Home ownership & social mobility
Editorial

If the prime minister’s election campaign mantra ‘strong and stable’ applies to anything, it is certainly not the UK economy. Higher price inflation as a result of sterling’s depreciation following the vote for Brexit, coupled with nominal wage growth stuck at a norm of 2% a year, means that once again the country faces falling real wages, threatening family living standards. At the same time, productivity – the key ingredient for sustainable long-term growth – has flat-lined since the global financial crisis, and the UK’s longstanding gap with countries such as France, Germany and the United States has widened.

During the election campaign, all the main parties highlighted the importance of an ‘industrial strategy’ to improve economic growth and achieve more balance in how its gains are distributed. That is also a central theme of the second LSE Growth Commission report, which was published a little earlier in the year: the main recommendations on how to develop an effective industrial strategy are outlined in this issue of CentrePiece.

New investment in transport infrastructure is seen as a key plank of a modern industrial strategy, and is central to many local economic growth strategies. Two articles here explore its likely impact: one finds a significant boost to manufacturing growth from China’s rapid expansion of its airport network; the other detects positive effects on local employment and wages from recent UK road-building.

Two further articles examine topics that are seemingly offbeat but which in fact have profound implications: one on the quality of parents’ sleep and its potential damage to their labour market outcomes; the other on Italian entertainment TV, which appears to be partly responsible for the rise of populist political leaders.

Our cover story returns to a longstanding theme of research at the Centre for Economic Performance (CEP): social mobility. The new study, which explores the links between home ownership and social mobility, finds evidence that the fall in intergenerational income mobility has also been true for wealth, an even more important measure of financial wellbeing.

Elsewhere, CEP once again issued a series of election briefings on some of the key battlegrounds, including Brexit, education, health, immigration, industrial strategy, regional policy, real wages and living standards. Research evidence to underpin proposed policies was largely ignored by politicians during the campaign: it should probably be acknowledged and used if the UK is to have any chance of achieving a strong and stable economy.

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Towards a new UK industrial strategy

The regulation of business has been a rollercoaster ride for the UK over the past 20 years. Drawing on their work with the LSE Growth Commission, Anna Valero and Richard Davies outline an opportunity to build a new system based on transparency, independence and a long-term outlook.
Every government has an industrial strategy however it is articulated: government affects the investment climate for business through tax and regulation; establishes national priorities; invests in skills, infrastructure and research; and procures outputs from the private sector – all of which influence the evolution of the private economy.

In the UK, business and politics have always been intertwined. The desire shown by the political class to nudge and shape firms goes right to the top, with incoming prime ministers often setting out visions for how companies should work soon after arriving in Downing Street.

The tradition stretches right back to Robert Walpole, whose 1721 reforms included subsidies and taxes designed to support the country's wool manufacturers. Following the Second World War, Clement Attlee’s Labour government introduced laws aimed at ‘distributing industry’ more widely across the country: South Wales and Tyneside were key targets.

A number of policy mistakes occurred in the 1960s and 1970s as governments doubled down on losing bets, wasting billions of taxpayer funds chasing declining industries in which they had no comparative advantage – British Leyland is a famous example. Industrial policy then fell out of vogue, and in the 1980s, Margaret Thatcher ushered in an era of free markets and privatisation – paring back both economy-wide and sector- or place-based interventions.

When Tony Blair’s Labour government instigated wide-ranging economic reforms, most were economy-wide, including a new emphasis on research and development (R&D), public capital investment and a long-term commitment to public education and expenditure on science. The financial crisis in 2008 rekindled interest in industrial strategy in the UK and abroad, and business secretary Peter Mandelson began to develop a case for a return to more selective industrial policy.

But it was his successor Vince Cable in the coalition government who formally set out an industrial strategy that included support for key sectors and technologies, and which was coupled with more focus on place-based policies like the Northern Powerhouse. There was a brief hiatus after the 2015 election, when the government published its ‘Productivity Plan’ but did not commit to an industrial strategy per se.

But following last year’s referendum and this year’s general election, it is time for another phase. Since taking office, prime minister Theresa May committed to a new industrial strategy ‘to get the whole economy firing’, and the government set out its ideas in a Green Paper in January.

The need for an industrial strategy

The experience to date shows that what varies is how far governments have been willing to spell out their industrial strategy, and the arguments that motivate it. The recent UK experience has also shown that there has been far too much chopping and changing in this space – it is a worrying sign when your business department has had four names in the past ten years.

Stable policy frameworks are needed to stimulate business investment, and the UK is in need of a long-term and overarching modern industrial strategy in order to deal with a number of challenges facing the economy – both old and new:

- First, the UK must address its poor productivity performance. Productivity growth is the necessary ingredient for long-run sustainable growth, yet productivity fell after the financial crisis and has been flat ever since, and our longstanding gap with countries such as France, Germany and the United States has widened.
- Second, the UK must strive for growth that is equitable, regionally balanced and environmentally sustainable.
- Third, as Brexit becomes a reality, and the UK redefine its international relationships, the government must consider how to mitigate risks to UK trade, international investment and access to international talent, all of which can be expected to have large impacts on UK business.

Here we draw on the recent LSE Growth Commission report (2017) to set out proposals for the key areas of focus for policy-makers developing the inevitable iteration of the UK’s industrial strategy following the general election.

Stop rearranging the deckchairs

The UK’s industrial strategy has long been fragmented and mercurial, with teams in different government departments often working separately, and regular re-branding or changing of business policies. This creates uncertainty for investors.

A case in point is the ‘Growth Accelerator’ programme, which was introduced by the coalition government in 2012 to help small and medium-sized enterprises access coaching and
match-funding services. It was scrapped in 2015 with little justification: initial evaluations had found that the Growth Accelerator was viewed positively by businesses and other involved parties, and more robust economic evaluations of the programme were planned.

Lessons can be learned from the frameworks governing UK monetary, fiscal and competition policy (summarised in Table 1), where objectives are defined and enshrined in law, and independent agents play a role in offering advice and, in some cases, taking policy decisions. The remit of such bodies is transparent, with justifications for their advice presented in statutory publications. This creates a more stable framework and promotes open government with external scrutiny by academics, thinktanks and journalists.

Ending the short-term and opaque system should be the first step. Industrial strategy should be given a new law or long-lasting mandate. And since the existing European Union (EU) state aid framework has blocked arbitrary political intervention in the economy, a new one is needed more than ever when the UK leaves the EU.

