The future of British cities

Happiness at work
Childhood bullying
Scottish education
Bad management
Chinese exports
Hospital choice
Falling crime
What has been the impact of your research? University managers across the country are urgently putting this question to their professors, trying to gather systematic evidence not only of the quality of the scholarship but also of the difference it has made to the world. This is a challenging task – the output and influence of science come in diverse forms – but it is something that has always been a focus of work at the Centre for Economic Performance (CEP). As ever, this CentrePiece gives an indication of the kind of answers that CEP researchers might provide if asked for an ‘impact case study’.

As its name suggests, the Centre is primarily concerned with evaluating economic performance – of places, people and policies. All three feature in our cover story, where Henry Overman discusses the future of British cities. This is an example of where research can reveal the extent to which policies damage the economy. Overman shows how planning restrictions and other misguided measures are keeping cities like Manchester smaller and less successful than they otherwise would be.

Research can also reveal the positive and sometimes unexpected consequences of policies. Here, for example, Mirko Draca explains how the minimum wage and enhanced educational opportunities for the most disadvantaged have had the indirectly beneficial effect of reducing crime rates. And Stephan Seiler and colleagues report that the mid-2000s choice reforms in the NHS have raised the quality of hospitals and led to better health outcomes, especially for the most severely ill.

Finally, research can reveal the enormous potential benefits from changing policies – whether at the government level or within firms and other organisations. One example in this issue is an analysis of the gains to Chinese consumers if their government were to abandon subsidies to domestic firms selling mainly to export markets. Another is CEP’s global survey of management practices, which consistently demonstrates how relatively low-cost changes can yield significant improvements in firms’ productivity, particularly in middle-income countries like India.

Elsewhere, we summarise recent studies of education and wellbeing, both areas where CEP researchers have been deeply engaged with the design and evaluation of policies. One piece finds that although we typically value our work positively when reflecting on its meaning in our lives, we don’t much enjoy it ‘in the moment’. This is reminiscent of a pithy remark by the twentieth century American author Dorothy Parker, which is also a neat way to end an article: ‘I hate writing, I love having written.’

Romesh Vaitilingam, Editor
romesh@vaitilingam.com
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The UK’s ‘riddle of peacefulness’: what explains falling crime?
The growth of British cities over the past 15 years or so represents a significant turnaround from the period between the Second World War and the mid-1990s. London, for example, lost two million residents in the half-century after the war, only to see that loss completely reversed more recently. Positive population growth in Birmingham, Manchester and Newcastle during the 2000s represented an even more recent turnaround: these cities all had declining populations in the 1990s.

The turnaround has not been uniform across the country: for example, Liverpool and Sunderland have continued to see their populations static or declining. It is also unclear the extent to which the resurgence of some cities will be hit by the continued economic downturn.

The recent economic performance of British cities is essentially driven by two interconnected phenomena. First, the structure of the economy has shifted towards activities that tend to benefit more from urban locations – this is true of both the general shift from manufacturing to services and of shifts within those broad areas. Second, at the same time as cities have become more important as places of production, they have also become more important as places of consumption.

The fact that the structural shift has tended to benefit more skilled workers means that these two changes have reinforced one another: successful cities have attracted higher skilled workers, who in turn have made those places more successful. Indeed, these two factors explain not only the resurgence of British
But area effects do play some role and our research seeks to understand what underpins those area effects. Why is it that workers are more productive when they locate in some places rather than others? The evidence suggests that the pure size of a place plays the most important role.

Bigger places make it easier to interact with other firms and other people (be that buying and selling from them or exchanging ideas with them). Such ‘agglomeration economies’ (benefits from size) tend to be self-reinforcing. As a place becomes more productive, it attracts more people and firms, which, in turn, makes it more productive.

If a place itself isn’t big, the next best thing is to be well connected to places that are big and successful – such as commuter towns around London. It also helps to have lots of skilled workers because higher skilled workers earn even more when they are surrounded by lots of other higher skilled workers.

Finally, it helps if an area has one of the industries that do well in cities (advertising, for example) or is doing well nationally (for example, management consultancy). These issues are discussed more extensively in our work for the Manchester Independent Economic Review (http://www.manchester-review.org.uk).

Can urban policies make a difference to the productivity of a place? The research we have done so far suggests that it is very difficult for policy directly to target and improve area-level productivity. Area-based policies, such as the ‘single regeneration budget’ and the ‘local enterprise growth initiative’, appear simply to shift employment around relatively small areas.

Giving money directly to firms – for example, through ‘regional selective assistance’ – does seem to be able to create some additional employment at larger spatial scales, but it doesn’t seem to have any measurable effect on productivity (Criscuolo et al, 2012). That is troubling because increasing employment in smaller low productivity firms will tend to drive down area-level productivity.

Improving road links has a similar impact: it clearly affects the location of employment, but in our research to date, measurable effects on productivity have
proved elusive (Gibbons et al, 2012). Since the evidence suggests that it is very hard to affect area-level productivity, are there other things that urban policy can do to help improve the economic performance of British cities? First, it is important to note that while there are many benefits from urban growth, there are also costs – and as cities grow, so too do the costs of living and doing business in a city. Policy can have a very large effect on these costs and this, in turn, can have a big impact on urban economic performance.

The weight of evidence shows that policy in Britain works to increase the costs of living. One key figure is that between 1970 and 2006, real house price growth in Britain averaged an incredible 4.5% per annum, the highest rate in the OECD. In contrast, the Netherlands experienced 3.5% growth, the United States a little over 2% and Germany saw house prices stay constant in real terms.

Two things might explain this phenomenal increase. One is that we experienced a house price bubble as increases in supply were unable to keep up with speculative increases in demand. This is what happened in Spain and Ireland, which experienced similar price increases while building many more houses.

But Britain’s story is fundamentally different because most of the increase in prices was a result of building too few houses in areas where people want to live. This, in turn, is down to the fact that our planning system strongly constrains the supply of land.

Two of my SERC colleagues have attempted to quantify the role of the planning system in driving high house prices in Britain (Hilber and Vermeulen, 2012). According to their estimates, a local authority that moved from the average level of ‘restrictiveness’ to no restrictions would have houses that were about 35% cheaper. That might seem extreme, but even moving from the average restrictiveness in the South East to the restrictiveness of local authorities in the North East would see housing 25% cheaper.

These are significant costs of the planning regime – and they are not just limited to housing. Another study has looked at the impact of supply restrictions on the cost of office space (Cheshire and Hilber, 2008). This was done by comparing the cost of renting space with the cost of developing it (using the idea that large mark-ups of revenues over costs should be arbitraged away by commercial developers unless they are constrained by planning policy). The research gives a rough measure of the regulatory ‘tax’ imposed by the planning system: in the West End of London, the tax is around 800%; in Canary Wharf, it’s around 320%.

When people see these figures, they tend to argue that London is ‘beautiful’ and needs protecting. But central Paris is attractive too and the estimated regulatory tax there is 305% (and around 160% in La Defense). The other typical objection is that London is already crowded, but downtown Manhattan (which is very crowded) manages a tax rate that is somewhere between 0% and 50%.

