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CentrePiece

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HOW THE CAPITAL ESCAPED A SEVERE RECESSION

Proximity and prosperity
Management practices
Hospital performance
Indian manufacturers

Bank bailouts
Football's elite
Trade collapse
Nobel economics

CentrePiece

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Editorial

The UK economy has been through the worst recession since the 1930s and after four quarters of recovery, it seems to have contracted once again in the last three months of 2010. More pain is likely as the government's programme of 'fiscal consolidation' starts to bite. In these gloomy circumstances, it is perhaps not surprising that the focus of economic policy debate is turning to the potential sources of future growth and what measures might support them most effectively.

Innovation is one key driver of growth – and it has been the focus of a substantial body of research at the Centre for Economic Performance (CEP). One article in this *CentrePiece* reveals the importance of the geographical location of corporate research labs for local productivity growth. This is particularly topical with Pfizer's announcement that it will be closing its main UK research lab – where Viagra was created. In a recent LSE lecture, CEP's director John Van Reenen suggested that the Chancellor needs the economic equivalent of Pfizer's little blue pill to boost the economy – a Plan V!

Another less discussed driver of growth is high quality management – and this too has been explored in depth by the Centre. As our first article explains, this research programme has found strong evidence of the importance of improving firms' management practices for raising productivity growth. Better managed firms are not only more productive and more profitable, but they are also more pro-active in times of adversity. Better management plays an equally important role in national productivity growth, where the UK is well behind the United States, Germany, Japan and Sweden.

So what public policies can help reap the growth benefits of improved management? Among the recommendations that emerge from CEP's work are increasing education and skills (at both the high and low ends of the skills distribution); promoting competition, which can shrink the UK's 'long tail' of badly managed firms; and tax reform that gets rid of the distortions that support inefficient family-run firms. Many other CEP findings relevant to the growth debate are summarised in the Economic and Social Research Council's new report, *Recovery Britain: research evidence to underpin a productive, fair and sustainable return to growth*.

In addition to the stories on UK growth, this magazine describes research on some big international issues relevant to post-crisis recovery, including European integration, the trade collapse of 2008-09 and the challenges of bank bailouts in a globalised world. We also outline the pathbreaking research on labour markets by CEP's Nobel laureate, Chris Pissarides. And our cover story explores London's experience of recession and recovery – and how the UK's capital has largely 'got away with it', at least so far.

Romesh Vaitilingam
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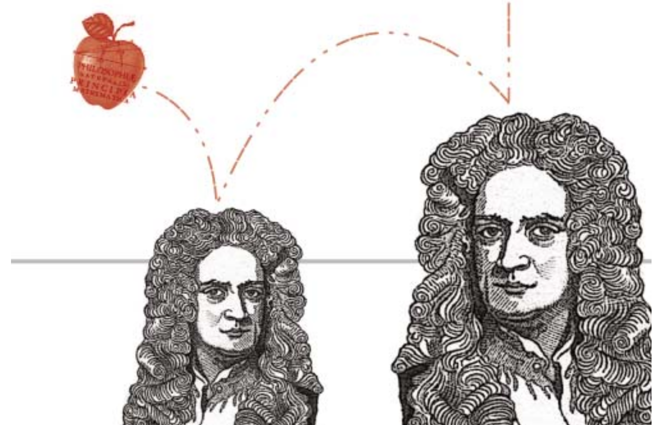

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Improving the quality of management in UK firms could lead to significant gains in national productivity. **Rebecca Homkes** outlines the latest findings of CEP's research programme on the impact of management practices on the economic performance of firms and countries – and their implications for policies to restore growth.

Enhancing management quality:

the potential for productivity growth after the recession

In the wake of the global crisis, governments are attempting to rebalance their economies, enhance competitiveness and position their countries along sustainable growth paths. Globally we are witnessing ever-heightened attention to both the potential sources of growth and what governments can do to stimulate them.

While growth is often spoken of in terms of GDP, from an economic standpoint the main focus should be more on productivity growth. It is productivity, the measure of output per input, which drives the growth of real wages and consumption.

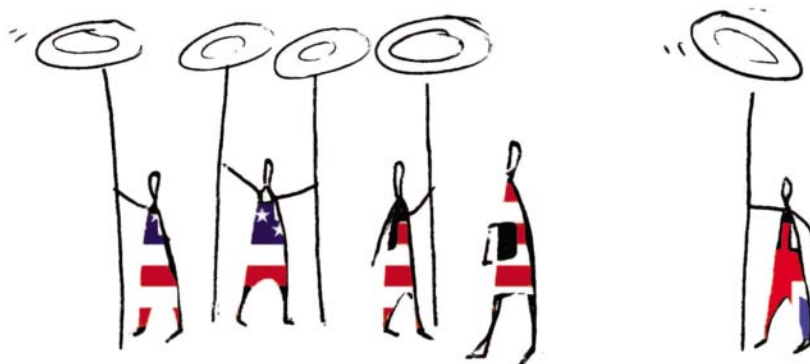
Productivity levels vary dramatically across countries, with the UK falling distinctly mid-table. Comparing GDP per hour in 2009, the UK is 12% less productive than the United States but also lags behind France and Germany. These productivity gaps are persistent over time, not only across countries but also between firms even within narrowly defined industries (see, for example, Foster et al, 2008).

What factors are driving these differences? One possible explanation is that the disparities are due to 'hard' technological innovations, such as research and development, information technology and patents. While these factors certainly play a role, even when controlling for them, productivity gaps still persist.

Another approach to explaining productivity differences, long espoused by business school academics and consultants but less supported by economists, has focused on the role of management practices. Confirming this explanation is a challenge, in part because of the difficulty of measuring management.

Over the past decade, CEP has undertaken a research programme to fill this void by systematically measuring management practices. Surveying almost 10,000 medium-sized manufacturing firms across 20 countries (as well as organisations in the retail, healthcare and education sectors), we have shown that better management practices are associated with higher productivity and other indicators of organisational performance, such as profitability, return on capital employed, sales growth and firm survival rates (see, for example,

Better management practices are associated with higher productivity and other indicators of organisational performance



Bloom and Van Reenen, 2010). In fact, we estimate that management practices can account for up to a third of the differences in productivity between firms and countries.

While the significance of management practices seems clear given the strong correlations between management and performance, we cannot as yet say for sure that the relationship is causal. One way to overcome this is to run randomised trials, where both improvements in management and changes in performance can be tracked over time. The next article in this *CentrePiece* describes how we are undertaking this in the context of large manufacturing firms in India.

We have also recently expanded the research programme to focus on the role of innovations in managerial practice. In 2009, we re-surveyed approximately 1,500 firms (including 256 UK firms) across 13 countries that we had interviewed in 2006, which has allowed us to build a longitudinal panel. Given the challenges of the current climate, we also asked managers a new set of questions – first, about the constraints that they perceive are impeding improvements in their management practices; and second, how their firms responded to the recession.

Management across firms and countries

Our work shows that significant differences in management performance persist across countries (see Figure 1). While the United States outperforms all other countries, developing countries such as China and India lag behind. Noticeably mid-table, the UK falls well below the United States and Germany in terms of management performance, though it scores similarly to the rest of Northern Europe and Australia.

Cross-country differences account for less than 10% of the diverging management scores: the biggest management differences occur across firms within the same country. The distribution of scores highlights the fact that much of what drags certain countries down is a persistent 'tail' of underperforming firms, those that score less than a two on our five point scale. While this tail is largely absent in the United States, it is evident in the UK and especially pronounced in developing countries such as Brazil and India.

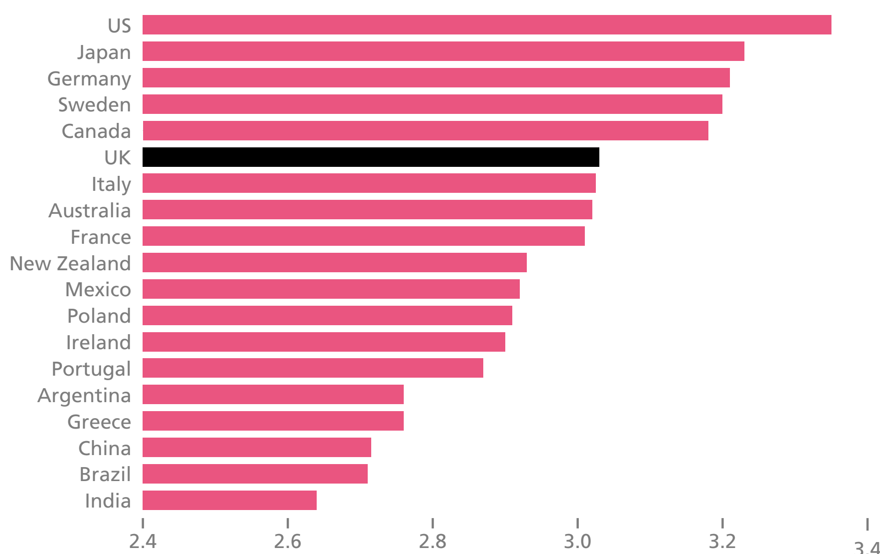
Changes in management practices

A central finding of our research is that management quality is fairly stable: firms that were well managed in 2006 tend to exhibit high quality management practices in 2009. We also find that firms that were poorly managed in 2006 were more likely to have closed, confirming that management is significantly associated with one key performance measure – firms' survival rates.

Better managed firms are significantly more likely to engage in cost-cutting during a recession

Figure 1:

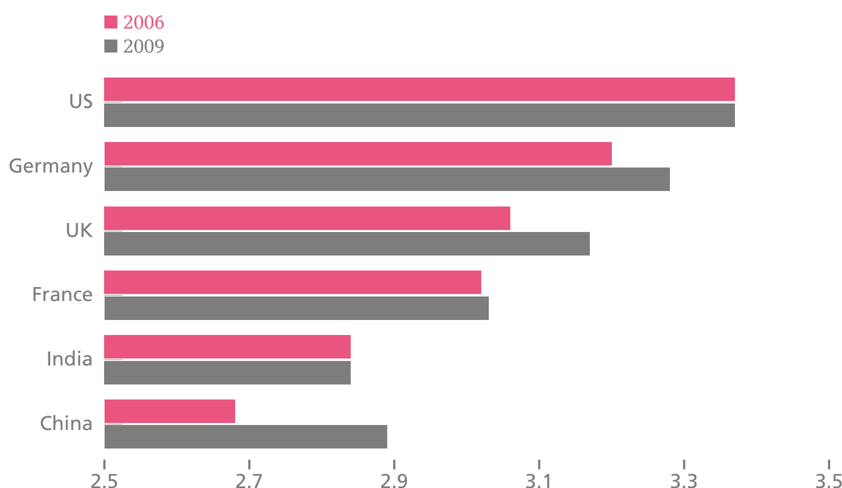
UK management is mid-table by international standards



Notes: Each bar represents the average management score (over 18 questions) across all firms in each country. The results are based on 8,261 management interviews between 2006 and 2010.