A set of transparent rules for intervention is also required, and this should be based on identifying — quantitatively where possible — market failures. Competitive processes should be used wherever feasible to ensure that government support is channelled to its most beneficial use. Ex-post reviews, examining how and why taxpayer funds were used to support industry should be conducted annually.

The ultimate objective is a strategy isolated from political cycles. An independent body of some form would help to achieve this. There is a menu of options to choose from – the Bank of England’s Monetary Policy Committee, and the UK’s independent budget, antitrust and infrastructure bodies. Any one of these would be better than the current ad hoc set up.

To enhance transparency, the government should publish a long-term plan setting shared objectives and aligning decision-makers across government, industry and other stakeholders. The body responsible for industrial strategy should publish a standardised Industrial Strategy Report on the state of UK business each year. This would provide regular material on the productivity of UK firms, with updates on industry- or location-specific policies, together with their costs and measured impacts.

Breaking new ground
The UK needs to invest more in R&D. Both government and business R&D are consistently lower than international comparators as a share of GDP. We know that public R&D spills over to the private sector, and also ‘leverages-in’ private R&D, and there is therefore a strong case for increasing such spending in line with our peers.

But the importance of research and innovation does not just apply to high-tech sectors like aerospace and pharmaceuticals: the UK is primarily a service economy, and the service sectors have been the main contributors to productivity growth both before and after the financial crisis. As Figure 1 shows, productivity growth in professional, scientific, technical and administrative services has held up relatively well since the crisis — a pattern that differentiates the UK from France and Germany.

While the UK excels in terms of the quality and impact of its research, we lag behind other countries in terms of commercialisation. Compared with the United States, business and universities collaborate far less (Dowling Review, 2015). Government focus to date has

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been predominantly on the supply side of research (universities). But reviews on this topic in recent years have noted that the demand side – particularly from businesses carrying out R&D – is crucial.

Key to addressing this is improving access to finance for innovative firms, which involves more action to improve competition in the banking sector and measures to stimulate alternative sources of finance (UK firms tend to rely on debt finance, which is less conducive to innovation than equity finance). Lessons can also be learned from ‘patient capital’ funds, which have already been developed by some universities.

Policies for sectors
It is important that processes for granting support to particular sectors are competitive, transparent and based on a real understanding of whether there are market failures that the government can usefully address. This can help to avoid policy being influenced by the lobbying of incumbents with outcomes that are not necessarily beneficial for the UK economy as a whole. Strong and transparent institutions governing the UK’s industrial strategy can help to justify the grounds for sector-based support.

Sector support should not be restricted to high-performance/high-growth sectors like aerospace and pharmaceuticals. Low productivity sectors such as retail, hotels and administrative services employ a large share of the population, and suffer significant obstacles to growth (such as the availability of skills or investment in technology) that the government can help to address. Policies that seek to raise productivity in such sectors could have large aggregate effects and also help to reduce inequality.

But it is not always easy to define a sector, and indeed there may be multiple sectors that face common challenges. There is scope therefore for a ‘mission-oriented’ approach, which can help to bring together all relevant companies or technologies across sectors, and be wide-ranging enough to address public policy challenges in areas such as air quality in cities, health and social care.

For example, the early sector deal on the transition to ultra-low emission vehicles mentioned in the recent Green Paper could be part of a wider mission to improve air quality in cities, and extended to include

Figure 1:
Decomposition of labour productivity growth (Gross value added, GVA, per hour)

Source: EU KLEMS.
other relevant sectors or technologies, and a number of complementary government levers (such as procurement of low emission bus fleets, and government regulation or incentives to raise consumer demand for these types of vehicle).

**Policies for places**

Regional disparities are now wider in the UK than in other West European countries. Figure 2 plots regional productivity relative to the country average for both the UK and Germany. This reveals that the UK’s high productivity regions are highly concentrated, but that there is more spread throughout (mainly Western) Germany. Similarly, the UK is more concentrated at the low end, with Wales standing out as hosting regions with particularly low productivity relative to the UK average.

With the trend towards devolution and the agreement of a number of City Deals over the last few years, a number of important policy levers that can help to deliver an effective industrial strategy – including skills, innovation and infrastructure – are now at the level of nations and regions.

But the current structure of local and regional governance is not well placed to address local challenges. While local enterprise partnerships (LEPs) have the potential to help deliver successful local economic growth strategies, there is some disjointedness between them and local government and it is unclear how they fit into the evolving devolution landscape.

There are also concerns that they lack sufficient resources and the incentives to invest in projects for long-term development. The devolution agenda and regional initiatives will therefore need to be underpinned by a national strategy to deliver policies that are tailored to each part of the UK’s industrial strengths, and the right balance between local initiative and central direction.

Another lever available for improving policies for places is universities’ capacity to improve regional economic performance via their role as producers of skills and incubators of innovation. Once again, there is a coordination problem here, with no formal requirement that LEPs work together with universities. It is crucial therefore to improve engagement between LEPs, local government and universities.

**Conclusion**

Developing an effective industrial strategy for the UK is no mean feat, not least because it requires the cooperation and coordination of a multitude of stakeholders – particularly across government, business and the education sector. Our starting point is that institutional reform will enable government to take a longer-term view on these issues, based on political consensus, which would not only increase the chances of success, but also reduce policy uncertainty and help stimulate investment across the economy.

This article draws on UK Growth: A New Chapter, the LSE Growth Commission’s 2017 report (http://www.lse.ac.uk/researchAndExpertise/units/growthCommission/documents/pdf/2017LSEGCRreport.pdf).

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**Further reading**


A growing movement in the United States is promoting ‘free college’ for young people. Richard Murphy, Judith Scott Clayton and Gill Wyness ask what can be learned about the likely outcomes from England’s move in the opposite direction over the past 20 years – towards steadily increasing tuition fees.

Earlier this year, New York became the first US state to offer all but its wealthiest residents free tuition at public four-year institutions. This new ‘Excelsior Scholarship’ doesn’t make college completely free, nor is it without significant restrictions. Still, it demonstrates the growing strength of the free college movement in the United States.

The free college movement is typically associated with liberal and progressive politics, and motivated by concerns about rising inequality and declining investments in public goods such as education. Americans are thus sometimes surprised to hear that the end of free college in England was built on very similar motivations.

