Editorial

We are often told that the world of work is being transformed by the twin forces of globalisation and new technology. Who wins and who loses from such changes in the labour market – and what they mean for the wider economy and society – have long been at the heart of the research programme at the Centre for Economic Performance (CEP). As we approach our thirtieth birthday in 2020, emerging challenges – including ‘the gig economy’, ‘the rise of the robots’ and growing inequalities – are a central focus – and each features in this issue of CentrePiece.

In our cover story, Nikhil Datta investigates whether the increasing prevalence of freelancing, zero hours contracts and self-employment in the UK and the United States is a result of people wanting such work or because they have no other choice. His research indicates that while workers in the gig economy may like flexibility, they would prefer to have a steady job. Indeed, on average, they would be willing to give up roughly half of their hourly wage for a permanent contract.

Moving next to the impact of technological change on work, Guy Michaels and colleagues note that it is important to ask not only ‘will robots take my job?’, but also ‘what would happen to my career if robots took my job?’ Their analysis of almost three decades of data on occupational decline among Swedish workers finds that while average losses in earnings and employment are relatively moderate, low-earners lose significantly more.

The theme of ‘capital-biased’ technological change driving greater inequality is picked up by Pawel Bukowski and Filip Novokmet. Their study, which charts more than a century of data on the distribution of income in Poland, also illustrates the central role of policies and institutions in shaping long-run inequality, as the country evolved between communism and capitalism and went from being one of the most egalitarian countries in Europe to one of the most unequal.

Elsewhere, the magazine has fresh insights on further themes of longstanding CEP interest. One is the powerful influence of ‘structured’ management practices on firms’ performance. Another is the positive contribution of universities to their local economies. And a third is the effect of early life experiences on later earnings and wellbeing outcomes: we summarise new evidence about the importance of where you’re born, which generation you’re born into and the financial circumstances of your childhood.

As ever, we welcome feedback.

Romesh Vaitilingam, Editor
romesh@vaitilingam.com
The gig economy and workers’ preferences for steady jobs
People are willing to give up roughly half of their hourly wage for a permanent contract, according to Nikhil Datta

When machines replace people: individual consequences of occupational decline
Guy Michaels and colleagues explore what happens to people’s careers when demand for their occupations falls, often because of technological change

Between communism and capitalism: long-run inequality in Poland
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Structured management: how firms can hire and keep the best people
Daniela Scur and colleagues demonstrate the value of structured management practices for recruitment, retention and productivity

Business benefits of local universities: more skills and better management
Andy Feng and Anna Valero find that firms located closer to universities hire better managers and workers – and have better management practices

Generation gap: young Brits less likely to ‘do better’ than their parents
Jo Blanden and colleagues show that plummeting earnings since the Great Recession mean that fewer young adults now are earning more than their fathers

The long-term effects of financial distress in childhood
Andrew Clark and colleagues consider the consequences for young adults whose families experienced financial problems when they were kids

Big city, bright future: why birthplace matters so much
Clément Bosquet and Henry Overman reveal that being born in a bigger city improves your earning potential
Is the rise of gig work, freelancing, zero hours contracts and self-employment a result of people wanting such work or because they have no other choice? Nikhil Datta finds that while workers in the gig economy may like flexibility, they would prefer to have a steady job. Indeed, they would agree to earn less to improve their employment security.

The gig economy and workers’ preferences for steady jobs
There has been a significant increase in the number of workers engaged in ‘atypical’ work arrangements across the UK and the United States. In the UK, the proportion of workers who are solo self-employed (encompassing freelancers, contractors, gig workers and one-person business owners) has doubled since the 1980s (see Figure 1). The number of workers on zero hours contracts has increased from 200,000 to almost a million since the turn of the millennium.

Evidence from Katz and Krueger (2019) shows that the United States has experienced similar, though more modest, trends with the proportion of workers engaged in atypical work arrangements increasing by approximately 10-20% over the period 2005-2015.

What does this mean for workers?
The implications of the changing nature of work have been hotly debated, especially at a policy level. In the UK, it has given rise to the government’s independent review of modern working practices: the Taylor Review (Taylor et al, 2017).

Evidence from the UK’s national statistics suggests that the self-employed have lower weekly income than regular employees. What’s more, the already lower hourly wages of workers on zero hours contracts fell by more than normal employees’ wages during the Great Recession of 2008-2009 (see Figure 2).

US evidence from Katz and Krueger (2016) finds that even after taking account of workers’ personal characteristics and occupations, those in atypical work arrangements have lower weekly earnings. In addition, atypical workers are not usually afforded certain non-pecuniary benefits such as job security, and holiday pay and sick pay (which in the UK are mandatory for all employees).

At the same time, such work arrangements are likely to offer other benefits, such as work and location flexibility, autonomy and the opportunity to offset expenses in one’s income tax bill. This suggests two possible mechanisms may be responsible, each having different implications for workers’ welfare:

- The first is a demand-side explanation, where labour demand for traditional employees is weak, thus pushing workers...
into more precarious working conditions with lower wages.

The second is a supply-side explanation, where workers are choosing to trade in pay and security for more flexible and autonomous working arrangements, with a favourable tax structure.

Two recent studies have looked at demand-side effects. Katz and Krueger (2017) find that in the United States, workers who experience unemployment spells are more likely to be involved in a form of atypical work, while my work with two CEP colleagues (Datta et al, 2019) highlights the role of labour market regulation in the use of atypical contracts. Our study analyses effects of the introduction of the UK National Living Wage (which represented a 7.5% rise in the wage floor), and finds that both care homes and domiciliary care agencies responded by increasing their use of zero hours contracts.

A few studies have looked at workers’ preferences for certain job characteristics and fringe benefits. Mas and Pallais (2017), for example, estimate how much job applicants would be willing to give up in terms of pay for a more flexible job. They find that flexibility in working hours is not particularly valued by the majority of workers, although there is a small proportion of workers who are willing to pay highly for flexibility. That research does, however, find a strong aversion to jobs where employers have scheduling discretion.

In a recent study (Datta, 2019) I go further and attempt to elicit the full distribution of valuations for a complete set of job characteristics, which are arguably the most important distinguishing factors for traditional and atypical work arrangements. These characteristics include job security, in-work benefits of holiday pay and sick pay, hours and location flexibility, workplace autonomy and taxation implications. I do this for both UK and US respondents, thus allowing a cross-country comparison while taking careful account of institutional differences.

