Anywhere Jobs: Reshaping the Geography of Work

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Foreword by Tony Blair

The immediate consequences of the pandemic on the economy and jobs and the need for supportive government action were always clear. But what is becoming clearer is that the experience of people and businesses managing the crisis has brought about a fundamental change in attitudes to work and technology.

This report pieces together the data from various different sources and finds that roughly one in five jobs in the UK, or 6 million jobs, can now be classified as "Anywhere Jobs", with characteristics that mean they can be done remotely or principally remotely as efficiently or more efficiently than in normal office working.

It is also clear that for many employees, the experience of working from home has been beneficial and is likely to remain their preference, at least for certain days of the week.

This is a vast and profound change in the world of work, with many implications for the jobs themselves and secondary effects on businesses that serve the conventional office.

On the one hand, there is a risk that employers decide that Anywhere Jobs can be done as easily by those working abroad; on the other hand, if Britain takes the necessary measures of preparation to facilitate such working here, we could attract jobs from abroad.

The point is: this is a change that requires government to develop a strategy. It is part of the way working lives are going to change through new technology. In this report, we analyse these changes and suggest ways government could assist those jobs to come to the UK and to ensure that greater working from home is accommodated and helped.

It is an important contribution to the new progressive political agenda, built around the acknowledgement that the world is changing fast and all countries must adapt and prepare to preserve and enhance prosperity.

Tony Blair
Executive Chairman

Executive Summary

The pandemic has spurred a large-scale experiment in the ability to work remotely and, in doing so, has begun to loosen the binds that previously tied a job to a specific geography. Now, there is a new class consisting of relatively well-paid, professional white-collar jobs that can be done remotely anywhere in the UK or, indeed, in the world.

We call them "Anywhere Jobs".

Today, almost one in five workers have an Anywhere Job whether as graphic designers, accountants or software programmers.

In the past, it was typically blue-collar jobs in the manufacturing sector that were outsourced or offshored and skilled routine service jobs that became automated. Professional white-collar jobs had been sheltered from the pressures of globalisation, however, until the mass experiment with remote work during the pandemic changed this.

Having put in place the digital infrastructure to make remote working possible, businesses, especially larger ones, are likely to persist with it even after the pandemic in order to reduce overheads, boost productivity and recruit talent from a wider geography. As a result, they may opt to employ only the core staff required for in-person collaboration and decision-making while outsourcing and offshoring those who are not. This could then make UK-based Anywhere Jobs vulnerable to being outsourced to on-demand, digital piecework platforms [1] or being shifted abroad, just as routine manufacturing roles have been automated or offshored since the 1970s. [2]

Fortunately for the UK, there is nothing inherent about Anywhere Jobs that means they will be offshored, either immediately or over time. Moreover, they are likely to be a global phenomenon. If the government moves quickly, it could not only help anchor Anywhere Jobs in the UK but also attract well-paid, remote workers from abroad. Priorities to do so include:

- **Strengthening the support infrastructure** – such as childcare, transportation, 5G and gigabit broadband, and suitable housing and workspace – all of which would make remote working a reality across the whole of the UK.

- **Designing new forms of skills and (re)training** to give employees the softer, interpersonal skills they need to have in order to benefit from technological change and to ease the frictions of moving between different professions.

- **Renewing the social contract to support a more mobile, flexible world of work** and to help people become resilient to risk, cope with challenges and attain human capital.

There is nothing inevitable about Anywhere Jobs being outsourced or offshored. But the economic, social and political legacy of accelerated deindustrialisation over the past 40 years shows that the UK must get ahead of this next wave of technological transformation in order to benefit economically.