Until 1998, full-time students in England could attend public universities completely free of charge. Low-income students could apply for grants, and all students could obtain small government loans to be repaid mortgage-style after graduation. But as demand for college-educated workers increased during the late 1980s and 1990s, college enrolments rose dramatically and the free system began to come under strain. This led the government to impose caps on the number of students who could enrol. Despite these controls, by 1998, funding had fallen to about half the level of per student investment of the 1970s. Of equal concern was the enrolment gap between high-
and low-income students, which was as high as 37 percentage points for those turning 22 in 1998.

It was against this backdrop that the first tuition fees were introduced in 1998, accompanied by a new income-contingent loan system that enabled all students to access significantly more funds while enrolled, to be paid back as a fraction of income only after graduates had begun working.

These reforms fundamentally changed the structure of higher education finance in England, and enabled numerous subsequent increases in tuition fees, to £3,000 in 2006 and £9,000 in 2012 – though beginning in 2006, these fees were not charged ‘upfront’ but were automatically covered for all students via an income-contingent loan.

The progressive arguments for the reforms were threefold:

First, public funding would bring in more money for cash-strapped universities, enabling them to take more students, including the disadvantaged.

Second, requiring students to pay would make the system fairer since previously the main beneficiaries of free college were students from middle and upper class families.

Third, increasing resources would enable the government to target assistance to the neediest, who were struggling with living expenses at college. Key to this was the introduction of the income-contingent loan for fees and maintenance, which ensures that no student pays upfront and enables large increases in liquidity at the point of enrolment.

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After many years of widening inequality, socioeconomic gaps in college attainment have stabilised

Figure 1: Average funding per full-time equivalent student


Were the progressives right? Perhaps the most obvious impact of the reforms has been a clear reversal of the trends in per student institutional resources. Figure 1 shows that funding per full-time equivalent student has increased by nearly 50% since reaching a historical low pre-1998.

But was this at the expense of declining enrolments and inequality? No. In fact, enrolment rates have nearly doubled since the 1998 overhaul. And though the gap between income groups remains large, most recent evidence is that it has at least stabilised and may even have shrunk in recent years, with enrolments of students from backgrounds of low socioeconomic status growing at a faster rate than those from higher status backgrounds.

Thus, although it is difficult to know what would have happened in the absence of reform, it does seem as though the new system in England has lived up to its progressive goals.
So what implications does the experience in England hold for the US debate about free college?

First, policy-makers should shift away from focusing solely on net prices to also thinking about net liquidity: the costs students face and the resources they have access to upfront. While college is no longer free in England, it remains free at the point of entry: the full amount can be financed via government loans, deferred until after graduation. And even though tuition has risen, students have access to significantly more resources than previously (see Figure 2).

Second, England’s income-contingent loan repayment system makes it possible for students to borrow safely for fees and living expenses. Monthly repayments are calculated as a fraction of income earned above a minimum level and collected via the payroll tax system, so payments are manageable, administrative burdens are low, and default risk is minimised. In the United States, student loan limits are too low to cover even tuition at the typical public four-year institution, let alone the non-tuition costs of attendance – and many students default on debts well below the maximum levels.

Finally, the experience in England leading up to the 1998 reforms starkly illustrates the characteristic risks of a free university system: that insufficient public funding will lead to declining quality, caps on quantity or both; and that prioritising free tuition for all means less money to help the neediest students with additional costs. These may well be the real consequences of the New York plan: for example, no additional funds are promised to institutions, raising the likelihood that per student resources will fall as enrolments increase.

No model is without its challenges. But the experience in England suggests that making college completely free is hardly the only path to increasing quantity, quality and equity in higher education. Indeed, a free system can sometimes work against these goals.

Figure 2:
Net liquidity (grants and loans minus upfront fees) by family income over time

Sources: Student loans company.

Making college free is not the only path to increasing quantity, quality and equity in higher education.
in brief...
The value of good management

To what extent does the quality of management matter for a business to be successful? In their latest examination of the relationship between management practices and firms’ performance, John Van Reenen and colleagues analyse data collected from over 35,000 manufacturing plants in the United States.

Ask any sports fan about their favourite team and they will usually spend half the time either cursing or extolling the manager. The manager is apparently responsible for every loss, and perhaps even the occasional victory.

On the other hand, many people also have an ingrained cynicism about the fads and fashions of management thinking. For example, there’s an old saying that ‘management consultants borrow your watch to tell you the time’, implying that good management is so obvious everyone knows what to do.

The public remains divided over the value of good management. But what do the data tell us? In our research, we’ve confirmed that management matters – a lot. In fact, it matters as much or more than a number of other factors associated with successful businesses, such as the adoption or generation of new technology.

Large-scale data on management has been virtually non-existent, at least until recently. As Chad Syverson at the University of Chicago wryly noted in his 2011 round-up of the evidence on what drives productivity: ‘no potential driver of productivity differences has seen a higher ratio of speculation to actual empirical study’ than management.

Of course, there are thousands of case studies and small samples, but it’s hard to generalise from these, since the firms they focus on are seldom representative of the broader economy. How confident are we that any of the dozens of breathless articles about Apple, Facebook, General Electric and Google are telling us anything reliable about management in a typical firm?

To address this lack of data on management, we teamed up with colleagues at the US Census Bureau to collect data on a large number of establishments used in American national statistics. Our survey contained 16 management questions in three main areas: monitoring, targets and incentives. We believe these three functions are the core of what business schools and consultancies claim is the essence of good management.
Our survey was nationally representative but limited to manufacturing, covering small and large firms across every state in the country. With a response rate of almost 80%, it covered plants that account for more than half of all US manufacturing employment, so it is genuinely representative of US management practices. In total, we got data from over 35,000 manufacturing plants in a massive national survey.

So what does the first-ever management survey at this scale tell us?

We find that only one fifth of plants use three quarters or more of the performance-oriented management techniques that we asked about, but that these plants have dramatically better performance than their competitors. The plants that have adopted monitoring and incentives-based management practices are far more productive, innovative and profitable. Every 10% increase in a plant's management index is associated with an impressive 14% increase in labour productivity, meaning higher value added per worker.

It isn’t just that already successful firms are more likely to be well run; plants that switch to more performance-oriented practices tend to become significantly more productive, suggesting that better management is driving better performance. Firms with higher management scores are also more likely to expand and less likely to go belly up.

We also compare the impact of management approaches with more traditional explanations of business performance, including research and development (R&D), information technology (IT) expenditures, and workers’ skill levels.

