

# Big ideas

In the latest of CEP's 'big ideas' series, **Henry Overman** sketches the evolution of the Centre's research on economic geography and its interactions with policy debates about global inequality, European integration and urban and regional policy.

# Economic geography

**E**conomic prosperity is very unevenly distributed across space. Understanding the reasons for these differences and trying to formulate the appropriate policy responses have been a focus of CEP research for nearly 20 years.

Initially, this interest focused around the theoretical development of the so-called 'new economic geography' (NEG). Starting with early work by the 2008 Nobel laureate Paul Krugman, NEG attempted to integrate insights from the fields of international trade and economic geography to understand how large spatial disparities might emerge between regions that started off identical (Krugman, 1991).

To have spatial disparities emerge 'endogenously', the workings of the economy need to reinforce any small advantages that one region has so that spatial disparities become self-reinforcing. Economic geography had long been interested in the idea that cumulative causation (the idea that small differences may be self-reinforcing) could help to explain large spatial disparities. What the NEG did was to develop the first micro-founded model that formalised these ideas – a model that started with self-interested optimising firms and workers as economic

actors and built up from individual choices to generate overall spatial disparities.

This model put economic interactions between firms and their consumers at the core of understanding spatial outcomes. Transaction costs (of doing business across space) meant that firms would benefit from locating in larger markets to be near to their customers but this would come at a price in the form of greater competition from other firms already located there.

Location decisions depended on the trade-off between these costs and benefits. As transaction costs fell, the balance of these costs and benefits changed and the resulting relocation of firms and workers could change regional economic outcomes, separating initially identical regions into a 'core' and 'periphery'.

Tony Venables (director of CEP's globalisation programme from 1992 to 2005) worked with Paul Krugman to develop further insights from NEG. Their joint article in 1995 emphasised the role of firms as both suppliers and customers and showed that this could once again explain the emergence of a core-periphery pattern as transport costs fell. Crucially, however, this model also suggested that as transport costs continue to fall, a second



# Economic geography seeks to understand why prosperity is so unevenly distributed across cities, regions and nations



stage of adjustment could occur when the market worked to undermine the core-periphery pattern and reduce disparities between rich and poor places.

Krugman and Venables (1995) used this model to explain the history of globalisation: falling transport costs initially benefited the UK and Europe (during the Industrial Revolution), but that pattern is now slowly unravelling as transport costs continue to fall, boosting the economic performance of Asian countries including China and India.

The following year, a paper by Tony Venables extended the range of economic interactions to consider more carefully the input-output relationships between firms. When firms in one industry need to buy and sell from firms in a small number of related industries (for example, car makers need to buy steel), then these firms benefit from locating close together. On the other hand, locating near industries with which they have no connection (such as food processing) delivers no benefits but drives up the costs of production through competition for scarce local resources, such as land

As a result such interactions lead to the emergence of specialised regional economies – with steel makers and car producers locating in different places from food producers and food processors (Venables, 1996). Throughout the second half of the 1990s, CEP-based PhD students (including Mary Amity, Gilles Duranton and Diego Puga) helped deepen and extend the insights emerging from these models.

At the same time as these theoretical models were being developed, policy-makers were becoming

# Insights from economic geography have helped assess the impact of new transport infrastructure across Europe

increasingly interested in the likely spatial effects of further European integration. In particular, they wanted to know whether further integration would reinforce existing disparities and whether it might lead countries to become increasingly specialised. The first question was seen as crucial to understanding the likely effects of the single European market, while the second had implications for the functioning of a future single European currency. NEG provided new perspectives on these questions.

