The pursuit of economic growth may seem to be, like Wile E Coyote, running out of road. Years of stagnation topped by the pandemic, climate change and geopolitical tensions have left us poorer and more miserable – and facing a possible, pretty painful-looking, fall.

Yet there is good news. The UK is a services superpower, built on successful musicians and architects as well as bankers. We have world-beating industries, particularly in aerospace and beverages. Our life science firms are at the cutting edge of innovation – benefiting from world-class universities and research.

This is not wishful thinking, but evidence from the Economy 2030 Inquiry – a project funded by the Nuffield Foundation on which the Centre for Economic Performance (CEP) and the Resolution Foundation have worked for the last three years. In this issue of CentrePiece, we report the inquiry’s conclusions: that middle-income Brits are now 9% poorer than their French counterparts and 20% poorer than their peers in Germany; that for low-income households, this figure is 27%; that we have fewer hospital beds and spend more time commuting than almost all other rich countries; and that our safety net for the sick and poor is full of holes.

But we have not run out of ideas. The inquiry sets out a solid evidence-based path to create more growth and less inequality, with an estimated “prize” of £8,300 per household. And so in these grey days, it is the dismal science that is lighting a spark of optimism. With the next general election just months (perhaps weeks) away, we urge politicians – of all parties – to act.

One recommendation in the Economy 2030 Inquiry report – that will doubtless be an election issue – is the need to act on regional inequalities, perhaps better known as “levelling up”. Here Pawel Bukowski and colleagues show how the trend in such inequalities has varied among five advanced countries, and how the UK is the place where they matter the most.

We also devote space to some self-reflection. When Claudia Goldin was awarded the 2023 Nobel Memorial Prize in Economic Sciences – only the third woman out of 93 winners – her victory was seen not just as a personal triumph but as one for women economists. In the UK, women make up just 26% of academic economists, according to a 2021 Royal Economic Society report.

Economists’ experiences affect the questions that they ask and so how we all understand the economy. It was Goldin’s work that revealed how women’s working lives differ from men’s and why. In this issue, Barbara Petrongolo explains just how Goldin’s work changed not just our understanding of labour markets, but set economics itself on a new path.

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Labour Market
The study of gender was far from mainstream in economics when Claudia Goldin began her research on women and work in the 1980s. Barbara Petrongolo discusses the impact of the 2023 economics Nobel laureate in shaping today’s research frontier on gender inequalities – from public policy to the stereotypes and social norms that have such a powerful influence on women’s participation in the labour market.

The 2023 Nobel Memorial Prize in Economic Sciences was awarded to Claudia Goldin – a labour economist and economic historian – “for having advanced our understanding of women’s labour market outcomes”. The Royal Swedish Academy of Sciences, which awards the prize, added: “Goldin has provided the first comprehensive account of women’s earnings and labour market participation through the centuries. Her research reveals the causes of change, as well as the main sources of the remaining gender gap.”

While few economists nowadays would dispute the global relevance of these themes, when Goldin’s research on women’s work became influential in the 1980s, the study of gender was far from mainstream in economics. For example, the discussion of women’s participation in the labour market in the first Handbook of Labor Economics (Killingsworth and Heckman, 1986) was to a large extent motivated by the insights that could be learned from the analysis of female labour supply for the understanding of other demographic and economic phenomena – such as household formation, dissolution and earnings – and methodological issues in empirical research. Four decades later, various perspectives on gender have taken centre stage in many areas of economics.

Many advances in labour economics have built on insights from research on gender, including the identification of income and substitution effects in labour supply, measuring how working hours respond to family resources and own wage rates, respectively, the consequences of self-selection in labour markets and the interplay between markets and households. In public economics, women’s responses have featured prominently in the evaluation of tax reforms and several policies in the areas of healthcare, education and family support. In development economics, research has highlighted gender gaps in health, education, personal autonomy and legal rights, and devised interventions for the empowerment of women and girls in low-income contexts. And in macroeconomics, gender trends have been related to the process of labour reallocation from agriculture into manufacturing and, later, services, aggregate productivity, and the efficiency gains from the allocation of talent.

A data detective

Goldin’s work has provided the backbone of these advances. By collecting and studying data from the last two centuries of women’s economic history through a labour economics perspective, her work has paved the way for new research agendas on gender.
As economies become industrialised, women’s labour market participation declines before rising again as the services sector expands.

One key insight from her work is that women’s participation in the labour market does not necessarily increase with economic development. In fact, at early stages of development, women are heavily involved in agriculture, often as unpaid workers in family farms.

As economies grow with industrialisation, the locus of production moves out of the household and family farms, into factories and urban centres. Women’s participation declines during this process due to a combination of factors including: improved economic status, women-unfriendly working conditions in factories, and social customs limiting women’s entry to manufacturing – and women specialise in unpaid household work.

As economic development progresses further, the expansion of the services economy attracts women into the labour market, thanks to their comparative advantages in non-manual jobs. The relationship between economic development and women’s work is therefore U-shaped, but this could not be demonstrated until Goldin established that in early surveys – most notably the US Census – women’s work was largely undercounted due to its predominantly informal and unpaid status.

Changing times, changing aspirations
Goldin rationalises these phases of US economic history into a unified model of labour supply and demand, in which women’s decisions to work in the market interact with firms’ demand for their work. Between the late 19th century and the early 20th century, American women in paid occupations, unlike those working in the home or family businesses, were generally young and unmarried. Women's participation in the labour market heavily responded to family needs, and the stigma associated with work outside the household, was large. Hence, most women left the paid workforce when they got married and made the transition from farm to domestic work when their husbands’ earnings rose in the growing manufacturing sector.

Before and around the middle of the 20th century, the increased demand for clerical work created more women-friendly jobs, women’s human capital gains raised returns to labour force participation, and women’s decisions became more sensitive to wage gains in the market and the rising opportunity cost of homemaking. The combination of these factors set women’s participation on a clear upward trend.

Goldin notes that – in contrast to these evolutionary phases – from the 1970s, women’s labour market involvement entailed radical changes in the time horizon, independence and significance of their labour supply decisions. Thanks to the wider availability of oral contraceptives, women could plan their fertility, postpone marriage, and aspire to long-term careers in the labour market.

For rising numbers of women, work started to define one’s identity and role in society, with a changing balance between family and work in their aspirations. The relative earnings of women started rising markedly around 1980, following improvements in human capital through education and work experience. Occupations of new graduates gradually shifted from those traditionally considered women’s work (teachers, nurses and care workers) to a varied pool of professional and managerial jobs.

‘Greedy jobs’
After decades of progress, the late 20th century saw stalling or slowing gender convergence in the United States and other high-income countries. To date, there
remain wide disparities in the wages and economic standing of men and women in nearly all countries.

Women still specialise in systematically different educational fields from men, are under-represented in high-earning careers, and bear the bulk of the financial penalty related to having children – what economists call the “motherhood penalty”. While men’s careers are largely unaffected by parenthood, childbirth typically drives large and persistent drops in mothers’ earnings.