Figure 2:

While relatively stable, across countries there is improvement in management scores from 2006 to 2009



Notes: Data from a total of 1,718 firms interviewed in 2006 and 2009/10 (263 US, 118 German, 253 UK, 157 French, 197 Chinese, 107 Indian firms).

On average firms have improved their management scores over time, suggesting that there is some learning behaviour and diffusion of best practices across firms (see Figure 2). A degree of cross-country convergence in management over time is also occurring with developing countries, notably China, making the most substantial gains. There have also been notable improvements in the UK, allowing it to catch up to some degree with the top-performing United States.

The biggest changes have come in operations management or the implementation of lean technology and practices. We also find that firms are more likely to improve their management scores when there is a new plant manager on site, suggesting that managerial turnover may be another potential driver of management improvements.

Two other factors seem to matter in determining management improvements: increased product market competition and skill levels. More competitive environments are associated with better management practices, and this positive relationship holds up against other measures, such as industry price-cost margins or indicators of trade openness (Bloom et al, 2007). Across countries, another significant finding is that firms that employ a greater number of managers with university degrees are much better managed than those with less educated managers.

Better managed firms are not only more productive and profitable, but they are also more pro-active during times of adversity

Figure 3:

Constraints on improving management internationally

Major obstacle
Minor obstacle
No obstacle

UK | US | China | France | Germany | India

Hiring managers with the right skills
Hiring non-managers with the right skills
Knowing what new management practices to introduce
Obtaining cost-effective consultancy
Employment laws and regulations
Trade unions

0 10 20 30 40 50 60 70 80 90 100

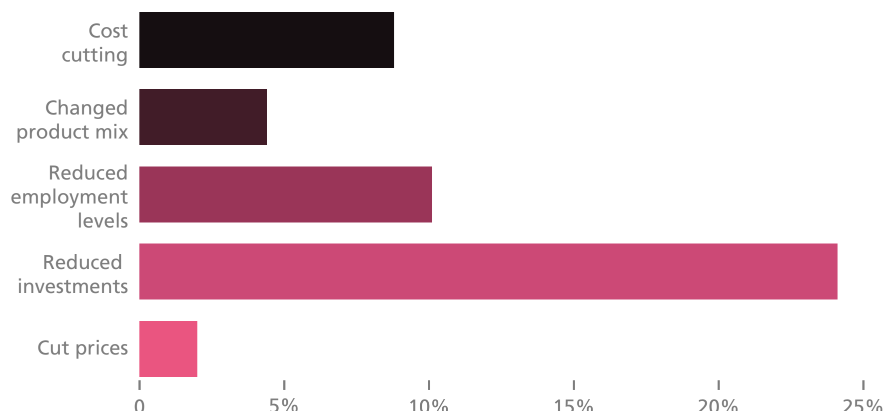
Notes: Data from 265 UK, 266 US, 123 German, 211 Indian and 221 Chinese companies interviewed in 2009/10.

Constraints on management improvements

Across countries, an inadequate supply of managerial human capital ('hiring managers with the right skills') is the most cited constraint on improving management, while the second most cited constraint is insufficient worker skills (see Figure 3). UK managers face similar constraints to their US, French and German counterparts, which suggests that while a scarcity of managerial talent may be a major constraint, it is no more severe than that facing their major competitors. For developing countries this is much more of an impediment, especially in India where 56% of managers cite scarcity of talent as a major constraint compared with only 25% of US managers.

Another major contrast between developing and developed economies is in the third most commonly cited constraint: informational barriers or not knowing what changes to make. Over 20% of Indian firms and a quarter of Chinese firms cite this as a major constraint compared with around 10% in the UK and the United States. Despite frequent media attention, very few UK or US firms consider employment laws and regulations to be a major obstacle, yet they appear to be constraining 15% of French firms and around a quarter of German and Indian firms.

Figure 4:
UK firms' reactions to the credit crunch



Notes: Data from 265 companies interviewed in 2009/10. Each bar shows the average percentage change across all firms.

The impact of the recession

We asked managers the degree to which various aspects of their operations – such as costs, product mix and jobs – were affected by the recent economic downturn (see Figure 4). Overall, fewer changes were seen in China and India than in the developed countries, which is not unexpected given the recession's lesser effect on growth in developing countries. In the developed countries, investment was the most severely affected variable, but the UK actually made fewer cuts here than the others.

In all countries, prices were relatively unaffected by the recession – changes in firms' product mix were more common. With employment, UK firms came second only to the United States in terms of jobs cuts: these fell less heavily in France and Germany (which is consistent with the known higher firing costs in continental European countries). UK and French firms were less aggressive in seeking to cut costs than German and US firms (with the latter being particularly severe).

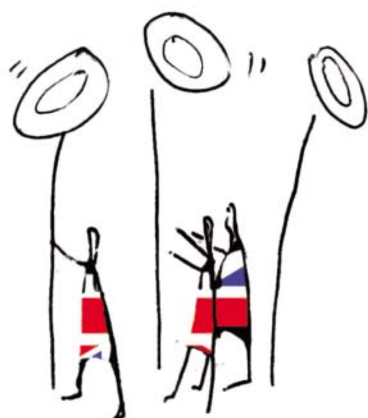
A strong finding also emerges that better managed firms were significantly more likely to engage in cost-cutting during the recession. This relationship between management quality and active changes also holds across other dimensions of firms' operations. This suggests that better managed firms are not only more productive and profitable, but they may also be more pro-active during times of adversity.

Implications for policy and practice

Our research shows that large and persistent gaps in management quality remain across countries, mainly driven by the tail of underperforming firms. The UK clearly has a deficit in management quality, and this deficit is likely to be a key factor explaining the persistent productivity gap with other countries such as the United States and Germany.

This lagging position would be substantially improved by boosting the management quality of the lower performing tail of UK firms. As a large proportion of these firms are family-owned, attempts to spread key lessons to these firms and encourage them to recruit professional managers or expertise should be examined. One policy response is to remove the zero inheritance tax rating on business assets passed within families.

Product market competition is one of the most significant ways to boost management quality. While the UK has relatively strong competition policy, there



The UK's deficit in management quality helps to explain the persistent productivity gap with the United States, France and Germany

are a few areas to consider. Besides continuing to ensure reduced regulatory barriers to setting up and expanding businesses, greater effort should be made to advancing further trade liberalisation and strengthening the European Union's services directive, which aims to boost competition by making it easier for service businesses to set up or sell their services anywhere in Europe.

While the importance of skills resonates throughout our research, this is an area where the UK has a relatively poor record: in the UK manufacturing firms we surveyed, fewer managers had degrees than in comparable countries. One way to improve management is to increase the supply of human capital, for example, by allowing university expansion or by increasing the availability of travel/work visas for experienced managers. Unfortunately, current education and immigration policies seem to be moving in the opposite direction.

Small firms seem to have particular difficulties in gaining access to skills, which highlights a role for management education and other facilities to increase the supply of capable managers. Smaller firms also face the greatest constraints on access to information. While propping up firms on 'artificial life support' is not the answer, this does imply that targeting existing policies to smaller firms (for example, business advice and skills support) could generate substantial benefits.

An overriding finding from managers' responses to the recession is that it is difficult to predict the actions firms will take, which cautions against policy responses targeted at particular firms or industries. But better managed firms are more pro-active, which suggests that enhanced managerial capability also produces more resilient firms, making them more likely to survive periods of adversity. Thus, better quality management could decrease the output volatility of UK firms over the business cycle.

Overall, our work suggests that focusing on management quality is a key way to enhance productivity, and we highlight a few policies that could foster these needed management improvements. Given the still fragile nature of the current business and economic climate – and strained public coffers – there is an acute need to get policy right.

Measuring management

To measure management practices, CEP researchers interviewed plant managers in medium-sized (approximately 250 employees) manufacturing firms. Plant managers were selected because they are senior enough to have a well-founded perspective on what happens in a company, but not so senior that they might have lost touch with the shop floor.

We used an interview-based survey evaluation tool that defines from worst practice ('1') to best practice ('5') across 18 dimensions of management practices. These practices fall into four broad areas: operations, monitoring, targets and people management. Each of these dimensions is scored on a one to five basis, and the average of the 18 separate scores made up the overall management score.

To ensure accurate and unbiased responses, we used a double-blind technique: interviewed managers were unaware of the scoring methodology and interviewers have no information in advance about the firm's performance or other differentiating characteristics.

Across countries, we obtained an approximately 45% response rate. There did not appear to be any bias in responses received: responses were uncorrelated with performance measures; and the non-responder firms had roughly similar management scores to the responder firms in the original 2006 survey.

Product market competition is one of the most significant ways to boost management quality

Rebecca Homkes is a CEP research officer and project director of the Centre's research programme on management.

More details on the programme, including past reports and full methodology, are available here: http://cep.lse.ac.uk/_new/research/productivity/management.asp

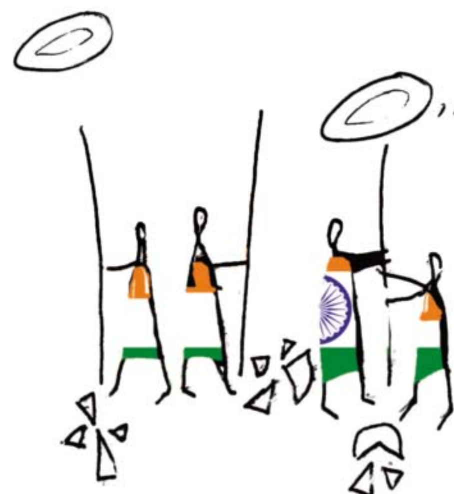
A free online tool, which firms and managers can use to benchmark their own management performance, is available here: http://worldmanagementsurvey.org

Further reading

Nicholas Bloom, Stephen Dorgan, John Dowdy, Christos Genakos, Raffaella Sadun and John Van Reenen (2007) 'Management Practices and Productivity', CEP/McKinsey & Company (http://cep.lse.ac.uk/management/Management_Practice_and_Productivity.pdf)

Nicholas Bloom and John Van Reenen (2010) 'Why do Management Practices Differ across Firms and Countries?', *Journal of Economic Perspectives* 24(1): 203-24

Lucia Foster, John Haltiwanger and Chad Syverson (2008) 'Reallocation, Firm Turnover, and Efficiency: Selection on Productivity or Profitability?', *American Economic Review*, 98(1): 394-425



in brief...

Improving management in India

Firms in developing countries are typically managed badly. Research by **Nicholas Bloom** and colleagues, looking at large Indian textile manufacturers, finds that improving basic management practices has a huge impact on corporate performance.

As the previous article describes, CEP research has found systematic evidence of a strong relationship between firms' management practices and their performance. Our latest work has used field experiments to evaluate if differences in management practices lead causally to differences in performance.

To do this, we improved the management of a randomly selected group of large Indian textile firms and compared the impact with a group of similar 'control' firms – a total of 20 firms, each with around 300 employees. All 20 firms were given an initial management diagnostic and then the first group received four months of free consulting from a major international management consultancy.

