low Voltage power lines by High Voltage lines has a payback period of 10 years. High Voltage Distribution System will reduce the transmission and distribution losses hence; it helps in bridging the demand-supply gulf. Data for this was liberally taken from distribution and transmission companies of the state.

An alternative design structure of distribution employing small distribution transformers is also recommended. Transformers of 5-10kVA can be installed, each feeding only a specific number of houses or a small industry. This is suggested considering the household and small scale industry distribution across the state. The ownership and maintenance of these transformers will be shared by the distribution- company and consumers as stake holders, bringing in a Public-Private Partnership (PPP). MP consumer data was taken from Census 2001. The model developed is a PPP model which has multiple benefits for electricity sector including a steep drop in transformer failure and power theft.

A technical approach was integrated along with institutional, nature of sectoral specificity and demography, alternative fuel use, economic analysis of distribution lines approaches. It used a mixed integer programming model to obtain returns from energy efficient devices. Two methods were found useful - to use machines with less cold load pickup current in small industries and to use energy efficient appliances in households.

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The Impact of the EU – US Open Skies Agreement and the resulting British Airway's Open Skies Initiative: Passenger numbers at London, Amsterdam and Paris.

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The advent of the EU-US Open Skies Agreement has been widely anticipated. A number of consequences have been predicted, for example, impacts on fares, on passenger volumes, choice and on consumer welfare. Airline costs are also predicted to fall as a result of increased competitiveness and increased cooperation among airlines.

In the short period since the implementation of the Agreement, it is relatively easy to assess the supply-side changes that have been made, but more difficult to make wider judgements. For example, can traffic growth be attributed to Open Skies and does airline and alliance market power result in less fare flexibility with consequently less influence on passenger volumes? This paper offers some insight into the data that will be required to make these and other wider judgements and discusses some methodological difficulties. Early estimates of the impact on passenger numbers are given using times series analysis focusing on London airports in particular London Heathrow as well as the airports served by British Airway's Open Skies Airline from Paris Orly and Schipol Amsterdam.

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Cooperation in local SMEs a competitive advantage: The case of rural tourism in the prefecture of Florina- Greece

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In the unstable global economy of today, the need for cooperation between companies to achieve competitive advantage has led to the widespread proliferation of business networks. The multidimensional nature of these structures, the variety of relevant external factors and the involvement of large number of heterogeneous traders and operators, make impossible the establishment of a networking system standard that could be widely applied. However, experience with networking initiatives so far has given significant findings on the prevailing problems that arise when implementing such programs.

This paper investigates the problems of SME networks in regional areas in Greece. Following the literature review of business networking, the types of networks that employ the investigation are determined. Three key issues that seem to hamper the implementation of networking programs are analyzed. Two case studies of initiatives in tourism SMEs' networking in different rural areas of the border prefecture of Florina are presented. Finally, conclusions are drawn that can be summarized as follows:

1. The process of change is difficult, time consuming but necessary to achieve real benefits from the implementation of networking programs.
2. The networking initiatives are complex and each time adapted to the specific needs.
3. For the successful implementation of a network, in addition to planning is necessary to use a network facilitator.
4. The lack of successful examples of networking in Greece and the corresponding lack of education blurs the long-term benefits of participation in such an initiative.
5. The rural tourism sector has great growth potential and the most effective structure for the promotion and development is networking.

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What is the Economic Role of Small and Medium sized Towns? Towards a Typology of ‘Secondary Centres’ in the East Midlands region

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This paper examines the economic role and contribution of small and medium sized towns, or ‘secondary centres’ within an English region. The paper explores the economic characteristics of these centres, their relative roles within the local and regional economy, and sets out a proposed typology that enables the centres to be classified and policy implications/interventions to be identified and developed.

A number of studies have been conducted into the physical characteristics of towns, and their roles as service centres (Courtney and Errington, 2000; Hart and Powe, 2007). However, there has been little examination of secondary centres as a focus of business activity, their functionality, and their roles within the economy. The lack of a structure for conceptualising secondary centres means that there is no clear framework for tailoring policy initiatives to the needs of different types of settlement.

