THE UPSIDE OF TUBE STRIKES
One of the key questions that economists explore is how the cycle of boom and bust affects people’s lives. After the UK recessions of the 1980s and 1990s, studies by researchers at the Centre for Economic Performance (CEP) and elsewhere demonstrated the long-term ‘scarring’ effects of unemployment on individuals’ job prospects and earnings potential. More recent CEP work on the Great Recession has revealed disturbing additional impacts of joblessness: women more susceptible to domestic violence; young people more likely to become career criminals; and the psychological wellbeing of whole populations dramatically reduced.

This issue of CentrePiece reports two further studies of the costs of recession. The first examines changes in social attitudes and the UK labour market: the authors find an increase in racial prejudice – notably among highly educated, middle-aged white men – and a widening of racial inequalities in wages and employment. The second analyses data on parental unemployment and children’s school performance in Spain, one of the countries worst hit by the Great Recession: it turns out that there has been a significant deterioration in the results of pupils whose fathers lost their jobs.

Such outcomes are undesirable but perhaps also to be expected; two more contributions to the magazine describe events with outcomes that were both desirable and unexpected. One shows that the lifting of maximum mark-up regulation in Greece’s market for fresh fruit and vegetables led to lower retail prices. And our cover story looks at what happened to commuters affected by the London Tube strikes in early 2014: by being forced to experiment, many found better routes to work, which they continue to use.

Elsewhere, CEP was delighted to note the recognition in the Queen’s birthday honours of Sir Nicholas Macpherson, chairman of the Centre’s policy committee, and Sir Stephen Nickell, who was one of CEP’s founders alongside Lord Richard Layard and Sir David Metcalf. It is striking that so many of the people involved in the early days of the Centre have now been honoured, including Sir Charles Bean, CEP’s first deputy director, and Nobel laureate Sir Christopher Pissarides.

We were also pleased to see Angus Deaton of Princeton University awarded the 2015 Nobel Prize for his analysis of consumption, poverty, and welfare. The series of Lionel Robbins Memorial Lectures that he delivered at the Centre late last year – on poverty, inequality and the political economy of measurement – are well worth watching.*

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*http://cep.lse.ac.uk/_new/events/event.asp?id=194
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A well-functioning compulsory education system is essential to a country’s economic performance, but how is publicly funded education best provided? And how can innovative policies boost the performance of the state-maintained school sector, especially when reaching out to disadvantaged pupils?

Pursuing answers to these questions has led some countries to initiate reforms to their school systems that have led them away from the conventional ‘local’ or ‘community’ school model. Sweden, for example, introduced a voucher system in the early 1990s that enabled pupils to attend privately owned schools (‘free schools’) funded by public money.

Some research finds that state schools in Swedish municipalities with the largest growth in free schools had positive test score gains relative to similar schools in other municipalities (Böhlmark and Lindahl, 2015). This suggests that increased competition from the growth of free schools boosted state school performance.

Another significant reform has taken place in the United States where since 1992, charter schools have changed the way that many pupils are educated. Charter schools are typically newly established schools that enjoy greater autonomy than the rest of the US public school system. Like free schools, they are privately owned but publicly funded.

Nearly two thirds of secondary schools in England now have academy status. Andrew Eyles and Stephen Machin are tracking the impact of this unprecedented educational reform on pupil outcomes – in both the first wave of ‘sponsored’ academies introduced by Labour and the coalition’s wider programme of ‘converter’ schools.
Giving struggling schools more freedom and stronger leadership leads to big improvements in pupil performance

in 2010, there has been a striking growth in the number of academies – from 203 schools at the time the government changed to 4,722 schools in 2015. The 2010 Academies Act enabled a wider range of schools to gain academy status. In particular, it allowed high-performing schools to convert to an academy without entering into a sponsoring relationship. The result is that 60% of England’s secondary schools now have academy status, and more than 15% of primary schools.

While it is too early to assess the impact of the academies programme as a whole, we have looked at the effect on test scores of attending one of the 106 sponsored academies that opened between the 2002/03 and 2008/09 academic years (Eyles and Machin, 2015). There are two hurdles to estimating the impact of academy schools on test scores:

- First, schools that gained academy status during this period are fundamentally different from the average secondary school in that they are typically inner city, poorly performing schools. A naïve comparison of academy pupil outcomes with average, non-academy school, pupil outcomes would lead to the erroneous conclusion that academy status is bad for pupil performance.

- Second, schools that gained academy status typically start to attract better pupils. Even comparing outcomes for pupils attending academies with pupils attending similar schools in terms of pre-conversion characteristics may fail to account for these compositional changes.

Our study avoids these problems in two ways. We compare outcomes for those attending an academy school in the period 2002-09 with those who attend ‘control’ schools – schools that became sponsored academies later (in the 2009/10 and 2010/11 school years). To avoid conflating the causal effect of academy status on test scores with compositional changes, we restrict our attention to pupils already enrolled in an academy school in the year prior to conversion.

Overall, we find that giving greater autonomy to secondary schools leads to large gains in test scores for pupils attending those schools. To be precise, a pupil who attends an academy school for four years can expect, on average, test scores 0.2 standard deviations higher than an otherwise similar pupil at a school under local authority control. This is roughly equivalent to going from the 50th percentile of the test score distribution to the 57th.

The results are driven by schools that convert from community school status. These have the least amount of autonomy pre-conversion and thus gain relatively more freedom than other school types. The performance gains for these schools are twice the average with pupils attending them for four years achieving, on average, test scores 0.4 standard deviations higher than similar pupils attending community schools. This effect is equivalent to going from the 50th percentile of the test score distribution to the 65th.
Autonomy
The question of how autonomy is used to improve performance is an important one. According to the Department for Education’s (2014) survey of academy schools, the most prominent changes are those in school leadership, the procurement of services that were previously provided by the local authority, and curriculum changes.

Our research highlights the role of head teacher turnover. In the initial year of becoming an academy, schools are over 60% more likely to change their head teacher than schools that have yet to convert.

The future
Given that academy schools now dominate the educational landscape in England, it is natural to ask to what extent the effects on pupil outcomes can be meaningfully extrapolated to the surge of academies that opened post-2010. Although the coalition government continued with the sponsored academies programme, most of the growth of the academy sector (almost 80% of the post-2010 growth) came from high-performing schools, known as ‘converters’, voluntarily converting to academy status without entering into a sponsoring relationship.

In a study with Olmo Silva, we document significant differences between schools that became sponsored academies and those that opened as converters (Eyles et al, 2015). We find that post-2010 converter academies are very different in terms of pre-conversion characteristics compared with schools that became sponsored academies.

In particular, prior to conversion, converters tend to have high levels of attainment and few pupils eligible for free school meals. On the other hand, those becoming sponsored academies are drawn from the bottom of the attainment distribution.

Whether the differences between converter academies and sponsored academies are manifested in differences in performance effects is still unclear, as it is still too soon to consider their impact on pupils’ GCSE performance in a way comparable to the earlier work. Similarly, the question of the extent to which a successful, but small-scale, intervention can be rolled-out with equal success on an almost national scale remains open. These questions will be amenable for researchers to study in the next couple of years once the new academies have been open long enough to facilitate an evaluation of their impact on pupil performance.