This isn’t just a problem for London: Birmingham imposes a 250% tax rate. To put this in perspective, towards the end of the boom years, office rents in Birmingham were comparable to office rents in San Francisco. With rents like that, is it any wonder that Birmingham might struggle to attract private sector employers? SERC research also suggests that planning restrictions reduce supermarket productivity by about 20%: in other words, planning increases the price of our weekly shop (Cheshire et al, 2011).

Does any of this matter? I think that there are two important implications. First, these restrictions make our more successful cities very expensive. In fact, the productivity effect of living in our more successful cities is far outweighed by the cost of living effect. People who choose to live in those cities are compensated by the urban amenities. But the amenities aren’t sufficient to compensate the many people who are priced out of more successful areas: posh restaurants are cold comfort for the urban poor.

What about the economic performance of British cities? Here too, there is a case to be made that planning restrictions are having a major impact on the urban system as a whole. In particular, they make some of our ‘second-tier’ cities too small, which has important implications for their economic performance given the link between city size and productivity.

This is shown by an empirical regularity called Zipf’s law. Applied to cities, Zipf’s law suggests that the second largest city should be half the size of the largest, the third largest city should be a third the size of the largest, and so on. To a reasonable approximation, this law holds for the relative sizes of cities in...
most countries. But it does not hold in Britain where our second-tier cities appear to be too small.

Most people infer from this statement that London is too big. But it turns out that London is about the right size relative to Britain's smaller cities (say those ranked from about 25th and lower). The issue is that the rest of our urban population tends to be 'spread out' across a number of moderately large cities. Zipf's law would require some of those cities to become much larger and some to become much smaller.

What stops that from happening? Part of the problem is supply restrictions. Take Manchester, one of the recent urban success stories, which has seen the fastest growth in population outside London and the South East. As documented in the city's independent economic review, supply constraints meant that this rise in population was accompanied by steep increases in house prices and office rents (at least in the more successful parts of the city). This, in turn, will have choked off further growth.

Planning constraints are not the only problem. Our larger cities struggle to provide good schools, accessible open space and safe streets. All of these things discourage more mobile households (particularly families) from living in our more successful cities. Concentrations of higher skilled workers are important for cities, so if higher skilled workers are first attracted to cities only to be ‘forced’ out as their children get older, this has implications for urban economic performance.

More controversially, I would argue that our relatively successful cities have also been hampered by the fact that ‘place-based’ interventions tend to involve a lot of ‘jam-spreadning’. Spending money in a city like Manchester on new transport links, reclaiming land and improving parks is seen as ‘unfair’ if we don’t pursue similar policies in less successful urban areas. As a result, what money is spent gets spread around rather than trying to build on the successes.

In short, I believe that the policy mix of supply constraints and jam-spreadning has led to cities like Manchester being smaller than they otherwise would have been. This has fundamental implications for the economic performance of those cities and the wider British economy.

Focusing more on our relatively successful cities would raise very difficult questions about what happens in the places ‘left behind’. Of course, they should not be ‘abandoned’, but the policy mix in these areas needs to be more realistic about their prospects. The balance of spending should be strongly tilted towards ensuring better education and training for local people and away from shiny buildings and expensive new transport infrastructure that will do little, if anything, to turn these places around.

I recognise that this is a very difficult policy prescription for constituency-based politicians. But the economic performance of Britain’s cities is vitally important — and improving that performance requires a serious debate about what urban policy can and should do better.

London is not too big; Britain’s second-tier cities are too small

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

For more commentary on urban and regional policy issues, see the SERC blog: http://spatial-economics.blogspot.co.uk

Further reading


Most research on happiness relies on surveys that ask people to reflect back on and evaluate their experiences ‘these days’ or ‘nowadays’. In doing so, respondents usually attach weight to events that are related to their overall sense of well-being or satisfaction with their lives.

These studies find consistent evidence that paid work contributes substantially to overall life satisfaction and general happiness (for example, Blanchflower and Oswald, 2011). The research also finds that becoming unemployed results in a precipitous decline in well-being, from which people only recover when they find work again (Clark et al, 2008).

Paid work is a central part of most people’s lives, so it should not be surprising to find that it is critical to the way we feel about ourselves and our sense of well-being. Perhaps it is because work generates a feeling of being worthwhile, leading to a sense of meaning or purpose in life.

But how does this square with the utility that individuals derive from the activities they perform day-to-day?

After all, it is standard in economics to assume that there is a ‘disutility’ attached to work, which is why labour supply is responsive to wages – if the pay is higher, people will typically put in more hours and more effort.

Answering this question requires measures of momentary well-being that capture the feelings that individuals express at the time they are undertaking an activity rather than on reflection afterwards. We are able to do this using a new data source called Mappiness, which permits people to record their wellbeing via a smartphone.

The data contain more than a million observations on tens of thousands of individuals in the UK, collected since August 2010. We can analyse these data together with information about the personal, work and household characteristics that individuals provide when registering for Mappiness.

People who have downloaded the Mappiness app receive randomly timed ‘dings’ on their phone to request that they complete a very short survey. They are asked to rate how happy they feel and how relaxed they are; whether they are alone and, if not, whom they are with;
whether they are indoors, outdoors or in a vehicle; and whether they are at home, at work or elsewhere. Finally, they are asked what they were doing ‘just now’.

The respondent chooses all that apply out of 40 response options, including working. Together with the responses to the survey, the app transmits the location of the individual (via satellite positioning) and the precise time at which the survey was completed. It also records the time elapsed between the random ‘ding’ and the response, thus making it possible to distinguish between immediate, ‘random’ responses and delayed responses.

Although there are drawbacks to this method of data collection, such as non-random sampling, it has considerable advantages over the more traditional ‘day reconstruction method’ (DRM), in which individuals are asked to reconstruct their activities and experiences of the preceding day. DRM responses may be subject to recall bias and retrospective distortion. In contrast, Mappiness obtains instantaneous responses so that people report their feelings at the time they are undertaking the activity.

We use these unique data to run analyses that isolate the independent association between episodes of paid work and momentary happiness and anxiety. On average people respond 60 times, so we focus primarily on variance within individuals over time, thus avoiding comparisons across individuals, which might be confounded by differences in their propensity for work and happiness.

So what do we find? First, and perhaps most strikingly, we find that paid work is ranked lower than any of the other 39 activities people engage in, with the exception of being sick in bed. A similar result was obtained in a small DRM study in the United States (Kahneman et al., 2004), but this is the first time the association has been uncovered in a large-scale study. The effect is equivalent to a 7-8% reduction in happiness relative to circumstances in which someone is not working. Paid work has a similar though slightly larger negative impact on whether an individual feels relaxed.

Second, precisely how unhappy or
People are positive about paid work when reflecting on the meaning and value of their lives.

This article summarises ‘Are You Happy While You Work?’ by Alex Bryson and George MacKerron, CEP Discussion Paper No. 1187 (http://cep.lse.ac.uk/pubs/download/dp1187.pdf).

Alex Bryson of the National Institute of Economic and Social Research is a visiting research fellow in CEP’s labour markets programme. George MacKerron of the University of Sussex is co-creator of Mappiness (http://www.mappiness.org.uk).