The experiment
Eliciting labour supply preferences is challenging. Data on people’s realised choices have a number of shortcomings, including incomplete information on job descriptions and the available alternatives.

To overcome this, I use the trade-off between typical and atypical job attributes in an experimental research design where respondents in a representative survey are offered fictitious job choices, and where jobs are described by a wage and a series of attributes.

Furthermore, respondents were explicitly informed that the jobs were identical except for those characteristics highlighted in the description. This part of the question was key to ensure that the analysis reveals causality. In total, approximately 4,000 people were surveyed: 2,000 in the UK and 2,000 in the United States.

What workers want
My results suggest that on average, workers in both the UK and the United States far prefer job characteristics associated with traditional employer-employee relationships. Workers are willing to give up approximately 50% of their hourly wage for a permanent contract and around 35% of their hourly wage for a one-year contract, in comparison with a one-month contract.

There are important institutional differences between the UK and the United States when it comes to permanent contracts. In the United States, only around 34% of employment relationships are afforded some type of ‘just cause’ protection in their contracts, whereas in the UK, permanent contracts by law offer benefits, including mandatory notice periods, redundancy pay rights and unfair dismissal protection. Despite this fact, the valuations of a permanent contract are similar between the two countries: 55.4% of an hourly wage in the UK; and 44.1% in the United States.

After contract length, holiday pay and sick pay (described as 28 days of paid annual leave and 16 weeks of paid occupational sick leave) are the most valued job characteristics, with UK workers willing to give up approximately 35% of their hourly wage for holiday pay and sick pay. In the United States, the figure is marginally lower at 27%. This is surprising
UK-style labour market policies seem to be appealing to the majority of US workers given that employees there currently face no federal legislation on either: 23% receive no voluntary paid leave, and the average US employee only receives 14 paid days of holiday per year. These results suggest that the majority of US workers may have a strong preference for UK-style labour market policies.

Workers do value some characteristics associated with atypical work arrangements, although on average far less than security. I find that workers are willing to give up on average 24% of their hourly wage for location flexibility, 14% for hours flexibility and 11% for workplace autonomy (the ability to choose the tasks they perform).

Surprisingly, neither UK nor US respondents are willing to give up any wages to be able to declare taxes as self-employed. Indeed, in the UK, respondents actually want to be paid for taking on this job characteristic. This finding even holds just for those who are self-employed and who would therefore have better knowledge of the value of the attribute. This suggests that declaring taxes as a self-employed person is seen as potentially costly in terms of time or overly burdensome.

Heterogeneity analysis reveals that, on average, respondents in atypical work have a comparatively greater valuation for atypical job attributes, which suggests that people sort into types of work based on their preferences. Despite this fact, atypical workers still value job security more than any other attribute. Distributional analysis suggests that in the UK, over half of self-employed people would prefer to be in a traditional, permanent ‘9-to-5’ work arrangement.

Conclusion
My results suggest that the majority of workers prefer characteristics associated with traditional employee-employer relationships, and this even holds for the sub-sample of those in atypical work arrangements. Rather than suggesting that labour supply preferences have contributed to the rise in atypical worker arrangements, I find that the changing nature of work is likely to have significant negative welfare implications for many workers.

In the UK, these results give credence to certain policy recommendations outlined in the Taylor Review (Taylor et al, 2017), in particular, those aimed at securing workers in precarious employment relationships with rights closer to those of employees. But it is vital that further analysis be done on the demand side to explore how firms may respond to such policies.
What happens to people’s careers when demand for their occupations declines, often as a result of technological change? Guy Michaels and colleagues’ analysis of detailed occupational data on Swedish workers over several decades indicates that while average losses in earnings and employment are relatively moderate, low-earners lose significantly more.

When machines replace people:

individual consequences of occupational decline
How costly is it for workers when demand for their occupations declines? As new technologies replace human labour in a growing number of tasks, employment in some occupations invariably falls. Until recently, technological change mostly automated routine production and clerical work (Autor et al, 2003). But machines’ capabilities are expanding, as recent developments include self-driving vehicles and software that outperforms professionals in some tasks.

There have been many high-profile contributions to debates about the labour market implications of these new technologies (for example, Brynjolfsson and McAfee, 2014; and Acemoglu and Restrepo, 2018). But it is important to ask not only ‘will robots take my job?’, but also ‘what would happen to my career if robots took my job?’

Much is at stake. Occupational decline may hurt workers and their families, and may also have broader consequences for economic inequality, education, taxation and redistribution. If it exacerbates differences in outcomes between economic winners and losers, populist forces may gain further momentum (Dal Bo et al, 2019).

In our research, we explore the consequences for workers’ careers of large declines in employment in certain occupations. We assemble a dataset with forecasts of occupational employment changes, which allow us to identify unanticipated declines; population-level administrative data spanning several decades; and a highly detailed occupational classification. These data allow us to compare outcomes for similar workers who perform similar tasks and have similar expectations of future occupational employment trajectories, but experience different actual occupational changes.

Our approach is distinct from previous work that contrasts career outcomes of routine and non-routine workers (for example, Cortes, 2016), since we compare workers who perform comparable tasks and whose careers would be likely to have followed similar paths were it not for occupational decline. Our work is also distinct from studies of mass lay-offs (for example, Jacobson et al, 1993), since workers who experience occupational decline may take action before losing their jobs.

In our analysis, we follow individual workers’ careers for almost 30 years and find that on average, workers in declining occupations lose 2-5% of cumulative earnings, compared with other similar workers. Workers with low initial earnings (relative to others in their occupations) lose more: about 8-11% of average cumulative earnings.

These earnings losses reflect both lost years of employment and lower earnings conditional on employment. Some of the employment losses are due to increased time spent in unemployment and retraining – and low earners spend more time in both.

Consequences of occupational decline
We begin by assembling data from the Occupational Outlook Handbooks (OOH), published by the US Bureau of Labor Statistics (BLS), which cover more than 400 occupations. In our main analysis, we

Workers with low initial earnings lose between 8% and 11% of average cumulative earnings
define occupations as declining if their employment fell by at least a quarter between 1984 and 2016.

The OOH also provides information on technological change affecting each occupation, and forecasts of employment over time. Using these data, we can separate technologically driven declines as well as unanticipated declines. Occupations that declined include typists, telephone operators, drafters, assemblers and various machine operators.