Figure 1 – An overview of Anywhere Jobs

Anywhere Jobs	Through the nature of the tasks and work required, these jobs can be done from anywhere and, so, are at risk of being outsourced or offshored to cheaper but equally skilled workers.
Why are they different?	**Limited physical activity:** Most of the tasks are completed on a computer and require a degree of technical, specialist or creative knowledge that makes them non-routine, meaning the work is typically done digitally and is not tied to a physical location.
	Limited responsibility: Most of the activities in these jobs ultimately require the individual to make decisions only around two to three times per month or less. The activities tend to have relatively limited direct commercial consequences for the business, making the work largely self-contained and more peripheral to the core of the business.
	Asynchronous and detailed tasks: While these jobs require high attention to detail, the work rarely, if ever, needs to be done in the same location or time zone as work in the rest of the business.
Number of jobs at risk	18 per cent of all jobs across the UK.
	5.9 million jobs mainly in ICT, financial and professional services in London and the South East.
Examples	IT technicians and support Graphic designers Accountants
	Programmers and developers Web design and development Economists
	Electrical engineers Marketing managers Insurance underwriters

Introduction

Faced with the pandemic, businesses were forced to close offices and quickly implement new working practices. For many, it meant a shift from the office to working from home: global Zoom usage soared to 300 million daily participants in April 2020 compared to 10 million in December 2019.

The pandemic triggered a large-scale experiment in the ability to work remotely. Before it struck, companies had built up social capital within their organisations that enabled them to transition to remote working with relative ease given the forced pace of change. In-person relationships developed at work and tacit information flows were a lubricant, helping individuals and teams to come together to solve problems during the crisis and leading to productivity gains for many companies in the immediate aftermath of the lockdown.

And while there have been significant equity issues with homeworking during the pandemic, especially for younger and female workers, a majority of employees would like to work remotely at least two to three days a week after the pandemic is over. [3] This could have profound implications for the future of work and our societies.

Perhaps employers don't need to be cajoled out of cities to support levelling up; instead, individuals could move to areas of their choosing and work from home or a co-working space, travelling to the office only a few days per month. Young people could stay in or close to their hometowns and still get a well-paying job. Indeed, there are signs that people are moving away from cities, with potentially significant social and economic consequences. [4]

The experience of the last year is pushing companies to rethink not just where they work, but how they work. Employers, looking to cut costs following the damage caused by the pandemic, are seeing an opportunity to save on expensive office space located in city centres. The success of remote working over the past 12 months may also persuade companies worried about costs or competitive pressures to accelerate the pre-crisis trend of using technology to transform their organisational structures, employing only the core staff required for in-person collaboration and decision-making while outsourcing or offshoring those who are not. [5]

There are many opportunities that could flow from this trend. But there are also challenges. The UK, as a service-sector-oriented economy, has the highest potential for remote working in the G7. [6] This could mean that the UK is particularly exposed to any shifts in demand for white-collar jobs, including the risk of them being outsourced to digital platforms or moved abroad, much like manufacturing jobs were in the 1980s and 1990s. If left unaddressed, the outsourcing and offshoring of these roles could have

political, economic and social consequences similar to the loss of manufacturing jobs – but on an accelerated timeframe.

In order to understand these trends, this analysis will explore what types of job – and in which sectors and which parts of the UK – are able to be done fully remotely, and therefore whether they are vulnerable to offshoring.

We call them Anywhere Jobs: they can be done anywhere in the UK but also from anywhere in the world, potentially for cheaper.

Ultimately, we think the UK has an opportunity to keep Anywhere Jobs in the UK, and to attract remote workers from abroad: it could mean individuals receive higher earnings than they would otherwise get in their local community, and entail lower employment costs for businesses than they currently face.

Anywhere Jobs could, therefore, support levelling up but only if the UK rethinks and adapts its support infrastructure, training regimes and the social contract to reflect how technology is creating a more mobile, flexible and global labour market.