The findings are based on analysis of 98 towns in the East Midlands region. The towns range from 1,956 resident population as the smallest, to 70,260 as the largest. Regression analysis is used to explore the relationship between a number of variables related to agglomeration, business composition and flow effects.

Theory related to economic geography (e.g. McCann, 2001) suggests that large urban centres, with high concentrations of population and more efficient transport connections, are most likely to be the focus of business activity in a region due to the opportunities for agglomeration effects to occur. However, this research shows that vibrant centres exist outside of the region’s principal urban areas, such as Nottingham, Leicester and Northampton, and perform a variety of roles in the economy. These are identified as: sub-regional centre; manufacturing/transition economy; strong local economy; healthy town economy; commuter/dependent centre; and centre without critical mass.

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Testing Regional Dispersal Of Indian Industries By Size Through Williamson And Self Perpetuation Hypothesis In Context Of Indian Economic Reforms

Sowmya Rachiraju and Debasis Patnaik

Dispersal of Industries is supposed to accelerate regional economic and industrial development but if this growth is concentrated within a few pockets, regional development is hindered. This paper examines the nature of industrial dispersal in the pre reform and post reform phases of Indian Industry and Indian economy till the period before the onset of global economic downturn.

The study focuses on 16 industry groups at two digit data level of NIC-87 classification after considering ISIC-1997. The major objectives of the study are to examine the extent of dispersal across various spatial forms like large states, small states and 12 other states (which have been divided on the basis of area occupied in post1995 period); and to assess if the nature of dispersal leads to concentration initially and diversification and development over time as revealed by the Williamson's Hypothesis. The Herfindahl-Hirschman Index and the Coefficient of Variation are assumed as the proxy for dispersal. These measures have been calculated for the five size variables like number of factories, productive capital, number of workers, capital-labour ratio and net value added.

The possible inferences are: 1-The benefits of growth have been concentrated in India's richer states, leaving the poorer states lagging behind.2- In case of capital intensive industries there is a greater possibility of spin off while in case of labour intensive industries employment has not suffered because of liberalization. 3-In large states with K-intensive industries, linkage effects are more seen and hence big industries can be justified. In smaller states concentration of industries was observed and so the Indian political turmoil veering on whether current size of Indian states should be further sub-divided into smaller states should be rejected because there is scope for further absorption of spin offs of liberalization reforms in larger states.

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An Investigation into the influence of Foreign Direct Investment (FDI) on Convergence across Italian Regions from 1997-2007

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This paper uses a quantitative econometric method to investigate first, if β convergence (using output per hour worked as a measure of productivity) exists across twenty one NUTS 2 regions of Italy from 1997 to 2007 using the Cambridge Econometrics dataset and second, the influence of Foreign Direct Investment (FDI) on this convergence performance for Italian regions for the same time period, using data from Bank of Italy's Statistics Division.

Terrasi (1999), using the Theil coefficient, finds that convergence took place across Italian regions from 1960 to 1975 but that since there has been a tendency towards divergence. Barro and Sala-i-Martin (1996) also investigate convergence across Italian regions and find β convergence from 1950 to 1990.

Traditional theories such as the internalisation theory suggested by Caves (1996) and the spill-over effect theory (Gorg and Strobl, 2001) both suggest FDI has a positive effect on increasing productivity levels in host countries. Such theories are the basis for further investigation into the relationship between productivity and FDI as conducted by Castellani and Zanfei (2002) and Piscitello and Rabbiosi (2005). Both find inward FDI has a positive effect on the productivity of domestic firms across Italian regions. However, FDI tends to be concentrated in a few regions across Italy (Pazienza and Vencchione, 2008), which may have an affect on convergence in productivity. It is suggested that this concentration is a reflection of the historical imbalance between the northern and southern regions of Italy.

This paper contributes to the convergence literature by exploring the extent to which FDI explains convergence (divergence) in Italian regions.