Further reading


Anxious someone is while working depends on the circumstances. Wellbeing at work varies significantly with where you work (at home, at work or elsewhere); whether you are combining work with other activities; whether you are alone or with others; and the time of day or night at which you are working. Many of these circumstances can be influenced by public policies to facilitate working conditions conducive to ‘happier’ working – something that economists have noted can also improve productivity (Oswald et al, 2009).

We are left with the question as to why work appears to have such an adverse effect on people’s momentary wellbeing. We know that part of the answer is related to anxiety at work. Even though people are positive about paid work when reflecting on the meaning and value of their lives, actually engaging in paid work comes at some personal cost in terms of the pressures and stress they face while working.

But this is not the whole story. Working continues to be negatively correlated with happiness, even when it is combined with other activities that are pleasurable. Furthermore, even when we condition on feelings of relaxation, working continues to be negatively associated with momentary wellbeing.

Instead, it appears that work is negatively associated with wellbeing, such that we would rather be doing other things. In other words, work really is a disutility as economists traditionally conceive of it, one that requires some form of monetary reward to induce effort.
As the people of Scotland consider their vote in next year’s referendum, what evidence is there that the nation can succeed ‘on its own’? Gill Wyness, Stephen Machin and Sandra McNally explore how Scotland compares with the rest of the UK in education, an area of public policy that is already highly devolved.

Education in Scotland: performance in a devolved policy area

When considering whether or not Scotland should gain independence from the UK, voters may wish to think about how their nation has fared in areas of public policy that are already highly devolved. One such area is education, where there are several key differences between the Scottish system and what is in place in the rest of the UK. Scotland’s secondary school curriculum is non-statutory; its qualification system of Scottish Standard Grades and Highers is quite different to the system of GCSEs and A-levels in the rest of the UK; and while the power of local authorities is diminishing in England, Scotland’s local authorities continue to play a powerful management role.

Given these differences, examining the performance of young people educated in the devolved Scottish system in comparison with those educated in England, Wales and Northern Ireland has the potential to offer valuable insights into the impact of Scottish devolution and the potential impact of full independence.

Evidence from national statistics

Our research tracks educational achievement at several key stages of compulsory and non-compulsory education in Scotland, England, Wales and Northern Ireland over the past 20 years. We examine data on widely used educational performance measures reported in government statistics – for example, the proportion of pupils achieving five good GCSEs in England and the proportion of pupils achieving five awards at level 4 of the Scottish Credit and Qualifications Framework (SCQF).

Making comparisons is difficult because of the very different systems of exams and qualifications in Scotland compared with the rest of the UK. In particular, compulsory exams (Scottish Standard Grades) are taken earlier in Scotland’s education system is quite different from the rest of the UK
Scotland (at age 14/15 compared with age 15/16 in the rest of the UK) and spread over two years.

Our analysis shows that Scotland’s performance has been static over time while performance in the rest of the UK has been increasing. Nevertheless, Scotland performs well relative to the rest of the UK at age 16 (see Table 1 and Figure 1). While this suggests that Scottish children are reaching school leaving age with a good grounding in English and maths, it is important to know what happens next.

We look at staying on rates of Scottish children as well as attainment in post-compulsory schooling and higher education. The results are rather less encouraging: national comparison statistics show that staying on rates for the second year of post-compulsory school in Scotland are lower than in the rest of the UK, as, in turn, are university participation rates.

This may be a result of the more modular system of Scottish Highers, which can be completed in one year, in contrast with A-levels, which must be studied over two years, essentially requiring pupils to stay in school for another year. This could be evidence that the system of one-year Highers is a disincentive to stay on for another year and acquire the necessary qualifications for university. Again, however, it is difficult to compare such different systems. For example, a higher proportion of students

Despite big differences in education systems, pupils across the UK nations perform similarly in international tests

Table 1:
Education performance across the UK nations: national data sets

<table>
<thead>
<tr>
<th>Measure</th>
<th>Source</th>
<th>England</th>
<th>Wales</th>
<th>Scotland</th>
<th>Northern Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five or more GCSEs A*-C or equivalent</td>
<td>GCSE exams or equivalent 2010/11</td>
<td>80.5%</td>
<td>67.3%</td>
<td>78.8%</td>
<td>75.3%</td>
</tr>
<tr>
<td>A*-C GCSE in maths</td>
<td>GCSE exams or equivalent, 2006/07</td>
<td>54.6%</td>
<td>50.0%</td>
<td>48.3%</td>
<td>54.7%</td>
</tr>
<tr>
<td>A*-C GCSE in English</td>
<td>GCSE exams or equivalent, 2006/07</td>
<td>60.2%</td>
<td>58.9%</td>
<td>69.8%</td>
<td>62.9%</td>
</tr>
<tr>
<td>Percentage of 17 year olds at school or in further education</td>
<td>Office for National Statistics</td>
<td>68%</td>
<td>62%</td>
<td>41%</td>
<td>70%</td>
</tr>
<tr>
<td>Percentage of 17-24 year olds with no qualifications</td>
<td>Labour Force Survey, 2009</td>
<td>7.0%</td>
<td>7.8%</td>
<td>7.4%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Percentage of 18 years olds with two or more A-levels</td>
<td>A-level results, 2010/11</td>
<td>51.8%</td>
<td>27.1%</td>
<td>33.2%</td>
<td>50.2%</td>
</tr>
<tr>
<td>Percentage of 18 year olds participating in higher education</td>
<td>UCAS</td>
<td>28.8%</td>
<td>26.2%</td>
<td>23.8%</td>
<td>33.7%</td>
</tr>
</tbody>
</table>
in Scotland study for higher education degrees in colleges of further education rather than in universities; this distorts comparisons based on university participation alone.

**Evidence from international survey data**

Because of the problems associated with comparing educational attainment across countries with different systems, we also look at three international surveys in which all the UK nations participate: the Programme for International Student Assessment (PISA), a study of the reading, science and maths abilities of 15 year olds; the Progress in International Reading Literacy Study (PIRLS), which assesses reading comprehension at age 10; and the Trends in International Mathematics and Science Study (TIMSS), which surveys achievement at ages 10 and 14.