Conclusion
The academies programme can be seen as the latest in a series of attempts to find innovative schooling strategies that boost the performance of state-maintained schools. As in Sweden and the United States, England’s education system is moving beyond the traditional state-maintained school. But compared with reforms in those countries, it is doing so on a scale and at a pace that are unprecedented.

Whether the early successes of sponsored academies translate into success of the wider programme remains in doubt. What is clear is that the academies programme, and some aspects of its mode of operation, can offer some lessons for better provision of state-maintained education, especially for pupils enrolled in poorly performing schools. But thinking that ‘mass academisation’ offers a panacea for improved pupil outcomes across the board increasingly seems to be an unlikely path to delivering a better education system.

Academy schools differ considerably depending on whether they are ‘sponsored’ or ‘converters’

Further reading


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Is there more racial prejudice when the economy is weak and does it result in greater racial discrimination in the workplace? In an exploration of UK social attitudes and labour market outcomes over the business cycle, David Johnston and Grace Lordan detect a widening of racial inequalities in wages and employment during recessions.

Some commentators have suggested that racial prejudice escalated during the Great Recession. If true, this may have led to increased labour market discrimination, widening the already existing inequalities in wages and employment. Our research provides a detailed analysis of whether racial prejudice and racial labour market gaps are indeed ‘counter-cyclical’ – rising when the economy turns down.

Our measure of racial prejudice comes from British Social Attitudes surveys conducted between 1983 and 2010 – specifically, declarations by white respondents whether they are ‘not prejudiced at all’, ‘a little prejudiced’ or ‘very prejudiced’ against people of other races. To identify the effects of macroeconomic conditions on these attitudes, we exploit variation over time and across geographical regions of the UK.

Our findings suggest that prejudice among native-born whites increases with the unemployment rate. The effect is mainly driven by large increases in prejudice expressed by highly educated, middle-aged men in full-time employment. For example, for this group, a one percentage point increase in the unemployment rate increases self-reported prejudice by approximately four percentage points. This is an 11% increase relative to the average racial prejudice for this group of 36%.

For women, racial prejudice is also most strongly counter-cyclical for the highly educated that are in full-time employment and aged between 35 and 64. Our estimates suggest that a one percentage point increase in the unemployment rate increases racial prejudice by 2.2 percentage points.

Overall, our results highlight that employed men aged 35 to 64 who are highly educated have the most pronounced counter-cyclical racial prejudice – or at the least, that there is a larger proportion of intolerant high-skilled men in jobs during recessions.

Assuming that these individuals are more likely to be managers and bosses and to have political power within organisations, this may translate into worse labour market outcomes for non-whites during periods of high unemployment. In other words, if this is an increase in ‘taste discrimination’ (a preference for certain ethnic groups to others), high-skilled white men may discriminate
against non-whites at all skill levels over whom they have any power. If, on the other hand, the increase in discrimination is a reaction only to heightened job insecurity, the worsening of labour market outcomes will be concentrated among high-skill jobseekers and workers (‘people like me’).

In some sense, the latter may be viewed as ‘rational’ discrimination, given that the propensity of white workers to discriminate arises from increased competition with those at their own skill level. If job uncertainty causes members of a majority to form groups based on observable characteristics, such as ethnicity, they can then hire and promote people from within their own group to ensure future labour market success. It follows that if successful, it results in their own jobs and their group members’ jobs being more secure.

We explore which mechanism best explains the increase in prejudice using data on native-born individuals from the 1993-2012 versions of the UK’s quarterly Labour Force Survey. Overall, the results from our analysis suggest that while all groups are worse off, non-whites suffer more than whites during recessionary periods in terms of both earnings and employment.

We refer to the increased racial wage gaps during periods of high unemployment as the ‘recession wage penalty’ and the increased racial employment gaps as the ‘recession employment penalty’. For non-white men, the racial employment penalty and the racial wage penalty increase by 0.6 points and 1.2% respectively for a one percentage point increase in the unemployment rate.

For non-white women, the racial employment penalty is not affected by the unemployment rate, while the racial wage penalty increases by 1.1% for a one percentage point increase in the unemployment rate. For a four percentage point increase in the unemployment rate (as seen in the recent recession), these estimates imply that relative wages decrease by about 5% for both genders over and above the decrease experienced by whites.

The recession wage and employment penalties are largest for high-skilled workers, suggesting that they probably arise from competition. Specifically, we find that the penalties are the greatest for non-white workers with high skill levels, particularly for men working in manufacturing and construction industries.

For example, for the average non-white worker, their wages will decrease by about 1.2% more than the average white worker for a one percentage point increase in the unemployment rate. But the estimated recession wage penalty for highly educated, high-skilled non-manual workers in manufacturing and construction industries equals 3.3% for the same unemployment rate increase. This implies that non-white relative wages decrease by around 13% with a four percentage point increase in the unemployment rate, as seen in the Great Recession.

Further analysis reveals that black workers suffer larger recession wage penalties than other non-white workers. The decrease in wages for the average black worker is 1.3% in response to a one percentage point increase in the unemployment rate. The decrease in wages for a black male worker in response to a one percentage point increase in the unemployment rate is 2%, 2.4% and 2.3% for those who are, respectively, highly educated, high-skilled non-manual and in manufacturing and construction.

Overall, we find that during recessions there are relatively more white workers who report being racially prejudiced, and that existing racial inequalities in the labour market widen. Given that non-whites continue to experience significant inequalities in health, housing and schooling quality, we conclude that policy-makers must be mindful of how recessions can disproportionately penalise minority individuals, and should develop policies to avoid these harmful effects.

What these policies should be is not obvious given that currently the burden of proving discrimination mostly lies on workers themselves. We suggest that the government audit medium to large firms and publish the proportion of non-whites who are in senior roles. This may offer some safeguards for employees working in companies that rely on public reputation, such as those that interact directly with the general public. In addition, details of employment discrimination claims could be published annually with a right to reply by employers.


David Johnston is at the Centre of Health Economics, Monash University. Grace Lordan of LSE’s department of social policy is a research associate in CEP’s wellbeing programme.
NHS hospitals in England are rarely closed in constituencies where the governing party has a slender majority. This means that for near random reasons, those parts of the country have more competition in healthcare – which has allowed Nicholas Bloom and John Van Reenen to assess its impact on management quality and clinical performance.

Throughout the world, the share of national income absorbed by healthcare seems to rise inexorably. Technological progress, rising citizen expectations and an ageing population have all helped to propel this escalation in costs. In the United States, almost one dollar in every five is spent on health. In an era of budgetary austerity, policy-makers have been searching desperately for ways to improve the efficiency of healthcare delivery without jeopardising the quality of clinical care.

Nowhere is this greater than in hospitals, which are a major component of total healthcare costs.

To an economist, a natural method of improving efficiency is through competition. If patients had more effective, well-informed choice between hospitals, then wouldn’t managers work harder to improve services to attract them?

But, it is traditionally argued, ‘healthcare is different’ because of multiple market failures. For example, patients typically have poor information about hospital quality and are also unwilling to travel far for healthcare; local doctors are sometimes subject to conflicting incentives; and healthcare is heavily regulated with services often delivered directly by the public sector.

Nevertheless, there has recently been a wave of reform in the public services of many countries to create ‘quasi-markets’ and inject greater degrees of patient choice.