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Airport Hinterland Overlap in European and North American Air Transport Systems

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This paper examines the relative location of European and North American civil airports that received scheduled jet air transport services in 2009. The airports are categorised into a four group hierarchy based on their annual traffic volume in 2009. The nearest neighbour airports are computed for every airport and results of the distribution of airports are described and contrasted for the two continental air transport systems. Groupings of airports are suggested based on this analysis. Using these groupings, the extent of airline overlap among the top 20 European airlines is computed for 2009 using a Gini decomposition methodology developed and reported in Reynolds-Feighan (2007). Sensitivity analysis is presented based on varying assumptions regarding airport hinterland overlap.

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Regional Economic Impacts of Highway Projects*

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Interregional transport infrastructure represents some of the largest public investment programs in developing countries. The objectives are typically to increase economic efficiency - overall economic growth - as well as spatial equity -

helping lagging areas of a country to catch up with leading ones. But recent theoretical and empirical work on the ‘new economic geography’ suggests that, at least initially, lowering transport costs may reinforce concentration of economic activity. This paper describes ongoing research, building on the work by Krugman and others, to develop a geographically explicit framework for assessing the impacts of large scale transport investments on regional economies. The goal is to develop tools for ex-ante impact evaluation that complement macro-economic approaches as well as engineering-oriented operational practice. We illustrate our approach with an application to China’s massive expansion of highways, the National Expressway Network (NEN).

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The externalities of openness

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Discussion of open innovation has typically stressed the benefits to the individual enterprise from boundary-spanning linkages and improved internal knowledge sharing. In this paper we explore the potential for wider benefits from openness in innovation and argue that openness may itself generate positive externalities by enabling improved knowledge diffusion. The potential for these (positive) externalities suggests a divergence between the private and social returns to openness and the potential for a sub-optimal level of openness where this is determined purely by firms’ private returns. In other words without public intervention innovation strategies may be more ‘closed’ than the socially optimal level. Evidence from the UK CIS4 provides strong support for the notion of importance of externalities of openness in influencing innovation outcomes. This suggests the potential value of promoting ‘openness’ as a focus of public intervention.

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Social Capital and Regional Social Infrastructure Investment: Evidence from New Zealand

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In this paper we link unique data on local social infrastructure expenditure with micro-level individual survey data of self-reported social capital measures of trust and participation in community activities. We use both probit and tobit models to estimate the impact of social infrastructure expenditure on social capital formation. Our results imply that the links between social capital, demographic characteristics, human capital, geography and public social infrastructure investment are rather more subtle and complex than much of the literature implies. While we find evidence in support of many of the hypothesized relationships discussed in the social capital literature, our results also suggest that the impact of public social infrastructure investment is affected by both selection effects and free rider processes.

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Entrepreneurial Geographies: evidence on the location of entrepreneurial activity in the United Kingdom.

Andrew Ross and Linda Juleff

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This paper analyses the spatial context of entrepreneurial activity across UK regions for the period 1997-2007. A number of studies recognise entrepreneurship, as a key determinant of economic growth, regional prosperity and sustainable development (Audretsch and Keilbach, 2004; Lee *et al*, 2004; Valliere and Peterson, 2009). As a result of this perceived importance entrepreneurship has become a key policy instrument and has been placed high on the agenda of both national and regional authorities. Using the Value Added Tax (VAT) database this paper identifies that there a considerable spatial variations in the concentration of entrepreneurial activity across UK regions at the local authority level, NUTS 1, NUTS 2 and NUTS 3 levels, when mapped using location quotient analysis. While it may be possible to explain such concentrations of economic activity through the theoretical literature related to industrial districts (Marshall, 1890), growth pole theory (Perroux, 1950), the new economic geography (Krugman, 1991) and clusters (Porter, 1998) this paper forms a comparative and preliminary analysis of whether the geographical environment

affects the type and level of entrepreneurial activity at the local level. An area to date which has received very little research (Malecki, 2009).

