

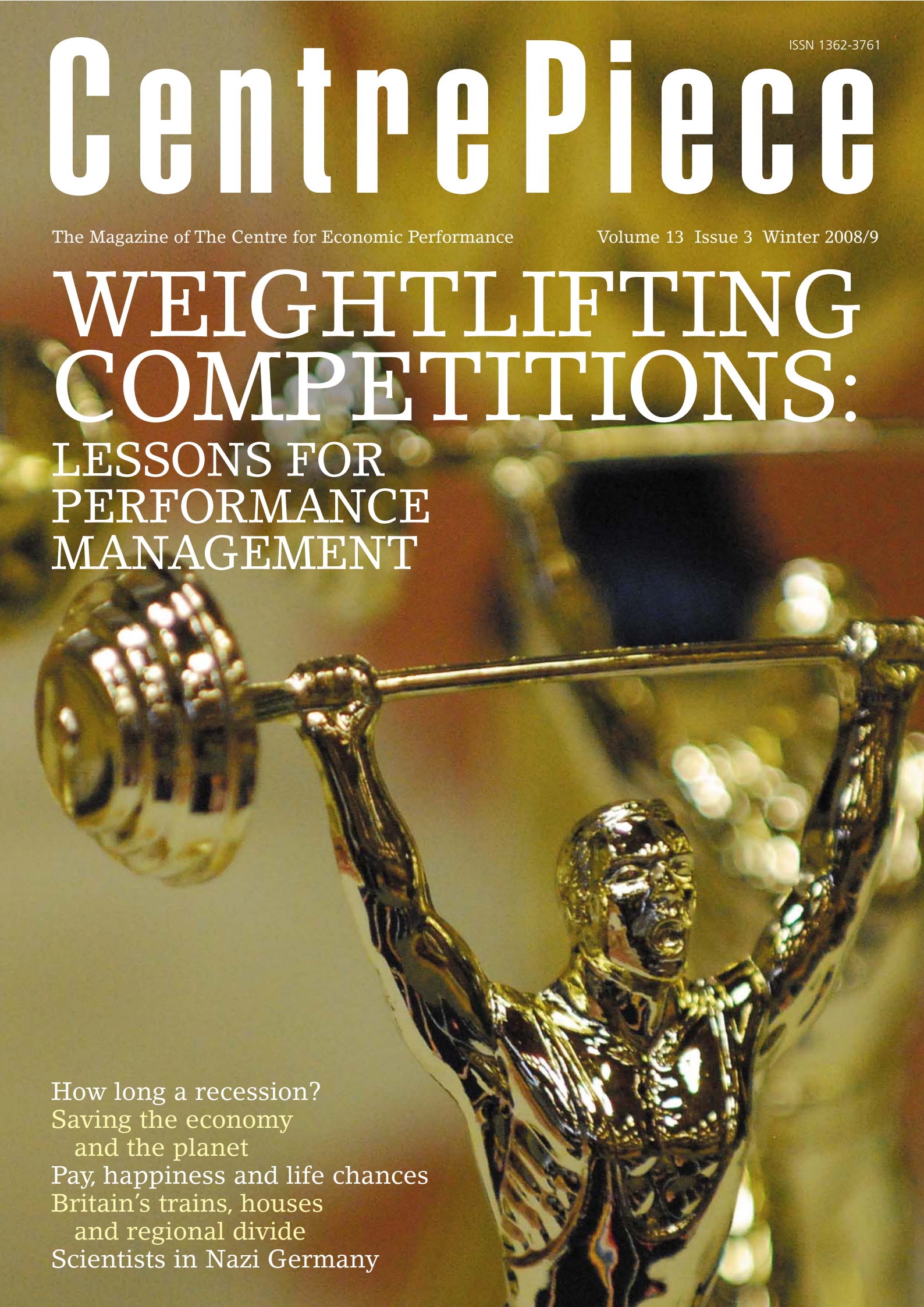
# Centre Piece

The Magazine of The Centre for Economic Performance

Volume 13 Issue 3 Winter 2008/9

## WEIGHTLIFTING COMPETITIONS:

### LESSONS FOR PERFORMANCE MANAGEMENT



How long a recession?  
Saving the economy  
and the planet  
Pay, happiness and life chances  
Britain's trains, houses  
and regional divide  
Scientists in Nazi Germany

# CentrePiece

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## Editorial

The credit crunch and the recession have made economics unusually prominent in public attention. Even Britain's monarch, Queen Elizabeth II, has asked 'why did no one see it coming?' And it was Centre for Economic Performance (CEP) researcher Luis Garicano who got to answer the question, both directly when he met the Queen at the November opening of the LSE's New Academic Building and in a piece in *The Guardian*.\*

Garicano is currently directing CEP's research programme on productivity and innovation, which provides the cover story for this *CentrePiece*. Weightlifting competitions might seem a somewhat obscure topic. But the sport's reward systems – which are based on relative rather than absolute performance – are remarkably similar to the incentives for people in financial institutions that led to excessive risk-taking and ultimately caused so much economic damage.

Two other articles in this issue

relate even more closely to the global crisis. And both belie the notion that economics is always a 'dismal science'. Ralf Martin believes that the economic crisis provides a great opportunity to tackle the climate change crisis. He argues that environmentally friendly fiscal stimuli and tax reforms can save both the economy and the planet.

And Nick Bloom, who long before the financial market turmoil of last autumn suggested that the rise in uncertainty since August 2007 would lead to a significant slowdown, now reports a fall in uncertainty. This makes him a rare optimist: he claims the recession will be over sooner than you think.

There's plenty more provocative stuff. Having compared railway performance today and in the Victorian era, Tim Leunig says we should learn from our forbears' responsiveness to customer demand. He calls for a more rational allocation of investment in train services, one focused on

upgrading busy if unglamorous commuter lines instead of high-profile intercity links.

Henry Overman, director of the recently launched Spatial Economics Research Centre (SERC), follows up Leunig's controversial Policy Exchange report on failed urban regeneration in the North with a careful explanation of what drives Britain's regional divide.

And in the latest of our 'big ideas' series, we return to a CEP finding that has consistently attracted public attention – the fall in 'intergenerational mobility' between the 1958 and 1970 British birth cohorts. Jo Blanden traces the evolution of the Centre's research on mobility, and its interaction with central policy debates of the past few years about poverty, inequality and children's life chances.

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\* <http://www.guardian.co.uk/commentisfree/2008/nov/18/response-credit-crisis-economy-response>



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The economic crisis may offer an opportunity to set the world on the right track for addressing climate change, writes **Ralf Martin**.

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Are university scientists more productive when surrounded by able colleagues? **Fabian Waldinger** uses data from 1930s Germany to address this question.





The behaviour  
of professional  
weightlifters  
offers lessons for  
performance  
management  
within firms

Many areas of economic activity take the form of 'tournaments', where what matters is your performance relative to the performance of others. To assess the effects of such reward systems on participants' performance and the risks that they take, **Christos Genakos** and **Mario Pagliero** look at the behaviour of professional weightlifters.

# Weightlifting competitions:

## lessons for performance management

**T**hink of the following situations: senior executives within a firm vying to be promoted to chief executive; pharmaceutical companies trying to be first to patent the cure for a disease; money managers trying to beat the market; track athletes competing in the Olympics. What is the common characteristic across all these activities?

Winning in all these different environments depends on participants' relative performance. In other words, it does not matter how good you are in absolute terms – for example, how fast you can run 100 metres – but whether you can run faster (even by a hundredth of a second) than your competitors.

What's more, the reward for winning is often substantial: the pharmaceutical firm that discovers a new drug can generate monopoly profits for the life of the patent; the manager of the fund with

the highest returns will not only be rewarded generously but his fund will also receive the majority of new investments; and the gold medallist will not only gain fame but more sponsorship than any other athlete.

There are many examples of such 'tournaments', where rewards are fixed in advance, concentrated at the top and based on relative rather than absolute performance.

Economic analysis of the incentives these tournaments create and their effects on participants' efforts indicates two outcomes. First, the bigger the prize for victory, the more effort the competitors put in; and second, in settings where there is a single winning prize, the prize awarded to the winner increases with the number of competitors (see Lazear and Rosen, 1981; Green and Stokey, 1983, and Nalebuff and Stiglitz, 1983). Evidence from both sports and corporate life broadly confirms these predictions.

### OK on effort, but what about risk?

But in practice, competitors often do not only choose their effort: they also have to decide between more or less risky strategies. For example, a pharmaceutical firm that is lagging behind in a patent race may start exploring more risky projects; and a money manager with below market returns might start investing in more risky assets.

Taking a more risky strategy may have worse outcomes on average, but it may be the only hope a laggard has to win the competition. Whether it makes sense also depends on the options available to the leader, and on whether competitors can observe each other's strategies.

Unfortunately, economic theory offers ambiguous predictions about what happens when competitors are able to choose both their effort and the riskiness of their strategies. What's more, it is rarely possible to observe the risk and effort



decisions that participants take. How could we possibly know whether the senior executives in a firm are following a more or less risky strategy, or whether the athletes in a race are taking more or less risky actions?

Despite the importance of the issue, there is little empirical evidence on competitors' risk-taking, effort choices and performance in environments with tournament-like incentives. As a result, most of the evidence to date comes from laboratory experiments. Our research looks at non-experimental data from weightlifting competitions to examine professional athletes' choices about effort and risk-taking in a tournament setting.

Weightlifting, a sport where competitors attempt to lift heavy weights mounted on steel bars, has the unique characteristic that athletes have to announce in advance the amount they intend to lift. In other words, it is possible to observe not only whether athletes' efforts to lift a given weight are successful, but also, since attempting to lift a heavier weight is riskier, the strategy that they follow.

We analyse round-by-round data on the performance of professional weightlifters in international championships, including the Olympics, between 1990 and 2006. The panel dimension of our data allows us to control for multiple sources of unobserved heterogeneity at the athlete, competition or year level.

What's more, the multistage nature of the competitions allows us to estimate our parameters of interest simply by observing the behaviour of athletes during a given competition. For example, we can investigate whether a given athlete ranked first takes the same risks as when ranked eleventh, and whether the probability of a successful lift for a given weight is different for an athlete depending on his current rank in the tournament.

### A lesson or two from the professionals

We establish two main results. First, risk-taking exhibits an inverted U-relationship with rank: risk-taking increases up to rank six and then monotonically decreases moving towards the bottom of the ranking. In other words, the same athlete will attempt to lift a heavier weight (0.8kg or 51% more than

Managers  
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workers to  
take risky –  
but potentially  
profitable –  
strategies

the average discretionary incremental announcement) if he is ranked sixth than if he is ranked first.