In work with Carol Propper and

Healthcare competition can be introduced by improving information, giving patients more choice and having money follow patients
Stephan Seiler, we evaluate whether competition improves hospital quality, in particular by stimulating greater managerial effort (Bloom et al, 2015). We do this in the context of the acute care hospitals in the NHS.

In the 2000s under the Labour government, resources followed patients and publicly run NHS hospitals had to attract patients to obtain such resources. But since the prices for hospital services were centrally set, the only way hospitals could attract extra patients was by improving quality. Helped by their GPs, patients were given the choice of at least five hospitals and much better information.

Since people dislike travelling far from where they live, hospital competition has a strong geographical element. If competition works, then it should do so more in those areas of the country where there are many hospitals to choose from rather than a single monopoly provider.

There are two major challenges in addressing the question of whether having more hospital competition really improves management. First, how to design an ‘experiment’ that randomly generates more hospitals in some parts of the country than others; and second, how to measure management quality.

Using politics as an experiment

The institutional features of the NHS provide a natural experiment for hospital market competition. Entry and exit of hospitals is centrally controlled by the Department of Health and over the last 40 years – and in particular since the mid-1990s – there has been an attempt to reduce the number of hospitals and consolidate services in a smaller number of larger hospitals. Changes in population and demographics are a key consideration in making decisions about how to reconfigure these services.

But politics also matters. Closing down a hospital is highly controversial as local people will usually fight hard to keep it open. A vivid example of this was in the 2001 General Election when a government minister was overthrown by a politically independent physician, Dr Richard Taylor, who campaigned on the single issue of ‘saving’ the local Kidderminster Hospital, which the government planned to scale down.

We first show what might seem obvious: people blame the central government in power for closing down a hospital and punish them at the ballot box. Hence, it is no surprise that hospitals are rarely closed in constituencies where there is likely to be a close electoral race. For example, the Times reported on 15 September 2006 that ‘A secret meeting has been held by ministers and Labour Party officials to work out ways of closing hospitals without jeopardising key marginal seats.’

Figure 1 shows the number of hospitals in 2005 per head of the population in English constituencies in relation to their political marginality in the 1997 election. There is a surprisingly large number of hospitals in the areas where Labour won or lost with a voting margin of 5% or less. And this relationship holds even after a large number of controls for the area is included, such as income, demographics and population density (the first bar of Figure 2 shows that areas that were marginal had over a standard deviation more hospitals than those that were not marginal).

This enables us to use the political marginality of an area as something that for random reasons means that some areas will have more hospitals – and therefore more intense competition – than others. It is a ‘natural experiment’ that gives an additional dose of competition to some areas, which we can compare with others with less competition.

Measuring the quality of hospital management

The second question is how to measure hospital management quality. We build on a method for quantifying core aspects of management quality that we first used in 2004 for 732 manufacturing firms in four countries (Bloom and Van Reenen, 2007). Since then, the World Management Survey has been expanded to over 20,000 organisations in multiple sectors in 35 countries.

For hospitals, the core of our dataset is made up of 18 questions, which can be grouped into the following sub-categories: operations and monitoring (six questions); targets (five questions); and incentives (seven questions). For each of the questions, the interviewer reports a score between 1 and 5, a higher score indicating better performance.

To try to obtain unbiased responses, we use a double blind survey methodology. The first part is that the interview is conducted by telephone without telling the respondents in advance that they are being scored. This enables scoring to be based on the interviewer’s evaluation of the hospital’s actual practices, rather than their aspirations, the respondent’s perceptions or the interviewer’s impressions.

To run this blind scoring, we use open questions (‘can you tell me how you promote your employees?’) rather than closed questions (‘do you promote your employees based on tenure – yes or no?’). Furthermore, these questions target actual practices and examples, with the discussion continuing until the interviewer can make an accurate assessment of the hospital’s typical practices based on these examples.

For each practice, the first question is broad with detailed follow-up questions to fine-tune the scoring. For example, with question (1) ‘Layout of patient flow’, the initial question ‘Can you briefly describe the patient journey or flow for a typical episode?’ is followed up by questions like ‘How closely located are wards, theatres and diagnostics centres?’

The second part of the double-blind...
scoring methodology is that the interviewers are not told anything about the hospital’s performance in advance of the interview. This is collected post-interview from a wide range of other sources. We interview respondents for an average of just under an hour and approach up to four individuals in every hospital – a manager and a physician from both the cardiology and orthopaedic services.

We obtained 161 interviews in 100 acute hospitals and the response probability was uncorrelated with performance and other hospital characteristics. Our management quality index built from averaging these 18 questions was strongly correlated with a range of measures of clinical performance (such as surgical survival rates), productivity and staff satisfaction. These relationships are not necessarily causal, but suggest that the questions have useful informational content.

Competition improves management and clinical quality

Overall, we find that hospitals that faced more competition had significantly higher management scores and better clinical and financial performance. Using only the random variation in the degree of competition generated by political marginality actually made this relationship between competition and quality stronger. This could be because it is harder to attract good managers to work in areas that are poor and ageing – exactly those areas where health demand and the number of hospitals per head are relatively large.

The magnitude of the competition effect is sizeable. For example, we estimate that adding a rival hospital increases management quality by 0.4 standard deviations and increases survival rates from emergency heart attacks by 8.8%. An illustration of this is in Figure 2: comparing areas that are marginal with those that are not, we find that politically marginal areas had higher management quality (middle bar) and lower death rates (right bar).

We confirm the robustness of our empirical strategy to ‘hidden policies’ that could be used in marginal constituencies to improve hospital management and to changes in capacity that may follow from hospital closure. One concern is that

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**Figure 1:**
Labour’s winning margin in 1997 and the number of hospitals per head in a political constituency in 2005

**Notes:** This figure plots the mean number of hospitals per one million people within a 15km radius of the centre of a political constituency against the ‘winning margin’ in 1997 of the governing party (Labour). When Labour is not the winning party, the margin is the negative of the difference between the winning party (usually Conservative) and Labour. The margin is denoted ‘x’. There are 529 political constituencies in England.

**Figure 2:**
Areas of high competition have more hospitals, better management and lower in-hospital death rates

**Notes:** This figure plots the differences between high and low marginality constituencies (split at the median of marginality after controlling for the baseline regression covariates). All three measures control for many other factors (they are residuals from a regression on these covariates) to strip out the effects of demographics, teaching hospitals, being located in London, etc. The difference between low and high marginality is statistically significant at 1% for the number of hospitals and management quality; and at the 10% level for heart attack mortality rates.
Marginality might have direct effects on hospitals through other routes than competition. We show that this is not the case – there is a national funding formula and we confirm that marginality has no effect on financial resources per hospital. Because hospital markets are overlapping, we can even implement a tough test that puts in marginality around a hospital and just uses variation in marginality around its rival hospitals to identify the competition effects. We confirm the absence of such hidden policies associated with political marginality.

Policy conclusions

Competition can be introduced into public systems by improving information, giving patients and their GPs choice and having money follow the patients. This is a cheaper way of inducing competition than simply building more hospitals, which is expensive. At the moment, decisions over entry and exit of hospitals in public systems usually ignore the effects of competition. Our work suggests that market structure should not be ignored.