The findings of this paper and the previously established links of entrepreneurship to economic prosperity strongly suggests that a better understanding of entrepreneurship at the spatial level is required as the absence of entrepreneurship can lead to a vicious circle of low economic growth, social deprivation and urban decline, whereas a society with high levels of entrepreneurship tends to foster further entrepreneurial activity (Glaeser *et al.*, 2010). This paper therefore provides a more up to date summary of spatial entrepreneurial activity in the UK and laid the foundations for future research.

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Correlation Between The Regional Development And Elements Of The Knowledge Based Economy (KBE); Empirical Evidences Of A Country Of Medium Development

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The knowledge and its practical applications have always been an important factor of the socioeconomic development, which had been determined the progress of civilization and growth of well-being. Till now the indications of the theory of economy, were referring principally to the effective utilization of the material resources, such as land, work and capital, considering also the increasing role of knowledge. Nevertheless, in the contemporary economy these proportions have changed, the knowledge has turned into the most important input of the productive process, and the principal factor of the competitiveness as much as for the national economies as for regional ones. It has included new resources of knowledge into productive process and combines them with the traditional factors of production.

The aim of this work consist of demonstrating if there is correlation between the regional development and the knowledge based economy (KBE) in a country of medium development. There is a common agreement that the regional development, specially the endogenous development depends largely on such internal factors as human resources, physical infrastructure and natural conditions. Nevertheless the newest approaches contemplate that the regional development is also influenced by more modern factors that can be considered as the elements of the knowledge based economy.

There are enough researches carried out in the developed countries which present the influence of the human capital, the relational capital and R&D infrastructure, among others, on the regional development, considering the former ones as elements of the KBE. However there is lack of researches held in the countries of medium development that answer the question: if the above mentioned elements serve as factors of the development in their conditions. We can suppose that this relation in the countries of medium development and highly developed countries is different. However we can also think that there are some general rules shared both by the developed countries and the medium developed countries.

In the research of this type we need present at least both a general concept of the knowledge based economy and operationalize its basic elements. The additional difficulty consists of making differentiate these elements in these two types of countries. Finally also we should look for the data bases which have a pertinent accessibility for this type of research.

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Exploring regional variations in hospitalization rates

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There is some evidence in the medical literature that regional or local hospitalization rates are partly driven by hospital location. That is, the further from hospitals the lower hospitalization rates seem to be irrespective of population size and, crucially, social class. This is surprising since the medical geography literature often shows a high correlation between ill-health, death rates and lower social economic status. Thus, areas of high social deprivation might be expected to show high rates of hospital usage. In many cases this is not the case and part of the explanation might be distance from centrally-located hospitals. To examine this relationship in more detail it is important to build a regional or local morbidity model and compare this with hospital data on in-patients home locations. The aim of this paper is to outline a microsimulation model that can be utilized to estimate morbidity at the household level for West Yorkshire. In particular, three instances of morbidity will be analysed: heart disease, lung cancer and cataracts. The microsimulation model will be based on survey data available in the Health Survey of England as well as census data. From this model we can then estimate likely cases of hospital usage. Actual Hospital Episode Statistic data will be used to compare predicted versus observed rates. A key question is then are the differences due to geographical factors relating to location and accessibility? A spatial interaction model will then be constructed for hospital usage which will allow geographical access to be added to the microsimulation model to produce refined estimates of hospital usage.

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What Determines the Location Choice of Multinational Firms in the ICT Sector?

Iulia Siedschlag, Xiaoheng Zhang, Donal Smith
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We analyse the location decisions of 8,468 foreign affiliates in the Information and Communication Technologies (ICT) sector established in 224 regions in the European Union over the period 1998-2008. Our results suggest that on average, the location probability of foreign affiliates in ICT manufacturing and services increases with market size, market potential, the presence of other foreign-owned firms in the ICT sector, human capital, income tax, and decreases with the

corporation tax rate. In addition, in the case of foreign affiliates in ICT services, the innovation intensity in the ICT sector has a positive effect on the location probability. We find that relevant geographical structures for the location decision are different for multinationals with a parent firm in the European Union and the United States.