To evaluate the productivity benefits of improved management, we collected extremely detailed performance metrics on output, inventory and quality at the firms. The evidence suggests that Indian factories are typically disorganised, with inventories and spare parts chaotically organised, inadequate performance tracking and extremely poor quality control.

The consultants addressed these problems by introducing the types of basic operational practices that are standard in European, Japanese and US factories. The practices had massive effects on performance, cutting quality defects by 50%, reducing inventories by 40% and increasing overall productivity by 10%. They also increased firms' profits by about $200,000 and improved owners' ability to expand their firms.

So why have these practices not been adopted before? Our evidence suggests that one key factor was informational constraints: the firms were not aware of the importance of modern management practices.

Why doesn't product market competition drive the badly managed firms out of business? One reason is that the growth of well managed firms is constrained by the number of adult males in the owning family who can fill senior managerial positions. At the same time, entry by new firms is limited by a lack of finance, and competition from imports is restricted by heavy tariffs.

Finally, what are the policy lessons? First, competition and foreign investment should be enhanced by removing the legal, institutional and infrastructural barriers that limit multinational expansion in India, which in turn limits knowledge transfer about modern management practices. Abolishing tariffs would also help, as Indian firms would be driven to improve management practices to survive against lower cost imports from countries like China.

Second, improving the legal environment would expand the scope for well-managed firms to grow and drive out badly managed firms. At present, the rule of law is weak and fraud prosecutions are extremely hard, which makes owners wary of letting outside managers have much control over their firms.

Third, many of the shortcomings of Indian management practices could be addressed through more widespread training in basic operations management such as inventory and quality control. Three-month courses provided by a combination of industry, government and universities could address the problem of firms not implementing best practices on their own simply because of a lack of information and knowledge.

A stock room in one of the Indian firms before intervention

This article summarises 'Does Management Matter? Evidence from India' by Nicholas Bloom, Benn Eifert, Aprajit Mahajan, David McKenzie and John Roberts, CEP Discussion Paper No. 1042 http://cep.lse.ac.uk/pubs/download/dp1042.pdf).

Nicholas Bloom is a research associate in CEP's productivity and innovation programme. He, **Aprajit Mahajan** and **John Roberts** are at Stanford University. **Benn Eifert** is at Overland Advisors LLC. **David McKenzie** is at the World Bank.

in brief...

Hospital performance: the impact of good management

Healthcare spending in the world's richest countries continues to rise along with patients' expectations, yet the sector still lags behind in terms of raising its productivity. CEP research highlights the potential of improving management practices in hospitals as a strategy for meeting these challenges.

CEP researchers and colleagues at McKinsey & Company have developed a tool for assessing management practices in the private sector, which they are now using to look at hospitals. As the article starting on page 2 of this *CentrePiece* explains, the earlier research established a clear relationship between management and other indicators of firm performance, such as sales growth and company survival rates. The question is whether there is a similar relationship between hospital management and hospital performance.

To examine this question, the researchers have applied their tool for measuring management to almost 1,200 hospitals in seven countries: the UK, the United States, Canada, France, Germany, Italy and Sweden. The results show that high quality management is just as vital in public services and can even lead to reduced death rates in NHS hospitals.

Measuring hospital management practices was done by interviewing managers of cardiology or orthopaedics units in hospitals that provide acute short-term medical and/or surgical care. To obtain accurate and unbiased responses, analysts conducted 'double-blind' interviews: hospital managers were unaware of the criteria they were being scored against while the interviewers were unaware of the hospitals' clinical and financial performance.

The interviewers covered management practices in 20 dimensions across operations management,

Managers who combine clinical and managerial skills are key to better performance

performance and target management, and people management, with each dimension scored from one ('worst practice') to five ('best practice'). The overall management score is an average across these 20 scores.

The study also linked the management survey with hospital-level outcome statistics – from public data where they are available (mostly in the UK and the United States) or through the McKinsey Hospital Institute. These revealed a strong relationship between hospital management scores – specifically operations management and implementing 'lean practices' (such as the efficiency of patient flows through hospitals), performance management and people management – and hospital outcomes.

Hospitals with higher management scores have better clinical outcomes, such as lower mortality rates from emergency heart attacks, as well as higher levels of patient satisfaction and enhanced financial performance. In the UK, a one point improvement in the management score (on the one to five scale) is associated with a 6% rate fall in deaths from heart attacks as well as a 20% increase in the probability that the hospital scores above average in terms of patient satisfaction.

Although the strong correlation between the management scores and hospital performance does not prove causality, it does suggest that management really matters for patient wellbeing.

Across countries, there is wide variation in management scores, with the United States achieving the highest scores and Italy and France the lowest. The UK delivers particularly strong hospital management practices relative to its health spending, outperforming the other countries.

The majority of differences in management quality

Fostering competition between hospitals could be a powerful mechanism for improving the quality of management

are within rather than between countries – over 80% of the management differences are across hospitals within the same country. Even in a publicly dominated healthcare sector like the NHS, there is wide variation in management scores, with the lower performing 'tail' of hospitals driving down the country average.

The research identifies three main 'drivers' that account for many of the differences in management practices: competition, scale and skills. These mirror similar results from CEP's work on management practices in the private sector, highlighting a consistent set of factors that seem to be related to enhanced management.

- **Competition:** there is strong evidence that hospitals where managers perceive higher levels of competition from neighbouring rival hospitals are much better managed than those that consider fewer potential alternatives for patients to choose.
- **Scale:** larger hospitals, exhibit much better management than smaller hospitals. To some extent, this reflects economies of scale in management.
- **Skills:** hospitals with more clinically trained managers achieve higher management scores across all countries. This is probably because such managers are able to 'speak the same language' as clinical staff, which not only enhances communication but also allows them to enjoy credibility and authority that is difficult for non-clinical managers to attain.

The research highlights the opportunity for improving hospital performance through better management practices. For example, policy-makers should examine the benefits of fostering competition between providers as a powerful mechanism for improvement. This can be achieved by increasing patient choice, encouraging new entrants and relaxing restrictions on hospital growth.

In terms of skills, people who combine clinical and managerial skills are clearly the key to better performance. Boosting the proportion of managers with clinical skills – via more attractive career paths for clinicians into management – could be one way of addressing the UK's comparatively poor showing in this area. Academic Health Science Centres, especially those connected to leading business schools, could play an important role here by developing a cadre of competent clinical managers.

Meanwhile, healthcare commissioners should consider how they gain access to top performing hospitals for their patients. In an era of GP commissioning and patient choice, this may become particularly important for attracting and retaining patients and the funding that comes with them. At the same time, the need for hospitals to improve management practices could create new opportunities for suppliers and new entrants.

Finally, patients should understand that some hospitals are simply better managed, provide better care and are safer than others. They should take advantage of published information on hospitals' performance (such as NHS Choices) and consider their options for care.

This article summarises *Management in Healthcare: Why Good Practice Really Matters* by Stephen Dorgan, Dennis Layton, Nicholas Bloom, Rebecca Homkes, Raffaella Sadun and John Van Reenen (http://cep.lse.ac.uk/textonly/_new/research/productivity/management/PDF/Management_in_Healthcare_Report.pdf).

Stephen Dorgan and **Dennis Layton** are at McKinsey & Company. **Nicholas Bloom** is at Stanford University. **Raffaella Sadun** is at Harvard Business School. **Rebecca Homkes** and **John Van Reenen** are at CEP.

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

Economic 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 Amiti, 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

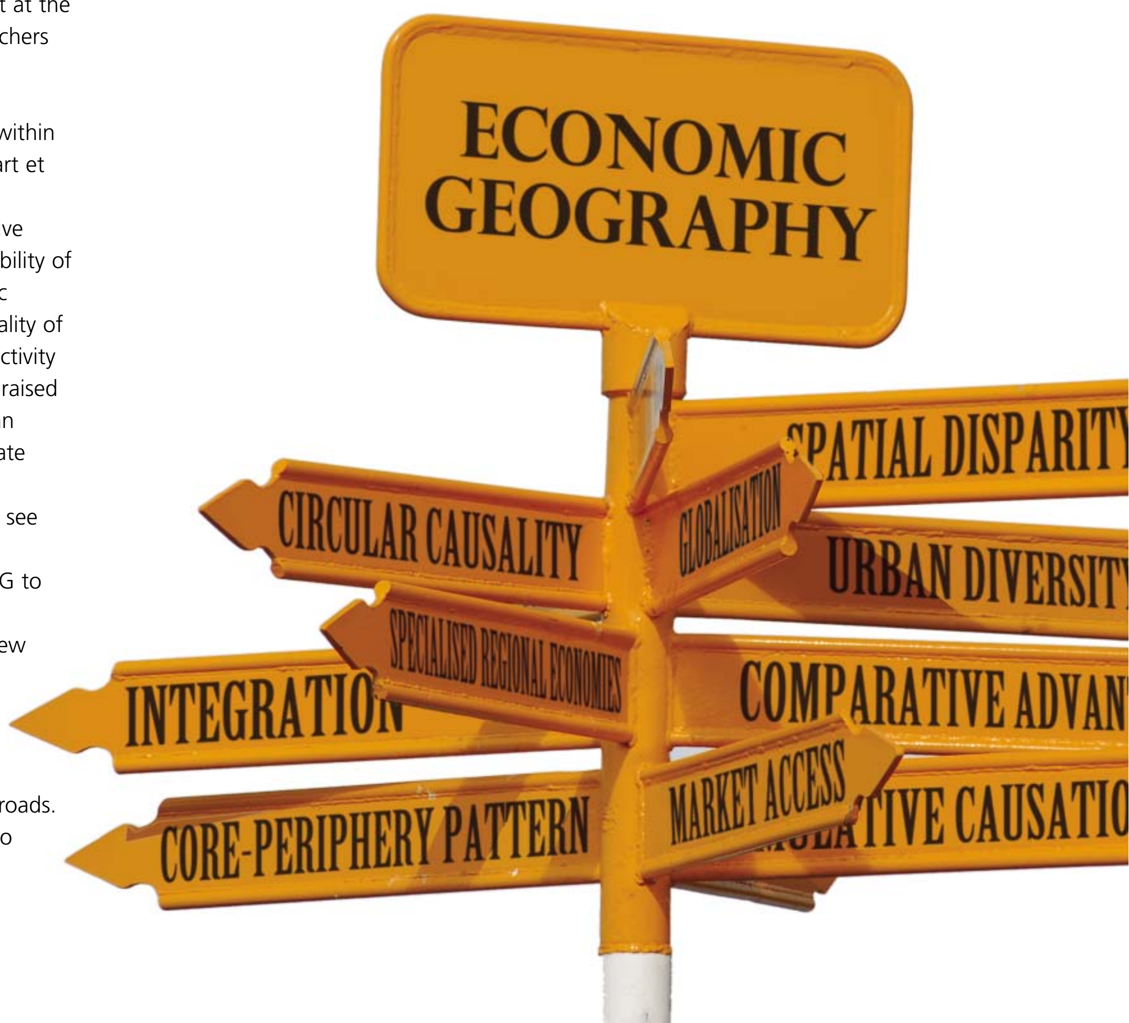
increasingly interested in the likely spatial effects of further European integration. In particular, they wanted to know whether further integration would reinforce existing disparities and whether it might lead countries to become increasingly specialised. The first question was seen as crucial to 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



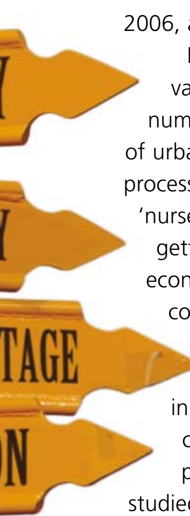
shaping international disparities in incomes (Redding and Venables, 2004).