The quasi-market in the NHS remains controversial. When our findings on the benefits of competition were first discussed in the media, one of our team members received death threats and had to have security protection when leaving the LSE buildings.

The main objection is that the reforms in the 2000s were thought to be ‘privatising’ the NHS. This is wrong: NHS hospitals are publicly owned hospitals and free at the point of use. Importantly, hospitals are not allowed to compete on price, which is set as a national tariff per treatment type. That leaves quality as the dimension that is open to attract patients. Allowing competition on quality but not price is a safeguard built on experience from the early 1990s ‘internal market’ (Propper et al, 2008), when price competition was briefly allowed and led to cuts in costs but also to reductions in quality (which is harder to observe).

Our study also suggests an important role for management. Healthcare is like many other sectors where there is significant scope for improved managerial quality to raise performance. Competition is one way but there are others – improved skills (especially choosing chief executives with some clinical experience) and providing better information are two leading possibilities.

Further reading


In February 2014, strikes by staff on London’s underground network enabled a sizeable fraction of commuters to find better routes, according to research by Shaun Larcom, Ferdinand Rauch and Tim Willems. Many commuters were forced to experiment and around one in 20 stuck with their new routes after the strike was over.

The upside of London Tube strikes

To what extent do people get stuck behaving in ways that aren’t in their best interests - and at what cost? Such ‘suboptimal’ behaviour has long been discussed, including by Nobel laureate Herbert Simon (1955) – but until now, it hasn’t been studied empirically using a large consumer dataset.

Our study aims to fill this gap by analysing a unique dataset containing all individual travel movements on the London public transport system from 19 January to 15 February 2014. Our data include travel card IDs, through which we can track individual behaviour.

From 4 to 6 February 2014, workers on London’s underground network went on strike, as a result of which some (but not all) Tube stations were closed - forcing many commuters to experiment by exploring new routes on those days. We use this event to study how commuters’ repeat behaviour changes after a disruption-induced episode of experimentation. We define commuters as those travellers who use the Tube on a daily basis - during non-strike weekdays between 7am and 10am.

The data show that during the strike, a substantial number of commuters were unable to use their usual (‘modal’) station and were forced to explore alternative routes. What’s more, the strike brought about some lasting changes in behaviour, as the fraction of commuters that made use of their modal station seemingly dropped after the strike. We also have information on journey times: as might be expected, the duration of the average journey increased during the strike, as did the dispersion of journey times.

As the network was only partially closed, some commuters continued to take their normal route to work – thereby making it possible for us to use a ‘differences-in-differences’ approach (comparing the behaviour of ‘treated’ and ‘non-treated’ commuters). We define the treatment group in three different ways: those who deviated from their pre-strike modal journey during the strike; those whose pre-strike modal station was closed during the strike; and those whose average travel times to work during strike days were sufficiently different from their average travel times in the pre-strike period.

We find that those who were forced to explore alternative routes during the strike (‘the treated’) were significantly less likely to return to their pre-strike commute in the post-strike period, relative to the non-treated control group. This suggests that a fraction of commuters had failed to find their optimal journey before the strike. After all, post-strike all routes were available again (including the pre-strike modal one) so a failure to pick the latter option suggests that the commuter had found a better alternative during the disruption. In terms of magnitude, the fraction of post-strike switchers is about five percentage points higher among the treated.

Why did this happen? Our results suggest that ‘informational imperfections’ play a role in explaining why treated commuters were more likely to switch.

Many London commuters failed to find their optimal route until they were forced to experiment.
post-strike. These come about through the distortions produced by the stylised nature of the Tube map. Using geographical information systems software and a digitised version of the Tube map, we can compare the actual distance between stations with the distance represented on the Tube map. The difference between the actual and the mapped distance provides a measure of the degree of distortion of distances between stations.

Making use of the considerable variation in the degree of distortion represented in the Tube map across different parts of London (something that is unobserved to most commuters), our results suggest that those who live in (or travel to) more distorted areas were less likely to return to their pre-strike modal journey in the post-strike period. This suggests that those living in more distorted areas learned more from the strike.

We also find that treated individuals were more likely to change their journey in the post-strike period if they were commuting on a relatively slow line before the strike (with train speed being another characteristic where imperfect information plays a role, since it remains unobserved by commuters until they try alternative lines).

Our results suggest that a significant fraction of commuters became aware of a better route to work thanks to the strike. This is puzzling, since the alternative journey could have also been discovered beforehand through voluntary (as opposed to forced) experimentation.

This finding can be interpreted two ways. The first interpretation is that consumers were acting rationally: they followed the optimal search rule but due to search costs, they (rationally) gave up on finding the best alternative before they had found their ‘global maximum’. In the terminology of Baumol and Quandt (1964), commuters under this hypothesis were not maximising but ‘optimising’ (defined as acting rationally given the presence of search costs).

The alternative interpretation is that people were not adhering to the optimal search rule and experimented less than prescribed by the standard rational model. In other words, they were neither maximising nor optimising. Under this second interpretation, commuters were ‘satisficing’ in a way suggested by Herbert Simon: they continued to search until ‘some satisfactory outcome’ was found.

To see which interpretation fits our data best, we use Weitzman’s (1979) solution to the problem of optimal costly search (which is consistent with the Baumol-Quandt view). Using conservative numbers for the estimated time saving and its monetary equivalent, we calculate

The long-lasting benefits of shorter commutes are worth more than the total travel disruptions during the strike.
that if commuters were adhering to the optimal search strategy, the cost of trying the most attractive untried alternative would have to be greater than £380.

Given this implausibly large number, it seems that commuters in our dataset were experimenting less than is described by the standard rational model. Instead, people seem to satisfice in a way that is not straightforward to rationalise.

While a subset of commuters found better ways to get to work thanks to the strike, the vast majority (95%) only suffered from travel disruptions. But somewhat surprisingly, when we compare the costs imposed on all treated commuters during the strike with the gains to the subset of beneficiaries, we find that the strike produced net benefits, increasing the overall efficiency of the network (the main reason being that the gains are much longer-lasting than the costs).

Importantly, the net benefit from the strike came from the disruption itself, providing empirical support to Porter's (1991) controversial hypothesis that imposing a constraint on an economic system can enhance efficiency over time (as constraints force people and organisations to experiment, innovate and re-optimise).

Clever use of journey planner apps might ‘nudge’ travellers to experiment more

In the specific context of the Tube, this implies that commuters could save time given an occasional external encouragement to experiment. Since partial closure of the network is a rather radical way to achieve this, it is worth investigating whether clever use of journey planner apps can ‘nudge’ travellers to experiment more.

More generally, our findings are relevant to government policies, to business practices and to our personal lives. Given that a significant fraction of commuters on the Tube failed to find their optimal route until they were forced to experiment, perhaps we should not be too frustrated that we can’t always get what we want, or that others sometimes take decisions for us.

If we behave anything like the satisficing commuters on the Tube and experiment too little, hitting such constraints may very well be to our long-run advantage. Encouraging ourselves to implement occasional breaks in our routine could actually be beneficial. Therefore, we ask, when was the last time that you did something for the first time?


Shaun Larcom is at the University of Cambridge. Ferdinand Rauch is a research associate in CEP’s trade programme. He and Tim Willems are at the University of Oxford.