Goldin’s more recent work has highlighted that one important feature shaping the motherhood penalty is the remuneration of family-unfriendly working conditions, with high-earnings occupations disproportionately rewarding long hours and continuous labour market attachment, and penalising career breaks – what she describes as “greedy jobs”.

Drawing lessons from pay schedules in different occupations, she finds that professions such as healthcare and IT that introduced greater flexibility in their organisation have achieved greater gender convergence in pay than professions that have fostered a long-hours culture – most notably in the corporate, financial and legal sectors.

Some of the observed changes in the organisation of work have happened as a result of policy interventions regulating part-time work and the rights to flexible working, but at least equally important are bottom-up initiatives for family-friendly working conditions implemented by firms that increasingly see the advantages of attracting and retaining talented women.

Women still bear the bulk of the financial penalty related to having children

Breaking gender stereotypes

Goldin’s work is shaping much of the current research frontier in gender inequalities (Blau and Kahn, 2017; Bertrand 2020; Albanesi et al., 2023). One strand of research investigates the impact of government support for families and the organisation of work on the motherhood penalty. Another closely related strand investigates the role of gender norms and stereotypes in perpetuating unequal gender involvement in unpaid work in the household and setting limits to women’s labour market engagement.

One key insight from the latest research is that the pursuit of gender equality in economic opportunities need not be a zero-sum game in which one group gains to the detriment of the other. Breaking gender stereotypes and lifting the remaining barriers to women’s equal opportunities in the labour market can achieve a more efficient allocation of the talents of women and men to tasks, in both the workplace and the household.

Wider availability of oral contraceptives from the 1970s meant that women could plan their fertility, postpone marriage and aspire to long-term careers

A version of this article first appeared on LSE Business Review (https://blogs.lse.ac.uk/businessreview/2023/10/20/what-claudia-goldin-taught-economics-about-women-labour-markets-and-pay-gaps/).

Barbara Petrongolo is professor of economics at the University of Oxford and an associate in CEP’s labour markets programme.

Further reading


What can be done to address Britain’s relative economic decline over the past decade and a half? The final report of the Economy 2030 Inquiry presents an ambitious strategy for reversing decades of under-investment, by the private and public sectors alike, built on a realistic understanding of the country’s core strengths.

Ending stagnation
The promise of shared prosperity is key to our social contract, but that promise is under threat. The cost of living crisis is the immediate issue, but our ambitions must extend beyond getting through it. We are 15 years into relative economic decline and gaps between people and places are too high – the UK has the highest income inequality of any major European economy.

This toxic combination of low growth and high inequality is a disaster for low-to-middle income Britain and younger generations. We might like to think of ourselves as a country on a par with the likes of France and Germany, but we need to recognise that, except for those at the top, this is simply no longer true when it comes to living standards.

Figure 1 shows how middle-income Brits are now 20% poorer than their peers in Germany and 9% poorer than those in France. Worse, low-income households in the UK are now around 27% poorer than their French and German counterparts.

The net zero transition brings many changes and some opportunities – but it is not a silver bullet

Countries can go through phases of relative stability, but the UK in the 2020s will not be such a country. Longstanding demographic and technological shifts will combine with Brexit, rising geopolitical tensions and the net zero transition. These will bring significant disruption for some, though not the radical reset for our economy or large job losses that many predict. Instead, rather than solving our stagnation, these challenges risk reinforcing it.

The net zero transition is crucial to the planet, and to making the UK a greener and healthier place to live. Our ability to navigate it is underpinned by a high degree of public consensus but maintaining that requires clear-sightedness about the opportunities, and disruption, it brings. The disruption won’t be in the form of large-scale job losses, with job change rather than destruction the norm.

We cannot go on like this. Britain needs a new economic strategy

Why is a strategy needed? First, because the challenges are large and persistent. Almost nine million younger Brits have never worked in an economy that has sustained rising average wages. Second, because those deep-rooted challenges and disruptions to come are interdependent. And third, because the global financial crisis of 2007-09 and Brexit have blown up major components of the country’s longstanding growth model, which had itself been found wanting given the large and persistent gaps between people and places.

The test for a broader economic strategy is that it combines goal orientation (being clear about the problem that the strategy is trying to solve), clarity about context, realism about trade-offs and policies of sufficient scale that they can plausibly move the dial. Finally, staying power is required because change takes time and short-termism has been a key UK weakness for decades.

Figure 1: Median household incomes in the UK are lower than in many advanced economies

Notes: Difference between selected countries compared with UK p10, p50 and p90 household incomes using OECD PPPs for household final expenditure. International inequality comparisons are challenging because there are differences in survey coverage across countries and because of the difficulty in measuring prices across countries – both what components and weights of the price index should be, how to measure their relative levels, and how this interacts with things like housing tenure and how health and education are paid for. Correcting for some of these factors (such as imputed rents given that the income measure does not include imputed rental income) would improve the relative position of the UK. Source: OECD Income Distribution Database; Eurostat, EU-SILC Distribution of income by quantiles; DWP, Households Below Average Income. Used in the Economy 2030 report Ending Stagnation.
If Britain closed the average income and inequality gaps with its peer economies, the typical household would be £8,300 better off.

Turning around our second cities will boost national income and shrink regional gaps, but it needs change on a scale not yet contemplated.

A key challenge for a services-dominated economy is that exports and productive activity tend to be geographically concentrated. In the UK, that currently means in the capital, which accounts for 63% of the UK’s surplus in services trade and, aside from Edinburgh, the country does not have any highly productive mid-sized metro areas (see Figure 2). This holds back Britain’s ability to take advantage of growing global markets.

While our current economic specialisation is consistent with future shared prosperity, our regional divides are not. At the heart of this problem are the UK’s twin second cities: Greater Manchester and Birmingham. With populations of around 2.8 million each, their size means that they must be centre stage not just for the sake of their own prosperity, but also for the sake of Britain’s. They are too big to fail.

Closing Greater Manchester and Birmingham’s productivity gaps with London to those that Lyon and Toulouse have with

Figure 2: The UK’s large cities are further behind the capital than in France

Notes: PPP adjusted. Spatial units are a combination of OECD metro regions and NUTS3 for non-metro regions. Metro areas are shown in darker bubbles in the figure. Bubbles are proportional to the number of workers in each region. Gross value added (GVA) is the value of a unit’s outputs less the value of inputs used in the production process to produce the outputs. Source: Analysis of OECD, Regional Economy Database. Used in the Economy 2030 report Ending Stagnation.
Paris respectively would increase total gross value added (GVA) by almost £20bn a year. This 1% boost to national productivity would narrow the UK’s GVA per worker gap with Germany by 20%.

But honesty about the scale of change required is essential. It would require increasing each city’s business capital stock by 15 to 20%; over 160,000 additional high-skilled workers in each city; city centres expanding up or out; and billions of central government investment to expand transport networks.