The Great Acceleration

Businesses were forced to respond rapidly to the lockdown, with most moving their staff to working from home. [7] The speed of this change was made possible by an acceleration of investment in and adoption of new technologies and working practices: in the period from late March to late July 2020, over 60 per cent of firms adopted new digital technologies (such as remote-working platforms and customer and resource-planning software) as well as new management practices. [8] On average, companies took just 11 days to implement digital technologies for remote working and collaboration, 43 times faster than would have been expected before the crisis. [9]

Pre-Pandemic Remote Working Was for the Few, Not the Many

For most companies, the pre-pandemic world of work was built around the office, with working from home reserved for a select few. Just five per cent of all workers worked from home full-time in 2019, with another eight per cent adopting a hybrid approach by working at home some days and travelling in on other days. [10] We also know a little more about these pioneers of homeworking: according to the Office of National Statistics (ONS), they tended to be relatively older, were more likely to have highly skilled jobs in finance, tech or professional services, and were relatively more likely to live and work in London and the South East.

Opportunities to work from home, either full-time or part of the week, also tended to vary by age, experience and industry. In particular, some industries that required face-to-face interactions and in-person customer services, such as transportation, retail and hospitality, offered relatively few chances for people to work from home. Other industrial sectors, such as information and communications, professional, scientific and technical activities, financial and insurance, and real estate, provided far more homeworking opportunities in 2019.

In addition, jobs that required higher qualifications and experience were more likely to offer homeworking. Consequently, there were significant differences by age, with young employees the least likely to be working from home in 2019, whereas those who continued to work beyond state pension age were more likely to be doing so from home prior to the pandemic.

While homeworking was on the slow increase in the years running up to the pandemic, it naturally spiked when the stay-at-home orders were introduced. Almost overnight, 39 per cent of us were doing our jobs from home full-time, with six per cent working from both home and their normal workplace. Slowly, as restrictions began to ease through the summer of 2020, more people started to head back to the office.

But as local lockdowns were introduced through September and October 2020, workers retreated back home. As the restrictions have again begun to ease, 26 per cent of employees were working from home as of the first week of May 2021. [11]

Figure 2 – The ebb and flow of working from home during the pandemic and related lockdown restrictions
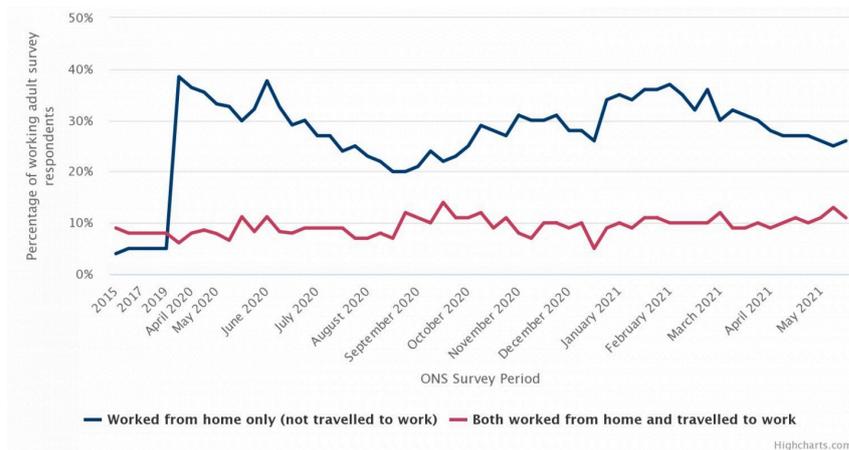
Source: ONS and TBI

The Next Normal?

After the pandemic, 18 per cent of workers want to continue working remotely full-time while another 39 per cent want to work from home some of the time. [12] This massive shift in attitudes from the pre-pandemic era is likely to be partly a result of businesses rapidly introducing remote-working technology during the first lockdown. But it is also because workers themselves value the flexibility, want a better work-life balance and want to cut down on commuting. [13]

For business, much of the pre-pandemic resistance has shifted. Overall, 24 per cent of businesses expect to continue with increased homeworking post-pandemic. [14] Unsurprisingly, the tech sector and professional services are more likely to want to persist with remote working once restrictions ease: their employees were more likely to work from home prior to the crisis and it makes sense that, given the tasks their workers carry out, that these sectors are relatively more inclined to expand remote working once the pandemic passes.