Further reading


Regulations that impose maximum mark-ups are intended to protect consumers from firms exercising market power. But a study by Christos Genakos and colleagues suggests that they can have the opposite effect: when Greece lifted controls on the market for fresh fruit and vegetables in June 2011, consumers enjoyed lower prices.

Regulatory reform in Greece: the benefits of removing maximum mark-ups

Government regulation of mark-ups is common. State monopolists and ex-monopolists in a variety of markets worldwide, including the telecoms and utility sectors, have long been subject to maximum mark-up regulation. But mark-up regulation has also been used in both high- and low-income countries in oligopolistic markets (those dominated by a few powerful firms), such as the markets for oil, gas and pharmaceutical products.

The typical justification for imposing maximum mark-ups is to protect consumers from the effects of excessive market power. In oligopolistic markets, the main argument in favour of maximum mark-ups is to limit the most extreme instances of market power exploitation.

Regulation is expected to put downward pressure on retail prices, without affecting firms with smaller mark-ups (for example, a competitive fringe).

If mark-up ceilings are binding, it is argued, they will force some firms to reduce prices; if they are not binding, prices will not be affected. Hence, the average price is expected to fall at least a little. The economic logic of the argument is clear (and also easy for politicians to communicate to voters), so much so that the predicted effect of maximum mark-up regulation has never been subject to systematic empirical testing.

Our study takes this seemingly uncontroversial prediction to the data and estimates the impact of maximum mark-up regulation on retail and wholesale prices in an oligopolistic market where different players compete along the value chain. We take advantage of the repeal of maximum mark-up regulation in the Greek market for fresh fruit and vegetables. First implemented right after the Second World War, mark-up regulation was hastily cancelled in June 2011 as part of a programme of product market reforms aimed at liberalising the Greek economy, which was deeply affected by the global recession.

Regulation consisted of maximum wholesale and retail margins on almost all fruit and vegetables, and it was imposed on both locally produced and imported products. But five products – apples, lemons, mandarins, oranges and pears – were exempt from this regulation. To identify the impact of deregulation on prices, we compare prices of products
affected by regulation (the ‘treatment’ group) before and after the policy change and use the unregulated products as a ‘control’ group.

**Maximum protection goes and... prices fall!**

Figure 1 charts the weekly average retail price of fruit and vegetable products in the treatment group (the green line) and the control group (the orange line). Prices follow the typical annual cycle of agricultural products. More importantly, the average price of products in the control group (the straight orange line) is very similar in the one year preceding and following the policy change (the vertical red line). But there seems to be a large drop in the average price of products in the treatment group (the straight green line).

We are able to measure the causal impact of abolishing mark-up regulation, and find that it led to average retail prices that were 6% lower. A 6% decrease in the average price of fruit and vegetables corresponds to a 1% decrease in the price of food of a typical Greek household,

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**Notes:** The chart plots the weekly averages log price of products in the treatment (green line) and control (orange line) groups and their one-year averages (straight green and orange lines) before and after deregulation (vertical red line).

**Source:** Authors’ calculations based on data from the Greek Ministry of Development and Competitiveness.
which, in aggregate, amounts to €256 million of annual savings. Wholesale prices also decreased as a consequence of deregulation by about the same amount.

Did regulation affect the behaviour of wholesalers, retailers or both? We find that after accounting for wholesale prices, retail prices were not significantly affected by changes in regulation. This suggests that although regulation had a direct effect on wholesalers, it only indirectly affected retailers, who adjusted their prices to the lower wholesale prices.

‘Maximum protection’ or ‘collusive device’?

How could deregulation lead to lower prices? While maximum mark-ups limit the price charged by firms facing a binding constraint, they may also alter the pricing behaviour of firms not subject to a binding constraint. Hence, we investigate the hypothesis that maximum mark-ups provided a focal point for collusion.

Earlier research has documented a similar phenomenon under maximum price regulation in other markets. For example, Knittel and Stango (2003) show that mandatory price ceilings in the US credit card market in the 1980s had the perverse effect of increasing average prices. Similarly, Albæk et al (1997) show that publication of transaction prices by the Danish competition authority seemed to help firms colluding in the ready-mix concrete market in the 1990s. But mark-up regulation differs from price regulation in a number of ways, so the observation that price regulation may facilitate collusion does not imply that mark-up regulation will have the same effect.

In our case, additional data show that the wholesale market for fruit and vegetable products is more concentrated than the retail market and less affected by entry and exit. Firms are larger in terms of sales volume, and they are more likely to be incorporated. A number of factors facilitating collusion seem to be present in this market: product homogeneity (within varieties); limited entry; and frequent interaction and physical proximity of wholesalers.

Further evidence is also consistent with collusion. The supermarkets in our sample typically buy from wholesalers. In contrast, smaller retailers in street markets typically rely on wholesalers for imported goods, buying locally grown products from a fragmented market of local producers. We find that the average price of goods sold in supermarkets was much more affected by deregulation. Moreover, in street markets, the retail price of goods bought from wholesalers fell as much as in supermarkets, while the retail price of local products was not significantly affected.

Overall, the results of our policy evaluation highlight the unexpected consequences of a common yet understudied type of regulation. While maximum mark-up regulation may well serve its intended purpose in some markets, our results show that this cannot be taken for granted.

Last but not least, because the Greek economy is regulated heavily and inefficiently (Katsoulacos et al, 2015), there are large benefits to reap from regulatory reform. Our example is a case in point: deregulation actually benefited consumers by leading to lower fruit and vegetable prices, even though the regulation in place was in fact meant to serve this objective.

The Greek economy is regulated heavily and inefficiently – so there are large benefits to reap from regulatory reform

Further reading


Proposed changes to national exams in England mean that the exams taken at the end of GCSE and A-level courses will start to count for more and, in some cases, as much as 100% of the final grade. Arguments in favour of the reform include preventing ‘cheating’ by teachers when grading coursework, and reducing the time spent on coursework in the classroom. But one important concern seems to have been overlooked by those proposing the reform: when the final grades depend on the results achieved in a few tests, the pressure associated with those tests increases.

Even though the pressure will increase equally for all pupils, its effects may not be homogeneous across all groups. While more pressure might enhance the academic performance of some pupils, the reverse might be the case for others. Research in psychology has shown that increased pressure is potentially harmful to people’s capacity to exhibit their ‘true’ capability. The effects of a change in exam pressure might be especially important for certain types of pupils – girls versus boys, perhaps, or low- versus high-performing pupils.

Our research explores differences in girls’ and boys’ responses to changes in exam pressure in Spain. We do this using detailed information over a period of 12 years on several cohorts of pupils who take four different types of tests, including national exams, with varying stakes.

We find that girls and boys do react differently to increases in exam pressure, as defined by the size of the stakes at hand. In particular, girls do relatively better on tests with low stakes, but this difference is reduced and even disappears when the stakes increase. Over the course of the academic year, pupils in our sample take a number of tests, some of which count for as little as 2.5% of the final grade and others that count for as much as 27%.

We also have information on the national exams they take, which count for 50% of the university entry grade.

Gender differences in academic attainment and achievement have been widely documented by researchers in the economics of education. For example, in university attainment, the gender gap has closed and, in many countries, it has even reversed to the extent that more women graduate than men. Among 18 year olds in the UK in 2015, 25.1% of men and 34% of women took university places.