Ensuring that more places can be at the cutting edge of the UK economy holds out the possibility of raising national growth and shrinking regional productivity gaps, reducing both national inequality and local poverty. Yet within-region inequality could widen – a richer Greater Manchester would have less poverty, but more higher earners too. Housebuilding must be expanded, because the goal is more successful cities, not clones of London with low earners facing exorbitant housing costs.

Residents are understandably ambivalent about higher local inequality, and the significant disruption involved in going for growth. This is why meaningful progress will not happen without bold and empowered local leadership who are able to manage the disruption involved, which in turn reinforces the case for genuine fiscal devolution.

The UK is a country living off its past, not investing in its future

Investing too little for one year is manageable, but doing so year after year is a recipe for relative decline. This is precisely what the UK has been doing and where it finds itself. In the 40 years to 2022, total fixed investment in the UK averaged 19% of gross domestic product (GDP), the lowest in the G7. Virtually all of the productivity gap with France is explained by French workers having more capital to work with.

Although the majority of investment is in the private sector, public investment matters too. Here, the average Organisation for Economic Co-operation and Development (OECD) country invests nearly 50% more than the UK and the results are everywhere to be seen: UK hospitals have fewer beds than all but one OECD advanced economy and UK workers spend more time commuting than those in all but two.

Our public investment is not just too low, it is too volatile. This prevents forward planning, raising the costs and challenges of getting investment done: even where public investment increases have been planned, £1 in every £6 allocated hasn’t been spent.

The UK’s fiscal rules should be reformed to banish feast and, more commonly, famine, in favour of sustained public investment of 3% of GDP. The Treasury should switch its focus to improving the quality, not fiddling with the quantity, of public investment.

Stability alone won’t raise business investment – reforms must stoke firms’ desire to invest and ability to get things built

British business has caught the same low investment disease as the British state, consistently lying in the relegation zone (bottom 10%) of the OECD business investment league table. If UK business investment had matched the average of France, Germany and the United States since 2008, our GDP would be nearly 4% higher today, boosting wages by around £1,250 a year.

The UK stands out for low investment, though not for low returns on investment when it does take place. But there is an unusual lack of pressure on British managers from above – via engaged owners – or below – from empowered workers – to focus on long-term growth, and difficulty in getting anything built.

Ownership of British firms has become more remote, with foreign ownership rising from 10% in 1990 to over 55% in 2020. Ownership has also become extremely dispersed, as our pension funds – the overwhelmingly most important source of domestic capital and ownership – moved away from holding equities directly.

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It is time for a major programme of pension fund consolidation: a far smaller number of far larger, and more active, pension funds is what UK plc needs.

In contrast with many other European countries, the lack of “owner voice” is matched by a lack of worker voice. This should change, with worker representatives on the board of all larger UK firms.

Even if firms have the desire to invest, they also need the ability to do so. In future, businesses submitting applications consistent with local plans should be automatically approved.

The case for genuine fiscal devolution

Clearer non-academic routes, buttressed by increased student support, are needed. At the heart of these reforms should be a new “apprentice guarantee” for all qualified young people, with two-thirds of the Apprenticeship Levy ringfenced for the under-25s to reverse the trend of employers increasingly focusing on existing, older employees – apprenticeships start for 19-24-year-olds have fallen by one-third in the past decade.

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Claims that there are too many degrees distract us from the fact we need to invest more in skills, not less

While the UK has a world-class university system and performs reasonably when it comes to school attainment at 16, provision after that for those not following an academic route is patchy at best, and a disgrace at worst. Almost one-third of young people are not undertaking any education by age 18 – compared with just one in five in France and Germany. And only one in 10 workers are qualified at sub-degree level (levels 4 and 5), half the share it should be given the make-up of the UK economy (see Figure 3).

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Higher investment has to be paid for
In time, higher investment will create higher living standards, not to mention a greener economy. But only in time. A new economic strategy backing higher investment needs to confront the more immediate consequences with an unflinching eye: it requires higher savings (lower consumption) at home, or more borrowing from abroad.

There are strong resilience arguments for higher investment to be accompanied by higher saving. The success of pension auto-enrolment should be built on, with a 50% increase in minimum contribution rates. But savings at the level of the economy as a whole do not just reflect the behaviour of households. The state also has an important role to play.

Investment and growth require a sustainable macroeconomic framework – we don’t have one today
Economic, not just policy, stability underpins investment. Important guarantors of that are the ability to support the economy during downturns and keep the public finances on a sustainable path. The repeated “once-in-a lifetime” shocks of the past 15 years have seen public sector net debt rise from 36% to around 100% of GDP – an unprecedented peace-time rise.

The lesson of those shocks is that both main political parties’ focus on debt falling slightly outside recessions will not be enough in practice to avoid debt being on an upward trajectory. A tighter fiscal policy will have to be run in good times. The best way to keep the requisite tightening manageable is to contain the pressure for the Treasury to spend big in bad times.

The scope for the Bank of England to cut rates in a downturn should be increased by preparing for slightly negative interest rates (as seen in the likes of Denmark and Switzerland). And, if we return to a world of low interest rates, the inflation target should also be raised from 2% to 3% in coordination with other advanced economies.

Figure 3: Shortages of intermediate and advanced skills are widespread in the UK economy

Notes: This chart plots the difference between the share of workers outside of the strategic sectors with a given level of education and the share expected to possess a given level of qualification given the underlying occupational composition (according to the US-based O*NET data). Positive values indicate an excess of workers with that level of education. The teal bars indicate what the difference would look like if we excluded foreign-born workers from the computation of workers’ actual qualifications. Source: Analysis of ONS, Labour Force Survey linked to O*NET (US Department of Labor). Used in the Economy 2030 report Ending Stagnation.

We must be as hard-headed about lower inequality as higher growth
Success for Britain does not look like becoming America. We must be just as serious about reducing inequality as boosting growth. To make a serious dent in inequality, we need a two-pronged approach: good work must be a central objective of a new economic strategy, not a hoped-for byproduct of it, while choices on tax and benefits ensure rewards and sacrifices are equitably shared.

Good jobs must be centre stage, building on past successes as well as tackling stubborn weaknesses
As the minimum wage has ramped up this century, job satisfaction for lower earners has fallen. Too often, work does not offer them the security, flexibility or control that higher earners take for granted. Low earners are four times as likely as high earners to experience volatility in their hours or pay. Indefensibly, half of shift workers in Britain receive less than a week’s notice of their working schedules.

Workers should have new rights to a contract enshrining minimum hours reflecting their usual work pattern, and two weeks’ advance notice of shifts. Illness is bad for the financial, as well as physical, health for too many lower earners. Statutory Sick Pay leaves many to live on just £44 if they are sick for a week, and should be reformed to pay 65% of normal earnings.