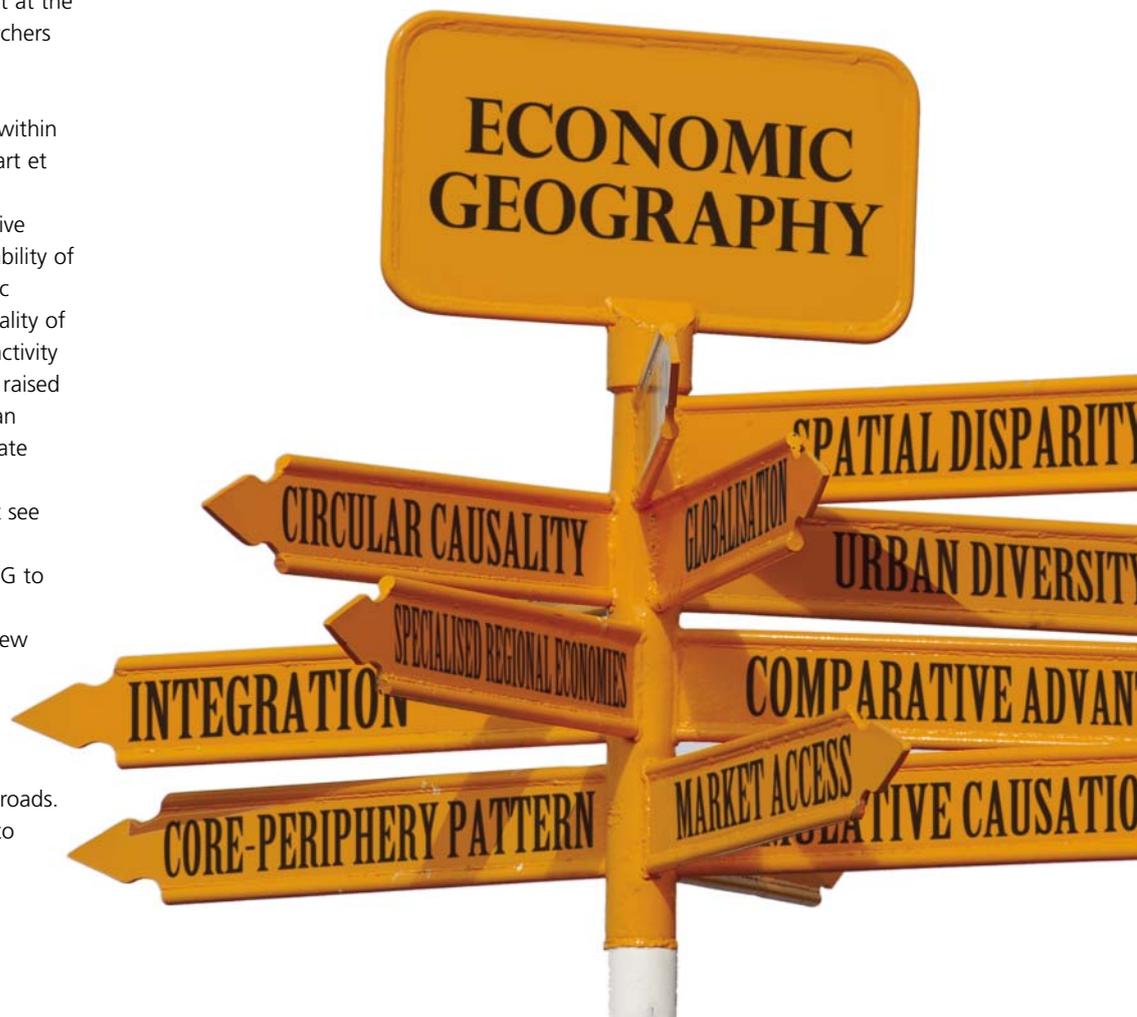
Clearly, however, theory could only take us so far in understanding the likely effects, and so the emphasis began to shift towards empirical work to get at the real world implications. CEP researchers worked closely with the European Commission to analyse the factors affecting the location of activities within the European Union (EU) – Midelfart et al (2004).

We found that both comparative advantage (for example, the availability of highly skilled labour) and economic geography (for example, the centrality of an EU country) determined what activity was located where in the EU. This raised the possibility that further European integration might actually exacerbate initial differences with important implications for which areas might see most benefits.

We also used insights from NEG to help assess the impact of the EU's 'cohesion fund' expenditures on new transport infrastructure in Spain, Greece, Portugal and Ireland, as well as advising the UK government on the likely wider economic impact of building new roads. Again, one of the crucial insights to

emerge was that, contrary to conventional wisdom, building new roads connecting to more peripheral areas could actually exacerbate rather than correct existing inequalities.