We then match the OOH data to detailed Swedish occupations. This allows us to study the consequences of occupational decline for workers who in 1985 worked in occupations that declined over the subsequent decades. We verify that occupations that declined in the United States also declined in Sweden, and that BLS employment forecasts for the United States have predictive power for employment changes in Sweden.

Detailed administrative micro-data, which cover all Swedish workers, allow us to address two potential concerns for identifying the consequences of occupational decline: that workers in declining occupations may have differed from other workers; and that declining occupations may have differed even in the absence of occupational decline.

To address the first concern, about individual sorting, we control for gender, age, education and location, as well as 1985 earnings. Once we control for these characteristics, we find that workers in declining occupations were no different from others in terms of their cognitive and non-cognitive test scores and their parents’ education and earnings.

To address the second concern, about occupational differences, we control for occupational earnings profiles (calculated using the 1985 data), the BLS forecasts and other occupational and industry characteristics.

Assessing the losses and where they fall
We find that prime age workers (those aged 25-36 in 1985) who were exposed to occupational decline lost two to six months of employment over 28 years, compared with similar workers whose occupations did not decline. The higher end of the range refers to our comparison between similar workers, while the lower end of the range compares similar workers in similar occupations. The employment loss corresponds to around 1-2% of average cumulative employment.

The corresponding earnings losses were larger and amounted to around 2-5% of average cumulative earnings. These average losses may seem moderate given the large occupational declines, but the average outcomes do not tell the full story. The bottom third of earners in each occupation fared worse, losing around 8-11% of average earnings when their occupations declined.

The earnings and employment losses that we document reflect increased time spent in unemployment and government-sponsored retraining – more so for workers with low initial earnings. We also find that older workers who faced occupational decline retired a little earlier.

In addition, workers in occupations that declined after 1985 were less likely to remain in their starting occupation. It is quite likely that this reduced supply to declining occupations contributed to mitigating the losses of the workers that remained.

We show that our main findings are essentially unchanged when we restrict our analysis to technology-related occupational declines.

Further, our finding that average earnings and employment losses from occupational decline are small is not unique to Sweden. We
find similar results in a smaller panel dataset on US workers, using the National Longitudinal Survey of Youth 1979.

Conclusions
There is a vivid academic and public debate on whether we should fear the takeover of human jobs by machines. New technologies may replace not only factory and office workers but also drivers and some professional occupations.

Our study compares similar workers in similar occupations over 28 years. We show that although average losses in earnings and employment for those initially working in occupations that later declined are relatively moderate (2-5% of earnings and 1-2% of employment), low-earners lose significantly more.

The losses that we find from occupational decline are smaller than those suffered by workers who experience mass lay-offs. Because the occupational decline that we study took years or even decades, its costs for individual workers were likely to have been mitigated through retirement, reduced entry into declining occupations and increased job-to-job exits to other occupations. Compared with large, sudden shocks, such as plant closures, the decline may also have less pronounced effects on local economies.

While the losses we find are on average moderate, there are several reasons why future occupational decline may have adverse impacts. First, while we study unanticipated declines, the declines were nevertheless fairly gradual. Costs may be larger for sudden shocks following, for example, rapid evolution of machine learning.

Second, the occupational decline that we study mainly affected low- and middle-skilled occupations, which require less human capital investment than those that may be affected in the future. As a result, switching occupations may be more costly.

Finally, and perhaps most importantly, our findings show that low-earning individuals are already suffering considerable (pre-tax) earnings losses, even in Sweden, where institutions are geared towards mitigating those losses and facilitating occupational transitions. Helping these workers stay productive when they face occupational decline remains an important challenge for governments.

This article summarises 'Individual Consequences of Occupational Decline' by Per-Anders Edin, Tiernan Evans, Georg Graetz, Sofia Hernnäs and Guy Michaels, CEPR Discussion Paper No. 1629 (http://cep.lse.ac.uk/pubs/download/dp1629.pdf).

Per-Anders Edin, Georg Graetz and Sofia Hernnäs are at Uppsala University, and Graetz is a research associate in CEP's labour markets programme. Tiernan Evans is a research assistant in CEP's labour markets programme. Guy Michaels is associate professor of economics at LSE and director of CEP's labour markets programme.

Further reading


How has inequality in Poland evolved between communism and capitalism to reach one of the highest levels in Europe today? Pawel Bukowski and Filip Novokmet chart a century of data on Polish inequality, 1892-2015, to examine the key causes. Their work illustrates the central role of policies and institutions in shaping long-run inequality.

Between communism and capitalism: long-run inequality in Poland

Soaring inequality has rekindled debates about the forces shaping the distribution of income, which date from as far back as classical economists to the highly influential contemporary work of Thomas Piketty. Our understanding of inequality depends on the available empirical evidence, and as we have obtained new evidence, charting inequality further back in time, the old paradigms have been challenged and new ones developed. Yet the evolution of inequality and its determinants are still not well understood.

Poland, one of the largest countries in the European Union (EU), has been surprisingly missing in this debate. The episodes of state formation, wars, socialism, transition to capitalism and integration into the EU make it a particularly compelling case for studying the determinants of income inequality. Poland has also been the fastest growing economy in Europe since 1989, with an average growth rate exceeding those of the famous ‘Asian tigers’. Real average national income per capita has more than doubled since 1990, but which income groups and income sources have benefited most from it? What have been the roles of transition policies and emerging institutions in shaping inequality?

Similarly, the wave of globalisation in recent decades has been crucial for the transformation of the Polish economy. But we know little about the distributional effects of these processes.

Our study is a first comprehensive attempt to look at the long-run evolution of inequality in Poland. We combine tax, survey and national accounts data to provide consistent series on the long-term distribution of national income in Poland.
Figure 1 shows that top income shares in Poland have followed a U-shaped evolution from 1892 until today. Inequality was high in the first half of the twentieth century due to the high concentration of capital income at the top of the distribution. As documented now in many countries, the downward trend after the Second World War was induced by the fall in capital income concentration.

The introduction of communism signified a comparatively greater shock to capital incomes relative to other countries, by literally eliminating private capital income with nationalisations and expropriations. In addition, it implied strong reduction of top labour incomes. During the remaining four decades of communist rule, top income shares displayed notable stability at these lower levels.

We analyse the transition from communism to the market economy by constructing the full income distribution (1983-2015) from combined tax and survey data. Figure 2 shows that inequality experienced a substantial and steady rise after the fall of communism, which was driven by a sharp increase in the income shares of the top groups.