We examine differences between plants in the top 10% and the bottom 10% in terms of performance, to see what explains the difference. Management techniques explain 18% of that difference. By contrast, R&D accounts for 17%; employee skills, 11%; and IT spending, 8%. In other words, management matters more than the most common explanations for performance.

Perhaps most surprisingly, we find that management quality varies not just between companies, but also within them. We find that over 40% of the variation in management quality between plants is because of differences across establishments within the very same firm.

In other words, in many large firms, we find some outstandingly managed plants alongside those with mediocre practices. This variation is greatest in the very largest firms, possibly because standardising practices across regions and divisions is particularly hard for the very biggest companies.

What could cause these huge differences in management practices across firms? We find several major factors:

- First, establishments in more competitive industries and in states where there is less business red tape tend to be better managed.

- Second, establishments employing more skilled workers and firms located near universities tend to adopt better management practices.

- Third, when a large new multinational plant is built, this boosts the management quality of firms that are geographically close to the ‘million dollar plant’. This is because local companies are able to learn about best practices from these leading firms.

All these factors matter, but they explain less than half of the variation in management techniques, which means that many other factors matter too. Our guess is that individual managers and chief executives themselves are another critical driver – great managers make great management practices.

The bottom line of our research is that management matters a lot for company performance, and with the huge variation we see across firms, this suggests that there are many opportunities to make big performance improvements.

Improving management can be relatively cheap compared with investments in R&D or IT. While our study focuses on US manufacturing, this huge spread of management practices is just as true in other sectors such as retail, education and healthcare, and even more striking in firms in Europe, Asia, South America and Africa – as our previous work with the World Management Survey has shown (http://worldmanagementsurvey.org/).

It turns out that good management is not necessarily so obvious. It’s relatively rare and incredibly valuable. It shapes fates of companies, their workers and entire economies – and we need more of it.

This article summarises ‘What Drives Differences in Management?’ by Nicholas Bloom, Erik Brynjolfsson, Lucia Foster, Ron Jarmin, Megha Patnaik, Itay Saporta-Eksten and John Van Reenen, CEP Discussion Paper No. 1470 (http://cep.lse.ac.uk/pubs/download/dp1470.pdf).

Nicholas Bloom of Stanford University is a research associate in CEP’s growth programme. Erik Brynjolfsson is at MIT. Lucia Foster and Ron Jarmin are at the US Census Bureau. Megha Patnaik is at Stanford University. Itay Saporta-Eksten is at Tel-Aviv University. Former director of CEP John Van Reenen is at MIT.
To what extent are the media to blame for the rise of populist political leaders? Andrea Tesei and colleagues explore the impact of the light entertainment served up by Silvio Berlusconi’s commercial TV network, Mediaset, on his later electoral success.

Political legacies of Italian entertainment television
Recent international developments – from the results of the UK’s Brexit referendum to Donald Trump’s victory in the US presidential elections – have raised concerns about the pervasiveness of the media and their contribution to the emergence of a post-factual political culture. But this concern only represents the latest development of a decades-long debate about the influence of media on politics.

Previous research on the subject has mainly focused on the effects of news content on voting. Among others, DellaVigna and Kaplan (2007) document the effect of Fox News on support for Republicans; while Enikolopov et al (2011) show the negative impact of the independent Russian channel NTV on support for Putin.

But news programmes now represent just a fraction of total TV airtime. It is plausible that other types of content dominated by a particular cultural model – from advertising to light entertainment shows – also influence viewers’ political attitudes.

Our research explores the political consequences of exposure to light entertainment TV by focusing on the rise to power and political success of Italy’s Silvio Berlusconi, considered by many to be the closest international analogue to Donald Trump and a forerunner of the newly emerging populist stream of politicians.

We make use of the staggered introduction of Berlusconi’s commercial TV network, Mediaset, across Italian municipalities during the 1980s. This allows us to compare similar municipalities exposed to Mediaset channels before and after 1985, and analyse differences in voting outcomes over the following three decades.

Crucially, during the early period of expansion, when some areas were exposed to the network while others were not, Mediaset channels were entirely devoted to light entertainment programmes, such as quiz shows, football games and foreign TV series. Newscasts were only introduced in 1991, when access to the network was virtually ubiquitous. This feature within the Italian context therefore provides a unique opportunity to isolate the effect of exposure to entertainment TV.

Figure 1 reports the coverage of the Mediaset network across all 8,100 Italian municipalities in 1985, using data on the exact location and technical characteristics of Mediaset transmitters. These were inherited from a multitude of local TV stations that were progressively incorporated into the network in the early 1980s, more than a decade before Berlusconi decided to enter politics.

It is therefore unlikely that their location directly helped Berlusconi’s political ambitions. Nonetheless, it is possible that other local characteristics (such as proximity to large cities) could influence later electoral outcomes. To isolate the causal link between the media and future voting behaviour, we follow the analytical approach of other researchers in media economics (Olken, 2009; Yanagizawa-Drott, 2014) and identify the effect from the residual variation in TV signal coverage due to idiosyncratic geographical factors, such as the ruggedness of the terrain, which would interfere with the broadcast signal.

Italians who had early access to Mediaset’s TV content were more likely to vote for Silvio Berlusconi.
We further restrict the analysis to variation in signal strength within electoral districts and local labour markets, which are narrow geographical areas composed on average of 20 and 12 municipalities, respectively. Our empirical exercise compares municipalities characterised by similar economic and political conditions but a different strength of Mediaset signal. Importantly, we show that within electoral districts and local labour markets, signal strength is uncorrelated with pre-existing political preferences for any party and with a large array of geographical and socioeconomic characteristics at the municipal level.

Our results indicate that municipalities exposed to Mediaset earlier displayed higher support for Berlusconi’s party, Forza Italia, when he first ran for election in 1994, compared with municipalities exposed later on. This effect is sizeable – about one percentage point – and very precisely estimated. In terms of parliamentary representation, this effect implies that in the absence of entertainment TV, the centre-right would have lost 18 seats in 1994 (out of 463 in which the two main coalitions competed). The effect is also extremely long-lasting: the differential support for Berlusconi among early viewers persists over five elections, until 2008 – almost 25 years after municipalities were differentially exposed to Mediaset.

Strikingly, while the effect on Forza Italia vanishes in the 2013 elections, in that year municipalities that were exposed to Mediaset earlier exhibit higher support for the Five Star Movement of Beppe Grillo. Grillo is a comedian turned politician who, in spite of clear ideological differences with Berlusconi, shares with him a charismatic media personality and a distinctively populist rhetoric. This result suggests that, rather than just favouring Berlusconi’s party, exposure to entertainment TV made voters generally more supportive of populist movements and leaders.