Although the athlete would be awarded a higher score if he were to lift the weight successfully, the chance of a successful lift decreases, indicating that he is willing to take more risk. In contrast, if the same athlete drops from being ranked sixth to eleventh, his attempted weight will decrease by 0.2kg (or 13% of the average discretionary incremental announcement), indicating that he is willing to take less risk.

Athletes try to protect their position with relatively safe strategies when leading the competition. Risk-taking is highest when there is a chance of winning a medal, and lowest towards the bottom of the ranking when the chances of reaching the top are slim.

The concentration of rewards at the top also suggests that tournaments with

Tournament-like  
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average  
performance

these characteristics encourage participants to take more risks overall. Indeed, we find that there is more risk-taking in more prestigious competitions like the Olympics, where the rewards are higher.

Second, we find that the probability of a successful lift, conditional on the chosen weight, increases moving down the rankings. In other words, an athlete has a lower probability of successfully lifting a given weight if he is ranked first than if he is ranked eleventh.

This is surprising. Given the structure of prizes, we would expect athletes to be more motivated and exert more effort when ranked near the top, where the reward for a successful lift is significantly higher, so that the probability of lifting a given weight increases when an athlete is higher ranked.

This finding suggests that athletes may perform badly under pressure, even though motivation and effort may be high. Such an interpretation is consistent with anecdotal evidence that athletes' performance may indeed deteriorate when the importance of a successful lift increases – a phenomenon known as 'choking under pressure'.

We show that athletes do 'choke' more frequently in more prestigious competitions or when the competition becomes tougher (in the sense that there are more athletes with similar performance). We also find evidence that 'choking under pressure' affects both experienced athletes (those who have already won a medal or previously participated in international competitions) and inexperienced athletes. This is in sharp contrast to previous research in behavioural economics, which highlights the importance of experience in overcoming psychological biases.

Finally, we contribute to the broader debate on tournaments by measuring the impact of a counterfactual reward system. Specifically, we consider a piece-rate contract, in which each athlete is rewarded at each stage in proportion to the overall amount successfully lifted. This is similar to many workplaces, in which workers are paid based on their absolute performance.

Our analysis reveals that tournaments encourage more risk-taking than this linear reward scheme. If a piece-rate system were used in weightlifting, athletes



## Relative performance evaluation schemes may induce the phenomenon of 'choking under pressure', lowering overall performance

would attempt to lift smaller weights and they would succeed with higher probability. On average, the incentives provided by the tournament decrease the overall total of successful lifts, but it increases the probability of some outstanding performances (which may be what the spectators want to see).

### Careful with those bonuses...

Nobel laureate Joseph Stiglitz has blamed the 'unconscionable' system of generous bonuses paid to investment bankers for exacerbating the global credit crisis: 'The system of compensation almost surely contributed in an important way to the crisis. The system was designed to encourage risk-taking – but it encouraged excessive risk-taking. In effect, it paid them to gamble.'

Overall, our findings suggest that tournament-like incentives – such as promotions and bonuses – can change workers' behaviour and could be a powerful tool in the hands of capable managers. Individual workers are typically more risk-averse than large corporations: since they typically only have one job, it is understandable that they do not want to risk it. Managers may use tournaments to induce risk-averse workers to innovate, experiment and ultimately take risky – but profitable – strategies.

On the other hand, our results show that tournaments can be too successful in encouraging risk-taking, leading to excessive risk and lower average performance. While this may be ideal in sport, in which suspense and extraordinary performances are what the spectators want, it may not be so desirable within firms. If firm profitability is affected more by average performance than by the rare exceptional performance of a few individuals, then tournament-like incentives may encourage unconscionable risk and reduce overall performance.

This article summarises 'Risk Taking and Performance in Multistage Tournaments: Evidence from Weightlifting Competitions' by Christos Genakos and Mario Pagliero, CEP Working Paper No. 1656.

**Christos Genakos** is a lecturer in economics at Cambridge University and a research associate in CEP's productivity and innovation programme. **Mario Pagliero** is assistant professor at the University of Turin and the Collegio Carlo Alberto.

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In the third of CEP's 'big ideas' series, **Jo Blanden** traces the evolution of CEP research on social mobility and its interaction with policy debate.

# Big idea

## Intergenerational m

**O**n 23 June 2008, the Prime Minister gave a flagship speech to school leaders in which he said that 'raising social mobility in our country is a national crusade in which everyone can join and play their part'. In January 2009, his government published a White Paper on social mobility.

The opposition parties share the desire for more mobility, with Conservative leader David Cameron pledging in December 2006 to take 'the banner of sensible, centre-right reform' to the

issue of social mobility and the Liberal Democrats supporting their own independent Social Mobility Commission.

The rise of social mobility up the policy agenda has coincided with a series of high profile studies from CEP researchers. As Stephen Machin's 'big ideas' article in the

previous issue of *CentrePiece* showed, CEP played an important role in describing the evolution of cross-sectional wage and income inequality during the 1980s and 1990s.

At the same time, related projects laid the foundations for an enduring research strand on intergenerational mobility. In 1997, Lorraine Dearden, Stephen Machin and Howard Reed followed up influential work in the United States by estimating the extent to which sons' and daughters' earnings at age 33 are associated with their father's earnings for a cohort born in 1958.





# as mobility

The approach taken by economists to measuring intergenerational income or earnings mobility is relative. The most straightforward description of mobility uses a 'transition matrix', which divides the income distribution of the parents' generation into equal-sized groups (usually fifths or quarters) and shows the proportion of the next generation that moves into a higher income group, the proportion that goes down and the proportion that stays the same.

Movement away from the starting point is seen as mobility. Notice that in using this approach, upward mobility

equals downward mobility; if some children move up, others must go down.

One of the problems with the transition matrix is that it is unable to take account of the extent of movements within groups. If those moving from the first to second quartile are just tipping over the boundary between the two groups, there is less mobility than if they are moving into the middle or top of their new group.

To overcome this limitation, economists also adopt a regression approach, which takes account of all the mobility between generations. This produces the 'intergenerational elasticity': a result of 0.3 would say that on average a 10% difference in income between two sets of parents would be passed on as a 3% difference in income between their children. This statistical approach is also based on an entirely relative conception of mobility; the amount of upward and downward mobility balance.

The research by Dearden et al (1997) presented a picture of limited mobility in the UK, with results similar to those for the United States, although the study did not make an explicit comparison. At around the same time, CEP researchers Paul Gregg, Susan Harkness and Stephen Machin undertook a two-stranded project for the Joseph Rowntree Foundation.

The first component of their study

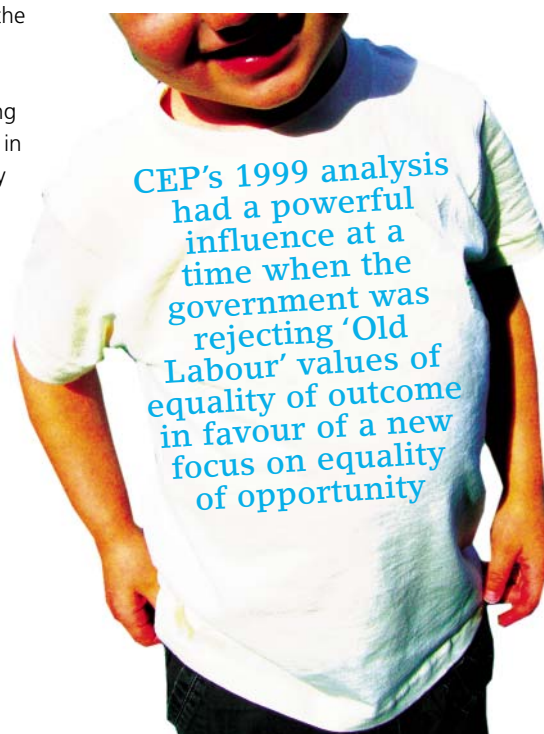
used the Family Expenditure Survey to conduct an extensive analysis of the time-patterns of child poverty in the UK. Unsurprisingly, given our knowledge of what happened to the wage distribution over this period, the child poverty rate had risen sharply in the 1980s.

The second part of the study showed how strongly family background influenced children's development and later outcomes. This reinforced the message from the intergenerational mobility analysis that experiencing low income in childhood could have a profound impact on later achievement.

The Gregg et al (1999) analysis had a powerful influence on future policy-makers. At the time, the New Labour government was finding its new policy agenda, rejecting the 'Old Labour' values of equality of outcome in favour of a new focus on equality of opportunity.

The message from CEP research at the turn of the century was that intergenerational persistence in the UK was substantial and that high rates of child poverty painted a bleak picture for the future of British children. It seemed natural to put these two facts together to ask a new research question: how had the influence of parental background changed as the rates of child poverty increased?

With the release of reliable earnings data from the 1970 British birth cohort in 2000, a comparison of intergenerational mobility over time in the UK became possible, comparing the 1970 cohort with their counterparts born in 1958. Research on these two cohorts measured the association between the income of parents (when their children were aged 16) and the earnings of children in their



early thirties. The association was found to be stronger for the later cohort growing up in the 1980s than for the first cohort who grew up in the 1970s.

The message from these data was that the rise in inequality and child poverty had coincided with a fall in social mobility. This study was published in 2004 in a book edited by Canadian economist Miles Corak.

The finding that mobility had declined was well-timed, with initial versions of the findings (presented to the Royal Economic Society at Warwick in 2002) attracting widespread media attention. This interest peaked in 2005 when the findings were presented as a summary report for the Sutton Trust.

The tendency of the media at the time was to sum up the research with the headline 'Social mobility in the UK is falling'. While convenient for newspaper editors, this was actually misleading, implying that the fall observed over the 12-year period in question continued over the following 20 years. Researchers will not be able to evaluate this properly for another couple of decades, although a recent follow-up study by Blanden and Machin (2008) suggests that the degree of mobility is unlikely to change between the cohorts born in 1970 and 2000. There is certainly no evidence at this stage of the situation continuing to deteriorate.

Hot on the heels of the finding that intergenerational mobility had declined came the search for insights into why this had happened. Work by Jo Blanden, Lindsey Macmillan and Paul Gregg sought to discover more about this, using a framework that considered the relationship between parental income

and children's earnings developing out of a two-stage process.

First, parental income relates to children's characteristics, that is, those with better off parents have more education; and second, these characteristics are rewarded in the labour market, that is, those with a better education earn more. Using the rich data in the British cohorts, the study found that the great majority of the increase in intergenerational persistence could be accounted for the strengthening of the relationship between parental income and children's performance throughout the education system.