The advantage of these surveys is that pupils are tested in the same way at the same age. Our analysis of international test scores shows Scotland in a favourable light internationally. While there are some inconsistencies in findings depending on the survey, the results tend to show Scottish pupils performing as well if not

<table>
<thead>
<tr>
<th>Measure</th>
<th>Source</th>
<th>England</th>
<th>Wales</th>
<th>Scotland</th>
<th>Northern Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading score of 10 year olds (average over sample of 35 countries = 500. Sd=100)</td>
<td>PIRLS, 2001</td>
<td>551</td>
<td>n/a</td>
<td>530</td>
<td>n/a</td>
</tr>
<tr>
<td>Maths score of 10 year olds (average over sample of 49 countries = 500. Sd=100)</td>
<td>PIRLS, 2006</td>
<td>536</td>
<td>n/a</td>
<td>530</td>
<td>n/a</td>
</tr>
<tr>
<td>Maths score of 14 year olds (average over sample of 49 countries = 500. Sd=100)</td>
<td>TIMSS, 2003</td>
<td>531</td>
<td>n/a</td>
<td>490</td>
<td>n/a</td>
</tr>
<tr>
<td>Maths score of 15 year olds (average over sample of 47 OECD countries=500. Sd=100)</td>
<td>TIMSS, 2007</td>
<td>541</td>
<td>n/a</td>
<td>494</td>
<td>n/a</td>
</tr>
<tr>
<td>Maths score of 15 year olds (average over sample of 47 OECD countries=500. Sd=100)</td>
<td>TIMSS, 2007</td>
<td>513</td>
<td>n/a</td>
<td>487</td>
<td>n/a</td>
</tr>
<tr>
<td>Maths score of 15 year olds (average over sample of 47 OECD countries=500. Sd=100)</td>
<td>PISA, 2006</td>
<td>495</td>
<td>483</td>
<td>506</td>
<td>494</td>
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<tr>
<td>Maths score of 15 year olds (average over sample of 47 OECD countries=500. Sd=100)</td>
<td>PISA, 2009</td>
<td>493</td>
<td>471</td>
<td>499</td>
<td>493</td>
</tr>
<tr>
<td>Reading score of 15 year olds (average over sample of 47 OECD countries=500. Sd=100)</td>
<td>PISA, 2006</td>
<td>496</td>
<td>480</td>
<td>499</td>
<td>489</td>
</tr>
<tr>
<td>Reading score of 15 year olds (average over sample of 47 OECD countries=500. Sd=100)</td>
<td>PISA, 2009</td>
<td>495</td>
<td>475</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

**Notes:** Figures are standardised so that the mean for all participating countries is 500.
Continued devolution should not result in a change in Scotland’s educational outcomes relative to the rest of the UK slightly better than pupils in the rest of the UK (see Table 2).

Indeed, we find more similarities than differences across the UK, with all four nations attaining similar positions relative to the international community. This is perhaps unsurprising, given the history of education in the UK, as well as the cultural similarities and shared labour markets. It suggests that these factors may be more important for educational outcomes than the types of institutional arrangements that countries adopt or their policies on school autonomy, centralisation and pupil testing.

The results also suggest that continued devolution – at least in education and conditional on funding – should not result in a change in outcomes in Scotland relative to the rest of the UK. That said, we find little evidence in either the national assessments or the international comparisons of any improvements in Scotland over the time periods we have studied (1995-2007 in the TIMSS study, 2000-09 in the PISA study and since 2004 in national statistics).

Furthermore, our findings show deep levels of inequality in Scotland, particularly between pupils from different socio-economic groups. For example, the PISA data for maths in Scotland in 2009 show that the difference between the most advantaged quarter of young people and the least advantaged quarter is 93 points. The top quarter achieved 549 points, which is on a par with the average score in Hong Kong (which was placed third in the OECD for maths that year), while the bottom quarter achieved only 456 points, on a par with Turkey (which was placed 44th).

Educational inequality is a huge problem that devolution has been unable to solve. But while this may be cause for alarm, it is a problem that is shared by all four nations of the UK, with Scotland faring no worse in these terms than England. Furthermore, while Scotland is in charge of its education system, it is unable to raise taxes or alter many other aspects of fiscal policy, which somewhat limits the level and distribution of spending on education. Perhaps with independence Scotland would be better able to tackle the inequalities in its education system.

This article summarises ’Education in a Devolved Scotland: A Quantitative Analysis’, a report to the Economic and Social Research Council by Stephen Machin, Sandra McNally and Gill Wyness, CEP Special Paper No. 30 (http://cep.lse.ac.uk/pubs/download/special/cepsp30.pdf).

Stephen Machin is a professor of economics at University College London and CEP’s research director. Sandra McNally is director of CEP’s research programme on education and skills and professor of economics at the University of Surrey. Gill Wyness is a research officer in CEP’s education and skills programme.

Perhaps with independence Scotland would be better able to tackle the inequalities in its education system.

Figure 2: Socio-economic inequalities in maths attainment: PISA data

Notes: PISA data for 2009; performance within each quartile of socio-economic status.
There has been a substantial fall in rates of property theft and violent crime in the UK. **Mirko Draca** surveys a series of CEP studies that shed light on this transformation – what BBC home editor Mark Easton has labelled the country’s ‘riddle of peacefulness’.

The UK’s ‘riddle of peacefulness’: what explains falling crime?

Public perceptions of crime rates and discussions in the popular media tend to suggest that crime is a growing problem in the UK. Yet the statistics tell a consistent story that is precisely the opposite: crime has fallen according to both the measure officially recorded by the police and the measure based on ‘crimes committed’, as reported by individuals in the British Crime Survey.

Particularly notable is the fall in property crime by around 40-50% between the late 1990s and the late 2000s. While changes in record-keeping make it difficult to pin down long-run trends in violent crime, there were still very clear drops in the late 2000s.

No single factor can be isolated as the main cause of these falling crime rates.

But our research shows that increased spending on police resources reduces certain types of crime, especially when linked to the introduction of new policing strategies, such as the Street Crime Initiative, a programme of allocating extra police resources to selected areas.

We also find that crime reduction is helped by policies that improve the education and labour market position of the unskilled. These include the introduction of the national minimum wage and increases in the school leaving age.

More police

While it is intuitively obvious that increased police numbers should lead to lower crime, the size of this effect is hard to determine. Empirical researchers face the challenge of distinguishing causation from correlation. In most data, there is a strong positive relationship between police and crime, but this is typically because policy-makers naturally allocate more police to high crime areas.

In the wake of the July 2005 London bombings, we were able to use the ‘natural experiment’ of increased police deployments in some parts of the city to estimate the causal effect of police on crime (Draca et al, 2011). We estimated an elasticity of -0.3 – that is, a 10% increase in police could be expected to reduce crime by 3%.

Another CEP study analysed the Street Crime Initiative (Machin and Marie, 2011). This led to substantial falls in crime of around 20% with a net social benefit of £100-170 million per year.

Given that overall police resources have...
increased in the past 15-20 years, we can expect that this had a major effect in lowering crime rates. While it is hard to account for the effectiveness of every pound spent and every programme implemented, our research shows strong effects due to some common and representative policy tools wielded by the police.

Tackling the causes of crime
In the mid-1990s, Tony Blair repositioned the Labour party's policy on crime by declaring that his government would be ‘tough on crime and tough on the causes of crime’. This was a powerful idea for crime policy and I would argue that it is a forgotten part of the debate on crime that should get more attention. Government policies aimed at improving education and ‘making work pay’ have indirect effects on crime reduction and while the size of the effects is hard to judge, the evidence suggests that this could be an important factor in answering the ‘riddle of peacefulness’.

One of the key research findings is that it is not unemployment that matters for crime as much as wages. The crucial insight is that wages summarise the state of the labour market and the ‘outside opportunities’ of people who might decide to commit a crime.