After raising the floor for workplace standards, we also need to enforce it. Here, institutional innovation is required, addressing industry-specific problems that general employment law is too blunt a tool to crack. Good Work Agreements should bring together workers and employers to solve knotty problems about the quality of work in their industry, setting minimum standards or ways of working to be adopted sector-wide.
A decent society does not allow poorer people to fall ever further behind

Markets, however fair, and jobs, however good, cannot ensure that growth automatically boosts the living standards of the whole population. This is the job of the social security system, but it is not fulfilling that role today.

The UK has chosen a low level of basic income protection. Working-age benefits have for many decades risen only in line with prices, rather than keeping pace with earnings. In practice, we haven’t even managed that recently – benefit levels have failed to keep pace with prices in 10 of the past 15 years. Along with wider cuts since 2010, this has reduced the incomes of the poorest fifth by just under £3,000 a year.

Any economic strategy that claims to be serious about reducing inequality will need to change tack. Ultimately, social security benefits must grow in line with wages rather than prices. The costs are real, but over half of them can be covered by uprating pensions on the same basis as working age benefits, rather than via the triple lock.

We need better, not just higher, taxes

Taxes are up, but their quality is not. Having averaged 33% of GDP in the first two decades of this century, the tax take is now on course to rise by over 4% of GDP (£4,200 per household) by 2027-28. The growth and fairness penalties from our incoherent tax system are rising with the higher tax take.

A new approach must recognise that the burden cannot continue to fall disproportionately on employees, which means taxing income consistently whatever its source so that landlords pay the same taxes as their tenants and taxes on self-employed corporate lawyers are levelled up to those facing bankers.

Economic change has slowed down – it must be embraced, and steered

The goal for a new economic strategy is not a somewhat richer, somewhat fairer, version of the UK’s stagnant status quo, but a more enduring shift in direction. The pace of economic change, contrary to popular claims that it is speeding up, is slowing down; the reallocation of labour between sectors is at its lowest level in over 90 years. That matters: higher productivity sectors growing and lower productivity ones shrinking used to add 0.4 percentage points per year to growth in the pre-financial crisis decade.

For good firms or higher productivity sectors to grow, workers need to move to them. But for too long we have assumed that the UK’s flexible labour regime, with the relative ease of hiring and firing, automatically engenders a truly dynamic labour market. It does not: the proportion of workers switching job each quarter declined by 25% between 2000 and 2019. The missing ingredient is empowered workers, willing and able to take risks.

A key barrier for higher earners is a welfare state that offers them next to no income protection, so new unemployment insurance should cover 65% of previous wages for the first three months. In contrast, lower earners receive greater income protection from the benefits system, but often risk losing informal security and flexibility over the hours they work when moving on. Stronger rights to security will mean taking a leap for a new job is more of a promise and less of a threat.

Slow growth and high inequality are not inevitable. Britain has huge catch-up potential

Renewing the UK’s economic strategy will be far from easy. But we have a lot of catch-up potential.

Consider a set of comparator economies: Australia, Canada, France, Germany and the Netherlands. We would long have considered them our peers and, though impressive, they are not the richest, or most equal, countries in the world. But all are now richer and more equal than Britain.

If Britain closed its average income and inequality gaps with these peer economies, the typical household would be 25% (£8,300) better off, with income gains of 37% for the poorest households.

A better future for the UK does not need global growth to accelerate suddenly, or Britain to match American levels of productivity and Scandinavian levels of inequality. It just requires us to have the resolve to do what is necessary to converge with similar countries who, in the scheme of things, are not so very different to us. There is a lot to play for.
How quickly do men and women find work after mass lay-offs due to workplace closures? Research by Ria Ivandic and Anne Sophie Lassen reveals that women face a greater risk of unemployment than men and lose a larger share of their earnings. More of this gender gap is due to the unequal division of childcare responsibilities than to differences in education or seniority at work.

Gender gaps from labour market downturns

Many workers become unemployed at some point during their lifetime, and research has shown that job loss can lead to persistently lower earnings and higher unemployment – at least for men. With more women working today than in the past, their risk of job loss has increased, yet we know little about gender differences in labour market recovery following job loss.

In a recent study, we find that women face a 40% to 45% greater risk of unemployment and lower earnings in the first two years after job loss. Gender differences in education and labour market experience explain less than half of the gap. The unequal division of childcare responsibility appears to play a key role in explaining the rest.

To reach this conclusion, we analyse employer-employee administrative data from Denmark, which tracks the employment and earnings of individual workers over a decade. This, together with background information on each individual, such as their education, labour market experience and family characteristics, allows us not only to estimate gender gaps following displacement, but also to determine how much of the gap is linked to child-related factors and how much to differences in labour market experience.

Our research design uses plant closures that triggered job losses to establish causality using an event study framework. We compare the change over time in the displaced workers’ earnings, risk of unemployment and non-participation to similar workers of the same gender and socio-demographic characteristics, who were employed in a plant that did not close. We assume that if the plant had not closed, these two groups of people would have had similar labour market outcomes.

If men and women were equally affected by the presence of young children, the gender gap in earnings after job loss would be half as large.
Gender gaps in employment and earnings after job loss

The gender gaps in the labour market recovery after a job loss (visualised as the difference between the light blue and green lines) are depicted in Figure 1.

As previous research has shown, we also find that displaced workers face an increased risk of unemployment (Panel A) and a reduction in earnings (Panel B) for several years (Jacobson et al., 1993; Bertheau et al., 2022).

Women on average experience a 14.2 percentage point increase in the probability of unemployment over the first two years, while for men this increase is smaller, at 9.8 percentage points. This difference amounts to a relative gender gap of 4.4 percentage points, or 45% in the risk of unemployment. This gap shrinks over time and closes after four years.

Women also experience a larger relative loss in earnings (Panel B). In the first year after job displacement, the gender gap in earnings loss is 44%, as men lose on average 19.6% of their earnings while women lose 28.2% of theirs. In the fourth year following displacement, the gender gap disappears. As Panel D shows, we do not find a gender gap in labour force participation after a plant closing.

A potential source of these gender gaps could be differences in human capital, broadly defined to include education, experience, occupation and other types of sorting in the labour market. In our sample, women are less likely to hold a vocational diploma or a university degree than men, and they earn less prior to the job loss.

To account for gender differences in such characteristics, we construct a new sample of men who are similar to the women on relevant labour market and socio-economic characteristics prior to displacement. This allows us to compute the conditional gender gap that accounts for these differences. When we compare men and women with similar characteristics, shown as the dark blue line in Figure 1, we find that gender gaps are smaller but the majority of the gaps remain.

The presence of children helps to explain the gender gap

While men and women are equally likely to be parents, we show that the impact of children on unemployment and earnings

Figure 1: Following job loss, workers see a rise in unemployment and a fall in earnings, and a gender gap emerges

Note: See note to Figure 2.