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.

Henry Overman is director of SERC, professor of economic geography in LSE's department of geography and environment and a research associate in CEP's globalisation programme.

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in brief...

Location, location, location: why geography matters for R&D

A key insight of economic geography is that proximity is good for productivity. Research by **John Van Reenen** and colleagues explores this relationship in the context of corporate research labs, revealing a strong link between R&D and growth driven by 'knowledge spillovers' between firms located close to each other.

President Obama recently proposed increasing the generosity of the US tax credit system for corporate spending on research and development (R&D) and making it a permanent feature of the US tax code. This was justified by the idea that more R&D would lead to growth, not just worldwide but particularly in the United States.

But such a bold claim raises some fundamental questions: does the location of R&D matter? Will a firm be more productive if it locates in one region rather than another? And do R&D 'spillovers' – the benefits to firms other than the company spending its money on R&D – decline with distance and, if so, how quickly?

The answers are important for several reasons, most notably for understanding regional growth. If geographical spillovers are confined to narrow geographical markets, growth rates will diverge, poor regions will get poorer and rich ones will get richer.

Few doubt that, in the long run, new and better products and processes are stronger determinants of firm growth than growth in demand for existing products. Given the importance of this issue, it is not surprising that economists have studied the link between a firm's R&D and its productivity.

Equally if not more important is the fact that not only does a firm's research affect its own productivity, but there are also significant spillovers from the R&D efforts of other firms. This idea, which is at the heart of modern growth theory, dates back to the 1960s and attempts were first made to quantify the impact in the 1970s. Our research puts a new twist on the hunt for R&D spillovers, focusing on geography.

In the analytical framework we use, a firm's productivity is a function of its own knowledge and the 'spillover pool', a weighted average of other firms' knowledge. To work out which firms benefit from R&D spillovers, we have to figure out which ones are close 'neighbours'. This boils down to working out some distance 'weights' – the bigger the weight, the closer you are, and thus the more likely you are to benefit from a neighbouring firm's research. So for firms in California, it matters whether you are located in Silicon Valley or near Yosemite National Park!

These weights thus play two roles: they determine both the set of firms that contribute to the spillover pool and the relative importance of the firms within that set. For

A firm whose inventors are close to other firms' R&D will benefit a lot more from new ideas

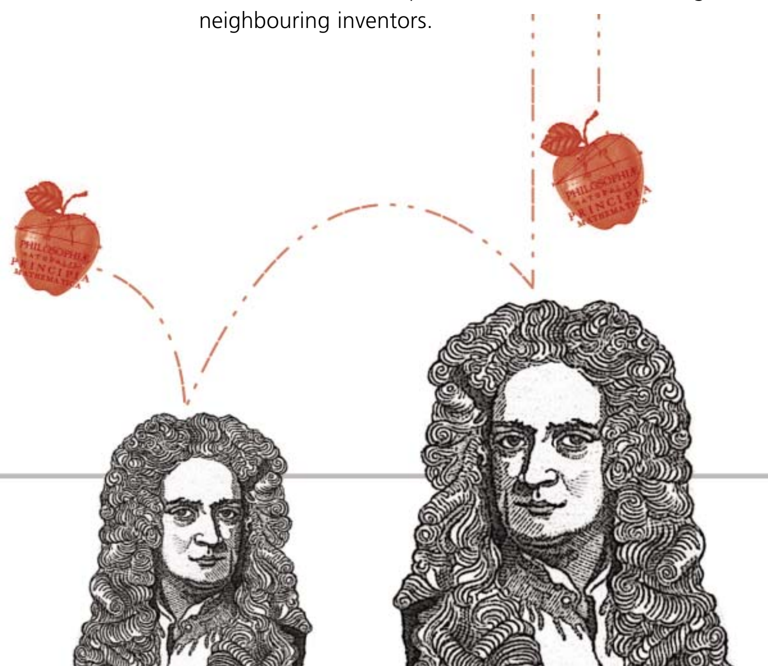
Geographical growth spillovers explain why local policy-makers compete to attract corporate R&D labs to their regions

example, in the geographical context of the United States, we might limit attention to firms that are in the same state and weight those firms by their geographical distance from the firm doing the R&D.

But there are channels other than geography that affect R&D spillovers. For example, firms that perform R&D in similar technology classes might benefit from each other's efforts ('technological spillovers'). On the other hand, firms that produce similar products might actually be hurt by the R&D efforts of product market rivals as these competitors will steal business from them if they innovate successfully.

Moreover, these spillover links are not independent. For example, firms in the same geographical region might perform R&D in similar technology classes, as in Silicon Valley. Our research assesses all three channels simultaneously. Although we focus on geographical spillovers, we control for technological spillovers and business-stealing effects.

We postulate that inventors are more likely to be sources of spillovers than top management. Although for many small firms the locations of corporate headquarters and research labs are highly correlated, many large firms have several labs in different locations so taking account only of headquarters could severely underestimate the importance of inventors learning from neighbouring inventors.



Our research indicates that the locations of researchers are indeed more important than the locations of headquarters, but both have explanatory power. Furthermore, the effects of R&D fall with distance, and geographical R&D markets are very local.

We conclude that location does matter. There is a strong link between R&D and growth through knowledge 'spilling over' between firms. Among other things, this means that research will generally be under-provided by the market.

But the process of R&D spillovers driving growth has an important geographical element: having your inventors close to where the R&D is occurring means that you benefit a lot more from new ideas. This is why local policy-makers like to attract R&D facilities into their areas, but it is also why regional economic convergence, if it occurs, is often so slow.

Our findings are complementary to those of Michael Greenstone and colleagues (2010), who find that locating a large new plant in a region increases the productivity of other plants in that region. Moreover, our research provides an explanation for the findings of Daniel Wilson (2008), who documents that local policy-makers invest substantial sums in the form of tax incentives to attract R&D labs to their regions.

This article summarises 'Spillovers in Space: Does Geography Matter?'; by Sergey Lychagin, Joris Pinkse, Margaret Slade and John Van Reenen, CEP Discussion Paper No. 991 (http://cep.lse.ac.uk/pubs/download/dp0991.pdf).

Sergey Lychagin and **Joris Pinkse** are at Pennsylvania State University. **Margaret Slade** is at the University of British Columbia. **John Van Reenen** is director of CEP.

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When the recession hit, many predicted that London would fare the worst. **Henry Overman** explores how in fact the capital's economy suffered far less than the rest of the country.

How did London get away with it?

It was widely expected that London would be the most severely hit of the UK regions in the recession brought about by the 2007-08 financial crisis. London was more reliant on financial services, it was argued, and because financial services were most directly affected, incomes and employment were expected to fall harder than in other cities.

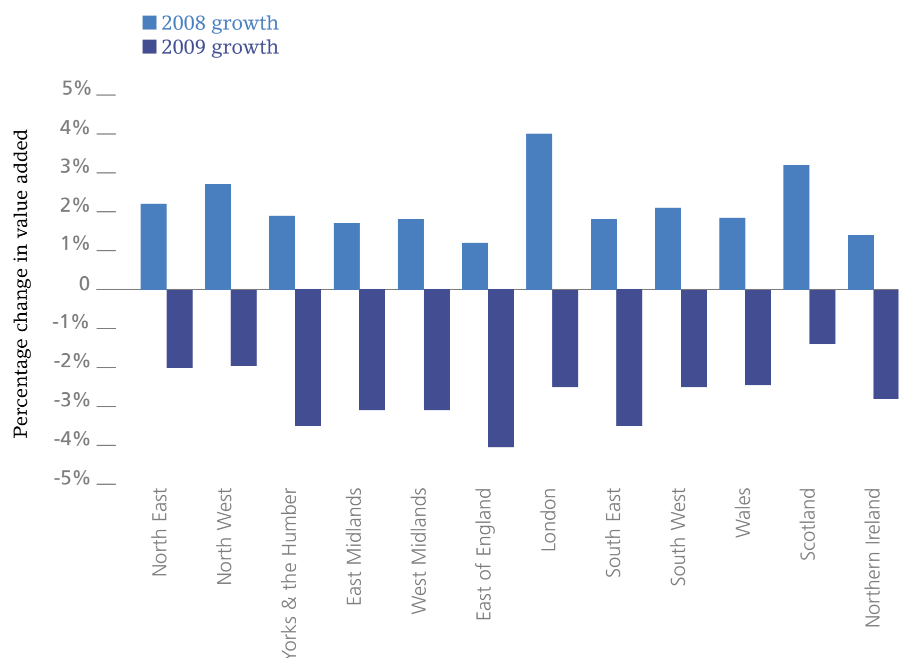
But this has not turned out to be the case: both income and employment in London have fared better than expected. The latest data show that London's income per capita fell by 2.5% between 2008 and 2009, while it fell by 2.9% in England as a whole. Only the North East and North West had lower falls than London, at around 2% (see Figure 1). But between 2007 and 2008, London grew nearly twice as fast as those two regions and, of course, London was already much richer. In terms of employment, the UK saw peak-to-trough falls of 3.9%, whereas London saw only a 2.6% fall.

House prices tell a similar story. Data from the Department for Communities and Local Government shows that between March 2008 and December 2010, house prices rose 1.4% in London, compared with a fall of 1.2% in the South East. The Midlands and Northern regions saw falls in excess of 3.5% while in Yorkshire house prices fell 6.1%.

There were also many other signs that the capital was holding up and that Londoners were happier than ever to spend on luxuries. There was a growth in theatre box office takings between 2008 and 2009. And between 2007 and 2010, the average attendance at Premiership football matches in London was flat, while it fell by 6% in the Midlands and by 5% in the North. As a colleague remarked, 'it feels like London got away with it'.

But if London did get away with it, how did it do it? One crucial factor is that the recession has not been as bad for the middle classes as expected. According to the Labour Force Survey, for England as a whole, professional and service occupations were less badly affected than administrative, trade and basic occupations. This helps the South as professional occupations account for a larger proportion

Figure 1:
Growth in UK regions in 2008 and 2009



Source: statistics.gov.uk

London's economy benefited from the over representation of professional occupations, which have been less badly affected by the recession

of the labour force – nearly 50%, compared with under 40% in the Midlands and the North.

Reinforcing this overall trend, London's employment in professional occupations held up particularly well and London also performed better in administrative, trade and service occupations. Only in the lower skilled occupations did London fare worse.