One CEP study showed the importance of the low wage labour market (Machin and Meghir, 2004). The key figure here is local wages at the 25th percentile of the labour market – that is, wages at the top of the band for the 25% lowest paid workers. The research found that crime rates were lower by 0.8% in areas where wages at the 25th percentile were higher than the average. Hence policies such as the minimum wage can have an impact on crime rates as well as living standards.

There is a similar story in education. Improving young people’s education opportunities works in two ways: first, by increasing people’s potential future income; and second, by reducing crime participation while individuals stay involved in the education system.

CEP research found that a 1% fall in the proportion of men with no qualifications was associated with a fall in crime of between 0.85% and 1%. This work used the big institutional reforms of the school leaving age in 1947 and 1972 as a setting to make this causal estimate of the impact of education (Machin et al, 2011).

Crime policy for the 2010s?
The evidence suggests that there is no definitive answer to the ‘riddle of peacefulness’. I have focused on two factors – police resources and the UK’s socio-economic structure – both of which are very important for contemporary debates.

High levels of income inequality and low levels of educational opportunity have emerged as critical for explaining the underlying causes of crime. Certain policies introduced over the past 15 years to tackle those causes appear to have had the indirectly beneficial effect of reducing crime rates.

But as the economy struggles to emerge from recession and inequality worsens, we can expect crime rates to level out and potentially rise. Similarly, as the big increases in police resources of the 1990s and 2000s are scaled back, it is inevitable that ‘something will give’ on crime rates. So it is important to consider the short- and long-term impact on criminality when considering cutting funding or entirely discarding these policies to relieve current pressures on the public purse.

Further reading
Mirko Draca is at the University of Warwick and a research associate in CEP’s productivity and innovation programme.


Research on the economics of happiness has shown that, on average, people of working age who are unemployed report significantly lower mental health and life satisfaction than those who have a job. They also find it hard to adapt completely to being unemployed.

But is the impact of job loss even worse for people who had reported fear of bullying when they were children? In a recent study, I explore whether adults who were afraid of being bullied at school find it even harder than others to withstand and adapt to unemployment shocks, perhaps due to the early loss of self-esteem.

Using a nationally representative longitudinal data set for the UK, which tracks almost 3,000 children (11-15 years old) into adulthood (16-29 years old), I find that on average, the unemployed report worse mental health and lower life satisfaction scores than the employed, holding constant how much they feared being bullied in the past. Similarly, holding employment status constant, people who feared being bullied more in the past report lower mental health and life satisfaction scores as adults.

These findings indicate that unemployment hurts, but it hurts more for individuals who had a persistent negative experience as a child. Figure 1 shows how the wellbeing gap between the employed and the unemployed is larger for those who reported having experienced higher levels of fear of school bullying in the past. The estimated effect is quantitatively important as well as statistically significant.

Take, for example, the gap in mental health between the unemployed who reported no fear of being bullied as a child and the unemployed who reported high levels of fear. The difference in the mental health score for these unemployed individuals is equivalent to the effect of becoming disabled, the effect of a move from having ‘excellent’ health to having ‘very poor’ health or the effect of having up to eight children in the household.

What about differences in people’s ‘hedonic adaptation’, their ability to bounce back to a relatively stable level of happiness despite a major life change? When we compare the dynamics of wellbeing between people with different bullying backgrounds, we find that there is virtually no hedonic adaptation to unemployment among those who had feared being bullied a lot during childhood.

By contrast, people who had reported no fear of bullying at school between the ages of 11 and 15 report a
significant drop in mental health only in the first year of becoming unemployed. In other words, it is not only the case that people who feared being bullied a lot in the past are less resilient to unemployment shocks, but they are also less likely to adapt to the unhappiness brought about by unemployment.

There are at least two important implications of our findings. The first is purely descriptive: these results are consistent with the general predictions of traditional life-course analysis. These indicate that people’s psychological resilience and ability to adapt quickly and completely to negative life shocks can be determined early on in their childhood.

In the last few decades, social scientists have been gathering enough longitudinal evidence to establish that humans do reclaim some – if not all – happiness from despair and that we are surprisingly good at surviving the blackest of black. For example, it has been demonstrated in nationally representative data sets that it only takes a few years for people to adapt completely to the unhappiness caused by bereavements and marital splits.

But until now, we have known little about why some people are better (or worse) than others at bouncing back from significantly bad life events and why they are initially hurt less (or more) by such shocks.

The second implication is normative: whenever possible, policy-makers would like to be able to identify those individuals who are destined to suffer the most from shocks to their economic circumstances. Thus, knowing which childhood indicators can be used to identify children who are at risk of growing up without the skills to cope with adverse life events naturally becomes one of the keys to optimal policy design.

One such childhood indicator seems to be the fear of bullying that an individual has experienced. This confirms the value of surveys such as that undertaken by the Department for Children, Schools and Families in 2010, which indicated that almost half (46%) of children said they had been bullied at school at some point in their lives.

This article summarises ‘Resilience to Economic Shocks and the Long Reach of Childhood Bullying’ by Nattavudh Powdthavee, CEP Discussion Paper No. 1173 (http://cep.lse.ac.uk/pubs/download/dp1173.pdf).

Nattavudh Powdthavee is a principal research fellow in CEP’s wellbeing programme.
For years, economists have documented surprising differences in the productivity performance of firms, even among those operating in the same narrow sector. One factor that may help to explain these differences is the quality of management practices, something that has been systematically measured since 2001 by CEP’s World Management Survey (WMS, http://worldmanagementsurvey.org).

The WMS uses an interview-based evaluation tool that defines and scores a set of between 18 and 23 basic management practices from one (‘worst practice’) to five (‘best practice’). It has now collected data on over 7,500 manufacturing firms, nearly 900 retail firms, 1,700 hospitals and 1,400 schools across middle- and high-income countries.

Research using these data finds consistent evidence that management practices – defined in terms of monitoring, targets and incentives – are linked to firm and national performance. Furthermore, competition, ownership, skills and labour market regulations play a major role in explaining variations in management practices across firms and countries.

The research also finds that firms in middle-income countries have much worse management practices, on average, than firms in high-income countries (see Figure 1). This seems to be due to a large tail of badly managed firms co-existing with firms with world-class management. Indeed, 63% of the variation in management practices in the manufacturing sector can be attributed to variation within countries, while only 21% can be attributed to variation between countries. This suggests that bad management could be an important factor behind the lower levels of productivity and development of many countries.

Management and productivity across sectors
The WMS initially surveyed manufacturing firms. As the data set grew to encompass more than 7,500 firms, a telling picture of the state of management across the world started to emerge: the usual suspects – the United States, Germany, Japan and Sweden – have the best management practices, while emerging economies such as Brazil, China and India have worse management practices on average.

Since then, the survey has been adapted to other sectors of the economy. In 2012, data collection was expanded to the retail, healthcare and education sectors in India. Comparison between middle- and high-income countries tells the same story across all sectors: management quality varies in tandem with levels of development.

Bad management:
a constraint on economic development?