But in educational attainment – at both school and university – economists are puzzled by the patterns. Girls tend to outperform boys in classroom tests taken in school or university, but in aptitude and achievement exams, the advantage disappears and often reverses. An important distinguishing feature of these different types of assessment is the extent of their stakes: exams typically count most for progression and the likelihood of a young person going into further education or getting a job.

In our study, we follow pupils from the age of 12 to 18 years old. In each of their six academic years, the pupils take bi-monthly, end-of-term and end-of-year tests, which we define respectively as low, medium and high stakes. When they are in their final year of school, in addition to the usual tests, they take national exams. The university entry grade is determined half by the coursework grades in school in the final year and half by the national exams (which makes them even higher in stakes than other tests).

We find that in all academic years, girls perform significantly better than boys in classroom tests, but in the national exams, boys perform slightly better than girls. Breaking down the classroom tests into low, medium and
high stakes, girls seem to perform best in the tests that have low stakes: on average, they perform almost twice as well in the low stakes tests compared with the high stakes tests.

Looking across different subjects, we see that the gender difference in performance in the low versus high stakes tests is always present. But it is especially important in maths and science – subjects that traditionally have few women studying them beyond compulsory education.

Our results suggest that changing assessment methods homogeneously across all pupils, as proposed in England, may change the gender balance of academic results. These effects may be exacerbated once pupils are given a choice about which subjects or degrees they want to pursue. Until a certain age, all pupils are obliged to take a certain set of courses but after that they can choose. These choices are likely to be influenced by previous performance, as well as the anticipated pressure.

This is important not only for educational outcomes but for the labour market too. Looking at degree programmes or across occupations, there is still a great deal of sorting by gender. Men and women tend to self-select into certain courses and jobs, which can have significant consequences for wages and provides an important explanation for the continued existence of big gender wage gaps.

In a recent article in the Washington Post, economist Peter Arcidiacono of Duke University is quoted highlighting the issue of gender differences in degree subjects that are traditionally predictive of high salaries later in life. ‘STEM [science, technology, engineering and medicine] majors, as with economics, begin with few women enrolling and end with even few fewer graduating. This leaky pipeline has been somewhat puzzling, because women enter college just as prepared as men in math and science.’

Harvard economist Claudia Goldin finds a similar puzzle in bachelor’s degrees in economics in the United States. Women who receive an A in introductory economics are more likely to major in economics than men with an A. But when women receive a lower grade, they are less likely to choose economics. Men who receive a B are as likely to major in economics as men with an A, while women with a B are half as likely to major in economics as women with an A.

One possible explanation for this puzzle is that some degrees (and some jobs) entail more pressure than others. Young people with a low tolerance for pressure will avoid degrees or firms that reward tolerance for pressure. It might also be that pressure in the selection process leads to candidates with low tolerance for pressure opting out.

This article summarises ‘Gender Differences in Response to Big Stakes’ by Ghazala Azmat, Caterina Calsamiglia and Nagore Iriberri, CEP Discussion Paper No 1314 (http://cep.lse.ac.uk/pubs/download/dp1314.pdf) and forthcoming in the Journal of the European Economic Association.

Ghazala Azmat of Queen Mary University of London, is a research associate in CEP’s growth programme. Caterina Calsamiglia is at the Universitat Autònoma de Barcelona. Nagore Iriberri is at the University of the Basque Country.
Although UK real wages have been stagnant for over a decade, there has been a notable increase in non-wage compensation. But as Brian Bell reveals, this rise consists largely of special payments to fund deficit gaps in ‘defined benefit’ pension schemes – and most of these schemes have been closed to new members for years.

Wage stagnation and the legacy costs of employment

The real wage of the average worker in the UK has stagnated for over a decade. Average hourly earnings rose from £11.76 in 2003 to £15.16 in 2014, a rise of 28.9%. Over the same period, inflation rose by 32.5%. So by this measure, real wages are down 3.6% since 2003. There are of course many ways to measure real wages, but however one slices the data, it is incontrovertible that real wages have at best stagnated.

In the long run, the real compensation of workers should rise at the same rate as the growth of labour productivity. This would suggest a quite simple story to explain the stagnation in real wages: workers are doing badly because productivity growth has been so poor. To a large extent, this story is true: Figure 1 shows the trends in labour productivity (the blue line) and real compensation of workers (the red line) since the early 1970s. Clearly, the two move closely together and there has been no obvious ‘decoupling’ since the early 2000s.

But there is a puzzle: labour productivity has actually risen over the past ten years – by about 6% in total – so should we not see the same growth in real wages? Such growth would still be substantially less than the 2-3% per year to which we might have become accustomed – but we have to ask, where is the missing growth and how can we reconcile this gap with the view that there has been no decoupling?

On one level, the answer is simple (and discussed in Pessoa and Van Reenen, 2013 – see Figure 1). If labour productivity has risen by 6% and there has been no decoupling, then real compensation (measured in the same units) must also have risen by 6%, since this is the definition of no decoupling.

So if real wage growth has been zero, the non-wage components of compensation must have risen at a rate fast enough to generate an overall compensation increase of 6%. This is indeed the case: non-wage compensation
UK employer pension contributions rose by a staggering 96% between 2003 and 2013
grew by 33% in real terms over the period 2003-13, which explains the gap between compensation (the red line) and wages (the green line) that has opened up in the recent past.

What accounts for this rise in non-wage compensation? The UK National Accounts decompose compensation into various components. We start with the simple decomposition into wage and non-wage costs:

\[
\text{Total compensation} = \text{wages and salaries} + \text{social contributions}
\]

There is then an extended decomposition of the social contributions into the following categories:

\[
\text{Social contributions} = \text{employer National Insurance contributions} + \text{implied employer social contributions} + \text{actual employer non-pension contributions} + \text{actual employer pension contributions}
\]

Most of these categories are self-explanatory. The implied social contributions primarily covers the implied cost of contributions to pension schemes that are either only partially funded or completely unfunded (‘pay as you go’). These are almost exclusively public sector pension schemes. Non-pension contributions include benefits such as private healthcare.

This is as far as the UK National Accounts go. But we can use the Annual Survey of Pension Funds conducted by the Office for National Statistics (ONS) to get some perspective on the final category of social contributions – actual employer pension contributions. As we shall see, this plays the dominant role in changes in compensation over the last decade so it is useful if we can unravel the components a little more.

Firms make contributions to both ‘defined benefit’ and ‘defined contribution’ schemes. The second component shows no substantial change over the period. But the first component rises significantly and is the principal explanation for the rise in non-wage compensation.

We can further decompose the payments to defined benefit schemes into two: first, the normal employers’ contribution rate (for example, 18% of gross salary); and second, deficit-funding payments to cover any actuarial gap between the assets and liabilities of the defined benefit scheme.

Table 1 decomposes the changes in real labour productivity per hour, real employee compensation per hour and its constituent components for the period 2003-13. Labour productivity rose by 6.1% while total compensation rose by 4.8% – so there was a marginal gap over this period.

But as is clear from Figure 1, there are long periods in which the two diverge, so such a small gap cannot sensibly be called decoupling. Wages and salaries did not rise at all over this period, so all of the 4.8 percentage point rise in total compensation is due to rising non-wage costs. Indeed, total social contributions rose by 33%, on a share of just under 15% of total compensation.