The results discussed above are all based on relative income mobility; this is certainly not the only measure of 'social mobility'. There is a long history in the UK of measuring social mobility by observing changes in social class within dynasties. Social class has tended to be measured by fairly large groupings of occupations (say seven); as with the transition matrix approach this may obscure substantial amounts of mobility within classes.

Another issue is that there is clear change in the social class structure over time due to old occupations dying out and new ones emerging. This means that social class analysis can explore two dimensions of social mobility. First, absolute mobility considers the question

'are individuals in better class occupations than their parents?' Second, relative mobility is about the extent to which there are movements between classes that are not driven by the overall changes in the class structure.

The sociologist John Goldthorpe (of Nuffield College, Oxford) and co-authors have been tracing the progress of social class mobility in the UK and the rest of Europe for several decades, in general emphasising similarity across nations and stability within them. Investigations by Goldthorpe and Jackson (2007) and Erikson and Goldthorpe (2008) of changes in mobility using the 1958 and 1970 cohorts demonstrate that there has been no change in relative mobility when social class is used as the outcome measure.

The difference in results between the sociological and economic approaches has led to a lively and productive debate, with the sociologists asserting that the differences are due to weaknesses in the measurement of family income in the cohort studies. Using a number of approaches, Blanden et al (2008) demonstrate that measurement error is not the issue. Instead, they explain the results in terms of the large inequalities in family income that are found within the broad social class groupings used by sociologists; in light of these, there is no reason to suppose that the two methodologies should find similar results.

The dialogue between sociologists and economists has certainly helped to sharpen the policy debate on mobility. Many political speeches have made reference to 'social mobility' without a clear conception whether they are referring to absolute or relative mobility,



and mobility measured by income or social class. With contributions from both sociologists and economists, the recent Cabinet Office discussion paper 'Getting On, Getting Ahead' has helped to clarify the meaning of social mobility and has therefore set the scene for more transparent policy-making in the White Paper on social mobility.

In June 2008, a number of CEP researchers (both past and present) attended the Sutton Trust and Carnegie Foundation's trans-Atlantic summit on social mobility in New York, an event star-studded with top academics and policy-makers.

Jo Blanden gave the opening contribution, which compared the levels of mobility across countries using a variety of methodologies, emphasising what can be learned from taking a multidisciplinary approach, and demonstrating the correlation between low levels of mobility and high levels of income inequality. Sandra McNally discussed the contribution that schools policy could make to promoting mobility, and Stephen Machin appeared on the policy roundtable alongside cabinet minister Ed Miliband.

The New York summit was followed by a one-day conference at CEP, which presented some of the cutting-edge work on intergenerational mobility currently being carried out in Europe. Again, there was a strong policy focus to proceedings. More information about the discussion can be found in the previous issue of *CentrePiece*.

In conclusion, there has been a justified focus on the finding that intergenerational mobility fell in the UK between the 1958 and 1970 cohorts.

But this is not the only contribution made by CEP researchers to our understanding of social mobility.

Indeed, CEP contributions predate this, with our researchers being among the first to document the strong association between family background and later achievements in the context of the UK's high child poverty rates. CEP contributions have also moved the debate past the fall in mobility, to investigate 'what happened next', and to consider the relationship between different measures of mobility and what these might mean for policy.

It is also clear that the research on intergenerational mobility discussed here relates closely to the work on cross-sectional inequality reviewed in the previous issue of *CentrePiece*. Our interest in intergenerational mobility is in part encouraged by the recognition of the UK's high inequality levels and exceptional child poverty rates.

More recent work has attempted to understand more about the link between inequality and mobility, both in terms of how inequality may influence different measures of social mobility, and more profoundly whether greater inequality in a nation leads directly to less social mobility.



**Jo Blanden** is a lecturer in economics at the University of Surrey and a research associate in CEP's education and skills programme.

## Further reading

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in brief...

# The recession will be over sooner than you think

A major source of today's economic weakness is uncertainty that led firms to postpone investment and hiring decisions. **Nick Bloom** and **Max Floetotto** report that key measures of uncertainty have dropped significantly, so they believe growth will resume in late 2009.

Many pundits are warning that the current dire recession will persist well into 2010. We would have agreed with them three months ago: indeed, following an article on the likely impact of the credit crunch in the Spring 2008 *CentrePiece*, we wrote a VoxEU column in October 2008 predicting a severe recession in 2009.<sup>1</sup>

Based on the analysis of 16 previous economic shocks, we forecast a 3% drop in GDP and a three million increase in unemployment in both Europe and the United States (see Bloom, 2008, for details). We also worried about a far worse outcome: Europe and the United States slipping

encouraging firms to collude to keep prices up and encouraging workers to unionise to protect wages, exacerbating the situation by strangling free markets.

## Uncertainty is now falling

It now appears that the global policy response to the credit crunch has avoided repeating those mistakes. Instead, it has focused on delivering a massive dose of tax and interest rate cuts, and spending increases. Policies restricting free markets have so far been avoided. This has calmed stock markets as the fears of an economic Armageddon have subsided. At the same time, political



Good news: Great Depression II avoided and growth resumes in late 2009

into another Great Depression due to damaging policy responses. But uncertainty appears to have fallen rapidly over the last couple of months and this outcome has hopefully been avoided.

## Good news: Great Depression II avoided and growth resumes in late 2009

Much like today, the Great Depression began with a stock market crash and a meltdown of the financial system. Banks withdrew credit lines and the interbank lending market froze up.

What turned this from a financial crisis into an economic disaster, however, was the compounding effect of terrible policy. The infamous Smoot-Hawley Tariff Act of 1930 was introduced by desperate US policy-makers as a way of blocking imports to protect domestic jobs. Instead of helping workers, this worsened the situation by freezing world trade. At the same time, policy-makers were

uncertainty has dropped as world leaders have begun to clarify their stimulus plans. In fact, economic uncertainty is now dropping so rapidly that we believe growth will resume in the second half of 2009.

Figure 1 shows one measure of uncertainty – the implied volatility on the S&P 100 – commonly known as the 'financial fear factor'. This jumped over threefold after the dramatic collapse of Lehman Brothers in September 2008. But it has fallen back by 50% since early December as both economic and political uncertainty has receded. Other measures of uncertainty have also fallen; this is even true for the frequency of the word 'uncertain' in the press.

## As uncertainty falls, the economy will rebound

The heightened uncertainty after the credit crunch led firms to postpone investment and hiring decisions. Mistakes can be costly, so if conditions are unpredictable the best course of action is often to wait. Of course, if

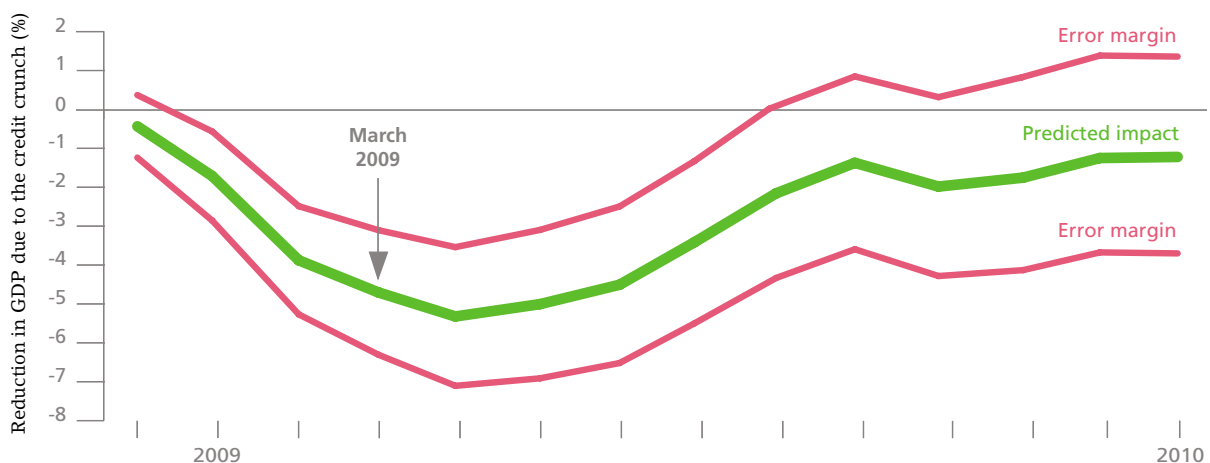
Figure 1:

## The 'financial fear factor': daily US implied stock market volatility



Figure 2:

## The estimated impact of the credit crunch on GDP



every firm in the economy waits, economic activity slows down (see Bloom et al, 2008). To twist President Roosevelt's well-known phrase from the Great Depression, there is nothing to fear but uncertainty itself.

But now that uncertainty is falling back, growth should start to rebound. Firms will start to invest and hire again to make up for lost time. Figure 2 shows our predicted impact of the spike in uncertainty following the credit crunch. This is based on our detailed analysis of 16 previous financial, economic and politically driven uncertainty shocks. After falling by 3% between October 2008 and June 2009, we forecast GDP will start to rebound from Autumn 2009 onwards.

### So it's now or never for expansionary policy

Many economists make the case for a stronger policy response. That might be right, but policy-makers need to act fast. Economic stimulus measures – such as spending packages, quantitative easings or a couple of rounds of liquidity injections – have to be enacted quickly. Dithering over different courses of policy will actually

make things worse by adding uncertainty. This is exactly what happened in the United States after 9/11 when the Federal Reserve Board criticised Congress for creating unnecessary uncertainty with its lengthy debates on investment tax credits.

Delaying an economic stimulus package until the summer may mean that it is too late. The economic medicine will be administered just as the patient is trying to leave the hospital.

**Nick Bloom** is an assistant professor of economics at Stanford University and a research associate in CEP's productivity and innovation programme. **Max Floetotto** is a PhD candidate in economics at Stanford University.