Figure 2: Gender gaps following job displacement are larger when there are children in the household

Note: Job displacement occurs between -1 and 0, marked by the vertical black line. The light blue line denotes displaced men while the green line denotes displaced women, each relative to a control group of workers of the same gender who were not displaced. The dark blue line shows effects for displaced men that on average have similar observable characteristics as the sample of women. The outcome in Panel A represents the likelihood of claiming unemployment benefits for at least three months in a calendar year. The outcome in Panel B represents the proportional change in earnings relative to the period 2–4 years before job displacement, while the outcome in Panel C represents the change in absolute earnings (Danish krone) relative to the year before job displacement. Panel D reports a measure of the fraction of the year spent neither working nor registered as unemployed. Source: Ivandic and Lassen, 2023.
after job displacement is different. As depicted in Figure 2, Panel A, job displacement in the presence of children increases the risk of unemployment by an average of seven percentage points for men and 12 percentage points for women in the first two years of displacement. This leads to a relative gender gap of 80% in the risk of unemployment in the presence of children.

In households without children, shown in Panel B, job displacement increases the risk of unemployment by 12 percentage points for men and 16 percentage points for women in the first two years of displacement, a relative gender gap of 33%. Hence, our estimates show that the gender gap in unemployment risk is more than twice as large when the worker has children from 33% in households without children (Panel B) to 80% in households with children (Panel A).

Because other characteristics might influence the gender gap, we use a decomposition technique to understand how much individual and household factors matter. Specifically, we examine the importance of human capital, such as formal education and cumulative work experience, as well as the different ages of children – from pre-school to primary school age to teenagers.

We find that gender differences in human capital explain one-third of the gap in unemployment and two-thirds of the gap in earnings, with differences in pre-displacement earnings and education being the most important factors. Having children increases the gender gap following job loss regardless of the mothers’ experience, earnings and education. Pre-school children have the biggest impact on the gender gap, while the presence of teenagers hardly matters. If men and women were equally affected by the presence of young children, the gender gap in earnings would be half as large, and the gender gap in employment would be one-third smaller. In contrast, gender differences in sorting across plants, firms and industries do not affect the gender gap in unemployment following displacement.

Women suffer greater risks of unemployment and earnings loss after job displacement than men. While there is ample evidence on the long-term negative effects of job loss, women are often excluded from the analysis. This striking gap in the body of research evidence implies that policy recommendations are not based on relevant estimates as they exclude women’s experiences. For example, while the most exposed workers during the Covid-19 pandemic were women (Alon et al, 2020), there is a lack of existing evidence on how this will affect their future labour market participation and what would mitigate their recovery.

Our estimates show that appraisals based solely on male workers would incorrectly predict a too small impact. But disentangling the role of labour market experience from that of having childcare responsibilities in the gender differences in earnings and risk of unemployment as a result of a job loss can help us to understand the persistent gender inequality associated with parenthood (Kleven et al, 2019). The responsibility of childcare falling disproportionately on women imposes a barrier to labour market recovery and prevents women’s adjustment to labour market downturns.

Women face a 40%-45% greater risk of unemployment and lower earnings than men in the first two years after job loss.

Further reading

Tackling inequality between regions within a country has become a political priority across much of the advanced world. Luis Bauluz, Paweł Bukowski, Mark Fransham, Annie Seong Lee, Neil Lee, Margarita Lopez Forero, Filip Novokmet and Moritz Schularick highlight that contrary to popular belief, inequality has been falling in some European countries and that geographical inequality in wages is not a major contributor to national income inequality.

How where you live affects your pay
Differences in economic performance across geographical areas within a country — what economists call spatial inequality — has become a key concern for policymakers across much of the advanced world (Ottaviano et al, 2013). The European Union has long used structural funds to try to build up the economies of lagging regions, while in post-Brexit UK the idea of “levelling up” has become an important agenda (Overman, 2022). Similarly in the United States, the Biden administration has been trying to build tech clusters in the (formerly) industrial heartlands.

If policymakers are to address spatial inequalities, they need good evidence on how they have changed over time and how they compare across countries. But making comparisons between places is a difficult task. It requires comparable income data across similar spatial units, which is hard to obtain. As a result, most analyses have focused on what is most readily available and use aggregated regional-level data. But as Overman and Xu (2022) have argued, to assess spatial inequality properly, we need to consider local labour market units, rather than government units, which are based on population size rather than people’s work patterns. For example, London is split into 33 administrative boroughs, but people easily commute across these borders, so instead we use the Greater London travel to work area which reflects the area that people live and work within — and is also comparable to Paris or Berlin.

How spatial inequality has evolved in five major advanced economies

We consider how patterns of spatial inequality have changed since the 1970s in five major advanced economies — Canada, France, (West) Germany, the UK and the United States. We focus on labour income, reflecting the fact that the lion’s share of rising income inequality comes from this source (Atkinson et al, 2011), and consider pre-tax weekly labour income for full-time workers aged 20 or above. Crucially, we use microdata sources to construct wage distributions in comparable local labour market areas across these countries, meaning that the geography we use reflects economic reality not political or administrative boundaries.

While some of our findings will be expected, some of what we find challenges the established views. First, as most people would expect, our findings show major differences in spatial inequality across countries. Figure 1 shows how inequality between local labour markets varies across these countries as measured by the variance of log mean local labour market wages.

In 2016, the last year for which we have data for all countries, the United States is most unequal by this measure, followed by Canada, the UK, Germany and France. But the United States is an outlier on this measure — inequalities in the other countries are relatively similar. It’s important that we put spatial inequality in other countries in context, and don’t read across from the exceptionally high levels of the United States.

Now consider the trends in the data. There is a common belief that spatial inequality has been skyrocketing in recent years — but our data challenge this narrative. The United States has indeed seen the large increases in spatial inequality that have dominated the established narrative. In Canada, the trends are similar, there has been a large rise in inequality, although the levels remain far lower than in the United States.

But in the three European countries we...
study, spatial inequality has fallen recently. The UK, in particular, has seen spatial wage inequality fall since 2010 (as in Overman and Xu, 2022). So, while it is right to say that spatial inequality has increased in all countries since the early 1980s, we shouldn’t extrapolate this trend to the present day. Since the millennium, patterns of inequality have diverged across these five countries and North America has followed a very different pattern to Europe.

It’s also important to note that these trends are driven almost entirely by the incomes of high earners. Figure 2 shows wage inequality at the top (log 90th percentile) and bottom (log 10th percentile). While the latter has flatlined across all countries (although it is still markedly higher in the United States), the former is much more variable. The lowest earners earn similar amounts wherever they are.

Spatial inequality is driven by the geography of the highest earners.

How much does spatial inequality contribute to national inequality?

One important question is how much spatial inequality contributes to national wage inequality. One approach to this is to decompose the total variance in wages into between-area and within-area components (Gibbons et al, 2014). Our conclusion is that across all countries, inequalities within local labour markets contribute more than inequality between them.

As Figure 3 shows, between-area inequality in mean wages contributes most to national wage inequality in the UK, with around 7% of total variation in wages explained by the contribution of local labour markets, and least in Canada, where it contributes only 3%. The only country that has seen a significant increase in the importance of place, by this measure, is the UK.