Are poor management practices holding back middle-income countries? Renata Lemos and Daniela Scur look at evidence for private firms and public organisations in India – in manufacturing, retail, healthcare and education.
Across countries, we also find a positive correlation between management quality and various measures of productivity in all sectors. WMS research shows that a one-point improvement (on the one-to-five point scale) in management practices in the manufacturing sector is associated with a 1.4 percentage point increase in sales growth, a 14% increase in market capitalisation and a 23% increase in productivity. A one-point increase in management score in the retail sector is associated with a 1.4 percentage point increase in sales growth, a 14% increase in market capitalisation and a 23% increase in productivity. In the healthcare sector, a one-point increase is associated with a 0.5% lower 30-day mortality rate for heart attack victims admitted to the emergency room. And in education, a one-point increase is associated with a 10% increase in test scores.

**Management practices across sectors in India**

India’s average management quality is the lowest of all the countries we surveyed across all sectors. But why is India’s management quality so much worse than that of countries in Europe and North America?

In the manufacturing sector, the low average score is due to a large tail of badly managed firms, which is thin or non-existent in the countries with the highest average management scores. In other words, while there are several firms in India that have implemented top-notch management practices (the average score for the top 25% of manufacturing firms in India is 3.5), when comparing the distribution of management scores for firms in India and the United States (the country with the highest average), there are no badly managed firms in the US sample. In fact, the percentage of firms with very little or no modern practices implemented (below two on our management measure) in the United States is 2%, while it is 25% for Indian firms.

Turning to management scores in other sectors, the results for India mirror those for manufacturing: Indian management practices in retail, education and healthcare are, on average, poorer than in Europe and North America (see Figure 2). Also in line with the manufacturing results, there is wide variation in management practices within India, particularly in the healthcare and retail sectors.

This again suggests that while it is possible to implement best practices across establishments in India, as evidenced by the few very well managed ones, these practices are not being diffused widely. In fact, the top 10% of Indian hospitals are better managed than 19% of US hospitals and 31% of UK hospitals. In retail, the top 10% of Indian stores are better managed than 40% of US stores and 57% of UK stores. But in education, only 8% of US schools and 1% of UK schools are less well managed than the best 10% of Indian schools.

What do these large tails of badly managed organisations mean in terms of real practices? After listening to the interviews, a few anecdotes stuck with us. In the retail sector, we heard stories of managers who still counted their inventory by hand and never organised their stock room. One manager reported incurring frequent losses from damaged goods left in stocking-carts in the store’s aisles, as people sometimes bumped into them and the items dropped to the floor. This happened often because every day there were times when the store had a surge of customers, leaving his staff running around to give them all the excellent customer service for which the store is known.

If this manager implemented better scheduling and stocking practices, it is easy to see how there could be an improvement in the store’s performance. If the manager adopted a better organisation system of his stock room,

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**Figure 1:**

Country management practice scores in manufacturing are strongly linked to development levels

<table>
<thead>
<tr>
<th>Country</th>
<th>Management Score</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>1.59</td>
<td>1,593</td>
</tr>
<tr>
<td>Continental Europe</td>
<td>2.680</td>
<td>2,680</td>
</tr>
<tr>
<td>UK</td>
<td>1.198</td>
<td>1,198</td>
</tr>
<tr>
<td>India</td>
<td>0.696</td>
<td>696</td>
</tr>
</tbody>
</table>

**Note:** Data from the World Management Survey. North America includes Canada and the United States. Continental Europe includes France, Germany, Greece, Ireland, Italy, Poland, Portugal and Sweden.
he could avoid the over- or under-stocking of items as they are sold, as well as having to leave part of the stock on the shop floor. And better scheduling of his employees based on the hourly foot traffic of the store would reduce stress on the staff while perhaps even improving the customer service he values so highly.

There are similar examples in education and healthcare. Managers in many hospitals noted the bad layout of patient pathways. We listened to tales of patients being moved from the emergency room across the parking lot to reach other areas of the hospital, and of doctors and nurses transporting patients since no other staff were available for the job. We also heard of the frustration of long waits for incoming patients while recently vacated rooms were being cleaned and prepared. Once, we even spoke to a patient who ended up answering our call since the receptionist was nowhere to be found. As with retail stores, it is clear that a study of patient flows – to schedule arrivals and discharges more effectively – could help hospitals to reduce their waiting times.

In education, many head teachers told us that there was no way of tracking pupils across grades, as teachers did not discuss pupils’ progress in a systematic manner or share class results from previous years. They also described teaching practices focused solely on preparing the pupils for passing their end of year exams. Implementing a system to keep track of pupils across grades with regular teacher meetings could also help identify problem pupils early on, raising the chances of improving their learning. Instead of doing observation rounds, some head teachers monitored their teachers
Some Indian organisations have top-notch management practices, but there is a large tail of badly managed ones through a few closed-circuit television cameras installed in the classrooms, which transmitted video but no audio.

In the manufacturing sector, we have some experimental evidence showing that lower quality management is constraining firms' productivity but that both can be improved. A field experiment with large, multi-plant textiles firms in India found that adopting modern management practices raised productivity by 17% on average in the first year; after three years, it had led to firms expanding through more plant openings. So it is clear that better management practices can be adopted in Indian firms and can lead to significant improvements in performance.

Alongside the examples of badly managed establishments, there are also some shining stars comparable to the top stores, schools and hospitals in the United States and the UK. Stores that are part of multinational chains often follow many of the same practices as their US counterparts. For example, we interviewed some managers who detailed their clear problem documentation process to ensure that there are no recurrent mistakes in shop floor organisation, and many even have balanced performance-based pay schemes. We were also able to visit some of these stores in Mumbai, where our temporary office was based, and see these practices in action.

We also visited a Mumbai hospital and were thoroughly impressed by their management practices. The manager systematically tracks a wide set of indicators across a balanced set of categories (such as quality, financial, safety and human resources), and uses these to evaluate employees and set pay. The hospital even has a medicine delivery tube connecting the pharmacy on the ground floor to all other floors – something that we have only seen in the top hospitals in the United States and Europe.

Finally, we visited a school that had implemented many best practices, including posting class and pupil results on public boards, as well as creating standardised lesson plans so all classes at the same grade level are receiving consistent education.

If it is clearly possible to implement ‘best practice’ management in these establishments, why are these practices not adopted more widely? It seems that ‘informational barriers’ as well as constraints on the efficient reallocation of resources are the most likely culprits.

At the end of each interview, we asked managers to evaluate the quality of management practices in the rest of the company/hospital/school (excluding themselves) on a scale of one to ten. We then re-scaled their answers to match our one-to-five scale and compared the results.

The gap between the actual management score, as measured by our survey, and the managers’ self-score for each sector is astounding. There is a striking pattern of Indian managers significantly over-scoring the quality of management of their establishments across all sectors. This is a key point for policy as it is unlikely that managers – or stakeholders in general – will push for change if they believe that their practices are good enough already.

The evidence also points to a significant gap in understanding of what are best practices and how to implement them properly. An important question for further research is what drives this information asymmetry: would changing people’s perceptions and informing them of their shortcomings lead to immediate implementation of best practices – or are there deeper structural issues (such as lack of education and specialised training) that would prevent managers from implementing the practices, even if they knew about them? What are the patterns of information diffusion and knowledge spillovers that lead best practices to reach only a subset of establishments?