Having put in place the digital infrastructure to make remote and hybrid working possible, this may not be the last evolution in the nature of work. Faced with the need to cut costs, firms are rethinking their business models, their expensive city-centre offices and their workforce structures. Businesses see a variety of potential benefits from continuing, to some degree, with homeworking, including:

- **The desire to cut costs and overheads.** According to the ONS, 58 per cent of businesses that want to continue with increased homeworking will do so in order to cut overheads, including the cost of expensive office space. Post-pandemic, larger firms are also more likely to want to make labour a variable cost by using additional freelancers and contractors. [15]

- **Getting more from their staff.** Even though productivity and wellbeing have flagged during the pandemic, [16] some firms believe that remote working has the potential to be better for workers in the long run. [17] Once strict lockdown measures end, the factors weighing on remote workers' productivity and wellbeing may begin to ease, and both businesses and employees could begin to reap the benefits.

- **The opportunity to recruit from a bigger talent pool.** Lastly, 35 per cent of all businesses – and around 40 per cent of larger firms – believe that remote working will give them the ability to recruit new staff from a wider geographic area.

This desire to cut costs, boost productivity and recruit from a wider geographic area offers both opportunity and risks for workers. The so-called Zoom Boom [18] is bringing a renewed focus on how technology can improve productivity. [19] For businesses, the question is no longer whether in-person meetings can shift to Zoom or if workers can save on commuting times, but what in-person processes can shift to digital "tools, structures and workflow"? [20]

Businesses are also using technology to unbundle tasks, allowing them to not only automate, outsource or offshore work, [21] but also to manage and monitor it more closely. [22]

Overall, businesses, especially larger ones, may seek to reduce overheads and boost productivity by opting to employ only the core staff required for in-person collaboration and decision-making. This could then put many UK white-collar jobs at risk of being outsourced to on-demand, digital piecework platforms [23] or of being shifted abroad, just as routine manufacturing jobs have been automated or offshored since the 1970s. [24] These productivity gains – like those in manufacturing – are likely to come with social and economic disruption as the composition of jobs shift and competition for them puts pressure on wages. But that disruption could look very different to the story we have become familiar with over the past 40 years.

> **Back to the Future: Technology and Accelerated Deindustrialisation**
>
> In order to understand how remote working could reshape the future of work, it is helpful to look back at another time when technology reshaped and disrupted business models: the rapid deindustrialisation that began in the early 1970s.

In the three decades prior to 1973, the productivity benefits of industrialisation [25] (for example, electricity, indoor plumbing, home and office machinery) had largely led to higher wages regardless of education levels. [26] Then in 1973, the oil shock and economic recession resulted in a setback of living standards even as the development of computer chips "lowered the cost of moving ideas even faster than steam lowered the cost of moving goods". [27]

This revolution caused two fundamental economic disruptions: as the new technology began to be adopted, it eventually allowed companies to unbundle and offshore value chains, [28] and it allowed routine work to be automated. [29]

Until then, manufacturing companies typically located the various stages of production on one site. This bundling of activity in one location allowed companies to better manage the complexity of large-scale production necessary to sell globally. And while labour might have been cheaper abroad, the high costs of coordinating production globally had been a significant barrier to offshoring.

The ICT revolution in the 1970s and 1980s changed that by allowing companies to disaggregate higher-value R&D and specialised customer knowledge from lower-value commoditised production, which was automated and offshored to lower-cost economies. Advances in communication technologies enabled companies to manage and monitor these overseas operations without a significant loss in quality, delivery or reliability.

As part of this process of unbundling and disaggregation, advances in ICT and the adoption of computers changed the relative demand for different types of skills. Beginning in the mid-to-late 1970s, jobs with routine tasks – those with step-by-step processes, procedures or rules – began to be automated, reducing the requirement for manufacturing and clerical workers alike.

At the same time, the growth in productivity involving skilled routine tasks shifted demand towards typically better-paid knowledge workers whose activities did not follow a set routine. As these non-routine, largely office-based roles grew, so too did the relative demand for lower-paid manual workers (such as cleaning and hospitality staff) whose work tends to complement office-based knowledge workers.