Within one generation, Poland has moved from being one of the most egalitarian to one of the most unequal countries in Europe. The highest increase took place at the outset of the transition in the early 1990s, but we also find substantial growth since the early 2000s, after Poland joined the EU.

Today, Polish top income shares are at the level of more unequal European countries, most notably Germany and the UK, but still substantially below those documented in Russia. Table 1 shows that over the whole period 1989-2015, the top 1% has captured almost twice as large a portion of total income growth as the bottom 50% (24% versus 13%). This contrasts with France, where the top 1% captured the same share of growth as the poorest half.

The rise of inequality after the return to capitalism in the early 1990s was induced both by the rise of top labour and capital incomes. We attribute this to labour market liberalisation and privatisation.

Figure 2: Income shares in Poland, 1983-2015

Source: Authors’ computation. Distribution of pre-tax national income (before taxes and transfers, except pensions and unemployment insurance) among equal-split adults.
But the strong rise in inequality in the 2000s was driven solely by the increase in top capital incomes, which are dominant sources of income for the top percentile group. We relate the rise in top capital incomes to current globalisation forces and capital-biased technological change, which have potentially rebalanced the division of national income in favour of capital.

Overall, the unique history of Polish inequality illustrates the central role of policies and institutions in shaping inequality in the long run. The communist system eliminated private capital income and compressed earnings, which led to the sharp fall and decades-long stagnation of the top income shares.

By the same token, the labour market liberalisation and privatisation during the transition instantly increased inequality and brought it to the level of countries with long histories of capitalism. On the other hand, a marked increase in social transfers and an expansion of the safety net during the early transition years played a key role in ‘protecting’ the bottom 50% of the distribution. It provided the general political support for the market reforms and enterprise restructuring in Poland.

This contrasts with the Russian transition, as shown in Table 1, where the share of the bottom 50% collapsed. Social transfer payments in Russia were small and declining, and pensions were not indexed to inflation, which led to a plunge in the living standards of the bottom 50% when a hyperinflation struck in the early 1990s. This suggests that mitigating a more substantial rise in inequality may be conducive to economic growth.

Finally, the recent developments suggest that the future of inequality in Poland is likely to be linked with the prominent role of capital income among top incomes. Moreover, one should not expect a weakening of this trend, as processes connected with globalisation and technological change seem to contribute to the growing dominance of capital in the economy.

Rising inequality might have adverse social and political implications, as is evident in the recent populist anti-globalisation backlash in Poland and internationally. The issue of distribution of gains from economic growth has become crucial for sustaining long-run development.

A further rise of Polish inequality is not inevitable: the future will depend on institutions and policies. This article summarises ‘Between Communism and Capitalism: Long-Term Inequality in Poland, 1892-2015’ by Pawel Bukowski and Filip Novokmet, CEP Discussion Paper No. 1628 (http://cep.lse.ac.uk/pubs/download/dp1628.pdf).

Pawel Bukowski is a research officer in CEP’s labour markets programme. Filip Novokmet is a postdoctoral researcher at University of Bonn and World Inequality Lab.

Further reading


Firms’ decisions about whom to hire and fire have big effects, not only on their own bottom line but also on the functioning of the labour market and the performance of the whole economy. Analysis of Brazilian data by Daniela Scur and colleagues demonstrates the value of ‘structured management practices’ for better quality recruitment and retention – and improved productivity.

Structured management: how firms can hire and keep the best people

Total factor productivity (TFP) is a measure used by economists and business people to quantify the productivity of firms and economies. In essence, it measures the efficiency and intensity of use of inputs to production, such as capital and labour. Technology affects how these inputs are assembled, and we can look at technology either as tangible (new and better machines) or intangible (such as production processes and management practices).

One important way in which intangible technologies affect firms’ TFP performance is by improving managers’ ability to build the most productive and appropriate workforce that they can. We know that more structured management practices lead to higher productivity (Bloom et al, 2013); we also know that hiring higher quality workers is correlated with higher productivity (Bender et al, 2018).

But specifically, how is this all happening? What levers are firms pulling to get this optimal mix of workers in their firm?

Economic models of the labour market analyse different firms trying optimally to attract workers with different levels of ability, but they often do not take account...
of specialised investments in management processes or managerial talent. The models abstract away from real-world differences in the personnel management practices of different firms, but we do not yet know how much those differences matter and why. Our research digs deeper into that ‘black box’ and shows how firms with structured management are better at hiring, firing and retaining workers.

Drilling down into these practices is a very data-intensive exercise. To document these intricate relationships, we need a dataset that includes all the job spells of paid employees in an economy, including their wages and occupations, and also a lot of information at the firm level, including industry, productivity and use of different management practices.

It is very hard to find this data except for a select few countries. We have created the most comprehensive dataset of this kind to date, using three different data sources from Brazil: the employer-employee matched dataset covering the entire formal sector for 10 years; the annual industrial survey for productivity data; and the World Management Survey (WMS) for management practices data.

The Brazilian dataset uniquely allows us to observe the occupation of workers, as well as the reason for separation. Since most other employer-employee datasets show workers moving across jobs, without knowing the reason for separation, we would not be able to identify whether the worker left on their own or whether they were fired.

Furthermore, without detailed occupation codes, we would not be able to separate managers from production workers, which we find important in understanding the compositional relationship. As our dataset has these important variables, we can take a new look at what is going on in these firms.

We start by defining firms that have structured management practices as those registering over a score of 3 in the WMS grid of 1 to 5. Methodologically, that is the cut-off point in the survey: firms that have some management practices but where the practices are informal and only adhered to sometimes (usually requiring the manager to be present) cannot reach a score of 3. For a 3 to be awarded, the processes described must be formalised, though they are allowed to have some weaknesses.

We find that there is plenty of variation among firms in the Brazilian sample of the WMS (see Figure 1). Half of the firms score above a 2.66, with the other half scoring below that score. While we can replicate the results using a continuous definition of management, the WMS definitions offer a cleaner way to distinguish and interpret our results.

We then use a well-known methodology (Abowd et al, 1999) to extract two ‘fixed effects’ from the data on employee flows and wages: Essentially, this methodology uses the transitions of workers between jobs within and across firms to allow us first, to estimate how much more a worker gets paid moving from firm A to firm B (the ‘firm-fixed effect’); and second, to estimate what the value of a particular worker’s portable skills are across jobs. Portable skills refer to the traits and skills of workers that have some value in the labour market, and which they carry with them as they move between firms (the ‘person-fixed effect’).