These are important questions for research and policy. Many of these changes in management practices require relatively little capital investment and can yield significant improvements in productivity. In the context of tight capital markets, cash-strapped governments and a generally harsh economic climate, improvements in organisational capacity and management could be a way to drive future productivity growth.
in brief...

University exam results matter

As thousands of undergraduates across the country take their final exams, a study by Andy Feng and Georg Graetz reveals the importance of the results for subsequent earnings – specifically the value of a First compared with an Upper Second and the difference between an Upper Second and a Lower Second.

Does your degree class make a difference to your later experiences in the labour market? To try to answer this question, we have analysed the (fully anonymised) exam marks of LSE undergraduates between 2005 and 2010, and combined them with the results of a survey of where these students landed jobs in the first year after they graduated. We find that:

- The average wage pay-off to a First compared with an Upper Second is pretty small – around a 3% higher expected wage.
- There is a bigger difference between an Upper Second and a Lower Second – a 2:1 is worth about 7% higher wages.
- There is a substantial gender split – men get about 6% in higher wages from a First, but women basically get nothing.
- In cash terms, this means that the men get a bonus for a First of about £1,780 in today's money. If this difference remains over a 40-year career, this would be worth about £71,000.

To find out whether students’ final grades make a difference to their subsequent labour market earnings, we look at the expected wages of students who were just above the threshold of getting a First (Upper Second), compared with those who were just below and therefore got an Upper Second (Lower Second).

Since the critical threshold at LSE is getting Firsts in at least four papers (out of nine), we look at the mark of the fourth highest exam. Those who got 70% in their fourth paper should get a First; those who got 69% in their fourth paper should only get an Upper Second.

This technique, known as ‘regression discontinuity design’, works well because there shouldn’t be any difference in how smart or hard-working students are around this exact threshold, so this is a near-perfect control for ability. The only difference is the random luck of whether a student managed to get over the cliff for a First or was stuck with a 2:1.

The same technique can be used to examine the difference between an Upper Second and a Lower Second (the critical mark is 60% in the fourth exam in this case).

Remember this is not a pay-off to anything you might have learned at university or even your natural brilliance that the degree just puts a stamp on. It is the pure fortune of being lucky enough to get First rather than a 2:1.

Of course, the bonus for a First or Upper Second may actually wear off over time as employers figure out you are really a bit of a duffer. Or it may be that it gives you a leg up the greasy career pole.

The difference between monetary gains for men and women is a puzzle. Perhaps men are more likely to ask for or be given a higher wage offer. We honestly don’t know.

Our study is probably the best evidence available that exam results matter. But there’s a lot more work to be done in understanding what drives the gender split and figuring out if the differences in pay-offs by degree result eventually go away.

Men get about 6% higher wages from a First compared with an Upper Second – but women get nothing extra.
This article summarises ‘A Question of Degree: The Effects of Degree Class on Labour Market Outcomes’ by Andy Feng and Georg Graetz, CEP Discussion Paper No. 1221 (http://cep.lse.ac.uk/pubs/download/dp1221.pdf).

Andy Feng is an occasional research assistant in CEP’s productivity and innovation programme. Georg Graetz is an occasional research assistant in CEP’s labour markets programme. Both are in the fourth year of the MRes/PhD Economics programme at LSE.

It is possible that the earnings bonus for a First or Upper Second may wear off over time.
in brief...
China’s trading success: the role of pure exporter subsidies

China’s government provides a wide range of incentives to encourage firms to produce almost exclusively for the foreign market. Fabrice Defever and Alejandro Riaño analyse the impact of these ‘pure exporter subsidies’ on both the Chinese economy and the rest of the world – and what would happen if they were removed.

Behind the meteoric rise of Chinese exports in recent years lies an under-appreciated factor: there is a wide range of government incentives aimed at encouraging firms to produce almost exclusively for the foreign market. These incentives – which we call ‘pure exporter subsidies’ – usually take the form of tax rebates that are conditional on a firm exporting all or most of its production.

For example, until 2008, foreign-owned firms in China that exported over 70% of their production enjoyed a 50% reduction in the corporate income tax rate. By locating in one of the numerous special economic zones, firms could benefit from an even lower rate. Additional benefits included VAT rebates and lower tariffs on imported machinery and intermediate inputs, direct cash subsidies, discounted utility and land rental rates and easier access to finance.

Our research finds that as a direct consequence of these subsidies, over a third of Chinese manufacturing exporters sell more than 90% of their produce abroad. To put this in perspective, fewer than 2% of French exporters and 0.7% of US exporters display such high export intensity (Bernard et al, 2003). Our analysis suggests that China’s total spending on these subsidies could be as much as 1.5% of GDP to support such a large number of pure exporters.

Putting strong reliance on encouraging exports while at the same time protecting the domestic market has been a cornerstone of China’s transition to a market economy (Naughton, 2007). Since the late 1970s, China has been characterised by a dualistic trade regime in which a system of export-oriented enclaves co-exist with a highly protected domestic economy, a situation described as ‘one country, two systems’ (Feenstra, 1998).

Ultimately, as a consequence of the use of pure exporter subsidies, Chinese consumers are faced with higher prices while foreign consumers reap the benefits of cheaper subsidised goods. Our evidence suggests that by stopping this type of trade policy, China stands to experience a 3% gain in real income. Without these subsidies, imports from China would become more expensive, which would lead to a 1% loss in real income for consumers in the rest of the world.

There is a wide consensus among economists that export subsidies are not beneficial for an economy – and pure exporter subsidies are no exception. The intuition is that an export subsidy is enjoyed by foreigners who get to purchase subsidised goods at a lower price at the expense of domestic consumers.

But our analysis reveals that besides this detrimental effect (and unlike regular export subsidies), encouraging firms to
export most of their production effectively shields domestic producers from tougher international competition. Thus, pure exporter subsidies constitute a mercantilist trade policy, which boosts exports while simultaneously protecting China’s local industry.

Although we estimate the overall impact of pure exporter subsidies on China’s welfare to be negative, two factors might help to explain their widespread use by the Chinese authorities. First, the subsidies have been instrumental in concentrating a tremendous amount of manufacturing activity in China, which has, in turn, facilitated the massive relocation of surplus labour from rural areas to the cities.

Second, the fact that the subsidies help to shield local producers from foreign competition could contribute to an easing of resistance to other market-oriented reforms. As other researchers have noted, the desire for achieving ‘reform without losers’ has been a crucial guiding principle underlying China’s approach to making the transition to capitalism (Lau et al, 2000).

But while adverse economic conditions linger in developed countries, there is mounting pressure for China to re-orient its economy towards its domestic market – a sentiment that was echoed in the twelfth five-year plan unveiled by the Central Committee of China’s Communist Party in 2010.

At the same time, complaints by the United States, the European Union and other members of the World Trade Organization have also resulted in China scrapping various subsidies to pure exporters, most notably their favourable treatment by the corporate income tax code. Our study indicates that this is indeed the right path for China to follow.

Abandoning subsidies would lead to a 3% gain in real income for the Chinese – and a real income fall for Western consumers

This article summarises ‘China’s Pure Exporter Subsidies’ by Fabrice Defever and Alejandro Riaño, CEP Discussion Paper No. 1182 (http://cep.lse.ac.uk/pubs/download/dp1182.pdf).