Does Geographical Proximity Facilitate Information Exchange only at the Cores of Knowledge Production?

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University College London

Many researchers have found that geographical proximity facilitates knowledge spillovers within the developed economies of North America and Western Europe. This paper asks whether localised knowledge spillovers also exist in a newly industrialised economy using patent citation data.

South Korea offers a rare opportunity for this research because it is the only newly industrialised economy that has a large enough number of knowledge production activities to allow for statistical and econometric analyses. We connected 99% of the patents that one or more South Korean inventors are involved with to the legal owners of them. Then, we manually checked inter-firm ownership information using diverse sources. This procedure afforded us a unique database that connects 20,000 U.S. patents, 1.5 million patent citations and South Korean firms.

In measuring localised knowledge spillovers, it was found that geographical proximity is negatively correlated with patent citation. This tendency implies that Korean inventors are more inspired by foreign colleagues than they are by their Korean colleagues. However, econometric analysis shows that South Korean inventors' apparent tendency to look at foreign information does not necessarily deny earlier findings that geographical proximity facilitates an exchange of information. After controlling for regional and sectoral variables, geographical proximity does show a positive effect on information exchange.

The findings of this paper show that while there is a localised dimension in knowledge spillovers in a newly industrialised economy, that dimension is highly dependent upon non-geographical elements, such as the characteristics of region and industry. In a newly industrialised economy, it is likely that knowledge production activities are vibrant but mainly an extension and expansion of existing knowledge rather than a radical break from it. For this reason, South Korean inventors need to be well-informed about cutting-edge research overseas, especially that of the U.S. These conclusions imply that much of the debated issue over localised knowledge spillovers vs. epistemic community does not have a general answer but rather is contingent upon the diverse conditions surrounding knowledge production.



Business incubation and regional development: evidence from incubation centres in Ireland

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The importance of business incubation centres as a means for developing successful start-up and spin-off businesses is well documented in the academic literature (Hackett and Dilts, 2004). Ryan and Wright (2009) explain that in Ireland incubator programmes have emerged to enhance the important roles played by small and medium enterprises (SMEs) in regional economies and to minimise the failure rate of 'start-up' enterprises. The perceptions of the sponsors of incubator centres have been explored (Mian, 1997). The experiences of incubators have also been studied (Hannon, 2005) as has the experience of incubatees (Voisey et al., 2006). However, Autio (1998) explains that there have not been many objective publications. Therefore, Erikson and Gjellan (2003) explain that there is a need to understand incubation from different perspectives. In this paper we propose to look at the three perspectives simultaneously. This approach facilitates a three way narrative based in the four case studies conducted during this research. The result is multiple perspectives on the purpose, process, benefits and challenges of business incubation centres, specifically the Business Incubation Centres (BICs) sponsored by Enterprise Ireland. The findings which emerge offer insights leading to recommendations that will aid the future activities of similar centres.

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Mapping Spatial Patterns of Voting Behavior in Australia and the Relationships between the Level of Voter Support for Political Parties and the Demographic and Socio-Economic Characteristics of Local Areas

Robert J. Stimson and Tung-Kai Shyy

University of Queensland

This paper reports on the development of an e-research facility to facilitate (a) the visualization of patterns of voter support for political parties at federal elections in Australia and (b) the analysis ad modelling of the relationships between voter behaviour at the disaggregated level of local polling booths and the demographic and socio-economic characteristics of local using census data. The paper discusses how, in general, it is evident that there are clearly visible spatial patterns of homogeneity in voter support for the Labor Party and for the Coalition Parties, and that voter support for the minority Australian Green Party and for Independents is spatially highly concentrated. It is possible to generate party-political landscapes across Australia's major cities and its non-metropolitan regions. The paper also demonstrate show the e-research facility can be interrogated to conduct analysis of the ecological relationships between levels of support for political parties and the demographic and socio-economic characteristics of local polling booth catchments. Finally the paper shows how discriminant analysis may be used to generate typologies of voter support for

political parties and how the position of political parties in a two-dimensional socio-political space has changed over the last three federal elections.