We also illustrate the extent to which differences in average wages between areas change national wage inequality by conducting a counterfactual exercise. We equalise average wages across local labour markets, and then construct counterfactual series of national wage inequality trends. As you’d expect given our findings about the variation of wages, counterfactuals of national wage inequality are very close to the original observed results.

By the end of the last decade, spatial inequality in wages was similar in France, Germany, the UK and Canada, but much higher in the United States. Rapid growth in mean wage inequality in the 1980s and 1990s has abated since the millennium.
Figure 3: Share of variance of wages explained by local labour market areas, 1975-2019


except in the United States. And inequality by this measure has actually been falling in France, which also remains the least spatially unequal country we study.

But the inequality in mean area wage is not a major contributor to national inequality, contributing only 7% in the UK, the country where place matters most. On the other hand, we see that inequality between areas at the top of the distribution has continued to grow, except in France.

There are some important caveats to our results. We only consider one measure of inequality and might come to different conclusions if we focused on productivity, wealth or total income. Our results may also change if we place more focus on inequality at the top of the distribution. Moreover, we do not (yet) account for the cost of living or the incomes of the unemployed.

But we think there are some important implications. We need to be careful about generalising trends from one country to others – these countries display very different patterns. These different experiences also challenge some of the dominant explanations for growing spatial inequality – about technological change, the growing importance of agglomeration and the decline of manufacturing. We need to work harder to explain the economic processes that have produced these very different levels and trends in spatial inequality.

Further reading


A version of this article first appeared as the Vox EU column ‘New evidence on spatial wage inequality across North America and Western Europe’ (https://cepr.org/voxeu/columns/new-evidence-spatial-wage-inequality-across-north-america-and-western-europe).

Luis Bauluz is assistant professor of economics at CUNEF University. Pawel Bukowski is a lecturer in economics at University College London and an associate in CEP’s labour markets programme. Mark Fransham is a senior departmental research lecturer at the University of Oxford. Annie Seong Lee is a postdoctoral fellow at McGill University. Neil Lee is professor of economic geography at LSE and an associate in CEP’s urban programme. Margarita Lopez Forero is a postdoctoral researcher at Paris-Saclay University. Filip Novokmet is a postdoctoral researcher at the Institute for Macroeconomics and Econometrics University of Bonn. Moritz Schularick is president of the Kiel Institute for the World Economy and professor of economics at Sciences Po.
Wages indicate how much people want for their time at work, but how can we find out what value they place on time spent doing other things? Christian Krekel and George MacKerron analyse over two million responses to a smartphone app that randomly asks people what they’re doing at a particular moment and how they’re feeling about it. These responses enable the monetary value of time for activities ranging from washing up to watching a concert to be estimated.

How much is your time worth?

Few other things are as important to people's lives as how they spend their time. What you do with your time significantly determines how happy you are in the moment and your overall satisfaction with life. Public policy has long been interested in putting a price tag onto time use. While there is an obvious price of labour – the hourly wage rate, determined in competitive labour markets – many other uses of people's time are not as visible, yet are equally important for social welfare. For example, during their leisure time people are involved in “household production” – doing household chores or caring for their children or other family members. They also spend time volunteering, engaging in culture and the arts, or spending time outside in nature.

How can policymakers put a monetary value on the time spent on such activities, for example in social cost-benefit analyses to justify investments into relevant infrastructure, or in national accounts to paint a clearer picture of social welfare overall?

Economists have tried to estimate the value of time since the 1960s, starting with seminal work by economics Nobel laureate Gary Becker, who provided a theoretical framework for understanding how individuals make decisions about allocating their time – in particular, how within a household, family members optimally allocate time to labour and leisure.

Empirically, economists have tried to estimate the value of time either by directly asking people how much they would be willing to pay for, say, one hour spent in a certain activity – what are known as their stated preferences (Calfee and Winston, 1998) – or by inferring their willingness to pay from observing their behaviour, for example, by recording their willingness to wait longer for a cheaper taxi – known as their revealed preferences (Goldszmidt et al, 2020).

But people have been shown to make systematic errors when predicting the consequences of having more time or more money for their happiness (Whillans, 2019). Most importantly, not only do people value activities differently, but an individual may even define an activity differently from someone else depending on the context. For example, time spent waiting with a loved one may be experienced very differently than time spent waiting alone, or may not even be perceived as waiting at all. What then?

In our latest study, we propose an alternative method to estimate the value of time by measuring people's feelings – their “hedonic experiences” – in real time, an approach we call experiential valuation. Our method does not rely on what people think the consequences of their choices for
their wellbeing will be, but instead, on how they actually feel once they have made their choices. Most importantly, it allows people to judge for themselves what constitutes a particular use of their time.

We are the first to use people’s hedonic experiences in real time to value time (or indeed anything). But the basic idea behind this approach is old, going back to the early economist Francis Edgeworth (1845-1926), who argued that, at some point in the future, a psychophysical machine – a so-called hedonimeter – would make it possible to measure utility directly on a physiological basis.

Drawing on Edgeworth’s vision, our method allows us to estimate the value of time for 42 daily activities, without being confined to broad categories such as “labour” or “leisure”, or singular activities such as commuting. This allows us to paint a complete picture of people’s time use, which provides monetary estimates that could then be used by policymakers in social cost-benefit analyses and national accounting.

Would you rather wait or work?
We use a smartphone app, Mappiness, that asked more than 30,000 UK residents about their momentary feelings and activities at random points in time throughout the day over the period 2010 to 2017. We use these data to estimate the value of time for daily activities, controlling for other activities in which respondents may be simultaneously engaged, where they currently are, who they are with, weather conditions, region and time, as well as individual-specific characteristics such as being present-oriented or patient.

From the data, we know how happy people are feeling when they are doing certain activities, and we know how much money makes them feel happy, so that we can trade off these two against each other. In other words, we calculate the marginal rate of substitution between each activity and income to obtain the monetary equivalent of each activity, and then standardise that to one hour so we can see in monetary terms what one hour of each activity is worth.

Finally, we obtain the value of time for each activity by subtracting from the monetary equivalent of that activity the weighted average of the monetary equivalents of all the other activities – that is, the counterfactual of what people could otherwise be doing.

Table 1 shows the value of time for selected daily activities. Not surprisingly, people enjoy spending their time in sport and cultural activities. We find that spending an hour taking part in sport, running or exercise is worth £11.70; going to the theatre, dancing or a concert £11.20; and visiting an exhibition, museum, or library £8.10. Such monetary values may be of high relevance to UK government departments and agencies such as the Department for Culture, Media and Sport, Historic England or Sport England.

But what is particularly interesting is the impact of having to wait. On average, spending an hour waiting, as opposed to doing something else, is worth £12.20. The negative sign points towards an opportunity cost: people would be better off – in terms of their momentary happiness – doing something else.