Understanding why the professions fared better in London than in the rest of the UK is difficult. It's unlikely to be explained by public sector employment. Only in the South East does public sector employment account for a lower share of the economy. The same is true for public sector expenditure as a percentage of overall expenditure. An outflow of illegal immigrants, differences in the effect on hours worked and real wages may all have played a minor role.

London has higher house prices, so the impact of interest rates on mortgage payments has been larger. But as with fiscal policy, relative to expenditure there is not a big differential with the rest of the country. In contrast, the impact on the very wealthy probably worked against London. The overall wealth of the UK's richest 1,000 people fell by £77 billion between 2007 and 2009.

Could the bailout of the banks have played a role? Again this is a surprisingly difficult question to answer since the Office for National Statistics has not yet produced the regional distribution of jobs directly affected by the government bailout of the banks. Nevertheless, if we look at what happened to public sector employment by region, we find that the timing of when these workers became reclassified gives a rough answer to the question. It suggests that London had the highest share of 'bailout' jobs: around 16% of the 220,000 jobs affected.

Turning to the indirect effect of bank bailouts, Andrew Haldane of the Bank of England estimates that reduced risk because of government measures saved the banks £107 billion in interest costs in 2009. More than 90% of this went to the big five – HSBC, Barclays, RBS, HBOS and Lloyds – all of which are disproportionately represented in London. We do not yet know the impact of this on the London economy.

At least one other government intervention also disproportionately benefited London. The Olympic site currently employs 10,000 workers, and Crossrail a further 2,000. The effect of these interventions can be seen in the employment numbers. According to the Workforce Jobs survey, between 2007 and 2010 employment in construction fell by twice as much in the North as it did in the South East: 16% versus 8%. At the same time, while employment in financial services fell by 10% in the North, it rose by 5% in the South East.

So where does all of this leave us? First, relative to expectations and relative to other regions of the UK, London appears to have got away with it. The over-representation of the professional occupations partly explains this. The bailout may explain why these occupations did even better in London. But other explanations are possible.

The shift in financial sector employment may be driven by the increased importance of timely information flows when things turn bad. Despite improvements in information and communications technology, economists still think that spatial proximity plays an important role in exchanging information.

Alternatively, London may be benefiting from the depth and breadth of its labour market. SERC research suggests London has a higher concentration of the most talented people than other metropolitan areas in the UK (Gibbons et al, 2010). There is more research to be done to understand whether these economic mechanisms have played a role.

Finally, there are three important things to note. First, to the extent that the bailout of the banking sector explains London's performance, Boris Johnson may be right to worry about 'banker bashing'.

Second, despite its relatively good performance, London has still experienced a recession and growth continues to be sluggish. The latest growth figures suggest that the UK may have experienced no growth in the final quarter of 2010. The tightening of fiscal policy, public sector job cuts and potential rises in interest rates all pose risks for the recovery and London is certainly not immune to these risks, even if it may be better placed to cope than other parts of the UK.

Third, some Londoners didn't get away with it: the bottom end of the London labour market (the 15% of the labour force with the lowest skills) has seen falls in employment in line with the UK average. This contrasts with other broad occupational categories all of which did better in London. Housing (and other) benefit reforms will hit London and the South East particularly hard. London may have got away with it so far, but things certainly do not look so rosy for London's poor.

London may have got away with it so far, but things do not look so rosy for London's poor

Henry Overman is director of SERC.

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Chris Pissarides,
Nobel laureate

The 2010 Nobel Prize in Economics was awarded to CEP's Chris Pissarides, jointly with Peter Diamond and Dale Mortensen, 'for their analysis of markets with search frictions'. As **Barbara Petrongolo** explains, their research has deeply enhanced our understanding of how labour markets work and how policy-makers should respond.

Most market transactions are characterised by various forms of imperfections or 'frictions'. The importance of these frictions in driving market outcomes is a key issue for understanding such diverse markets as those for a job, a house and a spouse.

While a given market may have buyers and sellers who can in principle agree on a price, this may be insufficient for immediate trade to take place. Both buyers and sellers may need to invest in a costly and time-consuming process of search to locate and assess matching partners, and they eventually need to agree to enter a transaction rather than wait for better trading opportunities.

Search theory – for which Chris Pissarides, Dale Mortensen and Peter Diamond have been honoured with the 2010 Nobel Prize in Economics – provides a versatile framework for understanding market outcomes in a variety of situations in which trade is complex. One key lesson of the theory is that with search frictions, not all markets will clear at all points in time – some buyers and/or sellers remain unmatched.

Another important implication of search theory is that when access to information is costly and trade opportunities are infrequent, not all traders may trade at the same market price, leading to dispersion in prices. Finally, market outcomes may be inefficient if individuals engage in 'too much' or 'too little' search, in which case policy intervention may improve on what can be achieved through markets alone.

Although economists have long been aware of the importance of frictions (see, for example, Hicks, 1932), these frictions were not brought into formal models until the work of the three Nobel laureates and a few other researchers in the 1970s. Since then, they have generated an incredibly large and ever growing literature, addressing the role of frictions in many 'real world' markets.

In the labour market, frictions are used to explain the existence of unemployment and wage inequality. In business cycle models, they are used to explain the amplification of the response of employment to aggregate shocks. In monetary models, they are used to explain the existence of money. In the housing market, they are used to explain residential choices and fluctuations in house prices. And in the marriage market, they are used to explain dating, marriage, fertility and divorce behaviour.

By far the most influential application of search theory has been to the labour market, and it has led to the development of what is now recognised as the leading model of 'equilibrium unemployment'. This is the area in which Chris Pissarides, former director of CEP's macroeconomics programme, made his main contributions to search theory. His seminal work on the functioning of labour markets with frictions appeared in a number of articles in the late 1970s and 1980s, and was later organised in a unified framework in a book that has become a key reference in modern labour market analysis (Pissarides, 1990).

The central idea is that trade in the labour market is uncoordinated, time-consuming and costly for both firms and workers. Workers need to spend time and resources to find suitable job opportunities; and firms need to spend time and resources to locate and screen job applicants. While the idea that trade in the labour market is complex is widely accepted these days, when search models of unemployment were first developed, they

implied a clear break with the perfectly competitive view of equilibrium in the labour market, which hinges on frictionless trade.

In a perfectly competitive labour market firms and workers meet costlessly and trade at a single wage, and any excess labour supply is absorbed instantaneously through a fall in the equilibrium wage. Most economists would argue that the functioning of the labour market is far more complex than this. In particular, the competitive model fails to explain such stylised facts as persistent unemployment, wage differentials among otherwise similar workers and the co-existence of unemployed workers and job vacancies.

By introducing realistic frictions, the search approach has developed an elegant framework that allows us to explain key stylised facts about the labour market and ultimately think about unemployment and wages in a new light. For example, a direct consequence of frictions is that as markets typically do not clear, unemployed workers and job vacancies may co-exist, even within very narrowly defined labour market segments.

In particular, unemployment persists in equilibrium because before all unemployed workers find new jobs, some of the existing jobs come to an end, providing a new inflow into unemployment. This suggests that after an adverse economic shock, it takes time to bring back unemployment to the pre-shock level. So recovery after a recession may be slow, even once new job opportunities start to emerge.

An important implication of job search frictions is that existing jobs produce 'rents'. This means that if an employer and a worker are separated for reasons outside their control, at least one (and often both) of them is worse off. Rents give employers some degree of market power over their employees, which means that unlike in the perfectly competitive model, small wage cuts do not induce all employees to quit their jobs, simply because better paid jobs elsewhere in the economy are hard to find. As a corollary, workers of similar quality may be paid different wages if employed in different firms.

Search models have also been used to understand how aggregate shocks are transmitted to the labour market via the response of job creation and job destruction, and how shocks drive cyclical fluctuations in unemployment. Chris Pissarides has made the two key contributions in this area.

The first is his seminal search-theoretic analysis of the dynamics of unemployment, vacancies and real wages (Pissarides, 1985), which illustrates the asymmetric behaviour of unemployment following positive and negative shocks. He shows that the rise in unemployment in a recession will be faster than its fall in an expansionary phase, because while an adverse shock results in an immediate increase in job separations, a positive shock only leads to a gradual fall in unemployment because the hiring process is time-consuming.

The second key contribution is his most famous article, written jointly with Dale Mortensen (Mortensen and Pissarides, 1994). This work illustrates how firms respond to shocks to aggregate productivity in making their decisions about creating new jobs and ending existing job matches – and thus produce cyclical fluctuations in job flows and unemployment.

The core theoretical work on labour markets with search frictions has been accompanied by a number of contributions focusing on policy analysis and empirical evidence. It has become common practice in the literature to adopt a search framework to analyse the impact of unemployment compensation, hiring and firing costs, minimum wages, and taxes on unemployment and the wage distribution. Empirical work has addressed the implications of search models for individual labour market transitions, aggregate job and worker flows, unemployment dynamics and the wage distribution.

The work of Chris Pissarides and his fellow Nobel laureates has deeply influenced the view of modern labour markets of both academics and policy-makers and has stimulated several continuing streams of work at CEP.
As many countries are facing the consequences of the most severe recession of the post-war era, the latest Nobel Prize is an award to research on fundamental economic issues that are both at the core of the wellbeing of society at large and very high on the policy agenda of the moment.

Barbara Petrongolo is a professor of economics at Queen Mary, University of London, and a research associate in CEP's labour markets programme.