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Testing the Links Among Energy Efficiency and Sustainable Development criteria

Gowri Thampi and Debasis Patnaik

This paper studies the pathways linking economic growth, energy security and environment protection in Indian economy. Testing for scale effects of sectoral production did not provide any scope for compatibility. But testing for lower energy intensive production, substitution by renewable energy resource and a more service oriented output mix is posited to provide for triune goal compatibility.

This paper analyses a definite set of variables relating to environment, energy and economic growth. The study is carried out across nations, grouping nations into geographical regions and income levels. Time series data across countries of CO₂ emissions, which is a mirror for the environmental intensity of production, energy intensity, gross domestic product and time as a proxy for technological change, are used. Initially canonical correlation techniques are used to identify the degree of interrelationship between the data. Once the time series data are tested for trend effects and suitably detrended using available techniques, they are fit into regression models.

Hypotheses like the quadratic environmental Kuznets curve hypothesis, which posits an inverted U relationship between environmental pollution and economic growth, existence of non linear relationships between energy intensity and economic growth are tested for their validity. Critical points in these curves where the relationship between the variables change are analyzed with their implications for policy decisions.

The paper aims to provide a model of a viable relationship between these key variables and foresee a pathway for sustainable development.

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Another Round of Jacobs vs Marshall: Firm-level evidence from Belgium

Wouter Torfs

This paper examines the existence of several classes of agglomeration externalities using a Belgian firm-level database. The contribution of this paper to the existing literature is twofold. First, it proposes a coherent dynamic framework to estimate agglomeration externalities using a firm-level production function approach, thereby rigorously controlling for potential endogeneity of the agglomeration as well as the input variables, by applying SYSTEM-GMM estimation. Second, this paper is the first to conduct such an analysis for the case of Belgium. The results

favour evidence for the existence of localisation externalities, where a doubling of own industry employment in the region leads to a 5.25% increase in firm productivity. Running firm-level regressions for different classes of sectors, grouped by their degree of knowledge and technology intensity, we find that these localisation externalities are more pronounced for high-technology industries and knowledge intensive service sectors, indicating the importance of knowledge spillovers as a source of agglomeration externalities.

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Simulating off-farm employment by using spatial micro-simulation and GIS techniques

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The behaviour of individual economic agents (e.g. persons, households or firms) influences policy efficiency. At the same time, policy and changes to policy affect behaviour of economic agents. In this paper, we focus on on- and off-farm activities of Dutch farmers. The share of income gained by off-farm activities, such as a job in town, has been steadily increasing among farmers the past few years. The relationship between off-farm work and a farm's economic performance suggests that a farm household's dependence on off-farm income affects the distributional consequences of agricultural policies. In order to analyse how behaviour of farmers on a micro-level generate economic regularities on a macro-level, we construct a framework around a spatial microsimulation model in this paper. The latter process will be supported by the use of Geographic Information Systems (GIS). With this model we analyse the importance of off-farm activities in distinctive regions in the Netherlands. Further, we use scenario analysis to evaluate the effects on the efficiency of agricultural policies. Finally, we use it to project the spatial implications of economic development and policy changes at a more disaggregated level.

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Atenquique's environmental and economic development shrinkage in Globalization era

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Centro Universitario de Ciencias Económico Administrativas U de G.

This paper focuses on the effects the transfer of ownership from a state-owned Paper Mill Company to a corporate private ownership has had on environmental and economic shrinkage in Atenquique. This transfer was the result of the ongoing economic process of globalization, after the industrial boom of the paper mills during the second half of the last century. The paper also focuses on how the employees of this Paper Mill Company live and how they have been affected by globalization and how they feel about their paper mill's new corporate owners. The methodology used was descriptive and exploratory. A sample of ten workers at the

company who lived in Atenquique was chosen for an interview. After being inhabited the town of Atenquique developed in terms of population, society and economy. On the other hand the Industrial Company of Atenquique grew during the period when it was a property of the Mexican State. After the company's privatization, the town started to decline and shrink in three above-mentioned variables. The impact on the environmental and economic development has initiated the shrinking and declining of Atenquique and the surrounding cities and towns.