We extract these two fixed effects for all firms and workers in the Brazilian sample, we then rank all production workers and managers separately by their fixed effect and see where they work: in firms with structured management or unstructured management. Our main results are summarised in Figures 2 to 4.

**Hiring the best people**

Firms with structured management practices do a better job at hiring the ‘best’ people – that is, people with the highest ‘person-fixed effects’. The median manager hired in a firm with structured management practices comes from above the median ranking in the full distribution (58th percentile), while the median manager hired in a firm with unstructured management practices comes from below the median ranking in the full distribution (46th percentile).

**Figure 1:** Distribution of management scores

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<th>Management score</th>
<th>Overall management</th>
<th>People management</th>
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**Note:** Data from WMS Brazil only 2008 and 2013.
Figure 2 summarises this relationship. If all firms hired at random, both curves would be along the 45-degree line. The bulging to the right means that structured firms have positive recruitment (that is, they are hiring from higher ends of the distribution), while the bulging to the left means unstructured firms have negative recruitment (they are hiring from the lower ends of the distribution).

Retaining the best people
Once the firms with structured management hire the best workers, they are also better at keeping them over time. Figure 3 highlights the share of workers from the top and bottom of the rank distribution that work in structured and unstructured firms over our 10 years of data. It is striking that firms with structured management practices consistently retain a much larger share of workers in the top quantile of the worker quality distribution.

Selective firing
We also look at how firms let go of workers. In Figure 4, we see two very clear patterns in the data: the first is that firms with structured management have lower levels of firing. One likely reason is that firms that are better at hiring tend to have better job matches in the first place and thus, generally need to fire fewer workers. Another clear pattern is that when these firms do fire, they are more selective: that is, firms are more likely to dismiss...
More structured management practices have a strong positive effect on firm productivity

workers with lower person-fixed effects relative to unstructured firms. This suggests that they are more able to identify lower quality workers.

Managing people and operations
To summarise, we find evidence that firms with more structured practices hire better, retain better and fire less (and more selectively). So what types of business practices are more strongly correlated with having employees of higher quality?

We find that people management practices are correlated with better production workers at the firm, but both operations and people management practices are correlated with better managers at the firm. This was surprising to us, but it is quite intuitive. To explore this, we looked separately at the relationship between higher levels of structured management in people management practices and in operations management practices.

One potential explanation that fits these results is that people management practices are primarily geared at production workers, so it makes sense that these practices would be more strongly correlated with workers in that occupation. Operations management, on the other hand, could make firms more attractive to better managers or the better managers could be implementing a large set of better operations and people management practices. It is hard to know which way the causality runs, but this is the first time that we see these types of patterns so clearly in the data.

All in all, it is now an accepted stylised fact that more structured management practices have a strong positive effect on firm productivity, though we are still unpacking the black box of why that relationship exists. We see this set of stylised facts as the first step in an exciting research agenda exploring the labour aspect of this relationship.

A whole new set of questions arise based on these patterns, such as whether structured management helps firms mitigate unhelpful management biases, whether they are more able to optimise their ‘internal labour markets’ or whether these firms can improve the human capital of their workers.

Both operations and people management practices are correlated with better managers at a firm
Universities are widely seen as a source of strength for local economies. Research by Andy Feng and Anna Valero confirms their potential contribution to business: firms closer to universities tend to hire better managers and workers, and have better management practices. The effect seems to be driven by universities raising the supply of skilled workers and hence reducing the cost.

**Business benefits of local universities: more skills and better management**

Management matters for explaining differentials in productivity between and within countries and sectors. Across countries, management practices – as measured in the World Management Survey (WMS) – explain on average around 30% of the gap in total factor productivity with the United States (Bloom et al, 2016); and experimental evidence from Indian textile plants supports a causal interpretation (Bloom et al, 2013).

In recognition of their importance, national statistics offices around the world are now embedding questions on management practices in their business surveys – for example the Management and Organizational Practices Survey conducted by the US Census Bureau; or the Management and Expectations Survey carried out by the UK’s Office for National Statistics. In addition, significant policy attention is being focused on trying to improve the performance of firms that are lagging in adopting best practices.

This is particularly the case in the UK, where management practices are on average worse than in other advanced economies – notably Germany and the United States – and where there is a larger
The UK government has funded new initiatives such as ‘Be the Business’, which aims to help firms improve their management practices. As part of the new Industrial Strategy, it has also launched the Business Basics Fund, which seeks to test methods of supporting small businesses to adopt better management practices (and technologies more generally).

Given that management practices are so important for firm performance, and can be measured and benchmarked across firms, why do we not see all firms adopting best practice? As Figure 1 illustrates, the evidence suggests that skills could be important: the education levels of both managers and workers are strongly correlated with management scores (Bloom and Van Reenen, 2007, 2010; Bloom et al, 2014).

Our study contributes to this body of research by combining WMS data on management practices in small and medium-sized manufacturing firms with newly constructed data across 19 countries related to plant and region-level skill availability. To provide evidence for complementarities, we estimate ‘factor demand’ equations (Brynjolfsson and Milgrom, 2013), where the idea is that the demand for a factor increases as the price of a complementary factor falls. We find robust evidence that firms facing more abundant – and cheaper – skills have higher management scores.

Management-skill complementarity
We argue that this evidence supports the hypothesis that modern management practices and a skilled workforce are complementary. This is consistent with a skilled workforce increasing the marginal benefit or lowering the marginal cost associated with good management practices, so that firms facing a skill-abundant workforce employ more skilled labour and have better management practices. In this sense, good management practices are examples of ‘skill-biased management’.

A complementarity between worker skills and management practices may seem intuitive. The surveyed management practices closely resemble the complementary characteristics of ‘modern manufacturing’ discussed by Milgrom and Roberts (1990) and Roberts (1995). Highly skilled, cross-trained workers are listed alongside (among other things) lean production techniques, performance tracking and communications as features of the modern firm. An educated workforce is more likely to show initiative and be able to implement complex, flexible and decentralised production practices.

On the other hand, it could be argued that certain management practices and skilled workers could be substitutes. A firm with a highly skilled workforce might have less need for constant performance tracking and communicating – more able workers could just be left to get on with their jobs.

Shedding light on this issue empirically is therefore valuable for helping managers and policy-makers to understand how best to improve management practices and hence productivity.