To explore the mechanisms through which entertainment TV influenced later voting behaviour, we combine information on early Mediaset access with individual-level data on TV consumption, political and social attitudes, and cognitive abilities. Figure 2 shows that the political impact of entertainment TV is especially heavy among viewers aged 10-24 and those aged 55+.

Figure 3: Effects of Mediaset, education and civic engagement on voting behaviour
pronounced for heavy viewers. In particular, the effect is much larger—close to 10 percentage points—for individuals exposed either as children (under 10) or at later ages (55 or older).

But the mechanisms through which these cohorts were influenced are different. Older viewers appear to have developed an attachment to the network due to its light entertainment content, becoming more exposed to pro-Berlusconi news after these were introduced on Mediaset in 1991.

For young viewers, the effect is more subtle and perhaps more interesting. We show that individuals first exposed to Mediaset as children display lower cognitive abilities when they are adults, as measured by standardised numeracy and literacy tests. This result is in line with psychological and medical research suggesting that by crowding out more intellectually stimulating activities such as reading, entertainment TV can be detrimental for children's cognitive development (for example, Schmidt and Vandewater, 2008).

In addition, consistent with the seminal work of Putnam (2000) on the decline of social capital in the United States, we show that individuals exposed to entertainment TV as children exhibit significantly lower levels of civic engagement, as measured by interest in politics and participation in voluntary associations.

In the final part of our study, we discuss why these changes were likely to benefit Forza Italia and, more generally, parties that appeal to less sophisticated and less civic-minded voters.

Figure 3 shows that Forza Italia was well-positioned to benefit from the decline in cognitive skills and civic engagement induced by entertainment TV, as the party was disproportionately popular among less educated and less engaged voters. One reason for this may be that lower cognitive abilities make voters more vulnerable to the simple political messages that characterise the rhetoric of populist leaders.

Figure 4, which is based on analysis of a large corpus of televised interventions by Italian politicians, confirms that compared with other political leaders, Berlusconi uses language that is more accessible to ordinary people, and is therefore more likely to appeal to less sophisticated voters.

Conclusion
Our analysis suggests that even light-fare entertainment TV can influence political preferences and electoral behaviour, and that this effect is mediated by deeper cognitive and cultural transformations. Though specific to the Italian case, our analysis provides more general insights into how the cultural codes popularised by entertainment media can influence political preferences.

In particular, while popular discontent with the political establishment is likely to have deep socioeconomic roots, our findings suggest that by popularising certain linguistic codes and cultural models, entertainment TV may have contributed to creating a fertile ground for the success of populist leaders.

People who are exposed to entertainment TV as children are cognitively disadvantaged in later life

Further reading


The effects of sleep deprivation on economic activity have received surprisingly scant attention. Joan Costa-i-Font and Sarah Flèche use data on 14,000 families in the UK to investigate the link between mothers’ employment outcomes and their quality of sleep, measured by how often they are woken by their children at night.
The number of hours the average person sleeps has been progressively declining over the past few decades, yet we have largely ignored its effects on economic activity and economic performance. This is surprising given what is known about the importance of a good night’s sleep for our emotional wellbeing. But sleep is not just a matter of time: sleep quality also has an important influence on our cognitive functions. Sleep deprivation – for example, as a result of frequent interruptions from young children – can have significant effects on an individual’s economic performance.

Our research explores the impact of sleep deprivation on people’s employment rates, number of hours worked, household income and job satisfaction. We analyse data on a representative sample of children born in and around Bristol in the early 1990s – the Avon Longitudinal Study of Parents and Children, known among respondents and their parents as ‘Children of the 90s’.

Sleep is conditioned by a ‘social clock’ in addition to the ‘natural clock’ of circadian rhythms. Nowadays, work schedules often encompass accessing computers and smart phones till late at night, which adds to natural changes in temperature, light and noise. But sleep deprivation resulting from differences in child-related sleep patterns is an effect above and beyond parents’ ability to keep themselves and their children to a sleep routine. Indeed, growing parental involvement and parental sharing in child-raising duties makes child-related sleep deprivation a significant source of variation in adult sleep.

What economics has found about sleep
Seminal work by Biddle and Hamermesh (1990) develops a model of time allocation that includes sleep. They use a cross-section of US time use survey data and estimate that a one hour increase in paid work reduces sleep by 10 minutes; more generally, they reveal the effect of the opportunity cost of sleep on wages. Hamermesh et al (2008) examine how cues such as TV programmes and sunlight affect sleep.

Other studies focus on the labour market effects of sleep. Kamstra et al (2000) find an influence of sleep on financial market performance. Bonke (2012) explores effects on productivity. Antillón et al (2014) examine the effect of unemployment on sleep and find evidence that sleep patterns being correlated negatively with the business cycle at a macroeconomic level. Ásgeirsdóttir and Ólafsson (2015) find a positive relationship between sleep duration and employment. But none of these studies develop a causal link between sleep quality and employment.

Only one previous study takes account of the fact that work is as likely to influence sleep as sleep is to influence labour market outcomes. Gibson and Shrader (2016) do this by using the short- and long-term sunset time. They estimate the short-term effect of a reduction of one hour’s sleep on wages to be 1.5% and the long-term effect to be 5%. Like Biddle and Hamermesh, they analyse US time use data, but make use of variations in sleep resulting from time zones that can be regarded as ‘exogenous’, and hence their results can be interpreted in more ‘causal’ terms.

The problem with this study is that the researchers rely on location-level variations, where changes in sleep do not vary across individuals living in the same location, for example, time zones. This means that their estimates should not be interpreted as individual effects, since they potentially include spillovers across people who live in the same location. The advantage of our approach is that we use individual variations in sleep quality, which are driven by changes in children’s sleep duration and the number of times they wake up at night.

Findings from the ‘Children of the 90s’
We rely on a representative UK cohort study that follows a sample of 14,000 families from a child’s birth to age 25. The dataset contains records of mothers since pregnancy and, crucially for our study, it has the advantage of including a rich set of measures of both parental and child sleep alongside a set of other variables to be employed as controls and employment outcomes.

For example, it contains very precise information about the child’s quality of sleep, including whether the child wakes up at night, sleep time and day sleep, as well as child sleeping routines and environmental triggers of sleep quality. We can then relate these measures to objective and subjective measures of parental sleep quality, including average sleep duration, and whether the parents feel that they had enough sleep.