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Accessibility and Employment in Rural Ireland

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Accessibility is very unevenly distributed in rural areas. The large dependence on car-based travel in rural Ireland gives the road transport network a relevant role in shaping the performance of rural regions. The focus of this analysis relies on the study of the relationship between accessibility and the spatial distribution of employment across the Irish rural space. Congestion-adjusted accessibility measures and a multivariate spatial statistic model are used for the analysis. The empirical findings confirm previous research published at a more aggregate level and suggest that the effect of accessibility on the spatial distribution of employment in rural areas is not as pronounced as initially expected. Results from this analysis represent a contribution to future land use and transport planning initiatives aimed at achieving objectives of balanced regional and rural development in Ireland.

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Consumption or Productivity: Human Capital in Dutch Cities

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In both scientific literature as well as among policy makers it is debated through which channels human capital exerts its value on the regional economy. Recent contributions have stressed the importance of proximity which facilitates knowledge spill-overs and as such promotes economic or urban growth. Next to this, in among others the Dutch context, it has been stressed how selective out-migration of high human capital individuals and households out of cities aggravates issues of segregation in neighbourhoods, and undermines certain high-end facilities. Such processes could, each in their own right, affect urban growth. So far, there has been little attention to the question which of these, productivity

spill-overs or consumption, dominates in terms of effects on urban growth. It is well known that migration decreases with age, so being able to attract human capital when it is most mobile, in the period after college or university graduation, has become an important policy objective for Dutch municipalities. Larger Dutch cities have a support function for the surrounding region, for example in terms of providing labour market opportunities for individuals who seek the more tranquil life outside of the city, or the reverse case where the city provides an amenity rich living environment, for individuals using its developed infrastructure to commute to nearby localities for work. Whether, and under which conditions, the focus of local policy makers should be on either high human capital inhabitants, or workers, or both, is not very clear. Using a micro dataset on young Dutch university and college graduates we investigate this dilemma, for a sample of Dutch large cities.

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Measuring Sprawl

Hugh Wenban-Smith

Three measures of sprawl – average density, density gradient (λ), and a new measure of average distance to properties (φ) – are assessed for a monocentric settlement. It is concluded that if worries about sprawl are motivated by concern about the cost of providing services to more dispersed communities, φ is the appropriate measure to use.

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Do regional clusters and networks protect firms in the German mechanical engineering industry against the fallout of the economic crisis?

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Since the late 1990s the concept of regional clusters and networks is considered to contribute significantly to regional development. In Germany, politicians, consultants and economic developers alike are convinced that the implementation of clusters stabilises and improves local economic structures. Against this background, this paper deals with the question if regional clusters and networks are protecting firms against the fallouts of the current financial and economic crisis. In Germany, this question is salient in particular regarding the export orientated industries of the country. The drastic decline in foreign demand together with banks' reluctance to lend money forced many companies to cut back working hours, often supported by specifically designed government schemes compensating companies for the reduced hours of work instead of laying off large chunks of their personnel ("Kurzarbeit")

This paper gives insight into the situation of companies of the mechanical engineering industry in Germany. The analysis is based on empirical evidence from a survey of over 300 companies in the sector. Findings show the difficult situation the majority of the – mostly export-orientated – companies are currently in. Separating firms in institutionalized and informal clusters within the region from firms not embedded regionally, results from various regression models suggest, first, that being part of a local cluster is contributing to protection from the current crisis. Second, companies of institutionalized clusters benefit most regarding the protective effect of regional clusters and networks. One possible explanation for this finding is the existence of cluster managers in these formations. In his or her role as a mediator, he or she negotiates and balances constantly between members to generate mutual trust and appraisal within the regional cluster. From there, a heightened awareness and innovative strategies to encounter the crisis may arise within regional clusters, for example regarding the temporary exchange of employees.

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