### Further reading

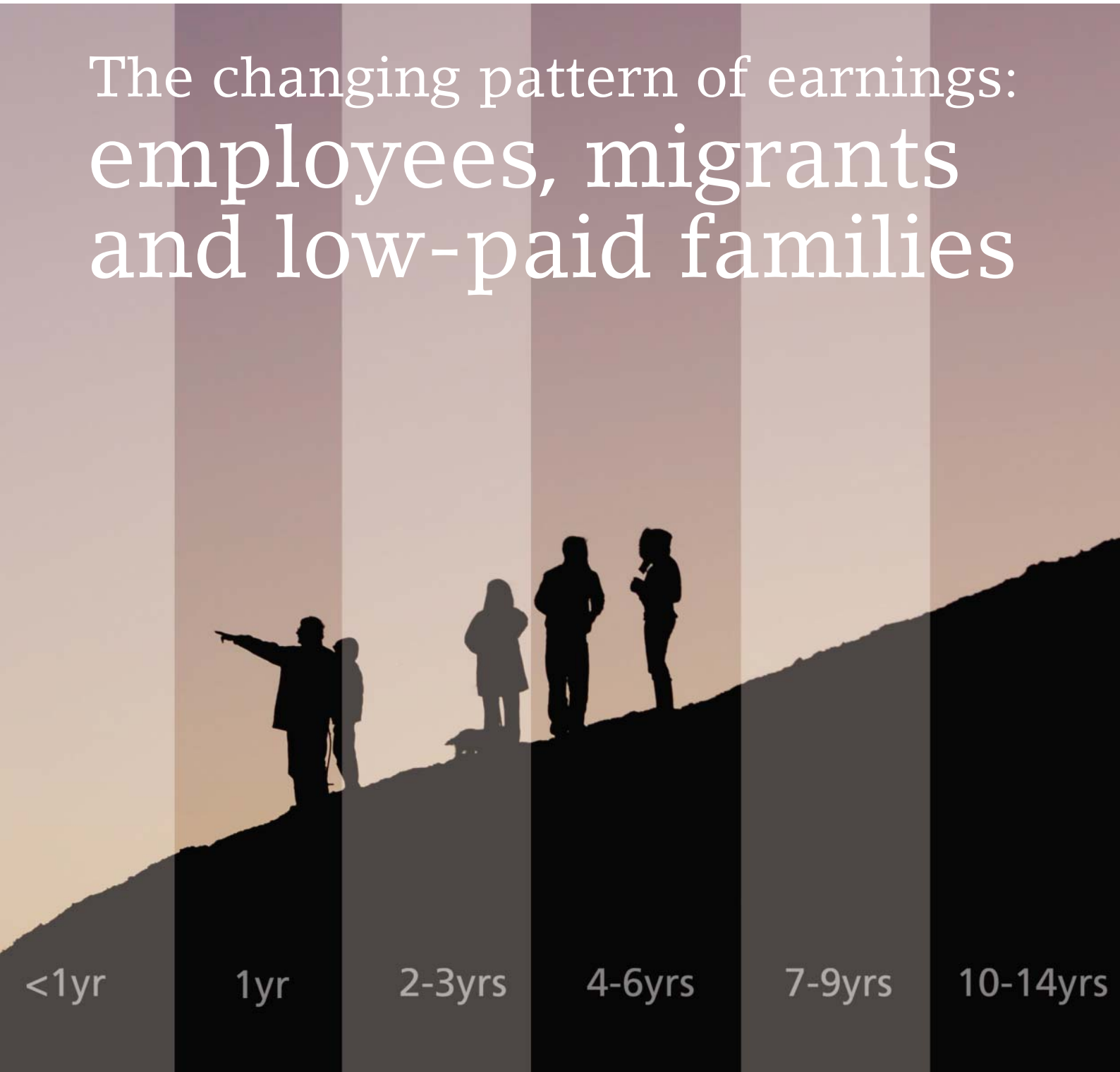
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Nick Bloom, Max Floetotto and Nir Jaimovich (2008) 'Really Uncertain Business Cycles', Stanford mimeo ([http://www.stanford.edu/~nbloom/RUBC\\_DRAFT.pdf](http://www.stanford.edu/~nbloom/RUBC_DRAFT.pdf)).

Welfare-to-work policies are based on the idea that people can work their way out of poverty.

**Richard Dickens** and **Abigail McKnight** explore this assumption by examining the changing earnings of employees, the integration of migrants and the progression of low-paid families in Britain since the late 1970s.

# The changing pattern of earnings: employees, migrants and low-paid families





**T**he 1980s and early 1990s saw sharp increases in the inequality of earnings, income and the distribution of work across households.

These changes contributed to large increases in child poverty so that by 1997 about a third of all British children lived in relative poverty. Important contributory factors were concentrations of low skills, high unemployment and benefits set at levels that were insufficient to lift families out of poverty.

Since taking office in 1997, the Labour government has focused on tackling poverty through employment, complemented by increases in benefit levels for some groups, mainly parents and pensioners. This has all been based on the expectation that with the help of some targeted benefits, individuals can work their way out of poverty. Our study looks at whether their progression in the labour market over the past few years demonstrates that they have been able to do so.

One of the Labour government's flagship policies, the Working Families Tax Credit (WFTC), was designed to increase the incentives to find and stay in work for individuals in low-income families. Our research looks at the impact of the WFTC on the extent to which individuals remain in employment (job retention) and wage growth.

Recent migrants are known to be disadvantaged in the labour market, both in terms of finding work and the wages they receive when in work. We examine this group to assess changes in the 'pay penalty' across different migrant groups and look at the time it takes for their earnings to catch up with those of their British-born counterparts and how this has changed since the late 1970s.

The analysis is based on a unique administrative data source, which has tracked the same large random sample of individuals since the late 1970s to the present day. The Lifetime Labour Market Database contains a wealth of information on individuals' labour market status, their annual earnings and receipt of a range of benefits. It includes information on personal characteristics, including migrant status.

### Earnings inequality/mobility

To assess the impact of the unequal

distribution of work and the unequal distribution of earnings for those who are in work, we examine changes in the inequality of annual earnings – variation in the amount that individuals earn over a year – and earnings mobility for two groups of individuals: those with secure patterns of work and a wider group who experience some years without any earnings.

There are many different measures of inequality and they all have different strengths and weaknesses. For example, some measures place greater importance on differences between those on very high incomes and those on very low incomes, while others put more weight on variation around average earnings. We use a number of different measures of inequality to provide a better understanding of how differences between individuals' earnings change over time; decile ratios, Gini coefficients and three that belong to the 'general entropy' class of inequality indices (see our working papers listed below for definitions and full results).

The term 'long-run inequality' means the inequality of individuals' earnings when they are added up over a number of years; and 'earnings mobility' measures changes in individuals' earnings when the same person is followed over a number of years. In other words, we compare inequality in total earnings added up over a number of years, say four years, with a measure of earnings in a single year. The difference between these two provides a measure of earnings mobility.

### Changes in the inequality of annual earnings 1979-2005

Inequality in annual earnings increased between 1979 and 2005. It was higher among women than men, which is likely to be due to a greater variation in annual hours worked. But earnings inequality increased more among men than among women during this period.

A number of different measures of inequality show increases in inequality in annual earnings since 1979. There is some evidence that inequality has been gradually falling among women since 1997.

The inclusion of individuals with no earnings from employment in a given year has the effect of increasing measured inequality and thus during the recessions of the 1980s and 1990s and up to 1997,



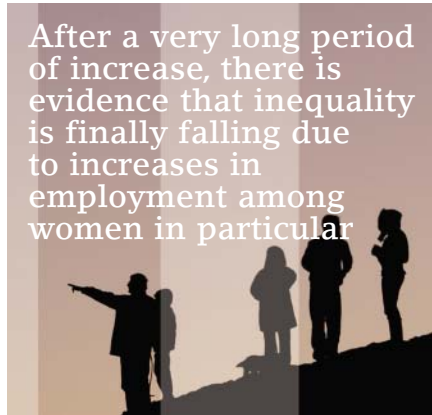
increases in unemployment translated into higher levels of inequality. On the other hand, when employment increased in the late 1990s, inequality fell. Increases in employment among women further reduced inequality.

### 'Long-run inequality' in earnings and employment

Over time, individuals' earnings change in absolute terms and relative to other employees, so that their longer-run prospects are not necessarily well represented by a snapshot of their earnings at a single point in time. A simple way of looking at the longer-run picture is to compare the employment status and earnings of the same individuals at two points in time. This analysis reveals that:

- People with low annual earnings are more likely than those with higher earnings measured in the same year to have no earnings and to receive benefits in subsequent years.
- People with no earnings and receiving benefits are more likely to have low annual earnings should they re-enter employment in the future.
- Although there is variation over time and between men and women, overall the position at both the bottom and top of the earnings distribution persists, with limited long-range upward mobility for those on low earnings and receiving benefit, and very little downward mobility for high earners.

A more complete picture is gained by



using a more sophisticated measure of earnings mobility. This methodology summarises individuals' earnings over a number of years, measures inequality in earnings averaged over these years, and compares it with a single year measure. This provides a measure of how much mobility offsets any increase in cross-sectional inequality (a snapshot of inequality taken in one year) and can be used to assess how long-run inequality has changed.

Our results show that mobility among male earners fell between 1979 and the mid-1990s; in other words, over this period there was an increase in the inequality of lifetime earnings. But there is also evidence that earnings mobility for men has started to rise a little since 2000.

For women earners, there was less variation in mobility than for men over the same period. While there were some changes over time, mobility rates were quite similar in the late 1970s and the mid-2000s. Again, there is some evidence that mobility has started to increase since

2000. We think this is likely to be due to improvements in job retention, improving the number of months with continuous employment; increasing earnings both within years and across years among low earners.

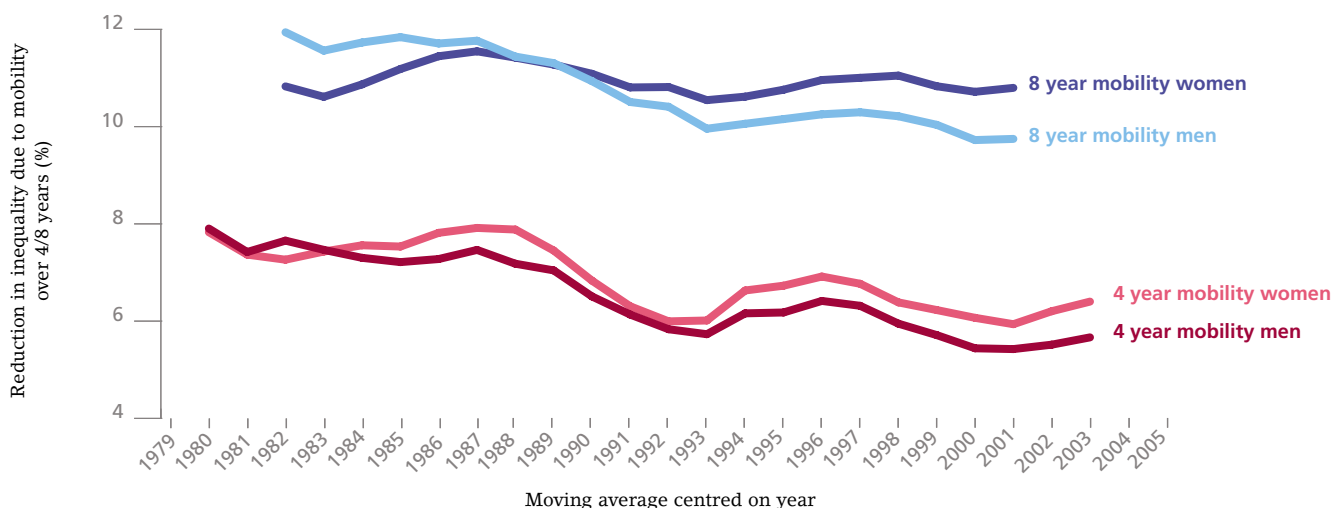
Figure 1 shows mobility measured over four- and eight-year periods for men and women using one of our inequality indices (the Gini coefficient). It shows that mobility among all individuals, including those without earnings from employment, fell until 2000, with increases since then. There was greater turbulence in mobility among men but an overall downward trend until the mid-1990s, followed by an increase in mobility from 2000.