Another advantage of this dataset is that the data provides information on both maternal and paternal employment characteristics, including employment status, number of hours worked, job satisfaction and income for parents on a longitudinal basis.

Our study finds that sleep deprivation has a strong negative effect on labour market performance. Figures 1 and 2 show the association between two employment outcomes – both the probability of mother’s employment and her household income – on the number of times the child wakes up at night for a sample of 10,000 children. In both cases, there is a strong negative relationship.

Consistently, our main finding confirms that the relationship between sleep and employment outcomes works through two channels. First, children’s sleep quality is a major driver of parental sleep quality; and second, parental sleep quality is strongly correlated with parental employment and working-time decisions.

Our estimates of the effect of parental sleep on economic performance are substantial. We find that improving a mother’s average nightly sleep duration by
one hour increases employment by four percentage points, the number of hours worked by 7%, household income by 10-11% and job satisfaction by 0.01 points.

To our knowledge, this is the first study that finds a link between children’s sleep quality and their parents’ economic performance. The average effects mask substantial heterogeneity: for example, fathers are somewhat less affected by children’s sleep problems.

But while low-skilled mothers experience a large decrease in employment and the number of hours worked when facing sleep deprivation, the probability of high-skilled mothers working is not so much affected when children wake up at night. This result might indicate that part of the effect of sleep deprivation can be accommodated by the greater job flexibility available to skilled workers.

The implications of our study include the need to consider sleep in employment policies rather than simply maximising hours of work. In addition, it might be desirable to offer greater flexibility to accommodate changes in children’s sleep patterns, as well as some form of compensation for parents of younger children for loss of employment.


Joan Costa-i-Font is an associate professor in LSE’s department of social policy. Sarah Flèche is a research officer in CEP’s wellbeing programme.

Further reading


Effects of sleep disruption caused by children are particularly strong for low-skilled mothers
in brief...

Career opportunities

How important is providing careers-related information for students? Sandra McNally surveys the latest evidence on what advice is on offer and what works.

The quantity and quality of educational investment matter for labour market outcomes such as earnings and employment. But not everyone knows this – and navigating the education system can be extremely complex both for students and their parents. A growing body of research has begun to test whether interventions designed to improve information about the costs and benefits of education and application processes have an effect on students’ attitudes, beliefs and behaviour.

My review of this work focuses on the results of ten evaluations implemented using randomised control trials. The findings are mixed, with most studies showing an effect of information interventions on attitudes and beliefs, but fewer showing an effect on behaviour.

In developed countries, simply providing information about the link between education and labour market outcomes has not yet been found to have much impact on actual behaviour, even though it does change people’s attitudes to educational investment decisions. On the other hand, there is evidence to show that when supplemented with mentoring or practical help, the provision of information can influence behaviour.

Two studies in developed countries focusing on information provision show a positive impact of information on behaviour – one in the United States (Hoxby and Turner, 2013) and the other in France (Goux et al, 2017).

The US study uses administrative data to target high school seniors (in their final year of secondary education) who are both very high-achieving and have low family income. Students are posted an information package that is ‘semi-customised’ to take account of their circumstances (family income and location) and includes a fee waiver for making college applications.

The study in France focuses on students who are very low-achieving. In contrast to the US study, it aims to make

Students’ decisions about their education can be improved by providing them with more information

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people more realistic about future plans. It focuses on
decisions made at the end of middle school (when students
are aged 15 or 16) and targets the parents of young people
who the school’s head teacher has identified as the most
low-achieving and at risk of dropping out.

Whereas the US study focuses on changing the
expectations of students that are too low, the French
study does the opposite. In the latter case, expectations of
better jobs without the necessary educational qualifications
are unrealistically high and lead to ill-considered actions
and premature dropout from further education. It is thus
important to note that information experiments can be
just as well applied to downgrading overly optimistic
expectations as upgrading overly pessimistic expectations.

What both studies have in common is that students make
better educational choices as a result of the information
interventions. The US study shows that students attend
more selective colleges and do just as well in terms of
grades and persistence as they would have done in a less
selective college. The French study shows lower dropout
rates one and two years after the intervention and that
the change in behaviour is between attending a two-year
vocational programme rather than repeating grades and/or
dropping out.

The two studies are similar to each other in the sense
that the treatment group is very well targeted towards
those who are on the verge of making a decision
about educational choice and appear to have no other
impediment to making that choice (that is, they have
appropriate preparation for the choices being considered).
The treatments deliver exactly what the target groups need
and want at the right time.

In some of the other eight trials, information interventions
change effort but do not translate into changes in
outcomes. For example, an intervention involving sending
text messages to students about the benefits of education
changes students’ motivation but does not affect their
performance. A possible explanation is that students do
not know how to translate their higher aspirations into
effective study.

Another unsuccessful information intervention involves
providing final year school students with information
about the earnings returns to different courses. While
there is an increase in applications for ‘high-return routes’,
there is no increase in admissions because the system
is very competitive for high-return educational routes.
This suggests that information is important for changing
motivation but it is not sufficient on its own if students do
not have the necessary academic prerequisites.

Policy-makers should take note that although information
interventions are not costly (relative to many other policies),
making them effective is not a simple matter.

Further reading

Dominique Goux, Marc Gurgand and Eric Maurin (2017)
‘Adjusting Your Dreams? High School Plans and Dropout

Caroline Hoxby and Sarah Turner (2013) ‘Expanding College
Opportunities for High-Achieving, Low-Income Students’,
Stanford Institute for Economic Policy Research
Working Paper 12-014 (http://siepr.stanford.edu/research/
publications/expanding-college-opportunities-high-
achieving-low-income-students).

This article summarises ‘How Important is
Career Information and Advice?’ by Sandra McNally,
a contribution to IZA World of Labor
(https://wol.iza.org/articles/how-important-is-
career-information-and-advice).

Sandra McNally is professor of economics at the
University of Surrey, director of CEP’s education
and skills programme and director of the Centre for
Vocational Education Research (CVER).
There is much talk about the difficulties that many young people in Britain face in trying to acquire their first home. Research by Jo Blanden and Stephen Machin explores the links between home ownership and social mobility, and finds evidence of wealth inequality being increasingly transmitted between the generations.

Home ownership and social mobility

It is well known that home ownership rates have been falling rapidly among young people. Linking own home ownership with parental home ownership, our research demonstrates that the sharpest falls have occurred for those who grew up in families where their parents did not own their homes. Given the link between home ownership and wealth, the findings indicate growing intergenerational inequality in wealth.