This emphasis on empirical work to help inform policy fed back, in turn, to the direction that research took in the Centre in the early 2000s. In 2004, Tony Venables and Stephen Redding (director of CEP's globalisation programme from 2005 to 2010) provided one of the first empirical tests of predictions from NEG models and showed the role of market access in



shaping international disparities in incomes (Redding and Venables, 2004).

CEP researchers continue to work on tests of these models with particular emphasis on the use of natural experiments to break through the chain of circular causality and to isolate more clearly the impact of market access. For example, Stephen Redding and Daniel Sturm (2008) used NEG to explain how the Iron Curtain fundamentally changed the economic geography of West Germany (moving the centre of gravity further to the west of the country) and to consider the possible impact of reunification.

At the same time as this new empirical focus was developing, CEP researchers continued to build theoretical models that increased our understanding of the implications of NEG. For example, work by Frédéric Robert-Nicoud and co-authors suggested that the costs and benefits of different patterns of activity were very hard to assess but that there were some reasons to think that economic activity might tend to be excessively spatially concentrated.

The early 2000s also saw CEP researchers on economic geography branching out in two other directions. Tony Venables was becoming interested in the causes and consequences of spatial disparities in developing countries, which would lead him to take up the position of chief economist at the Department for International Development for the period 2005-08 (Venables, 2005).

Meanwhile, Gilles Duranton, Diego Puga and I were focusing increasingly on the economics of cities and the insights that emerged from the field of urban economics (for example, Burchfield et al, 2006, and Duranton and Overman, 2008).

In a series of papers, we (and various co-authors) tried to answer a number of questions, including the role of urban diversity in the innovation process (it matters a lot during the 'nursery' stage when firms are just getting started), the extent to which economic activity is actually spatially concentrated (much less than many governments seem to believe) and what causes urban sprawl in the United States (geology, climate, public transport and policy all play a role). We even studied whether urban sprawl plays

a role in increasing obesity – it doesn't! (Eid et al, 2008).

As with CEP's earlier work on NEG, our research on urban economics has become increasingly focused on the policy implications of our findings. This increased policy focus culminated in 2008 with the formation of a new Spatial Economics Research Centre (SERC) at LSE.

SERC, which is jointly funded by the Departments of Business, Innovation and Skills and Communities and Local Government, the Economic and Social Research Council and the Welsh Assembly Government, aims to provide a rigorous understanding of the nature, extent, causes and consequences of economic disparities in the UK, and to identify appropriate policy responses. CEP and SERC researchers now work closely together, building on international evidence and nearly 20 years of CEP research, to help improve urban and regional policy at both the national and local levels.

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## Further reading

Marcy Burchfield, Henry Overman, Diego Puga and Matthew Turner (2006) 'Causes of Sprawl: A Portrait from Space', *Quarterly Journal of Economics* 121(2): 587-633

Gilles Duranton and Henry Overman (2008) 'Exploring the Detailed Location Patterns of UK Manufacturing Industries using Microgeographic Data', *Journal of Regional Science* 48(1): 213-43

Jean Eid, Henry Overman, Diego Puga and Matthew Turner (2008) 'Fat City: The Relationship between Obesity and Urban Sprawl', *Journal of Urban Economics* 63(2): 385-404

Paul Krugman (1991) 'Increasing Returns and Economic Geography', *Journal of Political Economy* 99(3): 137-50

Paul Krugman and Tony Venables (1995) 'Globalization and the Inequality of Nations', *Quarterly Journal of Economics* 110: 857-80

Karen-Helene Midelfart, Henry Overman, Stephen Redding and Tony Venables (2004) 'The Location of European Industry', in European Commission DGII (ed.) *European Integration and the Functioning of Product Markets*, Edward Elgar

Stephen Redding and Daniel Sturm (2008) 'The Costs of Remoteness: Evidence from German Division and Reunification', *American Economic Review* 98(5): 1766-97

Stephen Redding and Tony Venables (2004) 'Economic Geography and International Inequality', *Journal of International Economics* 62: 53-82

Tony Venables (1996) 'Equilibrium Locations of Vertically Linked Industries', *International Economic Review* 37: 341-59

Tony Venables (2005) 'Spatial Disparities in Developing Countries: Cities, Regions and International Trade', *Journal of Economic Geography* 5: 3-21