### Migrant pay gaps

Since we want to explore routes out of poverty, we look at employment data of migrants as they have lower rates of employment and, when in employment, attain lower average earnings. This places their families at greater risk of poverty. We look at entry pay relative to migrants' British-born counterparts (the pay gap) and patterns of convergence in this pay gap for different groups of migrants, men and women at different ages and by country of origin.

Not only has there been a big increase in migration into Britain over the last 25 years, but patterns of migration have also changed over time. Since the late 1970s, there has been an increase in the proportion of migrants from Africa and Central Asia, and large increases from the European Union's accession states in

Figure 1: Changes in earnings mobility among male and female employees



recent years. These factors could easily affect the average position of migrants in the labour market.

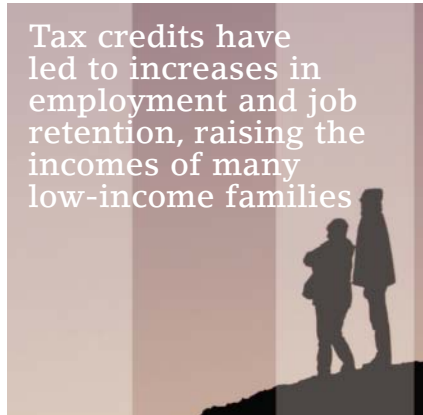
Our statistical model, controlling for age and current year, shows that when migrant workers first arrive, they experience a weekly pay gap relative to their British-born counterparts of over 30% for men and 15% for women. We find that for migrant men, it takes 20 years on average to eradicate this difference and for migrant women no more than six (see Figure 2). The greater rate of convergence in pay and lower average pay gap for women may be due to higher relative weekly hours of work among migrant women compared with their British-born counterparts.

Separate estimates for migrants from different regions of the world show that different nationalities experience varying rates of earnings convergence, with Europeans catching up the fastest but Asian men showing few signs of catching up at all. They also have a higher initial pay gap, at 45%.

More recent entry groups of migrants – those who arrived in Britain in 1985-90 and 1995-2000 – have fared better than migrants who arrived in 1975-80. But this is largely because they entered with a smaller pay gap rather than experiencing faster pay growth.

### The impact of tax credits on job retention and advancement

The introduction of tax credits in 1999 represented a step change in employment



policy with the launch of an in-work benefit scheme that had greater coverage and was considerably more generous than its predecessors.

The WFTC was designed to make work pay, even in low-paid jobs, by supplementing the incomes of low-income families and so help to reduce child poverty, moving more people off benefits into work and reducing the number of households without any working members. By making work pay, the idea was also to improve job retention in low-paying jobs and assist with advancement to higher-paying jobs. The introduction of the WFTC led to an increase in the number of families receiving in-work benefits and an increase in the average value of awards.

A statistical analysis of job retention among individuals entering work and claiming the WFTC, compared with their counterparts who had claimed Family Credit, shows that the WFTC did indeed increase job retention among male recipients after controlling for differences

in age and entry pay. But our analysis of earnings growth a year after in-work benefit recipients entered employment reveals that the WFTC did not appear to increase earnings compared with Family Credit.

Some feared that employers would take advantage of the tax credit to keep wage costs down using the tax credit to subsidise low-paying jobs rather than boost the incomes of low-paid workers. There is no evidence that the more generous WFTC has been used by employers to keep wage growth down and this may have been more difficult to do anyway because of the simultaneous introduction of the national minimum wage, which established a wage floor in the low-wage labour market.

### Conclusion

After a very long period of increase, there is some evidence that earnings inequality is finally falling due to increases in employment and a reduction of inequality among women in particular. Earnings mobility also appears to be on the increase after a long period of decline.

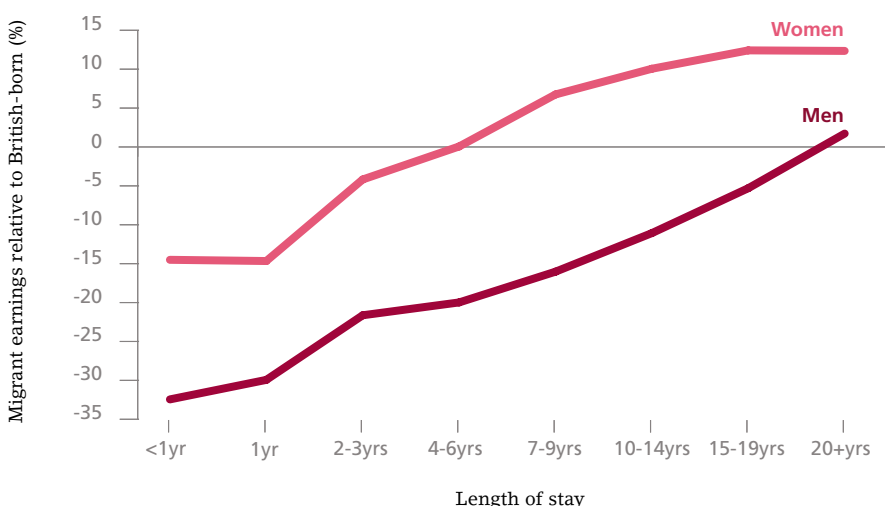
Migrants remain disadvantaged in the labour market. Although the length of time it takes for wage convergence is shorter than in the past, this is due to higher average entry pay rather than higher convergence rates among migrants who have arrived more recently.

Tax credits have led to increases in employment and job retention, raising the incomes of many low-income families.

This article summarises research by Richard Dickens and Abigail McKnight funded by the Joseph Rowntree Foundation (<http://www.jrf.org.uk/knowledge/findings/socialpolicy/2323.asp>). Three background working papers – ‘Changes in Earnings Inequality and Mobility in Great Britain 1978/9-2005/6’, ‘Assimilation of Migrants into the British Labour Market’ and ‘The Impact of Policy Change on Job Retention and Advancement’ – are available as occasional papers on the CEP website and on the website of the Centre for Analysis of Social Exclusion (CASE) at LSE.

**Richard Dickens** is a senior research fellow in CEP’s labour markets programme and professor of economics at the University of Sussex. **Abigail McKnight** is a senior research fellow at CASE.

Figure 2: Earnings of migrants relative to British-born employees, by length of stay





Nobel laureate **Daniel Kahneman** talks to *CentrePiece* editor **Romesh Vaitilingam** about how we should go about understanding happiness as an indicator of social progress.

# Understanding happiness:

the distinction between living – and thinking about it

**F**or at least two hundred years, people have asked of a society 'how happy are its people?' and likewise of a policy 'will it make people happier?' Until recently, there was very little scientific information to answer these questions. But in the past few decades, things have changed radically, mainly due to progress in social surveys, in psychology and in medical science.

With a few important exceptions, most of the best work has been done in the United States. With a view to launching a major research programme in Britain, Professors Richard Layard and Paul Dolan convened an international workshop on happiness research at CEP in October 2008.

The programme would combine fundamental research and applied work on the effectiveness of different policy

interventions, and include researchers from economics, psychology, medical science, philosophy, politics and sociology. It would make use of the vast mass of unexploited data on happiness as well as collecting new data, both experimental and non-experimental.

The opening presentation at the workshop was by Professor Daniel Kahneman of Princeton University, who is a pioneer in this field of research and the only psychologist to be awarded the Nobel Prize in economics, an accolade he received in 2002. Afterwards, Romesh Vaitilingam interviewed him about how we should go about understanding happiness (or 'subjective well-being') as an indicator of social progress.

**Romesh Vaitilingam:** You make a distinction between living and thinking about it – and between what you call our

'experiencing-self' and our 'remembering-self'. Could you explain these ideas and their significance for happiness research?

**Daniel Kahneman:** We keep insisting that there is one notion of happiness or well-being. I argue that we need at least two. One measurement you obtain when you ask people how they feel right now – I call this experience happiness. Another you obtain when you ask people how they think about their life – this is life evaluation.

It turns out that experience happiness and life evaluation have very different determinants and very different consequences. They are both legitimate parts of well-being but we need to look at them separately.

**RV:** You also talk about the focusing illusion. Could you explain this idea?

**DK:** What we pay attention to plays a central role in every aspect of well-being. You basically enjoy what you attend to: you may like the idea of being in a luxury car, but if you are in a luxury car but quarrelling with your spouse, you are not enjoying yourself. Indeed, you are better off not being in a luxury car when you are quarrelling with your spouse: it does nothing for you.

So attention is absolutely critical for your experiencing-self. What you are paying attention to is also critical when asked what you think about your life – your remembering-self. And attention

Most of us exaggerate the importance of almost anything as a determinant of happiness

finally is critical when you are thinking about life in general or about any aspect of life.

Most of us exaggerate the importance of almost anything as a determinant of happiness. We think that living in a good climate is great, we think that having high income is wonderful and so on. But in fact people who live in a good climate very rarely think about it.

The focusing illusion is that when we think about people living in a wonderful climate, say in California, we make a terrible mistake. We imagine somebody in California who is thinking about living in California and enjoying living in California because it is so special. But the amount of time that people in California spend doing that is tiny and has essentially no impact on their well-being.

We need to understand this focusing illusion and we need to think about the different aspects of well-being. And we must give up talking about one notion of well-being and saying that it doesn't matter how we measure it. It matters a lot and different measurements lead to very different conclusions.

**RV:** So this must have implications for how we use surveys to find out about people's happiness?

**DK:** Absolutely. Each survey will direct your attention to different aspects of life. For example, if you ask people to place themselves on a ladder of life in which 10 is the best life you can have and 0 is the worst life you can have, they give you a very objective assessment of their material circumstances. And whether they are in Togo or Denmark, people seem to apply the same standard for what is a very good life.