Data from the English Housing Survey and its forerunner, the Survey of English Housing, reveal a picture of falling rates of home ownership through time, particularly among younger people. Figure 1 provides information on patterns of home ownership in England by age group and year. It shows that trends differ quite markedly by age, with successive age groups becoming less likely to buy.

The rate of home ownership of the youngest group of 20-29 year olds has declined very steeply over time: from 50% in 1993 to only 20% in the most recent survey. Over 20 years, this is a startling drop. The decline among those in their 30s started later, but it has been similarly steep from 2000, falling from 69% to 47% over 13 years. For those in their 40s, the decline has only started recently, with rates falling from 74% to 59%.

Since 1993, the rate of home ownership among people aged 20-29 has declined from 50% to only 20%

Source: Authors’ calculations based on data from the Survey of English Housing from 1993/94 to 2007/08 and the English Housing Survey from 2008/09 to 2013/14.
People who grew up in families that owned the house they lived in are themselves more likely to be owner occupiers.
Our research adds to this an intergenerational dimension by focusing on two groups for whom we have information on parental home ownership: the National Child Development Study (NCDS), a cohort of all people born in Britain in a week in 1958; and the British Cohort Study (BCS), for all people born in a week in 1970.

The target sample for each group consisted of babies born in a single week, with around 18,000 included at the start. They have been followed up regularly from birth, throughout childhood and into adulthood. We focus on information on parental housing tenure and parental income at age 16, as well as information on adult income and home ownership at age 42. The addition of the information at age 42, collected by the BCS in 2012, means we are able to shed light on very recent intergenerational relationships.

It is clear from Figure 2 that people who grew up in families that owned the house they lived in are more likely to be owner occupiers themselves. In the NCDS, those with parents who owned their houses have an owner occupancy rate of 88% and those without this advantage have an owner occupancy rate of 74%, a gap of 14 percentage points.

In the BCS, the gap is even starker; those with parents who were homeowners have an owner occupancy rate of 80%, compared with 59% for those without this advantage, a gap of 21 percentage points. It is notable that there is only a relatively small decrease in the owner occupation rate of those whose parents were owner occupiers – an eight percentage point fall from 88% to 80%. There is a disproportionate – nearly twice as big at 15 percentage points – fall in home ownership among 42 year olds whose parents did not own their own home when they were children.

These results are important for at least two reasons. First, because they add to our understanding of the generational divide in the housing market. Research commissioned by the Social Mobility Commission recently revealed that more than one third of first-time buyers are now receiving financial help from their parents, compared with one fifth doing so in 2010. Although we have not as yet considered all the underlying mechanisms, our results provide complementary evidence on the importance of the ‘Bank of Mum and Dad’.

Second, our study extends the body of research on social mobility to investigate intergenerational links in home ownership. Previous studies have relied only on earnings to show that the association between income across generations of the same family increased between these two cohorts.

Using housing measures in an intergenerational setting is useful because housing is the most important component of wealth for most people (at least during their working age lives). Our results indicate that the fall in intergenerational income mobility has also been true for wealth, an even more important measure of financial wellbeing.

This article summarises ‘Home Ownership and Social Mobility’ by Jo Blanden and Stephen Machin, CEP Discussion Paper No. 1466 (http://cep.lse.ac.uk/pubs/download/dp1466.pdf).

Jo Blanden of the University of Surrey is a research associate in CEP’s education and skills programme. Stephen Machin is director of CEP.

Source: Authors’ calculations based on data from the National Child Development Study and the British Cohort Study. The National Child Development Study (NCDS) follows the lives of over 17,000 people born in England, Scotland and Wales in a single week of 1958. Also known as the 1958 Birth Cohort Study. The 1970 British Cohort Study (BCS70) follows the lives of more than 17,000 people born in England, Scotland and Wales in a single week of 1970.
Does opening new airports and expanding airport capacity stimulate economic growth, particularly in developing countries? **Stephen Gibbons** and **Wenjie Wu** present evidence on the positive impact of airport infrastructure on productivity in China.

Airports and economic performance in China

Arrivals

- Travel Time
- Productivity
- GDP
- Access
- Industrial Activity
- Connections
- Inter Area Disparity
- Employment
- Wages
- Environment

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Airport construction or expansion is often proposed as a policy lever to boost cities, regions and national economies worldwide – although this case is not clear cut as some well publicised ‘white elephants’, such as Madrid’s Ciudad Real airport, and the recent debate over expansion of London’s airports testify.

But it is in large developing countries with poor road and rail infrastructure that air transport might offer the greatest potential benefits, providing a way to bridge large distances at relatively low fixed initial costs. In these settings, airports are often built and expanded with the explicit aim of improving connections to peripheral areas, stimulating economic activity in these areas and reducing inter-area disparities (World Bank, 2013).

Yet despite this policy enthusiasm, there is relatively little solid evidence that the opening of airports and expansion of airport capacity really stimulates economic development, and none in the context of developing countries.

Our study provides new evidence to answer this question, focusing on the rapid expansion of the airport network in China over the first decade of this century. China provides an ideal setting for this investigation, with around 60 new civil airports having opened over the decade accompanied by a massive expansion in air transport (see Figure 1).

Passenger numbers in China increased by around 13% per year after 2006, with 14% per year growth in domestic travel, many times faster than major developed economies. Air freight has also grown rapidly, with an 8-9% per year growth in freight tonne-kilometres.

In our analysis, we link information on the opening of airports – mainly small regional airports – to firm-level data on manufacturing firms and to county-level administrative data on other economic indicators. Using these data, we estimate to what extent improvements in accessibility from these airport openings led to higher productivity and GDP.

Our key finding is that implied travel time reductions and consequent improvements in access to domestic markets boosted industrial productivity and GDP in areas affected by the opening of new airports. The effects are substantial, with a 10% increase in access stimulating industrial output by around 2.5%.

Most of this impact comes from the fact that a new airport reduces land-side journey times for places nearby, highlighting the obvious but overlooked fact that the accessibility of airports on the land side is the key factor that should guide airport location decisions. These gains in the industrial sector are presumably attributable to cost reductions in business travel and air freight transport and associated ‘agglomeration’ economies, but we lack data to confirm the exact channels.