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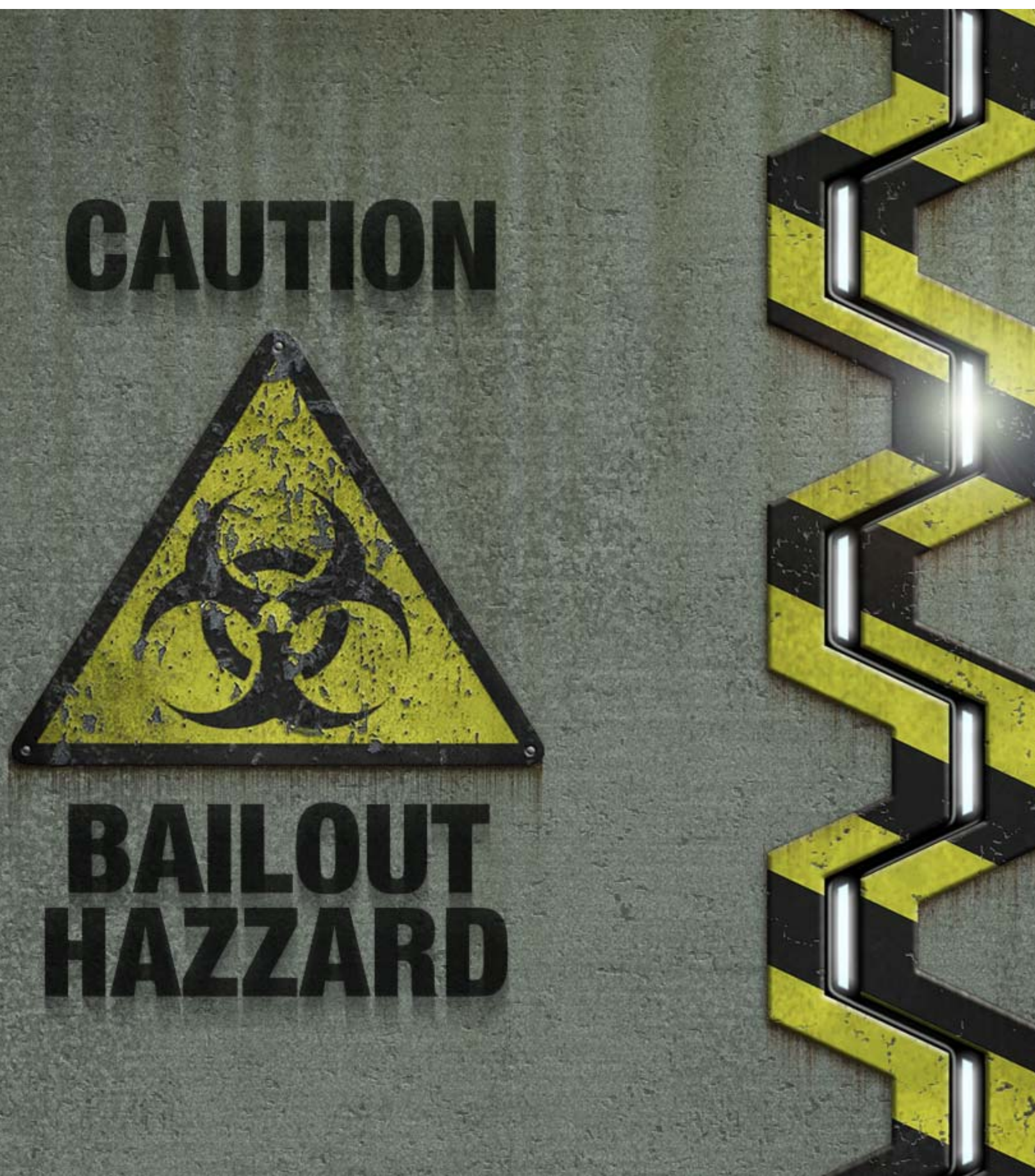
In a world of financial globalisation, foreign investors benefit from bank bailouts in response to a crisis. Research by **Friederike Niepmann** and **Tim Schmidt-Eisenlohr** explores the incentives for governments to act in these circumstances – and the role of international cooperation over financial regulation and crisis management.

Bank bailouts in a global economy:

the challenges for international cooperation



Severe financial crises followed by costly government interventions are not a new phenomenon. Indeed, in the last 30 years, financial crises have occurred frequently: one study counts 117 systemic banking crises in 93 countries between the late 1970s and the early 2000s (Caprio and Klingebiel, 2003). And the costs to the public purse are usually considerable: on average, governments spend 12.8% of their country's GDP on interventions to restore financial stability (Reinhart and Rogoff, 2009, and Honohan and Klingebiel, 2000).

Compared with the more regulated era following the Great Depression, the new feature of crises today is that they are rarely local and often involve banks and consumers worldwide. Two aspects of financial globalisation have been driving this. First, the balance sheets of financial institutions have become increasingly linked internationally. As a result, a crisis can spread rapidly from the financial sector of one country to other countries – a phenomenon known as 'contagion'.

Second, there has been a steep rise in cross-border banking. In a world of global finance, investors from many different countries are directly affected when a bank is in distress. This poses new challenges for policy-makers responding to financial crises. Their decisions have effects both at home and abroad. At the same time, domestic economic outcomes often depend on interventions by foreign governments.

The recent financial crisis has shown how this international dimension to policy interventions can lead to conflicts of interest between countries. One prominent example is the bailout of AIG, an American insurance company with significant global business, which received large-scale support from the US government in September 2008.

The AIG intervention, the cost of which will eventually accrue to US taxpayers, benefitted foreign financial institutions substantially. The asymmetry between those who paid for the intervention and those who gained from it caused much political debate in the United States.

Another example is the Icelandic bank Icesave, in which many UK and Dutch consumers had invested their savings. When the bank went bankrupt in 2008, the Icelandic government did not compensate all creditors, but only absorbed the losses of its own nationals. This caused a severe political confrontation between the UK, the Netherlands and Iceland, culminating in the UK government's application of the Anti-terrorism, Crime and Security Act to freeze Icelandic assets in the UK.

In our research, we formally study the problems that arise when banks operate across borders while government intervention is still limited by national borders. We are interested in how governments should deal with banks in distress when their potential bankruptcy affects depositors from different countries and international balance sheet connections can lead to cross-border contagion.

If governments do not cooperate when dealing with an international crisis but instead behave strategically, this can lead to decisions that are 'sub-optimal' from a global perspective. Different institutional arrangements that allow governments to cooperate within well specified rules could address this concern and improve global crisis management.

Much research has been conducted on financial crises and interventions that are contained within one country, whereas the international aspects of crises and interventions have received far less attention. Two studies have made the case that cooperation between governments can be beneficial when financial stability is a public good that is shared across countries (Freixas, 2003, and Goodhart and Schoenmaker, 2009).

Until now, there has been no analysis that explicitly considers the effects of international financial linkages on governments' incentives to intervene, and which derives the costs and benefits of a bailout from the fundamentals of a country's economy. Our research provides a first step to filling this gap.

When a government decides whether

Problems arise when banks operate across borders while government intervention is still limited by national borders

Restricting banks' cross-border operations may reduce the risk of contagion, but such regulations have other costs

to support a domestic bank in distress with taxpayer funds, it has to strike the right balance between creating distortions in taxation, containing losses from forced liquidation of bank assets and limiting financial penalties for depositors and resulting income inequalities. From a global perspective, the optimal decision requires taking account of additional considerations: contagion effects across borders, losses incurred by depositors worldwide as well as the costs to taxpayers in different countries from financing bailouts.

Governments care predominantly about the wellbeing of their own citizens. When they deal with a financial crisis on their own without cooperating with other governments, crisis management can be sub-optimal for three reasons:

- First, policy-makers do not take account of the positive effects of their actions on the wellbeing of foreign nationals.
- Second, a country may behave opportunistically: anticipating another country's intervention, it may decide not to act itself and thereby spare its taxpayers.
- Third, governments typically do not split the costs of bailouts.

By taking a closer look at events in the recent crisis, we can learn about the relevance of these three sources of inefficiency. For example, in September 2008, the US treasury decided against a bailout of Lehman Brothers. This triggered worldwide financial distress and governments in many countries eventually gave failing financial institutions within their jurisdictions large financial support. If there had been stronger incentives for the US government to take account of these cross-border effects, it might have been more inclined to decide in favour of a bailout.

Shortly after Lehman's bankruptcy, the US Federal Reserve supported AIG. Without this measure, several foreign financial institutions would probably have suffered severe losses, which might have made government intervention in other countries necessary. While financial contributions by other countries were taken into consideration, ultimately no overseas governments helped to finance the AIG bailout. Our analysis suggests that, anticipating that the US government would support AIG anyway, other countries were 'free-riding' on the bailout.

In the case of Icesave, the cost of providing deposit insurance to all depositors would have been very high for the relatively small Icelandic population given the large size of liabilities. Compensating all depositors by sharing the costs between the UK, the Netherlands and Iceland was not considered an option.

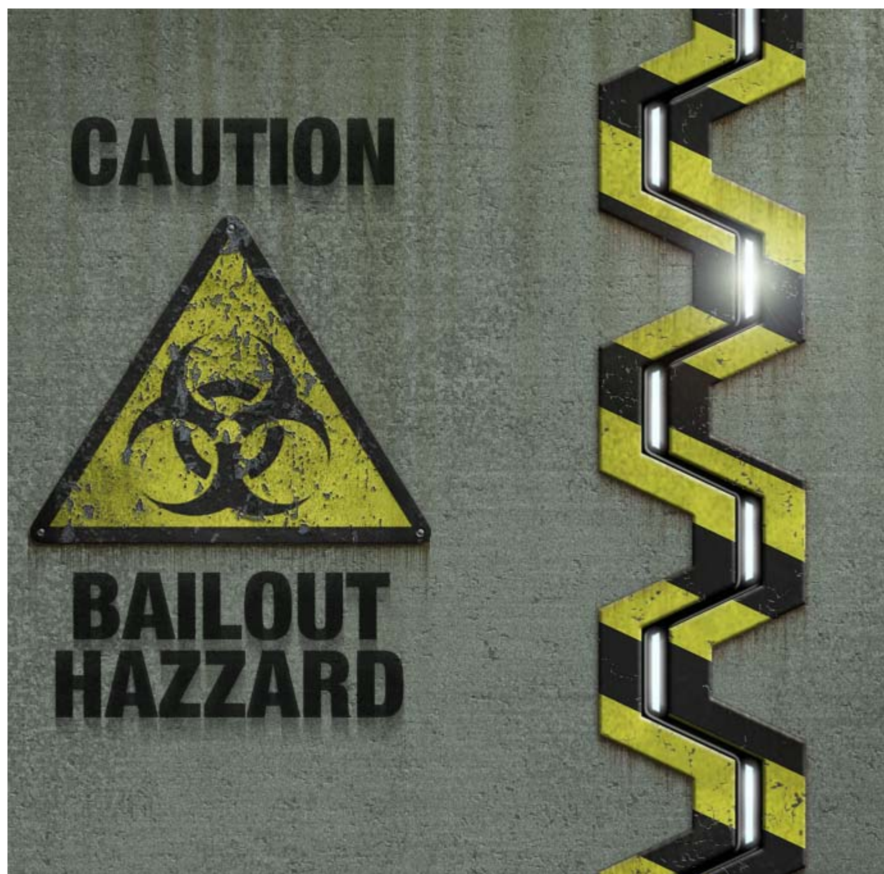
When is cooperation between governments especially important? Increased interbank linkages make cooperation more important as they increase the extent of cross-border contagion. Yet internationalisation in another dimension can reduce the need for more cooperation: if consumers deposit more of their funds abroad, governments start to care about the health of foreign banks too.

As a consequence of the recent crisis, there is a worldwide debate on how to improve global crisis management. Our research contributes to this debate by studying different cooperation regimes and analysing which countries gain or lose from them. Political efforts to improve international cooperation have led to the creation of some new institutions, which roughly correspond to the ones that we consider.

For example, the members of the Nordic-Baltic Stability Group, created in August 2010, have agreed to share not only information but also the costs of intervention in the event of a future crisis. The group corresponds to what we call a central authority with fiscal power. It can decide whether a bailout of a bank in distress is undertaken and how the resulting costs are shared between countries.

Our analysis shows that with such an arrangement, there is no guarantee that at least one country gains from cooperation while no country loses. This may limit the willingness of countries to stick to the agreement when a crisis actually happens.