Universities, skill premia and management practices
We construct a new dataset across 19 countries based on university location from the World Higher Education Database (Valero and Van Reenen, 2019) to estimate a measure of distance to the closest university; and skilled versus unskilled wages from international labour force surveys or administrative data across 13 countries.

We hypothesise that universities increase the supply of skills and hence reduce the price of skills – and that this is the mechanism through which we might expect the distance measure to be related to firm human capital and management practices. In support of this, we show

![Figure 1: Firm skills and management practices](image-url)
that regions with higher university density have a higher degree share and a lower skill premium. This is a new finding that suggests that skills are expensive when they are relatively scarce in a location and cheap when abundant.

We find a negative relationship between drive time to the nearest university and firm-level human capital and management practices: firms further from universities have fewer skilled workers and managers, and are on average worse managed (see Figure 2). These relationships are robust to the inclusion of relevant controls (firm and geographical characteristics) and fixed effects (survey year, industry and region).

Next, we replace distance to nearest university with the regional skill premium in our analysis, and show that firms facing higher skill premia in the region where they are located employ significantly fewer skilled workers and are significantly worse managed.

We find that these results are stronger when we exclude regions around capital cities, where we might expect demand shocks or other unobservables that raise both the skill premium and management practices to be more prevalent. Moreover, firms in capital cities are more likely to be able to recruit from wider areas (due to commuting patterns or inward migration).

We also find that the relationships between management practices and both university distance and regional skill premia are stronger for single-plant firms compared with plants that are part of multinationals or multi-plant domestic firms.

This is intuitive, since the latter types of firms are likely to be less reliant on the local environment when recruiting staff and setting management practices. Plants that are part of larger multinationals may be able to attract workers from other regions or countries due to their stronger brand, and might also move staff between locations. Moreover, management practices in such firms might be set centrally at the company headquarters, which may be in a different region or country.

We cannot rule out the possibility that our results are driven by better-managed firms choosing locations close to universities. But we partially address this concern by showing that there is no differential effect for firms that are founded after their nearest university, and by considering within-firm variation as an extension to the skill premium analysis.

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**Figure 2.**
**Distance to university, management scores and degree share**

**Notes:** Scatter plot of average management Z-score (top) and ln(1+degree share) (bottom) on average travel time within 20 evenly sized bins. Variation is within country. The dashed line represents the line of best fit. Authors’ analysis of data from the WMS and World Higher Education Database.
Skills are expensive when they are relatively scarce in a location and cheap when abundant.

Of course, it could be that universities are just educating better managers or providing consultancy services to local firms. If that were the case, we would expect the relationship between management practices and university proximity to be stronger for universities with business schools, but this is not evident in the data. We find no evidence of heterogeneity in our effects for universities offering different disciplines, including management, business or economics courses.

On a sub-sample of firms where performance data are available, we also go one step further to examine whether there is evidence that a skilled workforce is associated with good management practices because skills increase the marginal benefit of their adoption. This is tested using interactions between workforce skills and management practices.

We estimate simple production functions including firm degree share, and then external skills measures (distance to university and regional skill premium) and their interaction with management practices. Here we find more tentative evidence of complementarities in the case of single-plant firms only, which is consistent with the finding that plant-specific locational measures of skill supply appear more relevant in such cases.

Implications for industrial strategy
Our finding that firms closer to universities have a more highly skilled workforce and better management practices is relevant for policy-makers seeking to maximise the positive impacts that universities have on their local firms and economies (Azmat et al, 2018).

More generally, the evidence that management and workforce skills are complementary implies that policies to raise human capital not only raise productivity via a direct impact on worker skills, but also via an indirect effect as firms with a skilled workforce are more likely to adopt better management practices.

In addition, it implies that the pay-offs from implementing policies to raise general human capital and policies specifically aimed at improving management practices (such as managerial training) are higher when such policies are implemented together.

An important question for future research is to understand what kinds of skills matter. The measure of firm-level human capital used in our study (degree share) does not account for skills acquired from vocational education or on-the-job training. Policy-makers need to understand better the specific types of skill that are relevant with respect to modern management practices, and how these can best be acquired.

Further reading


The long-term effects of financial distress in childhood

Is there a relationship between childhood circumstances and outcomes later in life? Andrew Clark and colleagues consider the cognitive and non-cognitive consequences for young adults whose families experienced major financial problems when they were children.

The Great Recession of 2008-09 and the eurozone’s sovereign debt crisis of 2011-13 put many families at risk of poverty and social exclusion. One particular feature of this double-dip downturn is that it has affected not only the poorest but also a far broader swathe of the population. The European Commission’s February 2018 quarterly review of employment and social development records that the number of families who experienced financial distress – there defined as the need to draw on savings or run into debt to cover current expenditure – is at about 14% of the population. This figure is far above that of a decade earlier, and only slightly below its highest ever value of 17% at the end of 2013. Along similar lines, 63% of Americans have no emergency savings for a $1,000 emergency room visit or a $500 car repair.

There is a very large body of evidence on the relationship between income and financial resources, on the one hand, and adult outcomes on the other. The question we address in our research is whether income suffices to describe parents’ financial difficulties and, if not, what we can do to improve our understanding of these intergenerational transmissions.

In general, we need to know both the level of financial resources and the demands that are made on them in order to measure financial distress. Knowing whether households have difficulty paying bills or have had financial problems may provide information over and above the income they received.

We then ask whether the trace of parents’ financial problems, conditional on their income, can be found in the adolescent cognitive and non-cognitive outcomes of their children many...
The number of family financial problems is a far better predictor of children’s later life behaviour and emotional health than average family income in childhood years later. We are interested in children’s outcomes both in their own right as measures of how well young people are doing, and because these are known to predict outcomes throughout adult life.

Knowing about financial distress will not advance our knowledge much if this is almost entirely determined by income. But if the former reflects both economic resources and the demands that are made on them, income on its own may tell only half of the story. Financial distress may pick up not only income but also health problems, housing problems, the job loss of a family member, divorce, falling housing equity and so on.

Some supportive evidence on this point comes from the British Household Panel Survey, which has collected data on a representative sample of 5,500 households since 1991. Respondents are asked ‘Would you say that you yourself are better off or worse off financially than you were a year ago?’ Around a quarter say better off, another quarter say worse off and almost exactly one half say about the same. Respondents who report being better or worse off are then asked ‘Why is that?’, with the answers being reported verbatim.