In particular, spending an hour waiting during commuting can be valued at £17.20. That is, a person who is stuck in traffic would need to be compensated £17.20 to achieve the same happiness level as a person who is not. This estimate can readily be used in

Table 1: Value of time (£, 60 minutes) for selected activities

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>VALUE OF TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting, queueing</td>
<td>£-12.20</td>
</tr>
<tr>
<td>Waiting, queueing during commuting, travelling</td>
<td>£-17.20</td>
</tr>
<tr>
<td>Commuting, travelling</td>
<td>£-8.40</td>
</tr>
<tr>
<td>Working, studying</td>
<td>£-8.40</td>
</tr>
<tr>
<td>Housework, chores</td>
<td>£-5.00</td>
</tr>
<tr>
<td>Care of adults</td>
<td>£-12.60</td>
</tr>
<tr>
<td>Childcare</td>
<td>£-6.90</td>
</tr>
<tr>
<td>Taking part in sports, running, exercise</td>
<td>£-46.40</td>
</tr>
<tr>
<td>Watching theatre, dance, concert</td>
<td>£11.70</td>
</tr>
<tr>
<td>Visiting an exhibition, museum, library</td>
<td>£11.20</td>
</tr>
<tr>
<td>Being sick in bed</td>
<td>£8.10</td>
</tr>
</tbody>
</table>

Notes: A negative value of time of, say, £-8.40 for commuting or travelling means that a person would be willing to pay £8.40 to avoid 60 minutes of commuting or travelling, given all the other things that person could be doing. Conversely, a positive value of time of, say, £11.70 for taking part in sports, running, or exercise means that a person would be willing to pay £11.70 to spend 60 minutes in taking part in sports, running, or exercise, given all the other things that person could be doing. Source: Krekel and MacKerron, 2023.
A person who is stuck in traffic would need to be compensated £17.20 an hour to achieve the same happiness level as a person who is not.

Social cost-benefit analyses of infrastructure projects aimed at reducing waiting time during commuting or travelling (for example, the Elizabeth Line or HS2). As it turns out, it closely resembles estimates from natural field experiments using revealed preferences (Goldszmidt, 2020), which suggests that using hedonic experiences may lead to similar results as observed behaviour when estimating the value of time for waiting during commuting. One hour of commuting itself can be valued at £8.40.

When it comes to work both within and outside the household, we find that an hour spent working or studying is worth £8.40, spending 60 minutes doing housework or chores is worth £5.00, and caring or helping adults is worth £12.60 while childcare can be valued at £6.90. These estimates can be used in national accounts to capture important non-market household production tasks that would otherwise be left unaccounted for.

Since 2021, HM Treasury’s Green Book – the official guideline for policy analysis in the UK – allows government analysts to use individuals’ self-reported life satisfaction – so-called Wellbeing-Adjusted Life Years or WELLBYs (Frijters and Krekel, 2021) as a measure of benefit in policy appraisal and evaluation. But WELLBYs are often too coarse to capture short-term, one-off activities in which people may engage during leisure time.

Our method shows how individuals’ hedonic experiences in real time can be used as a complement. This may be particularly useful for activities that are too granular to be captured by global life evaluations but that are nevertheless important for social cost-benefit analysis or national accounting, for example, not being stuck in traffic or caring for family members and children. A promising avenue to capture such activities may, therefore, be to devise a complement measure based on people’s momentary feelings, such as a Wellbeing-Adjusted Life Hours or WELLBHs.

Few things matter as much for people’s happiness and life satisfaction as how they spend their time. Valuing their hedonic experiences in real time – experiential valuation – can help to put a price tag on a wide range of different uses of their time, thereby making them relevant for public policy. It has the potential to value other public goods and bads (such as urban green spaces or hospital waiting lists) too.

People enjoy spending their time in sport and cultural activities: an hour spent visiting an exhibition is equivalent in terms of happiness as gaining £8.10.
in brief...

The discussion of immigration needs to improve

Those who believe in a more open, liberal approach to immigration often frame their argument as being on the side of ‘good economics’ versus ‘bad politics’. Alan Manning explains why the arguments presented as ‘good economics’ are often unconvincing; those on this side of the argument really need to up their game.

Post-pandemic net migration has risen in many countries. Although there are good reasons to think much of this is temporary, many countries, including the UK, have responded by making their immigration policies more restrictive.

Those who believe in a more open, liberal approach to immigration argue that this is “good economics” but closer scrutiny shows these arguments are often not as strong as they think or could be.

To illustrate this I consider three articles from respected sources. I apologise to the authors for singling them out; I could have chosen many others who put forward similar arguments. I chose them because I think they are representative, not because they are especially bad. They are an Economist editorial “How to detoxify the politics of migration”, a Financial Times op-ed “Immigration crackdowns are good politics but bad economics” and a Guardian article “Why Home Office visa plans will be ‘nail in the coffin’ for UK hospitality”.

The Economist editorial points out “the share of the world’s people who live outside their country of birth is just 3.6%; it has barely changed since 1960, when it was 3.1%”, implying immigration anxiety is a fuss about nothing. This is highly misleading; it is the high-income countries where concerns about immigration are focused and there the share of migrants has doubled in the last 30 years and continues to rise; can this really be described as “barely changed”? In most of these countries, the share of migrants is at historical highs.

The Economist goes on to outline some economic benefits from immigration: immigrants are four times likelier to win a Nobel science prize than the native-born. True, but this is 45 people since 2000 so the chance of an immigrant winning a Nobel is so small that it can hardly be used to argue for a generally open immigration policy (though perhaps more open for some small selective groups of high-flying scientists). The Economist goes on: “Immigrants in America are nearly twice as likely to start a company as the native-born”. They could have used other less striking sources, for example a 2011 OECD report also found that “migrants are more likely to start a new business in most OECD countries” but “the survival rate of those businesses is lower than that for new businesses started by native-born entrepreneurs” so that “on average across OECD countries the percentage of migrant entrepreneurs differs only slightly from that of natives”. In addition “On average, a foreign-born self-employed who owns a small or medium firm creates slightly fewer [additional jobs] than their native-born counterparts” suggesting migrant businesses seem less successful.

The Economist claim comes, I think, from the study “Immigration and Entrepreneurship in the United States” (Azoulay et al, 2022) but is an inaccurate summary of a misleading paper. Misleading because many companies have both local and migrant founders and the study’s headline figure is based on counting these as migrant firms. And then it compares the share of migrant firms with the share of migrants in the total population. Migrants are more likely to found firms in large part because they are more likely to be working-age; few companies are founded by children and pensioners. Adjust for this and you arrive at a conclusion similar to the OECD.

But what about the argument that we need working-age immigrants to deal with the challenge of an ageing population? The Financial Times op-ed argues “the US would need to let in nearly 4mn migrants a year, every year, to prevent its population growth turning negative in the coming decades”. I think the intention is to argue that high immigration is necessary to address ageing but really it makes the point that even immigration at very high levels...
Business owners may dislike a bidding war for workers but perhaps workers might think it a good thing.