But asking people 'how satisfied are you with your life these days?' is different. You are asking them 'what emotions do you have when you think about your life?', which is not the same thing as 'what emotions do you experience when you are living?' And it is not the same thing as the judgement they make about where they fit on the ladder of life. Each question focuses people's attention on different aspects of well-being.

**RV:** Presumably this has implications for



the way we treat people's unhappiness and the way we think about public policy trying to make people happier?

**DK:** Certainly. The question is which kind of happiness are you most interested in promoting and developing: is it the happiness of the experiencing-self or of the remembering-self? The interventions of positive psychology are basically designed to make people more satisfied with their lives. That can be very good, but it is not the same thing as making them happier as they live.

Another significant issue for policy is that when we focus on experience, we are drawn to focus on misery, and rightly so. Some people in society suffer much more than others: mentally ill people and people with physical pain suffer dreadfully. Focusing on physical pain and depression as objectives for policy is a direct consequence of one way of thinking about well-being.

**RV:** Do we have enough data at the moment to be able to distinguish between the determinants of experience happiness and of evaluated well-being?

**DK:** This line of research is developing very rapidly. We know, for example, that aspects of material well-being are extremely important to life evaluation. When you ask people to evaluate their lives, they don't primarily think of their spiritual well-being, they think of their material well-being.

On the other hand, we know that the emotions that people experience within a population depend a great deal on social relationships. For example, people are much happier if they spend a lot of time with people.

People in a nation are also happier if they can trust strangers. We know this

The emotions that people experience depend a great deal on social relationships

Positive psychology aims to make people more satisfied with their lives – this is not the same thing as making them happier as they live

from the lost wallet experiment, where you drop a wallet with an address and see whether it is returned. There are large differences between countries in the likelihood that a wallet will be returned, and these are correlated with the national level of corruption and with the national level of experience happiness. Countries where the level of trust is higher at any given level of GDP tend to be happier countries.

**RV:** What do you see as the big questions we need to address in happiness research?

**DK:** It is very clear at the moment that the interface of well-being research and health research is one absolutely critical area. Research is going to make major advances in the next decade in understanding the determinants and the complicated connections between the happiness of the remembering-self and the happiness of the experiencing-self, and the consequences of these for our health.

**Daniel Kahneman** is a senior scholar at the Woodrow Wilson School of Public and International Affairs at Princeton University. More on his research can be found here: <http://www.princeton.edu/~kahneman/>

The full audio interview is available here: <http://www.voxeu.eu/index.php?q=node/2581>

in brief...

## Hot and cold seasons in the housing market

The difference in the price you pay for the same house in the summer and in the winter is huge, according to research by **Rachel Ngai** and **Silvana Tenreyro**.

Every year in Britain, a housing boom takes place from April to September followed by a bust from October to March





**W**hile we are all well aware that house prices and trading activity in Britain have fallen dramatically in recent months after a long upswing, our research finds that booms and busts don't just happen over decades. Indeed, they are as frequent and predictable as the seasons.

Every year in all regions of Britain, as well as in other European countries, a housing boom of considerable magnitude takes place from April to September – the 'hot season' – followed by a bust from October to March – the 'cold season'.

The fact that house prices in many countries tend to surge in the summer and stagnate in the winter is glossed over by house price indices, which are typically presented in seasonally adjusted form by statistical agencies. For anyone interested in trends in housing prices, this is a 'clean' way to look at the data.

But for actual buyers and sellers, seasonal fluctuations cannot be glossed over. If you spend £500,000 on a house in a typical February, you might expect to pay £515,000 if you waited until June (in addition to the rent paid for the property in which you live while waiting, if you are letting, or the rent forgone, if you could have let it). Those

many thousands of pounds could have been saved for better purposes.

This finding raises a natural question: if house prices are typically higher in the summer, why do most people buy then? It may be more convenient to move in the summer: most people get married in this season and young families may find it easier to search before sending their children to new schools. But it is not clear that this will be worth so much money.

We offer an explanation to the puzzle. Start with the observation that buyers have different tastes for houses and that houses vary. To find the ideal house, a buyer has to spend, at the very least, costly time in searching.

In thick markets (where there are many houses for sale), it might be easier to find the ideal house, which may not be available in a very thin market. As a result, buyers prefer to purchase houses in the summer, so house prices are slightly higher in the summer, so sellers prefer to put their houses on the market in the summer – and with more houses on the market, the market is thicker.

That means that buyers are more likely to find the exact house they want and so are willing to pay more. With prices higher, more sellers are attracted into the summer market and so on. This self-reinforcing dynamic can thus lead to higher prices in the summer and more market transactions.



A self-reinforcing dynamic leads to higher prices in the summer and more market transactions

**Rachel Ngai** is a lecturer in economics at LSE.  
**Silvana Tenreyro** is reader in economics at LSE. Both are research associates in CEP's macroeconomics programme.

# in brief...

# Train times

Are we better than the Victorians at running our railways?  
**Tim Leunig** investigates.

**B**ritain's railways now carry more people further than at any point in our peacetime history. Only the extensive troop movements of the Second World War kept the network busier than it is today.

At first sight, this is surprising. In the 19th century, the railways had no significant competitors for medium or long distance travel. Today, in contrast, they face huge competition from cars, coaches and, increasingly, aeroplanes. So it is worth asking if the performance of Britain's railways has improved in the last 150 years.

My research project on this issue – *The Effect of Ownership and Regulation on British Railway Performance, 1850-2006* – comes to two conclusions. First, although the current regulatory system could be improved, we are better than the Victorians at regulating private railways. They used a similar form of price regulation but the absence of periodic franchising meant that poor performance then could last far longer than would be tolerated today. But against that, quality improvements are much more erratic today.

We are better than the Victorians at regulating private railways – but quality improvements are much more erratic today

Given high levels of safety, passengers want their trains to be fast and on time. Technological improvements and competitive pressures spurred railways to offer higher speeds prior to the First World War, and speed remained an important aspect of quality for much of the twentieth century, spurring the replacement of steam with diesel and electric power.

But after 1970 a different picture emerges. Long-distance routes continued to get faster, sometimes dramatically so. But shorter distance routes, particularly commuter routes into London, stopped getting faster. In fact, on many routes, particularly south of the Thames, it is now no faster to commute into London than in the immediate post-war period, and it is substantially slower than in the 1970s.

This is odd, because London commuters are an ever-larger proportion of railways passengers. Today, all of the most important routes, as judged by passenger numbers, are commuter routes into London. Indeed, the busiest route – East Croydon to London – is around four times busier than the principal intercity route – London to Manchester.

We might expect, therefore, that government and rail companies, nationalised and privatised, would want to see commuter rail services improve over time. Yet it is London



## It is now no faster to commute into London than in the immediate post-war period, and it is substantially slower than in the 1970s

to Manchester – not Victoria to East Croydon, Gatwick and Brighton – that has received high levels of investment.

It is hard to reconcile this investment pattern with any sensible definition of the public interest. It is no harder to upgrade commuter lines than to upgrade the West Coast mainline. It would benefit more people. It would increase agglomeration economies in the South East. It might even pay for itself, since London-bound commuters are generally affluent, and may well be willing to pay more for faster trains. And yet it does not happen.

There seems a danger that railway policy in Britain today, unlike that of the 19th century, is being determined by politicians and not by customers. Huge levels of public subsidy to the Channel Tunnel rail link generated good headlines for ministers. Making busy commuter routes from Liverpool Street, Victoria and Waterloo a little faster will not generate the same headlines.

But upgrading commuter lines would be of immense value to people who use these trains day in and day out.

Equally, it would benefit those people who would like to live outside London but are currently put off by the time it takes to commute into the city.

A more rational allocation of railway investment – along the lines of Sir Rod Eddington's 2006 report on transport and the economy – would increase investment on busy if unglamorous lines. The Victorians would have approved: while they made mistakes, they were very much focused on who wanted to travel where. That is a focus government could usefully rediscover.

## More rational allocation of railway investment today would increase investment on busy if unglamorous lines

**Tim Leunig** is reader in economic history at LSE and an associate in CEP's globalisation programme. This research is funded by the ESRC as part of its Public Services Programme (<http://www.publicservices.ac.uk/research/237/>).





in brief...

## Saving the economy and the planet

The current economic crisis may actually offer an opportunity to set the world on the right track for addressing climate change, writes **Ralf Martin**. He suggests that governments should seize this chance to promote pro-environment fiscal stimulus measures as well as an environmental tax reform.

The current global crisis (economic) and the potential global crisis (environmental) are connected – or at least they should be.

Some worry that the current crisis may make an environmental disaster more likely by making governments and companies less inclined to implement the necessary regulatory framework and make the required investments. As journalist and environmental campaigner George Monbiot has written, we might be remembered as ‘the generation that saved the banks and let the biosphere collapse’.

But there is a more hopeful version of the two-crisis connectedness. The current mess might actually help us to address climate change and other environmental problems.

### The global economic crisis as a lesson in the global ‘tragedy of the commons’

The global economic crisis illustrates how a global system can suffer from failures that build up slowly over a long time as a result of behaviour that each set of individual, institutional and national actors finds rational or at least politically expedient.

It also shows that such crises can be extremely costly to address after it is ‘too late’, even those that would be

relatively cheap to deal with early on. The parallels with climate change are obvious.

### The global response to the economic crisis as an opportunity

Another thing the economic crisis has illustrated is that governments can act quite decisively if necessary. These days, governments around the globe seem to be competing in putting together ever more spectacular rescue packages and fiscal stimuli. Clearly it would be good if some of these government handouts could come in the form of much needed investments required for making the transition to a carbon-free economy.

A good idea for Europe, for example, would be any contribution towards an integrated superconducting electricity grid that can simultaneously harness and distribute solar energy from northern Africa and offshore wind energy from Northern Scotland and other places (see <http://desertec.org/>).

## Governments should promote fiscal stimulus measures that benefit the environment



## The economic crisis might actually help us to address climate change

Another suggestion is to have subsidies for improving the energy efficiency of the housing stock. This would very directly help homeowners struggling with mortgage payments as well as the hard hit building industry.

### Climate change policies as a tax bomb shelter

A big worry with all of such measures is of course that somebody in the future has to pick up the tab. The UK opposition parties have accused the government of heading towards a 'tax bombshell'. Is this unavoidable? It might be that an old policy measure from the environmental economists' toolkit is just what governments need right now to help both the economy and the planet while avoiding a future tax bombshell. It's called an environmental tax reform.