Three response categories dominate for those whose financial position has worsened: a rise in expenses for almost exactly 50% of respondents, followed by a fall in income (28%) and ‘Other’ (11%). These figures are very similar for those who have any children in the household, and for those who have children under age 12 in the household. In these cases, financial problems are more often caused by increased expenses than by lower income.

We analyse data from the Avon Longitudinal Study of Parents and Children to see how parents’ financial distress is related to children’s outcomes many years later. This large-scale birth cohort survey, which began with a population of 14,000 pregnant mothers in and around the city of Bristol in the early 1990s, has now followed the ‘Children of the 90s’ for over two decades. For the children’s first 11 years, mothers were asked whether they had had a ‘major financial problem’ over the past year.

Just under a half of the children grew up in households with at least one major financial problem during the child’s first 11 years, and around one in eight had three or more such episodes. We then relate this childhood financial problem count to child outcomes at age 16 or 18. These outcomes are both cognitive (exam scores) and non-cognitive (behaviour and emotional health).

Our striking finding is that the number of financial problems is a far better predictor of behaviour and emotional health than average family income during childhood. (Indeed, the latter is mostly unimportant). It is also as good a predictor of exam scores as income.

It may be countered that we are not showing an effect of financial distress on child outcomes, but merely a correlation, in the sense that parents who have trouble managing their money may also have trouble bringing up their children.

To investigate, we carry out what is sometimes called a ‘value-added’ analysis. Given children’s outcomes at age 5 (where any effect of poor parenting should already be evident), do financial problems over the period when children are aged 6-11 continue to be correlated with their adolescent outcomes? The answer is yes.

We conclude that our understanding of how well families are doing financially requires information on both income and financial distress. This financial distress is not just the preserve of those at the bottom of the income distribution, and the shadow that it casts is likely to be very long. Financial problems in childhood lead to significantly poorer outcomes for young adults, and it is known that these continue to affect life satisfaction throughout adult life.

This article summarises ‘Childhood Circumstances and Young Adulthood Outcomes: The Role of Mothers’ Financial Problems’ by Andrew Clark, Conchita D’Ambrosio and Marta Barazzetta, CEP Discussion Paper No 1609 (http://cep.lse.ac.uk/pubs/download/dp1609.pdf).

Andrew Clark of the Paris School of Economics is a professorial research fellow in CEP’s labour markets and wellbeing programmes. Conchita D’Ambrosio and Marta Barazzetta are at the University of Luxembourg.
Doing better financially than your parents is an important marker of success, and for much of the last half century, real earnings growth in the UK was strong enough that most young people achieved this milestone. But research by Jo Blanden, Stephen Machin and Sumaiya Rahman shows that plummeting earnings since the Great Recession mean that fewer young adults now are earning more than their fathers.

Comparing the standard of living today with that of the past is crucial to understanding the UK’s economic and social health. In fact, both in our everyday lives and in studies in social science, we often assess economic progress by comparing our standard of living with that of our parents.

A 2017 report by Ipsos MORI shows that only 36% of ‘millennials’ (the generation born between the early 1980s and the mid-1990s) believe that they will be financially better off than their parents. The figure among ‘baby boomers’ (those born between the end of the Second World War and the mid-1960s) is about 20 percentage points higher.

In our research, we show that this pessimistic outlook is reasonable given the recent economic experiences of today’s younger generations. ‘Absolute intergenerational mobility’ – measured as the fraction of young individuals who earn, in real terms, as much or more than their fathers at the same age – has fallen by more than 20 percentage points in the decade since the Great Recession of 2008-2009.

In 2005, more than half the young adults aged around 30 earned as much or more than their fathers (see Figure 1). By 2018, there had been a dramatic fall, with only about one third achieving this. In other words, the majority of young adults face economic decline on this measure, rather than progress.

Is the fall in absolute mobility unique to those at the start of their careers? It does not seem so, as prospects are poor even for those at around the age of 40, who would be expected to be at a more stable stage in their careers.

That said, the magnitude of the fall in
absolute mobility is lower. In other words, although both millennials and ‘Generation X’ (their immediate predecessors, who were born between the mid-1960s and the early 1980s) are doing worse on average than previous generations, millennials have been worse hit since the Great Recession.

Falling real wages
There are three drivers of absolute mobility: economic growth, as measured by the growth of real weekly wages; wage inequality; and relative intergenerational mobility. We find that the fall in real weekly wage growth is central to the fall in absolute mobility.

Between the 1980s and the early 2000s, median real weekly wages grew at around 2% a year. Although the rate of growth slowed at times, it was almost guaranteed that real wages would be higher each subsequent year, even in recessions. Unfortunately, the Great Recession brought this experience to an end. Wage growth since 2009 has no longer kept pace with price inflation. Consequently, the UK has experienced an unprecedented fall in real weekly wages.

Between 2008 and 2017, median real weekly wages fell by around 5% (Costa and Machin, 2017). Not only are the real weekly wages of young adults falling, the comparison group of parents for these young adults benefited from strong wage growth. As a result, these young adults face a double hurdle in catching up with the wages of their parents’ generation.

But what if wages had not fallen? How much would this change the picture? We can check this by calculating what wages could have been had they continued to grow at 2% annually (as in the pre-recession trend), and re-estimate absolute mobility (see Figure 2). In the real world, absolute mobility began to fall from 2007 and was only 36% in 2017. In the counterfactual scenario, on the other hand, absolute mobility remained broadly constant and was much higher at 58% in 2017.

Changes in relative mobility
Relative mobility, another factor that determines absolute mobility, is what the Social Mobility Commission defines as ‘the link between a person’s occupation or income and the occupation or income of their parents’. When this link is strong, children born to poorer households remain poorer in adulthood than children born to richer households, and vice versa.

If everyone made twice as much as their parents, they would experience upward absolute mobility, but there would be no relative mobility as their positions in the income distribution would depend on their parents’ earnings. In other words, relative mobility measures where people end up on the economic and social ladder relative to their parents’ ranking, while
absolute mobility highlights whether they enjoy a higher quality of life regardless of their family background.

Traditionally, economists have been mostly interested in relative income mobility. In the UK, relative income mobility worsened for children born in 1970 compared with those born in 1958 (Blanden et al., 2002). But it has probably been stable since then, although it has not been measured in exactly the same way (Blanden and Machin, 2008).