(implying 1% population growth per year permanently and ultimately a population over 50% migrant) can only delay population decline by a few years. As a 2019 EU report put it: “Higher fertility or more immigration are not enough to cope with the challenges of population ageing.” The reason is simple; migrants age at the same rate as everyone else. They may be young when they arrive but don’t stay that way. All serious demographic work of which I am aware comes to a similar conclusion yet proponents of immigration as a solution to an ageing population rarely cite this work.

Then there is the argument that we need migrants to deal with problems of labour shortages. But most of the shortages we hear about are not the result of too few people in a country able to do the job (a skills shortage); they are the result of too few wanting the job because of poor pay and conditions. These sectors want a ring-fenced supply of migrants so they do not have to offer competitive salaries. The Financial Times op-ed argues immigration “reduced upward pressure on wages and inflation” while the Guardian article recounts an employer who “when he advertised for a head chef in Birmingham, on a very competitive rate of £37,000, he woke up the next morning to find rival restaurants outbidding him for the same staff at £40,000.” I understand why business owners dislike this bidding war for workers but perhaps the chef might think it a good thing. Both of these articles seem to imply that wage growth would have been higher if immigration had been lower thus conceding a common criticism of immigration – that it reduces wages – while seeming to imagine they are making a case for more liberal immigration.

Please do not think those on the other side of the immigration debate are better; they are equally, probably more, guilty of using cherry-picked studies, misleading statistics and arguments that do not withstand much scrutiny. There is an unfortunate tendency for discussions of migration policy to lionise or demonise migrants when they are only human. If, as I do, you think we can have a more liberal, open (though with limits), humane immigration policy please be a bit less critical of the other side and more critical of yourselves. Otherwise don’t be surprised if your arguments fail to prevail.

A version of this article first appeared on LSE British Politics and Policy (https://blogs.lse.ac.uk/politicsandpolicy/the-discussion-of-immigration-needs-to-improve).

Alan Manning is professor of economics at LSE and co-director of the community wellbeing programme at CEP.

Further reading


The potentially negative effects of market concentration on consumers and workers has received much attention, but Mary Amiti, Cédric Duprez, Jozef Konings and John Van Reenen find that big firms can also promote productivity in the wider economy. Analysing data from Belgium, they find that being global is not necessary for such benefits, with large domestic firms generating spillovers of the same magnitude as multinationals.

Do large firms generate positive productivity spillovers?
Numerous studies have documented the rising dominance of large firms over the last few decades in many industrialised countries. Many have focused on the potential negative effects of this increased market concentration on the wider economy, raising concerns about market power in both labour and product markets.

In a new study, we investigate whether large firms also generate positive wider effects, specifically on the productivity of their domestic suppliers. To date, such effects – what economists call total factor productivity (TFP) spillovers – have only been identified for multinational enterprises located in developing countries. Using firm-to-firm transaction data for Belgium, we find that large domestic firms, as well as multinationals, generate positive TFP spillovers.

We analyse firm-to-firm transaction data for all Belgian firms between 2002 and 2014 to study whether a firm located in Belgium that starts a new relationship with a “superstar” firm has higher TFP after the relationship starts (TFP reflects technological and organisational changes that boost output for a given quantity and quality of inputs).

We define a firm as being treated if it reaches a point where more than 10% of its sales are to a superstar firm, for three different types of superstars: large firms, multinationals and exporters. The TFP of the treatment firms is compared to the TFP of a control group, comprising firms that never sell to a superstar firm.

The first chart below plots the TFP of a “treated” firm for each year before and after treatment, for example, with “1” on the horizontal axis indicating the year of treatment and all dots indicating the effect relative to the year before treatment (“0”). The chart shows that by three years after the event, firms located in Belgium that started selling to a superstar firm enjoyed around 7% to 8% higher TFP than the control group.

The magnitude of the spillovers is roughly the same for all three types of superstar firms. This result suggests that the spillovers emerge not from a partner firm being a multinational per se, but rather from the superstar firm being more productive and successful. These are not the same. We show that these performance effects exist even if a large firm is not a multinational or an exporter.

Figure 1:
Forming a new relationship with a superstar firm raises productivity

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>95% CI</th>
</tr>
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<tbody>
<tr>
<td>Log total factor productivity</td>
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![Graph showing TFP spillovers for different types of firms](image)

Notes: These results are produced by event studies comparing productivity of firms starting a major supply relationship with a superstar firm (the treatment group) with firms who do not start such a relationship (the control group). In the left panel, the superstar is defined as a very large firm (top 0.1% of the sales distribution), in the centre panel the superstar firm is a multinational, and in the right panel the superstar firm is an exporter. The vertical axis is in logarithmic scale, so 0.1 is about 10%. N is number of observations. CI is confidence interval. Source: Amiti et al, 2023.
Of course, very large firms are also often multinationals. But we show that the superstar spillovers are there even when we look at starting relationships with very large firms that are not multinationals in Figure 2. Further, we show that there is no effect from forming serious supply relationships with small firms, which suggests that the superstar relationship is causal.

The positive growth in productivity implies that a firm should also grow in scale and, indeed, we also see sales jumping up by about 28% for supplier firms. This effect remains even after netting out the sales going to the superstar firm. Similarly, we see big increases in intermediate inputs, labour and capital, as well as the number of buyers other than the superstar.

The classic reason for spillovers is the transfer of know-how. We show that superstars that have higher research and development, more managerial know-how and/or skills and are more IT-intensive generate the largest spillovers.

The analysis also finds that new suppliers to superstars experience higher overall profits, but the average markup fails as superstars will capture some of the relationship rents. While the supplier has lower markup on its sales to the superstar, it increases its overall profits by expanding the number of buyers it supplies to, both within and outside the superstar firm’s network.

We also show new evidence of a non-productivity-related spillover generated when a superstar firm relationship helps a supplier get access to a new network of potential customers. We call this a “dating agency” effect to reflect the matchmaking role of the superstar firm.

This spillover benefit could be working through just reducing the search costs of suitable buyers, or via a signalling effect, when dealing with the superstar firm causes other firms to update their beliefs about the quality of the supplier (and these signalling effects are particularly strong in network). Indeed, we find particularly large positive effects on the number of buyers within the superstar’s network, consistent with a dating agency effect.

Governments spend large sums of money to attract and retain multinationals, partly because of their belief in the importance of these supply chain benefits. Our results highlight that being global per se is not necessary to generate spillovers. We show that large domestic firms generate TFP spillovers of the same magnitude as multinationals.

Although there may be potential costs associated with the dominance of large firms in the modern economy (identified, for example, in research on market power and political influence), our work shows some advantages to allowing superstar firms to grow and form relationships with less successful firms.

Figure 2: Positive productivity spillovers for new suppliers, even if the large firm is not a multinational

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>95% CI</th>
</tr>
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</table>

Log total factor productivity

Notes: These are the same event studies as the first panel of Figure 1, but we split the very large firms into those that are multinationals (right panel) and those that are not (left panel). The vertical axis is in logarithmic scale, so 0.1 is about 10%. CI is confidence interval.


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