At present, most tax revenue is derived from taxes on income and labour. In an environmental tax reform, we would reduce these kinds of taxes and – in a revenue-neutral way – levy taxes on energy usage or directly on greenhouse gas emissions. Thus, rather than taxing productive activities, we would tax damaging activities such as pollution.

This would not only make much more economic sense, but also provide a stimulus for jobs in both the short and long run. Thus, it would be the ideal policy to implement now in an effort to boost employment. But even better, it is also a sustainable stimulus package that does not require any extra borrowing.

### Fixing the regressive features of pollution taxes

The standard argument against pollution taxes is that they are likely to be regressive since poorer people spend a

larger fraction of their income on energy and thereby pollution. But there are clever ways of dealing with this. For example, since poorer people receive an even larger fraction of their income in wages, proceeds from CO<sub>2</sub> or energy taxes could be used to reduce wage taxes specifically, which would then offset the regressive impact of pollution taxes.

Some simple arithmetic<sup>1</sup> suggests that this could increase the income of the average wage earner by as much as 21%. Indeed, since the consumption behaviour of poorer people is also more sensitive to changes in income, this could actually provide an additional boost for the economy.

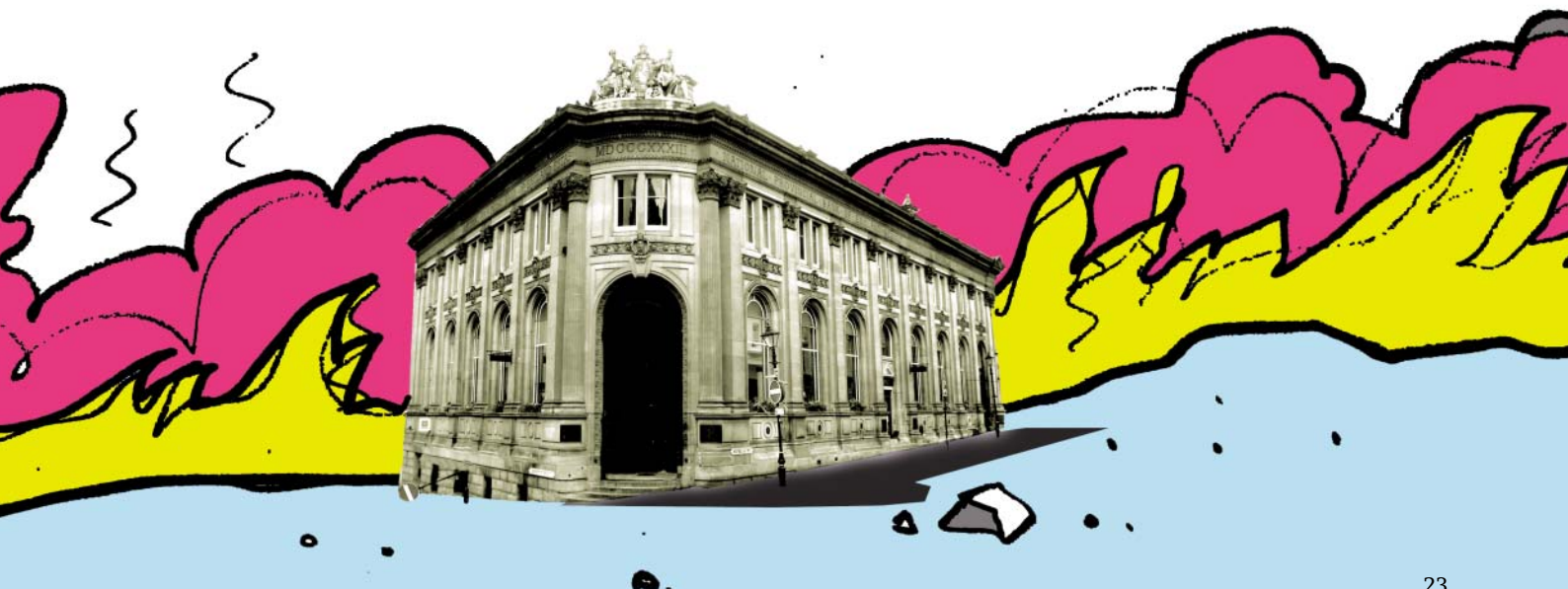
### Conclusion

The damage being wreaked by the global economic crisis is nothing compared with the 'environmental credit crunch' that could occur, at least according to climate change campaigners. Governments should seize this 'win-win' chance to promote fiscal stimulus that is also pro-environment.

They should also take the occasion to embrace an environmental tax reform by reducing wage taxes while increasing taxes on greenhouse gas emissions. This would provide a stimulus for employment while keeping government budgets in balance and contributing to saving the planet in the long run.

**Ralf Martin** is a research economist at CEP.

<sup>1</sup> <http://personal.lse.ac.uk/martinr/envpol/papers/taxAppendix.pdf>



Why do some parts of the country prosper while others don't – and what, if anything, should government policy try to do about it? **Henry Overman** discusses the regional distribution of prosperity and the potential policy responses.

# Britain's regional divide

**L**ast summer, the thinktank Policy Exchange caused controversy with a report on urban regeneration. In essence, the report suggested that some places in Britain (mostly in the North) have lost their *raison d'être*, that regeneration efforts aren't making a difference and that we should build houses (in the South) so that people can move to places with better opportunities.

Conservative leader David Cameron, who was touring marginal Northern constituencies at the time, dismissed the report as insane. Government ministers agreed. The authors faced a barrage of criticism from offended individuals and local authorities.

The basic counter-argument goes like this: 'I am from [insert name of place]. It's a lovely place to live because [insert something nice about the place or mention the low cost of living]. If you want to see where [insert name of place] is heading, just look at the development of [insert name of nice new buildings].'

These reactions remind us that people and places are different and that amenities and cost of living matter as much as economic opportunities. But they miss a much more serious question: why do some

regions, cities and communities prosper while others don't, and what, if anything, should government policy try to do about it?

There is no doubt that economic activity in Britain is very unevenly distributed. In 2004, the contribution to the economy of each individual (gross value added or GVA per person) in inner London and in Berkshire, Buckinghamshire and Oxfordshire was £24,500 and £23,700 respectively (adjusted for commuting) – about 40% above the national average of £17,100.

In the same year, Cornwall and the Isles of Scilly, West Wales and the Valleys and the Tees Valley and Durham had GVA per head of £11-13,000 – 24% or more below the national average. The differences would be even more striking if we considered particular cities or neighbourhoods within cities.

It is inconceivable that this unevenness can be explained purely by inherent differences in physical geography, such as natural resources. Instead, over time, the economic system amplifies initial differences to generate persistent disparities. This happens because there are self-reinforcing benefits from the concentration of activity.

These benefits arise in many different



There is no doubt that economic activity in Britain is very unevenly distributed

ways. As long ago as 1890, Alfred Marshall suggested that spatial proximity benefits firms and people because it helps the transfer of knowledge, allows people and firms to specialise and makes it easier to trade goods that are costly to transport. Economic geographers continue to try to quantify these benefits.

A range of costs offsets the benefits:



as activity concentrates, the prices of scarce resources such as land increase, firms face more competition, roads get congested, and pollution worsens. The trade-off between these costs and benefits determines which areas are rich and which are poor, which grow fast and which grow slowly.

Factors like technological change and globalisation also affect the trade-off, with fundamental implications for Britain's spatial economy. Responses to these changes are not instantaneous, instead playing out over time as people and organisations slowly adjust. And, of course, government policies shape all these relationships.

Understanding spatial disparities, and identifying the appropriate policy responses, requires a much deeper understanding of the costs and benefits. What causes them? Are they changing? What are the implications? What policy interventions are effective? Are there trade-offs between spatial disparities and economic efficiency?

As the British government spends billions of pounds each year on policies for regional development and urban regeneration, answering these questions is of more than academic interest. Unfortunately, however, getting the right answers is difficult. There are many sources of costs and benefits and their importance differs across individuals, firms and locations, raising the possibility of 'sorting': different kinds of individuals and firms choosing to locate in different places.

Sorting is a key factor that makes spatial policy so difficult to get right. With sorting, many spatial disparities simply reflect inequalities in society that may not be directly or effectively reduced by spatial policy.

Differences between the North and South, between Manchester and Leeds, between Hackney and Westminster partly reflect decisions by different people and businesses about where is best for them to live, work or produce. The greater the difference between the fortunes of financial services and traditional manufacturing or between low- and high-skilled workers, the greater will be the likely spatial differences that result.

Personal inequality in Britain is high relative to many other European countries, as is the contrast between the performance of some of our manufacturing and financial services. So it is no surprise that spatial inequalities – such as 'postcode lotteries' in health or 'North-South divides' – partly reflect that.

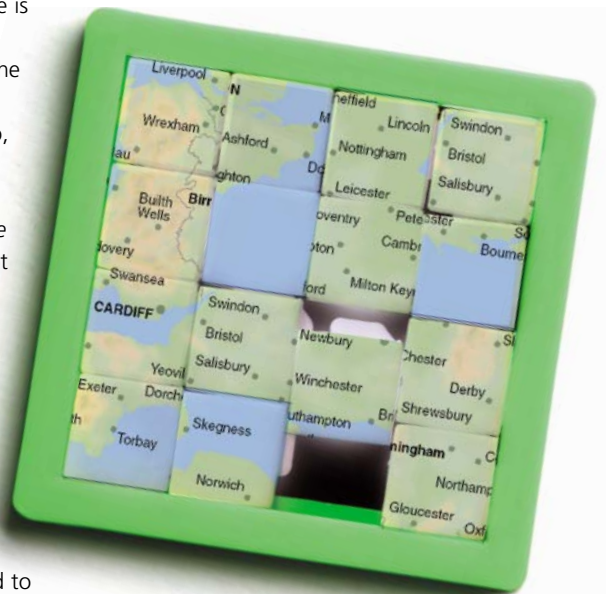
Spatial policy may play a role in addressing these equity concerns. But other policies that directly affect the underlying personal inequalities are likely to be far more effective.

At the same time, because some economic outcomes depend on location, even for similar people or firms, there is also a role for policy in making the economy function more efficiently. The difficulty is determining when this is happening and what policy might do, particularly since sorting based on personal differences means that the existence of spatial inequalities *per se* tells us nothing about whether or not such effects are important.

We are a long way from a full understanding of all these issues and thus from knowing exactly what policy should do. Personally, I don't think that the existing evidence supports the conclusion that we 'should all move south' (the rather crude interpretation of Policy Exchange's message, which led to so much venom). But, for all the reasons outlined above, the existing evidence doesn't support the idea that we could, or should, eliminate all spatial disparities (an equally crude interpretation of government policy).