Fabrice Defever and Alejandro Riaño are at the University of Nottingham. Defever is a research associate in CEP’s globalisation programme.

Further reading


Has the introduction of greater choice and competition in healthcare in England led to improved outcomes for patients? Martin Gaynor, Carol Propper and Stephan Seiler assess changes in the quality of care that hospitals provided for cardiac surgery patients following the mid-2000s reforms.

Free to choose?
The impact of healthcare reform

A central plank of the Labour government’s NHS reforms in the 2000s was the introduction of patient choice. For the first time in NHS history, it was mandated that patients who were being referred for an elective treatment should have a say in the choice of hospital. Rather than relying entirely on their GPs, patients were now offered five hospitals from which to choose. At the same time, GPs were no longer tied to a particular hospital through selective contracting agreements and they could refer patients more easily to any available hospital in the country.

The intention of the reform was to make referrals more responsive to hospital quality. This in turn, the argument went, would increase hospitals’ incentives to improve quality. Although most economists subscribe to the idea that more choice generally constitutes an improvement, things are slightly more difficult with healthcare. Evaluating hospital quality is not a trivial task and patients might find it hard to pick the best hospital for a particular treatment.

Our research investigates whether referral patterns did become more responsive to quality after the introduction of the reform. As a first test, we analyse whether relatively better hospitals attracted a larger number of patients for one particular procedure: elective coronary artery bypass graft. We look at the relationship between hospitals’ quality – as measured by patient survival rates – and their ‘market shares’ for the periods before and after the choice reforms.

We find that market shares were not
Once restrictions on choice were lifted, patients receiving cardiac surgery became more responsive to the quality of hospital care correlated with hospital quality before the reform, but there was a significant correlation with patient survival after the reform. This gives us a first piece of evidence suggesting that patients did indeed get allocated to relatively higher quality hospitals after the reform. The magnitude of the effect of quality on market shares is economically significant: post-reform, a one percentage point lower mortality rate led to the hospital attracting 20 more patients every year. This corresponds to about a 5% increase in market share.

In a second step, we explore patient behaviour at a more micro level: instead of analysing only aggregate shares of patients at each hospital, we analyse hospital choice individually for each patient. This allows us to incorporate the effect of the patient’s location relative to the hospital as well as to examine how reactions varied across different patient demographics.

At this level of analysis, we find that patients became more sensitive to the quality of service as measured by patient survival. But the effect differed substantially across patient groups. Our results show that patients who were more severely ill reacted more to the reform – that is, they were even more likely than the average patient to end up at a high quality hospital post-reform.

In other words, we see that the reform had the strongest effect for the group of patients that were presumably most in need of high quality treatment. Similarly, we find a stronger effect of the reform on patients who reported in a survey that they were informed about the choice reforms at the point of referral.

We also analyse whether poorer patients reacted differently to the reform. People who were sceptical about the reform were particularly concerned that only affluent and well-educated patients would be able to process the necessary information and make an educated choice. According to this logic, the reform would effectively lead to unequal access to healthcare as better off patients were able to access better care while the situation for poorer patients remained unchanged.

Our analysis shows that fortunately these concerns were unfounded. We find that poorer patients reacted no differently from other income groups to the introduction of choice.

The next step of our research is to evaluate the reform quantitatively. We go through the following thought experiment: we compare the actual choice of hospital for patients that were referred post-reform with the hypothetical choice the same set of patients would have made had referral patterns not changed in response to the reforms.

Because we know the sensitivity of referrals to quality pre- and post-reform, we can calculate the probability of visiting each hospital that was available to the patient under either level of responsiveness to quality. Artificially depriving patients of the benefits of the reform allows us to see to what extent patients would have ended up in lower quality hospitals in the absence of patient choice.

Using the hospitals’ patient survival rates (adjusted for differences in the severity of cases treated at each hospital), we find that nine fewer patients (relative to slightly over 300 deaths a year, so around 3%) would have survived every year had the reform not been implemented.

The drop in mortality post-reform was an important effect of the introduction of patient choice that was not emphasised very much by policy-makers. Even if the increased responsiveness of referrals to quality had not changed hospitals’ performance in any way, the reallocation of patients still led to better health outcomes. This was due to the fact that patients now visited on average a higher quality hospital from the existing distribution of quality across hospitals.

The hope behind the choice reforms was that the distribution of hospital quality would itself change in response to
hospitals’ increased incentives to improve quality to attract patients. So did the reforms lead to a change in hospital quality?

To get a sense of the effect of the change in referrals on hospitals, we compute the change in patient admissions to each hospital if pre-reform patients had already been choosing their hospital according to post-reform referral patterns. This thought experiment – what would have happened had the reform been adopted earlier – gives a direct sense of how much pressure hospitals faced when the choice reforms kicked in.

When calculating the change in market shares, we find a very substantial impact for some hospitals, with one hospital losing almost 10% of its market share. But the impact is very heterogeneous across hospitals with most experiencing more modest changes in market share of around 2-3%. For some hospitals at least, there is therefore good reason to believe that they had an incentive to improve quality to retain their market share of patient admissions.

In the final step of our research, we analyse whether there is any direct evidence of hospitals reacting to the change in referrals by increasing quality, as measured by a fall in mortality rates. We look at whether hospitals that faced the strongest pressure post-reform (as measured by the potential loss in admissions) saw a bigger decline in their mortality than other hospitals.

We find that this is indeed the case, which constitutes the last piece of evidence in our overall assessment of the reform. This result mirrors related work showing that areas with more competition experienced a larger increase in patient survival rates after the introduction of patient choice (Cooper et al, 2011; Gaynor et al, 2012).

In summary, we find that by reallocating patients to better hospitals, the reforms saved nine lives each year for those having elective cardiac surgery. This is clearly a lower bound of the beneficial effect that might be expected from allowing choice, as we look only at the effect for one particular procedure.

Second, we find evidence suggesting that hospitals did improve their quality due to the reform. If this is mirrored elsewhere in hospitals, it will constitute an additional positive benefit for patients.

Finally, our findings add support to earlier evidence indicating that the choice reforms led to falls in mortality in other treatments and shorter lengths of stay without increasing hospitals’ total costs (Cooper et al, 2011; Gaynor et al, 2012). The new findings also corroborate research showing that more competitive environments lead to the adoption of better management practices, which, in turn, are associated with better hospital performance (Bloom et al, 2010).

Patients who were the most severely ill were most responsive to the quality of care hospitals offered

This article summarises ‘Free to Choose? Reform and Demand Response in the National Health Service’ by Martin Gaynor, Carol Propper and Stephan Seiler, CEP Discussion Paper No. 1179 (http://cep.lse.ac.uk/pubs/download/dp1179.pdf).

Martin Gaynor is at Carnegie Mellon University. Carol Propper is at the University of Bristol and Imperial College London. Stephan Seiler is an assistant professor of marketing at Stanford University’s Graduate School of Business and a research associate in CEP’s productivity and innovation programme.

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