The productivity impacts are more pronounced in privately owned firms in high population, lower educated counties. We find no effects on employment or wages, but some effects on fixed asset investment, hinting that these productivity changes have largely benefited capital owners. We do not find any clear effects in the service sector, which runs counter to common assumptions and evidence about the role of air transport in business dealings in finance and other services in developed countries (Sheard, 2014; Airports Commission, 2015).

Figure 1: Airports in China up to 2009

China’s airport construction policy has been successful in boosting manufacturing growth.
An important feature of our research design is that we focus on the implied travel time reductions and the way these change population accessibility – using an index defined by the population that can be reached per unit of time. This index provides a proxy for access to markets of various types (labour markets, product markets, intermediate inputs, other businesses). The very large changes in accessibility by air generated by new airports in China are illustrated in Figure 2, for the period 2006-09 (the scale of the changes is such that 0.10 means a 10% change).

When it comes to estimation, we drill down specifically to the impacts on firms in counties that are some way from a new airport, but ‘incidentally’ experience travel time reductions because the new airport is closer than their previous nearest.

This aspect of the design brings various advantages. It means that we are comparing places experiencing large access improvements with similar neighbouring places experiencing smaller or zero access changes. It reduces the risks of us finding correlations between airports and economic performance that come about because new airports have been targeted at growing or declining places. It also means we can infer the productivity benefits of the travel time reductions, rather than changes in local economic activity directly generated by airport operations.

All previous research on airports has looked at the combined effects of the local economic activity created by operating an airport and any impacts coming about through travel time and trade cost reductions. Doing so can be misleading because much of the employment associated with airport operations should properly be considered in terms of the opportunity cost, not as an economic benefit – despite the common policy rhetoric of ‘job creation’ from this type of infrastructure investment.

Based on this evidence, airport construction policy in China has been successful in boosting local growth in the manufacturing sector. Extrapolating our estimates to the national level, the 35% increase in market access generated by airport network expansion over our study period implies an 8% increase in industrial output. The overall gain in industrial output in this period was 210%, so airports could explain a small but non-trivial proportion of aggregate growth.

It could be argued that some of the increases we observe may represent displacement and sorting of activity between high and low access places. But our estimates are based on within-industry changes, and are conditional on employment and capital inputs, and we see no corresponding changes in employment. These facts suggest that our findings are more likely to be attributable to real firm-level productivity improvements.

Generalising these findings to other contexts is always risky, and it would be very bold to claim similar gains from expanding Heathrow. We have also said nothing about the environmental costs. But air transport infrastructure clearly has an important part to play in large rapidly developing economies, such as China, where distances are vast and manufacturing plays a dominant role.

Figure 2: Population accessibility changes due to airport construction 2006-2009

Reduced travel times and improved domestic market access boost industrial productivity
in brief...

Road to recovery? Economic benefits of new infrastructure

New investment in transport infrastructure is seen as a key plank of a modern industrial strategy, and is central to many local economic growth strategies. Research by Stephen Gibbons, Teemu Lyytikäinen, Henry Overman and Rosa Sanchis-Guarner looks at the impact of UK road investment on jobs.

Back in 2013, the UK government unveiled ‘the biggest road-building programme in 40 years’, as part of a package of infrastructure schemes intended to drive the country’s long-term economic development. Infrastructure investment remains at the heart of government plans to build the Northern Powerhouse and rebalance the UK economy.

But what impact does infrastructure have on employment and productivity? While we have quite a lot of good evidence for developing countries, we know surprisingly little about additional investment in more mature networks.

In theory, transport improvements decrease transport costs, improve access to markets, foster economic integration, stimulate competition, and generate agglomeration economies and a number of other ‘wider’ economic benefits. This is why transport improvements are frequently proposed as a strategy for economic growth, integration and local economic development.

But for economies with well-developed transport networks like the UK, there is little good evidence on the extent of the gains that result from additions to the existing network. Although road improvements are routinely subject to appraisal – predicting the economic benefits before the roads are built – they have not historically been subject to any evaluation to work out whether these benefits actually materialised.

Our research suggests that even in mature networks, new road investment can produce economic benefits – at least locally. In the first rigorous studies to look at the effects of UK road transport improvements on employment, output and wages, we find that road-related accessibility improvements between 1998 and 2007 increased local employment and raised wages.

New investment in roads can produce economic benefits, even in mature infrastructure networks.
Road networks dominate transport infrastructure in most countries, including the UK. According to official transport statistics, in 2010, 91% of passenger transport and around 68% of freight transport was by road.

Road traffic has increased steadily since the 1950s, up to around 320.5 billion vehicle miles in 2016. And most of this traffic is concentrated in the major roads network. So it’s not surprising that a substantial amount of UK public spending is devoted to roads: around £1 billion, or 44% of total transport spending in 2010/11. An important slice of this expenditure is for new road links (since 2000, over 300 kilometres of new roads in England alone).

Our research provides some of the first hard evidence on the economic impact of new road-building in the UK. We link data on 31 major new road construction schemes between 1998 and 2007 to administrative data on businesses and workers.

We capture the effect of new roads using an index of employment ‘accessibility’, which estimates the number of workers that can reach a location, per unit of travel time, using optimal routes along the major road network. When new links are added to the network, optimal travel times decrease and employment accessibility increases, but by different amounts according to where a place is in relation to the existing road network, the new road links and major centres of employment.

To get round the fact that new roads investment is ‘targeted’, we look only at places that are close to a new road scheme, estimating the effects from the subtle local changes in accessibility that occur within a 20 kilometre radius.

Linking these accessibility changes to firm-level data on employment and output allows us to estimate how transport affected local production and employment. We find substantial positive effects on area-level employment and the number of plants.

In contrast, for existing firms, we find negative effects on employment coupled with increases in output per worker and wages. A plausible interpretation is that new transport infrastructure attracts transport-intensive firms to an area, but with some cost to employment in existing businesses.

We should be careful in interpreting these changes as gains to the national economy: to some extent, jobs may be displaced from other areas. If we assume that the employment effects represent new jobs, our estimates imply that a year’s expenditure on major roads (£1.8 billion in 2007/08) generated only 3,600 jobs – at a high cost of £500,000 per job.

Of course, there will be additional benefits from savings on travel times that are unrelated to employment. But even so, we cannot confidently say that road-building will set the UK on the ‘road to recovery’ since the national economic impacts seem small.

It would also be fair to say that our work is only a first estimate on the impact of new roads, but a number of important questions remain. Given how much political attention infrastructure projects attract, it’s clear that improved evaluation of new schemes is badly needed.


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