To get a better understanding of how changes in relative mobility might alter the experience of absolute mobility, we assume two alternative scenarios. We explore what would happen if there were no link between people’s earnings and their parents’ wages (what we call ‘equality of opportunity’), as well as under lower relative mobility, at the level prevailing in the United States (Chetty et al., 2014). These can be compared with the baseline scenario where relative mobility is at the level found for the British Cohort Study (BCS) of people born in 1970.

The results show that the level of relative mobility has little impact on the trend in absolute mobility (see Figure 3). Both the level and trend in mobility are very similar under all three scenarios. The role of relative mobility in determining absolute mobility is limited, at least when real earnings are falling fast.

Conclusion
Absolute mobility is an important marker of economic progress, and essential for evaluating the UK’s economic and social health. For much of history, economic growth ensured that each subsequent generation did better than the last, rendering true the saying that the rising tide will lift all boats.

But this is no longer true. Our research highlights the need for serious discussion of how real wages can be boosted and, if not, other policy options that could be implemented to reverse the trends of falling absolute mobility.

Earning more than your father is only one way of measuring economic success. We might also care about how family incomes compare. Absolute mobility measured by household income also reveals a declining trend for millennials, although not as steep as for earnings. International comparisons show that absolute income mobility started to decline earlier in the United States — in the early 2000s. But declining absolute mobility is not inevitable with Finland, Norway and Sweden managing to avoid this fate (Manduca et al., in progress).

Further reading


in brief...

Big city, bright future: why birthplace matters so much

How much does where you were born influence your future earnings? Analysing data from the British Household Panel Survey, Clément Bosquet and Henry Overman reveal that, on average, someone born in London in the 1970s earns 6.6% more than someone born in Manchester and 9.3% more than someone born in Liverpool.

The possibility that where people live has an influence on their life chances has been a longstanding concern in debates about inequality and public policy. In particular, a large and diverse body of research has considered the effects of living in a deprived neighbourhood, looking for effects on education, crime, health and labour market outcomes.

More recently, a small but growing series of studies has focused on the role of ‘initial conditions’ in determining labour market outcomes. This new line of work doesn’t just look for an effect of current place of residence or conditions during childhood. Instead, it reaches further back into the past to consider the effect of place and time of birth.

In our research, we consider a particular aspect of this question by looking at whether birthplace plays a role in determining future earnings. We focus particularly on the size of an individual’s birthplace to try to answer whether being born in a bigger city improves their earning potential.

For those of us who study the economics of cities, this is an interesting question because we have good evidence that people who live in bigger cities earn more than similar people living in smaller cities. This ‘urban wage premium’ is explained by what urban economists call ‘agglomeration economies’, whereby density makes firms and workers more productive because of labour market pooling, input sharing and knowledge spillovers. These ideas originate with Alfred Marshall but still underpin lively academic and policy debates today.

Analysing data from the British Household Panel Survey (BHPS), a representative sample of the UK population, we find an elasticity of wages with respect to birthplace size of 4.2%. What this means is that on average, an individual born in London in the 1970s will earn around 6.6% more than an individual of the same age, birth year and gender born in Manchester and 9.3% more than an individual born in Liverpool.

What could explain these effects of birthplace size on future earnings? One possibility is that individual characteristics vary with birthplace size because of the location decisions of different types of parents and the intergenerational transmission of characteristics.

Being born in a bigger city improves your earning potential
Parental sorting and the influence of birthplace in decisions about current location both underpin the effect of birthplace on earnings

Indeed, research on the urban wage premium highlights that much of the wage gap between urban and rural areas and between large and small cities is due precisely to this kind of sorting – specifically, the concentration of more productive workers in bigger cities.

A second possibility is that birthplace size somehow affects the accumulation of human capital – for example, because the quality of schools varies with city size.

A third possibility is that birthplace influences future location decisions and, through this, future labour market opportunities. Indeed, in the extreme case of no mobility, birthplace size directly determines future labour market size, and it makes little sense to try to distinguish between the effect of birthplace and current location.

We consider all three of these possibilities in our research. Our findings suggest that intergenerational transmission and the effect of birthplace on current location both play a role in explaining the effect of birthplace.

Effects via learning depend on when we think such learning takes place. We don’t find evidence of an effect during childhood, but there may be an effect though accumulated experience later in life (which we might think of as adult rather than childhood learning).

We find strong evidence of parental sorting in the BHPS data: 79% of people born to parents in ‘professional’ occupations are born in a city, compared with only 72% of those with ‘unskilled’ parents. Indeed, 12% of people born to ‘professional’ parents (and 6% of those born to ‘unskilled’ parents) are born in London. The differences are, if anything, more pronounced when it comes to city size: on average, birthplace city size is 50% larger for individuals born to professional’ parents compared with individuals who have ‘unskilled’ parents.

Parental sorting is also an important consideration when it comes to the link between birthplace size and educational outcomes. People born in big cities undertake more years of education, but this link to city size is also explained by parental sorting. Differences in education play no additional role in explaining the effect of birthplace size once we allow for the fact that parental characteristics vary with city size.

Finally, we show that birthplace city size also has an effect because it determines current location. This matters because we have good evidence of a link between wages and the size of the city in which an individual is currently working.

This link from birthplace to current city size isn’t simply driven by people who don’t move. For those that work somewhere other than where they were born, current city size is positively correlated with birthplace size (consistent with a number of anecdotal observations about the differences between small-town and big-city mentalities). Interestingly, if we assume that accumulating experience in big cities also has a wage pay-off, then this reintroduces a role for learning (at least in adulthood, rather than childhood).

Taken together, our results highlight the importance of intergenerational sorting in helping to explain the persistence of spatial disparities. Low lifetime mobility reinforces the link between the location decisions of generations.

We provide descriptive evidence on lifetime immobility, which suggests that this is an important consideration in the UK: in our data, around 44% of individuals only ever work while living in the same area as they were born. In addition to immobility, even for those that do move, there is a positive correlation between birthplace size and size of place of residence.

Our findings also highlight that persistence extends across generations: nearly 54% of individuals have the same place of birth as their mothers, suggesting an intergenerational transmission of birthplace that is even larger than the lifetime immobility rates for work-related reasons.


Clément Bosquet of the University of Cergy-Pontoise is an associate in CEP’s urban programme. Henry Overman is professor of economic geography at LSE and research director of CEP.
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Centre for Economic Performance
London School of Economics
Houghton Street
London WC2A 2AE

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Volume 24 Issue 3
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