Let me first deal with the dogs that did not bark. First, implied social contributions have played little role in the growth of compensation over the last decade – accounting for only 0.2 percentage points of the 4.8 percentage points rise. Second, non-pension employer costs have actually declined over the period and would, all else equal, have reduced total compensation by 0.4 percentage points. This suggests that employers have been cutting back on these benefits over the last ten years.

There are two more substantive contributions. First, National Insurance payments rose by 15% over the period, and so generated a one percentage point rise in total compensation. This is primarily a result of the rise in the employer Class 1

Table 1:
Decomposing changes in total compensation, 2003-13

<table>
<thead>
<tr>
<th></th>
<th>Growth rate</th>
<th>Contribution to total compensation growth rate</th>
<th>Share of total compensation in 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour productivity</td>
<td>6.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total compensation</td>
<td>4.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of which</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>0.0%</td>
<td>0.0%</td>
<td>85.4%</td>
</tr>
<tr>
<td>Social contributions</td>
<td>33.0%</td>
<td>4.8%</td>
<td>14.6%</td>
</tr>
<tr>
<td>of which</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Insurance</td>
<td>15.3%</td>
<td>1.0%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Imputed contributions</td>
<td>5.6%</td>
<td>0.2%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Actual non-pensions</td>
<td>-43.9%</td>
<td>-0.4%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Actual pensions</td>
<td>95.9%</td>
<td>4.1%</td>
<td>4.3%</td>
</tr>
<tr>
<td>of which</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal contributions</td>
<td>2.0%</td>
<td></td>
<td>3.1%</td>
</tr>
<tr>
<td>Deficit contributions</td>
<td>2.1%</td>
<td></td>
<td>1.2%</td>
</tr>
</tbody>
</table>

National Insurance contribution rate from 12.8% to 13.8% announced in Budget 2010.

Second and most importantly, employer pension contributions have risen by a staggering 96% over the period. So even though such contributions accounted for only 4.3% of economy-wide total compensation in 2003, the near treble-digit growth rate ensured that these contributions explain 85% of the overall rise in total compensation. A substantial part of this rise consisted of the special payments to fund deficit gaps in schemes – most of which have been closed to new members for some years.

Does this really matter? If every worker’s share of non-wage compensation equalled their share in the total wage and salary bill, there would arguably be little interesting to say. Firms and workers may simply be choosing the best way to be compensated and if this results in a shift of more compensation from current pay to deferred compensation in the form of pension contributions, then that both explains the trends we see and results in no distributional consequences.

There are two reasons to doubt this account. First, there is no reason to suppose that non-wage compensation is distributed across the workforce in exactly the same pattern as wages. Indeed, we know that high earners are more likely to have been in defined benefit schemes and in particular to benefit from the final salary aspect of such schemes.

Second and more specific to the issue at hand, the increase in non-wage compensation may provide no, or few, benefits to the currently employed. Because a substantial part of these payments are to cover deficits in pension schemes for past workers and those already in retirement, current workers benefit little from these payments (see Box 1 for an example).

This is not a problem that is likely to go away soon. The Pension Protection Fund, an organisation established to help people get their defined benefit pensions from companies in the event of insolvency, reports that at the end of August 2015, defined benefit schemes had a combined deficit of just over £280 billion. What’s more, there were over four schemes in deficit for every one in surplus. This suggests a potential headwind for wage growth even if productivity begins to recover.

Deficits in defined benefit pension schemes constitute a potential headwind for wage growth

Box 1: British Airways – ‘a pension deficit with wings’?

In 2013, British Airways (BA) employed 38,476 employees (of which 34,079 were UK employees). The total amount spent on wages and salaries was £1.455 billion, implying an average annual wage of £37,816. BA had three pension schemes in existence. One, the Airways Pension Scheme (APS), was a defined benefit scheme that had been closed to new members in 1984, though existing members could continue to accrue benefits.

In 2013, BA made an employer contribution of £59 million to the APS (of which £55 million was a deficit funding payment). There were 28,918 members of the scheme, of which only 844 were active (that is, currently employed by BA). This is unsurprising since the scheme closed in 1984, so one would need almost 30 years of service with BA still to be active.

What this all means is that BA spent £55 million funding a deficit in a scheme that provided a benefit to only 2.5% of their UK employees. If this money had not been required and had instead been distributed across the entire workforce as a pay increase, it would have represented a 3.8% rise. Some have ironically described the airline as ‘a pension deficit with wings’.

Brian Bell of the University of Oxford is a research associate in CEP’s growth programme.
Two notable features of globalisation are the growth of immigration and the growth of international trade in services. Exploring links between these phenomena, Gianmarco Ottaviano, Giovanni Peri and Greg Wright find that immigrants play a key role in promoting UK exports of business and legal services – not just to their home countries but across the world.
Immigration: the link to international trade in services

The volume of international trade in services has grown rapidly in recent decades, outpacing growth in goods trade. Between 1980 and 2011, global goods trade increased on average by 7.3% annually, while global services trade rose by 8.2% per year. Over the same period, many developed countries also experienced rapid growth in immigration.

Much research has analysed the link between immigrants and trade in goods, yet the link between immigrants and trade in services is almost unexplored. But this link may be particularly important due to the customer-specific information that is often required for the provision of services. Trade in business and legal services, for example, depends on good working relationships between clients and suppliers.

We explore the link between immigration and services trade by focusing on potential channels through which UK immigrants promote trade in services between their host country and its trading partners (or alternatively replace trade by producing locally what would otherwise be imported from their home countries). We draw on two data sources: the International Trade in Services survey and the quarterly Labour Force Survey. These allow us to distinguish 42 service types, which we use to explore the changing pool of immigrant workers in the local labour markets from which firms draw their workforce.

Figure 1, which breaks down UK trade in services by service type, shows the dominant role of business services and royalties and licensing agreements in both imports and exports. These two types of services require a significant amount of country-specific and institution-specific knowledge.

Our findings indicate that immigrants promote exports of services to consumers (‘final services’), both in aggregate and in particular to their countries of origin. We also find that they reduce imports of some types of business to business services (‘intermediate services’). These effects are particularly strong when the trading partners are culturally and institutionally dissimilar.

So exactly how do immigrants have these effects on trade in services? One way may be by reducing the costs of exporting (importing) services to (from) their home country by helping domestic firms to overcome cultural and institutional barriers to trade.
institutional barriers with the foreign market. Relative to trade in goods, this cost reduction may be particularly important, since providing a service abroad often requires an understanding of cultural specificities that goes well beyond what is required when selling a physical good abroad.

For example, selling business services overseas will require a nuanced understanding of the business culture in the foreign market, while selling legal services abroad will clearly require a detailed knowledge of the legal system. Such considerations of culture and language are of relatively minor importance in export transactions involving physical products – UK whiskies, say, or Chinese TV sets.

Reductions in imports of some intermediate services may come about where immigrants substitute for work that is otherwise performed by workers in their home country and then imported. In other words, firms may be able to hire a local immigrant instead of ‘offshoring’ the work to the immigrant’s home country.

Finally, in addition to the potential reduction in bilateral trade costs, immigrants may foster services trade to all destinations by increasing the overall productivity of the firm, thereby boosting the profits associated with overseas sales.