Another example is the European Systemic Risk Board (ESRB), a European Union institution recently established with the task (among other things) of issuing recommendations on how to deal with banks in distress. So far, the ESRB only has reputational power. Our analysis may help explain why: a central authority that can



prescribe a bailout, which then has to be financed by one country alone, always makes that country worse off compared with a situation where decisions are taken unilaterally.

The willingness of policy-makers to agree in advance on institutions for crisis management and sharing rules for the costs of future interventions is also limited because of concerns related to 'moral hazard'. It is widely agreed that implicit bailout guarantees – that is, expectations among some banks and investors that they will be bailed out if the worst comes to the worst – led to excessive risk-taking in the run-up to the recent crisis. Explicit guarantees could worsen this problem in the future.

As an alternative to formal cooperation, structural reforms of the financial and banking system are being discussed so as to avoid international conflicts in the first place. Restricting the cross-border operations of banks may help to reduce the risk of international contagion. It may also counteract the divergence between which national authorities have the power to intervene in case of distress and which country's citizens have the major stake in the institution concerned. Yet regulations have other costs, such as limiting risk-sharing between countries and reducing international competition among financial institutions.

Financial reform will continue over the next few years. Finding the right balance between the efficiency gains from financial globalisation, the preservation of national sovereignty and optimal cooperation when managing a crisis will remain a challenging task for policy-makers worldwide.

This article summarises 'Bank Bailouts, International Linkages and Cooperation' by Friederike Niepmann and Tim Schmidt-Eisenlohr, CEP Discussion Paper No. 1023 (http://cep.lse.ac.uk/pubs/download/dp1023.pdf).

Friederike Niepmann is a visitor in CEP's globalisation programme and a PhD candidate at the European University Institute in Florence.
Tim Schmidt-Eisenlohr is at the Centre for Business Taxation, University of Oxford.

Further reading

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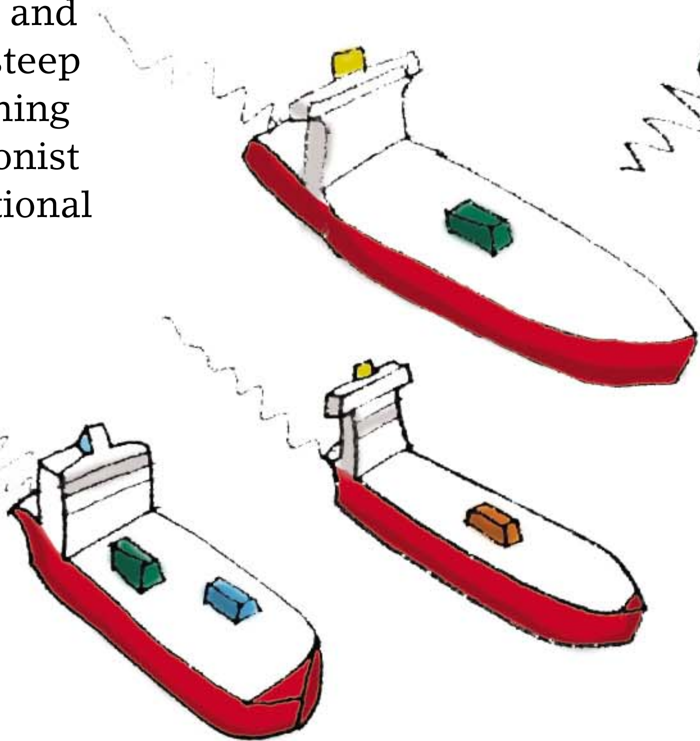
The key is to find the right balance between financial globalisation, national sovereignty and optimal cooperation in crisis management

World trade fell dramatically in 2009 after the financial crisis worsened in the autumn of 2008. According to research by **Giordano Mion** and colleagues, the trade collapse reflected a steep drop in global demand rather than something specific to trade, such as growing protectionist measures. This was not a crisis of international trade itself.



Trade crisis – what trade crisis?

World trade in manufactured goods fell by about 30% between the first half of 2008 and the first half of 2009. This trade collapse exceeded the fall in global GDP as well as the trade fall predicted by many standard economic models.

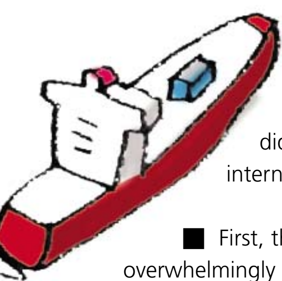
Explanations abound, as illustrated by the comprehensive discussion in the volume of studies edited by Richard Baldwin (2009). Some emphasise a crisis of the supply side of trade, citing such causes as a shortage of trade finance, disruption of global value chains and increased barriers to trade as governments implemented protectionist measures. For others, the fall in trade is simply the flipside of a fall in the demand for manufactured goods, postponed purchases of intermediate goods and the drawing down of inventories.

Which explanations turn out to be correct? Analyses at the aggregate level and/or the level of broad product categories are not well suited to providing a clear answer to this question because the different effects and margins of trade adjustment cannot be separately identified. Econometric analysis of firm-level data is therefore critical to discriminate between alternative explanations.

Yet despite a wealth of statistical analysis, econometric work on firm-level data is scarce. To the best of our knowledge, only one study makes use of some firm-level data, examining the fall in French trade among various classes of exporter size and various sectors that depend to different degrees on external finance (Bricongne et al, 2009). But the study does not exploit individual firm characteristics to discriminate between different explanations for the trade collapse.

Our research tries to fill this gap, using data on Belgian exports and imports at the firm-product-country level as well as a wealth of balance sheet information. We compare the first half of 2008 and the first half of 2009 as Belgium's trade collapse started in November 2008. Four key findings stand out, which together

> The trade collapse was driven by changes in prices and quantities rather than changes in numbers of active firms, products traded and national markets served



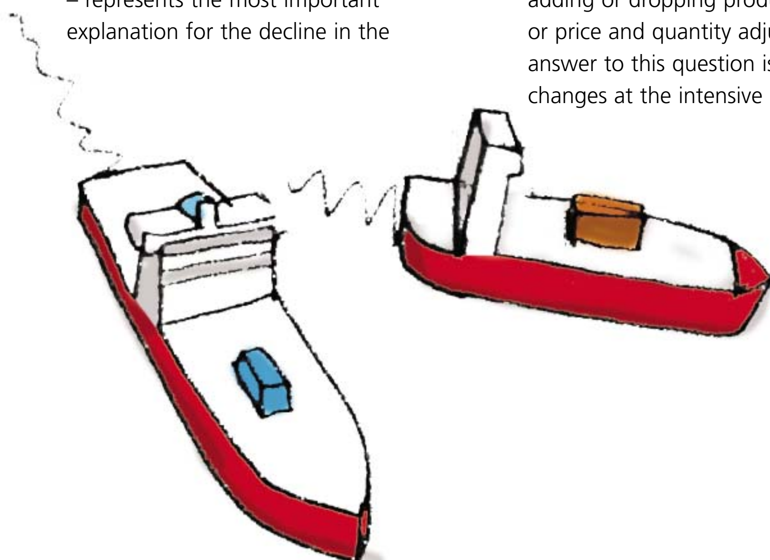
lead us to conclude that the trade collapse did not result from a crisis of international trade itself:

■ First, the fall in trade overwhelmingly occurred at the 'intensive margin' – that is, in the prices that trading firms charged and the quantities they sold – rather than at the 'extensive margin' – that is, in the number of firms involved in trade and the range of products they sold and national markets they served.

■ Second, the fall in demand for tradable goods – which particularly affected durables and intermediate goods – represents the most important explanation for the decline in the intensive margin, contributing 70-80% of the total fall.

■ Third, although trade finance and involvement in global value chains played some role in the reduction of trade, they affected domestic operations in a roughly similar way.

■ Fourth, percentage changes in exports and imports did not systematically deviate from changes in turnover and intermediate consumption respectively.



A fall at the intensive margin of trade

Which margins mattered most for the 2009 trade collapse: firm entry or exit; adding or dropping products and markets; or price and quantity adjustments? The answer to this question is important: changes at the intensive margin (where firms reduce prices and quantities within existing trading relationships) are likely to be less durable and less costly than changes at the extensive margin (where firms drop out of some markets altogether or reduce the range of products sold).

Table 1 shows that virtually all of the trade collapse was driven by changes in the prices quoted and the quantities shipped. Though both exports and imports fell by about 27%, almost all trading firms remained active, with hardly any changes in the average number of countries they traded with or in the average number of products shipped to or sourced from each country.

On the one hand, these results echo findings by CEP's Stephen Redding and colleagues on the impact of the Asian financial crisis on US trade along these different margins (Bernard et al, 2009). They also confirm evidence on comparable French data for the 2008-09 crisis (Bricongne et al, 2009).

On the other hand, these results highlight the extreme flexibility of business relationships across firms, their input suppliers and their clients. This is reassuring: a massive reduction in the number of trading firms, countries or products would probably make recovery more costly and sluggish.

Table 1:

Changes in the margins of Belgian trade, comparing the first half of 2008 and the first half of 2009

Total imports (all firm-country-product combinations)

		Extensive margin			Intensive margin	Components of sales	
Period	**Total imports**	**Firms**	**Countries**	**Products**	**Sales**	**Quantities**	**Prices**
First half of 2008	€106.10bn	31,497	3.88	7.02	€123,681	118,747	1.04
First half of 2009	€76.64bn	33,576	3.74	6.78	€89,855	98,089	0.92
Percentage change between 2008 and 2009	-27.77%	6.60%	-3.54%	-3.32%	-27.35%	-17.40%	-12.05%
Percentage contribution of each margin to the fall in trade			1.79%		98.21%		

Total exports (all firm-country-product combinations)

		Extensive margin			Intensive margin	Components of sales	
Period	**Total exports**	**Firms**	**Countries**	**Products**	**Sales**	**Quantities**	**Prices**
First half of 2008	€101.25bn	18,053	6.62	5.58	€151,844	115,277	1.32
First half of 2009	€74.69bn	18,227	6.49	5.59	€112,925	92,221	1.22
Percentage change between 2008 and 2009	-26.23%	0.96%	-1.92%	0.16%	-25.63%	-20.00%	-7.04%
Percentage contribution of each margin to the fall in trade			2.68%		97.32%		

Few systematic differences within or between industries

Next, we analyse the fall in the intensive margin of trade across the firm, country and product dimensions to see if some firms, industries, countries or products were affected more than others. Our analysis shows that the intensive margin fall was driven by a generalised reduction in demand for tradables as measured by the reduction of GDP growth in the destination markets.

Our analysis further reveals that demand for consumer durables and intermediate goods was more severely affected than demand for consumer non-durables. The remaining fall in trade is explained by the poor financial health of firms in the wake of the credit crunch and their degree of involvement in international value chains.