The answer, as usual, is somewhere between the two extremes. Of course, the crucial issue is where the balance lies. CEP research has already played a central role in advancing our thinking on this issue. Funding from government and the ESRC

## Spatial differences partly reflect decisions by different people and businesses about where is best for them to live, work or produce



for the new Spatial Economics Research Centre based at LSE should help this to continue.

In the current economic climate, careful research to get the right answers to these questions and to help formulate the appropriate policy response matters much more than whether I think my town is better than yours.

**Henry Overman** is reader in economic geography at LSE, director of the new ESRC Spatial Economics Research Centre (<http://www.spatial-economics.ac.uk/>) and a research associate in CEP's globalisation programme.



in brief...

## Peer effects in science: evidence from Nazi Germany

Are university scientists more productive when surrounded by able colleagues? **Fabian Waldinger** explores this question by looking at the impact of the dismissal of scientists by the Nazi government in Germany.

**S**hortly after seizing power in 1933, the Nazi government dismissed all Jewish and 'politically unreliable' scholars from German universities – roughly a fifth of all scientists. Many of the dismissed scholars were outstanding members of their profession, among them the famous physicist Albert Einstein, the chemist Georg von Hevesy and the Hungarian mathematician Johann von Neumann.

My research uses data on this unique historical event to measure the extent of 'peer effects' in science – the degree to which scientists are more productive when surrounded by able colleagues.

It is not easy to estimate the extra productivity of a scientist that is generated as a result of their peer group. The top departments might have the best staff but they also recruit the brightest prospects. It is thus not clear

whether scientists in departments with outstanding colleagues are more productive because of the interaction with these colleagues or simply because the scientists in these departments are inherently better.

But because the scientists in Nazi Germany were not dismissed on the basis of their ability, and because some departments lost more than half their personnel while others lost none, this large-scale dismissal offers a 'natural experiment' that makes it possible to tease out the determinants of scientific productivity.

For example, it is possible to examine the impact of the dismissals on the peer group of physicists in German universities after 1933. Interestingly, the majority of the dismissals occurred in bigger and better departments. Researchers in affected physics departments experienced a dramatic loss in the number of peers and average peer



# Scientists in Nazi Germany whose co-authors were dismissed suffered a significant loss in their productivity

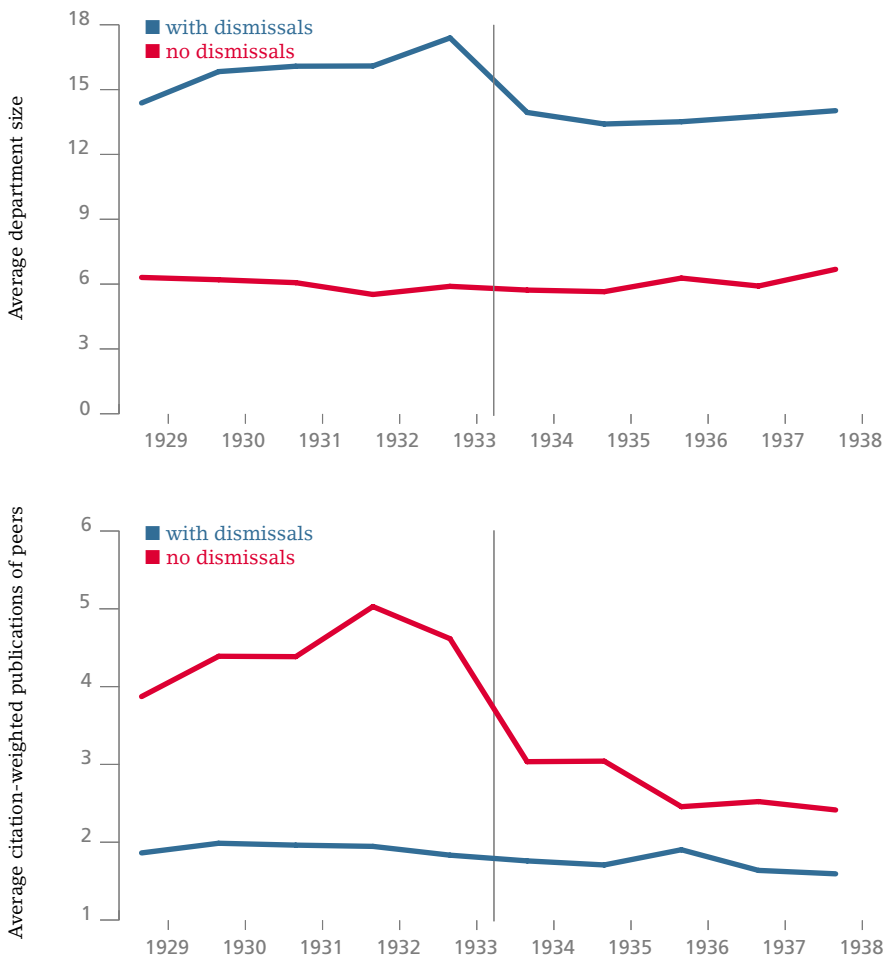
quality as measured by citations of their work in scholarly books and journals (see Figure 1).

Using this dramatic change in the peer group of the scientists who stayed in Germany, I investigate peer effects among these 'stayers'. Specifically, I investigate whether the productivity of stayers declined in departments with many dismissals compared with the productivity of

scientists in unaffected departments. The evidence suggests that dismissals in a department did not affect the productivity of stayers (see Figure 2).

Next I investigate peer effects among scientists who had collaborated very intensively, co-authoring papers before the dismissals. These co-authors sometimes worked in the same university but in many cases they worked in a

Figure 1: Changes in the peer group of physicists (number and quality of peers) in Germany following dismissals by the Nazi government





different place. In 1933, some of these ties were severed because one of the co-authors was dismissed. The productivity of their co-authors still in Germany declined by 13-16% as measured by quality-adjusted publications in top journals (see Figure 3). This suggests strong peer effects among closely collaborating researchers.

Does any of this matter now? While it is plausible that localised peer effects are even less important nowadays as communication costs have fallen dramatically, the same need not apply to peer effects among co-authors. Indeed, it is likely that peer effects among co-authors have grown since the early 1930s as co-authored studies have grown in importance with increased specialisation and more 'big science' projects.

So a counterintuitive implication of the research is that getting the best researchers to work together in the same departments may not necessarily be the best way to increase scientific productivity. What does seem important is facilitating co-authorship by increasing researchers' exposure to other scientists with similar research interests from around the world.

This article summarises 'Peer Effects in Science – Evidence from the Dismissal of Scientists in Nazi Germany' by Fabian Waldinger, CEP Discussion Paper No. 910 (<http://cep.lse.ac.uk/pubs/download/dp0910.pdf>).

**Fabian Waldinger** is an occasional research assistant at CEP.

Figure 2:  
The effect of dismissal on the productivity of stayers  
(department-level peer effects)

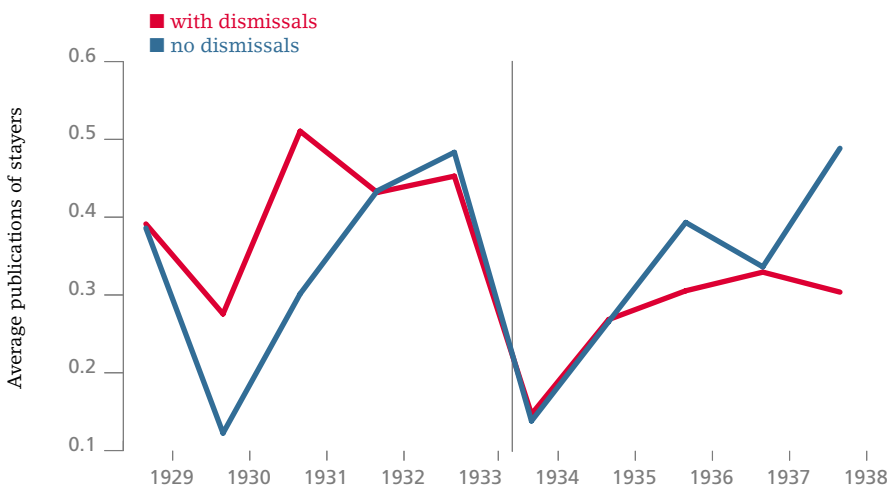
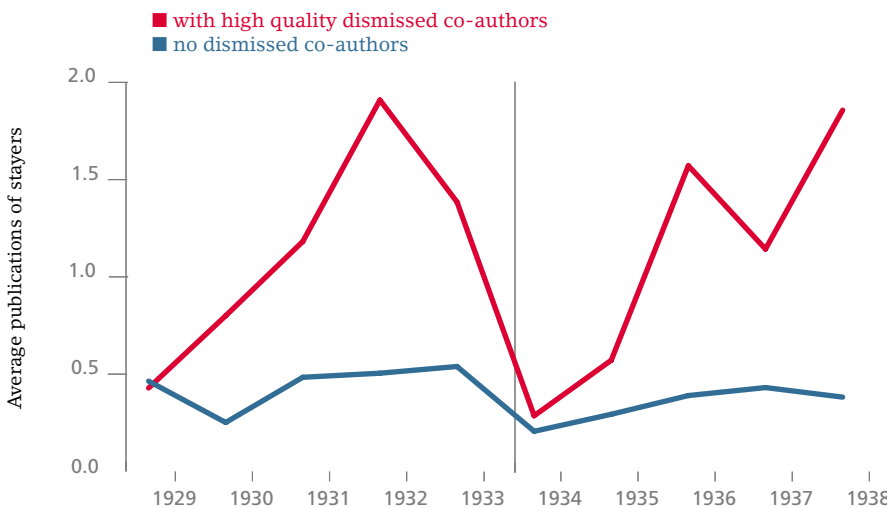


Figure 3:  
The effect of losing a co-author due to dismissal  
(peer effects among co-authors)



Co-authorships should be encouraged by increasing researchers' exposure to other scientists with similar interests

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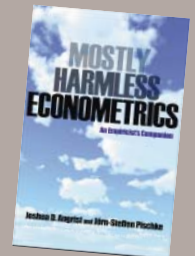
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The core methods in the econometrician's toolkit are linear regression for statistical control, instrumental variables methods for the analysis of natural experiments, and differences-in-differences methods that exploit policy changes. This book explains why fancier econometric techniques are typically unnecessary and even dangerous. The applied econometric methods emphasised are easy to use and relevant for many areas of contemporary social science.

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## The back issues