Potential sources of these productivity gains include a ‘diversity effect’ – in which immigrants foster creativity and help to generate new ideas – and a ‘specialisation effect’ – in which immigrants possess a comparative advantage in performing certain production tasks, allowing greater division of labour within the firm. When these gains are large enough and firms face fixed barriers to exporting, these productivity gains may help firms to access foreign markets that they might not otherwise reach.

Our empirical analysis seeks to measure the causal relationship from immigration to trade in services. One source of potential bias in our estimates is that a booming local labour market increases trade activity and, at the same time, attracts immigrant workers, which would introduce a spurious correlation between the two phenomena.

We avoid this by focusing on the parts of immigrant flows that are explained by historical patterns of immigration. To the extent that immigrants settle in some areas to be near their compatriots, the historical settlements of each immigrant group will be not only a good predictor of the current settlement patterns of that group but also unrelated to current economic conditions in that area. We make use of these ‘network-driven’ inflows of immigrants to track their causal impact on the services trade of firms in the local labour market.

So what do we find? First, a one percentage point increase in immigrants from a particular country into a local labour market leads firms in that area to export 6-10% more services to that country (a bilateral effect). This effect is driven primarily by export growth among firms already serving the market rather than by new firms entering the market.

Furthermore, the effect is strongest for services that are intensive in the use of language and legal expertise but is insignificant for technical services. This is consistent with the view that immigrants constitute an effective channel of trade creation for services in which cultural content plays an important role. In further support of this view, we find that the effects are two to three times larger when exporting to non-Anglo-Saxon countries than to Anglo-Saxon countries.

Second, we find a role for the aggregate share of immigrants in a local area on UK services exports, above and beyond any effect due to the bilateral cost reduction. This effect is approximately four times smaller than the bilateral impact, and it suggests the existence of productivity gains associated with immigrant labour.

The effect not only induces firms to export more to their existing partners, but also promotes entry of new firms into previously untapped markets. Specifically, we find that a one percentage point increase in the aggregate share of immigrants in the total population of a local area leads to a 0.10% increase in the probability that a firm exports some services. These effects are also strongest in the case of language- and legal-intensive service types, suggesting that immigrants are key to overcoming cultural barriers to trade.

Finally, immigrants may reduce imports of intermediate services. We find strong evidence for this effect, and once again it is almost exclusively due to trade in language- and legal-intensive services – that is, services with high cultural and institutional content. Overall, we find that bilateral offshoring (imports of intermediate services) with an immigrant’s country of origin falls by 1% per year in response to a three percentage point increase in immigration from that country.

Conclusion

Immigration and international trade in services are among the fastest growing aspects of globalisation. We find that there are economically important links between these phenomena, which imply that immigration policies may affect the export and offshoring activities of services firms.

Since trade in services requires the overcoming of cultural and institutional barriers to a much greater extent than trade in goods, the role of immigrants in facilitating services trade may be critical and quantitatively more relevant than in facilitating goods trade. At the same time, we find that for services with important cultural content, immigrants may reduce the offshoring of those services, an important nuance in the link between immigration and trade.


Gianmarco Ottaviano is professor of economics at LSE and director of CEP’s research programme on trade. Giovanni Peri is at the University of California, Davis. Greg Wright is at the University of California, Merced.
One of the most distinct features of the Great Recession has been the high incidence of job losses on either side of the Atlantic. In the United States, the data show a record high rate of job loss between 2007 and 2009, with the rate of unemployment peaking at 10% in the first quarter of 2010. In the European Union (EU-27), there were almost seven million fewer people in paid employment in 2012 than in 2008. Moreover, in addition to the high level of employment destruction, the Great Recession has been characterised by low rates of re-employment.

The evidence indicates that people who lose their jobs suffer short-run earning losses that persist into the long run. They also experience feelings of job insecurity, worse physical and mental health and an increased risk of divorce, among other negative effects.

In addition to these negative consequences for the individual worker, the dramatic weakening of the labour market during the Great Recession has the potential to generate important ‘spillover’ effects for other members of the household, particularly children. My research examines this intergenerational impact of labour market shocks by looking at Spanish data on parental job loss and children’s school performance.

Out of the seven million jobs lost in the EU-27 over the period 2008-12, almost 60% were registered in Spain. Given the severity of the recession suffered by the Spanish labour market, my focus may provide lessons for other countries that experienced a big rise in unemployment during the Great Recession – for example, Greece, Ireland and the United States.

The panel dataset that I have put together contains information on 358 pupils in compulsory education in a school in the province of Barcelona, including their parents’ labour market status and date of job loss, as well as their school performance over time. A comparison of the data on school performance with other schools in Catalonia and the Spanish labour force survey indicates that this is an average school in terms of both academic performance and the children’s socio-economic background.

The structure of the data makes it possible to observe the school performance of the pupils before the Great Recession hit Spain in the academic year 2007/08 and for every year up to 2011/12. In my main sample, all pupils have employed parents at the beginning of the period. Then, as a result of the Great Recession, some parents lose their jobs and are pushed into unemployment. The panel nature of the data means that I can compare the changes in school performance – measured by pupils’ average grades – before and after parental job loss.

My research shows that the effect of father’s job loss during times of economic hardship is bigger than that reported under normal economic circumstances. After father’s job loss, pupils suffer an average negative impact on school performance equivalent to increasing class size by around five pupils. This effect varies for particular subgroups: the negative impact is particularly concentrated among pupils whose fathers suffer long unemployment spells after job loss and those whose fathers have a low level of education.

Unemployment is bad news not just for the individuals who lose their jobs but also for their families. Jenifer Ruiz-Valenzuela examines this underemphasised cost of economic downturns by measuring the impact of parental job loss on children’s school results in Spain during the Great Recession.
Father’s job loss has a big negative effect on children’s school results; mother’s job loss has no effect.

I find no impact of mother’s job loss on school performance. This contrast is consistent with recent empirical studies documenting that the mental distress experienced by workers who lose their jobs is generally more severe for men than for women.

One mechanism that could be driving my results is the observed decline in income after fathers lose their jobs. But the heterogeneous results among the different subgroups are not fully explained by different income losses. It is important to note too, that these results are obtained for pupils that are enrolled in the same school during the period of observation. The observed reduction in income cannot be linked, therefore, to changes in the school attended after job loss.

An alternative channel through which reductions in income could partly explain my results is if income reductions after father’s job loss entail higher stress or financial anxiety and uncertainty for affected individuals and households – an effect reported in some social psychology and health economics research.

Given the massive employment destruction that took place in several advanced economies during the Great Recession, it is important to understand the mechanisms behind the large negative effect of father’s job loss on children’s school performance. My study looks at the short-term impact; as more data become available, future research should look at more long-term effects.

One key question is whether parental job loss leaves permanent scars on young people – in particular, how much it affects their educational and labour market outcomes in later life. This is important not just in terms of equality of opportunity but also in its implications for the whole economy given the centrality of human capital for growth.


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NEW BOOK

MAKING A DIFFERENCE IN EDUCATION: WHAT THE EVIDENCE SAYS

Robert Cassen, Sandra McNally and Anna Vignoles
Published by Routledge, April 2015
ISBN: 978-0-415-52921-1 (hardback); £95.00

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