A comparable fall in domestic operations

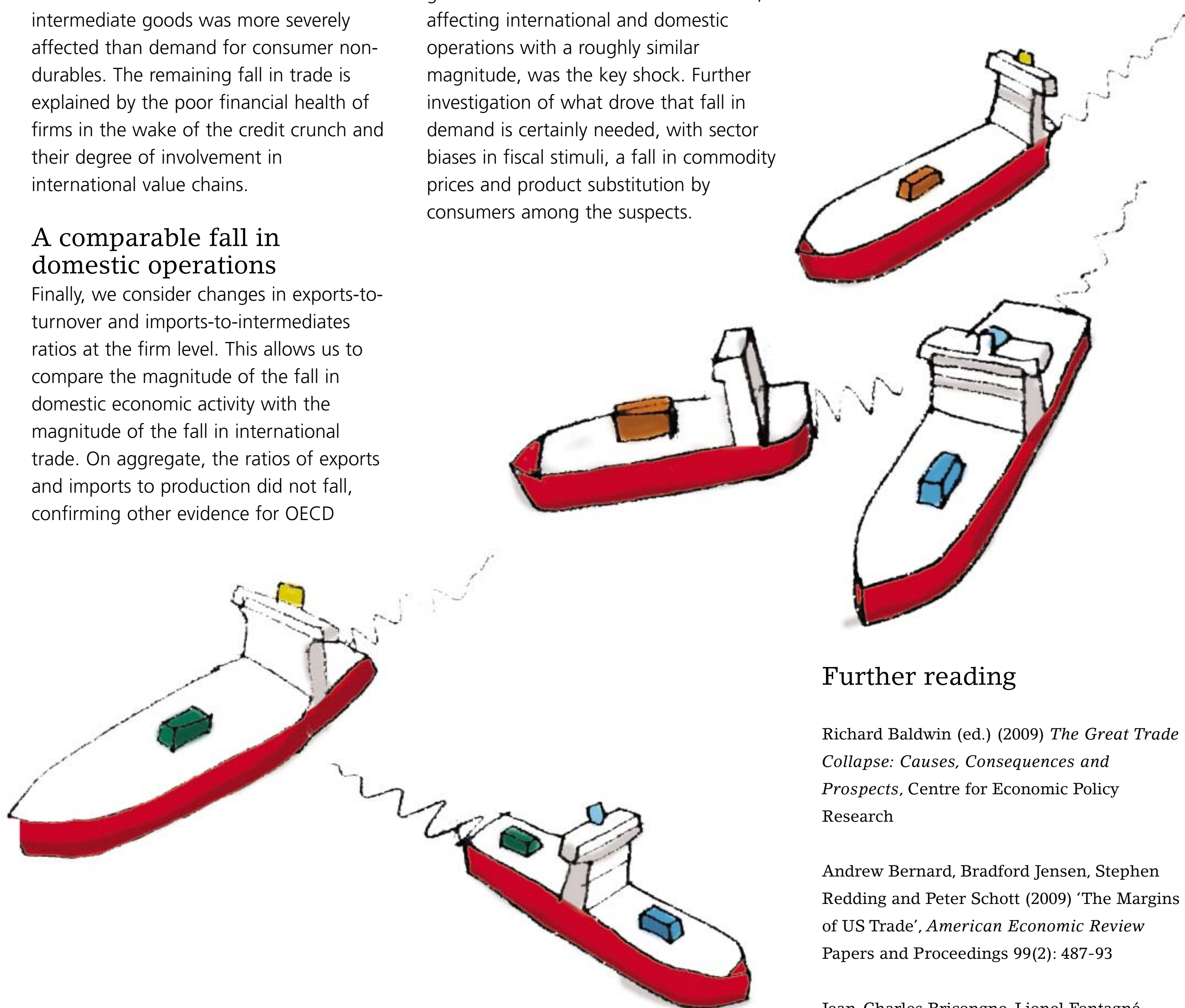
Finally, we consider changes in exports-to-turnover and imports-to-intermediates ratios at the firm level. This allows us to compare the magnitude of the fall in domestic economic activity with the magnitude of the fall in international trade. On aggregate, the ratios of exports and imports to production did not fall, confirming other evidence for OECD countries (Eaton et al, 2009). Crucially, our analysis reveals no cross-industry pattern and no differences driven by firm characteristics, indicating that finance and disruption of value chains affected firms' international and domestic activities equally.

Conclusion

Our investigation leads to the conclusion that trade per se is not in crisis and so it would be better to talk about a trade collapse rather than a trade crisis. A generalised fall in demand for tradables, affecting international and domestic operations with a roughly similar magnitude, was the key shock. Further investigation of what drove that fall in demand is certainly needed, with sector biases in fiscal stimuli, a fall in commodity prices and product substitution by consumers among the suspects.

This article summarises 'Trade Crisis? What Trade Crisis?' by Kristian Behrens, Gregory Corcos and Giordano Mion, CEP Discussion Paper No. 995 (http://cep.lse.ac.uk/pubs/download/dp0995.pdf).

Kristian Behrens is at the Université du Québec à Montréal. **Gregory Corcos** is at the Norwegian School of Economics and Business Administration. **Giordano Mion** is a lecturer in economic geography at LSE and an associate in CEP's globalisation programme.



The trade collapse highlights the extreme flexibility of business relationships across firms, their input suppliers and their clients

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Jonathan Eaton, Sam Kortum, Brent Neiman and John Romalis (2009) 'Trade and the Global Recession', mimeo

in brief...

Unequal shares: the economics of elite football clubs

A few elite clubs dominate the football leagues of Europe. **Eran Yashiv** examines what drives the success of these clubs both on and off the field, how it has generated the big increase in footballers' pay and transfer fees – and prospects for the clubs and their owners.

The top clubs in the major football leagues of Europe invariably come from big cities. In England's Premier League, for example, the top nine clubs last season came from four big cities: London, Birmingham, Manchester and Liverpool. Why do we see this empirical regularity and what does it imply for players, managers, fans and owners?

The logic is as follows: big cities allow for a big fan base and a big stadium – and cities are typically old enough to have clubs with a rich history. The combination of the fan base, the stadium and the history makes for high revenues. High revenues allow for the purchase of the star players who are crucial for both commercial and football success. The stars attract more TV coverage and enhance merchandise sales, thereby augmenting revenues. And with football games often decided by a one or two goal margin, the stars' skills prove crucial.

Positive feedback follows: with commercial and football success, the fan base rises, star players are more easily attracted, revenues increase and the process is repeated. While it is true that not every club in a big city joins the elite and not every big city has an elite club, the elite clubs do come from the big cities.

This positive feedback mechanism leads to a very skewed distribution of clubs, with a handful dominating in terms of both football and revenues. The numerous other clubs are left with relatively low revenues and few trophies. In terms of players, the distribution is also skewed, with the stars concentrating in the big clubs.

Take the following striking example: in the 18 seasons of England's Premier League, it has been won by Manchester United 11 times. The other seven times were won by just three clubs: Arsenal and Chelsea (three times each) and Blackburn (once).

Being at the top means high wages for footballers and satisfaction for fans – but not handsome profits for the shareholders

In the other major European leagues the situation is similar if not more extreme. There are two big Spanish clubs – Real Madrid and Barcelona – which are placed much higher than the rest in terms of both revenues and football. Together they have won 51 out of 79 league titles. Similarly, there are four Italian clubs topping the revenue list and the league – Juventus, Inter Milan, AC Milan and Roma. The situation is similar in Germany, Italy, Portugal and other European countries.

Will global mass communications change this? Probably not, as TV viewers and web users are attracted to the successful, rich clubs with the stars, thereby yet again augmenting their revenues and profits.

Can a club break into this elite group? Given the circularity of big city size, big fan base, big revenues and big football success, it is hard. The implication is that only a club that is able to buy stars and to build a big fan base with a big stadium can enter the elite group. Manchester City is probably an experiment in progress in this direction, but the outcome is still uncertain.

In any case, it looks like very few clubs will be able even to try. This means it makes sense for investors to buy clubs like Manchester United, Chelsea or Liverpool. Buying a club like Portsmouth or even Newcastle is much less interesting.

Another issue is the difference between the very top teams (such as Manchester United) and the second tier of the elite group (such as Arsenal). The very top teams have a squad with more stars. It therefore pays to invest in these players to move up within the elite group.

This explains why the wages paid to footballers and their transfer fees have risen so much. There are few elite clubs and they compete for a small number of stars. The high wages and high prices of the stars pull up the wages and prices of the rest. The 'small elite' set-up generates a 'race to the top' as each star can make a big difference.

This is a bad outcome for club owners and managers. No wonder that the latter keep complaining about the high cost of players. And in recent years, we have seen only small profits or even losses at the big clubs. This is due to the high expense of footballers as well as the need to keep investing in stadiums and merchandising to maintain elite club status. So being at the top may mean high wages for players and satisfaction for fans but not necessarily handsome profits for the shareholders.

This structure of the industry evidently has important implications for potential buyers and sellers of clubs, as well as investors. There are two ways in which it may eventually change: one is when profits in the elite clubs are so low or negative (due to high wages and high costs of buying players) that a new regime emerges, one of lower costs and a more even distribution. This may happen through the piling up of debt, which will require the clubs to scale back.

Change may also occur if governments intervene and impose salary caps: this would also lead to a more equal distribution. But until such things happen, football will remain a very unequal sport and a very unequal business.

Football is likely to remain a very unequal sport and a very unequal business

Eran Yashiv is a professor of economics at Tel Aviv University and a CEP research associate.

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The Comingled Code: Open Source and Economic Development
Josh Lerner and Mark Schankerman
MIT Press, £25.95/$35

This book provides rigorous economic analysis and systematic economic evidence of the impact of open source software on consumers, firms and economic development in general. 'The findings contradict much conventional wisdom', says a recent review in *The Economist.*

The Labour Market in Winter: The State of Working Britain
Edited by Paul Gregg and Jonathan Wadsworth
Oxford University Press, £30/$55

These essays by leading experts on the UK labour market provide an overview of key policy issues, with a focus on the recent recession and its aftermath. The book is the first comprehensive analysis of the downturn and the Labour government's record on employment, education and welfare.

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CHANGES IN LABOUR MARKET INEQUALITY

In this lecture, the third in a series to celebrate 21 years of the CEP, Stephen Machin surveys significant research findings on wage inequality that have emerged from the Centre over the past three decades.

Speaker: Professor Stephen Machin, Director of Research, CEP
Date and time: Tuesday 15 March 2011, 18:30
Venue: LSE Old Theatre, Ground Floor, Old Building, Houghton Street, London WC2A 2AE

EXORBITANT PRIVILEGE: THE RISE AND FALL OF THE DOLLAR

Is the dollar now poised to lose its exorbitant privilege as the leading international currency? Barry Eichengreen discusses why it will remain at the heart of the global financial system.

Speaker: Professor Barry Eichengreen, University of California, Berkeley
Date and time: Tuesday 22 March 2011, 18:30
Venue: LSE Hong Kong Theatre, Ground Floor, Clement House, 99 Aldwych, London WC2B 4JX

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Speaker: Dr Peter Orszag, Vice Chairman of Global Banking, CitiGroup, and former director of the US Office of Management and Budget
Date and time: Tuesday 31 May 2011, 18.30
Venue: TBC

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