Driven by advances in technology, these relative shifts led to polarisation in the labour market: an increase in well-paid jobs at the top and lower-paid jobs at the bottom, while routine work in the middle was hollowed out by automation and offshoring.

Figure 3 – Job polarisation as measured by quality between 1979 and 1999 in the UK [30]
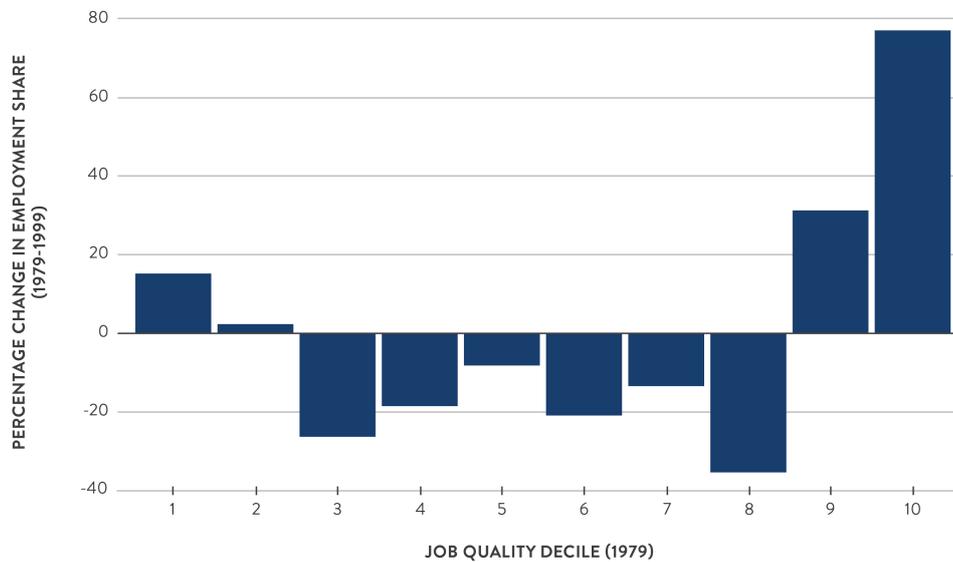
Source: Manning & Goos (2003)

Through this process of automation and globalisation, the number of manufacturing jobs in the UK fell by 67 per cent over a period of 50 years, from 7.9 million in 1971 to 4.2 million in 1996 and then to 2.6 million in 2021. [31] The vast majority of these jobs were concentrated in the Midlands, the North of England, Scotland and Northern Ireland. And as the losses persisted over decades, they contributed to sustained economic inequities, regional disparities and social disruption.

Although successive governments have tried to redress these disparities, the recent digital revolution has only exacerbated these trends. New digital technologies tend to favour workers with more skills, which means individuals with higher qualifications have seen a relative rise in demand for their labour with increasing real incomes.

For most knowledge workers, digital and interpersonal skills tend to complement each other and tend to increase the agglomeration of benefits in larger cities such as London. [32] Knowledge workers in these cities have fared relatively well in terms of income gains, despite paying a price for economic growth in the form of higher housing costs and crowded roads. Meanwhile, workers in smaller cities, towns and rural areas did relatively less well.

Prior to the pandemic, most service-sector and professional jobs had been sheltered from the pressures of globalisation and technology by the fact that they entailed non-routine tasks that could typically only be done by relatively well-educated employees, working together in dense urban areas. But the rapid adoption of digital and remote-working technologies during the pandemic means even non-routine, knowledge-based worker jobs are now at risk of being shifted abroad to cheaper, but equally well-

educated and lower-cost-of-living labour markets. In the next section, we look in-depth at Anywhere Jobs and in which occupations, sectors and regions they tend to be situated.

What Are Anywhere Jobs?

The prospect of returning to the office raises questions about which jobs need to be done with regular, in-person, face-to-face contact, and which ones can continue to be done fully remotely. Traditional debates on the future of work have focused on which jobs and tasks can be automated (typically those with routine, process-driven tasks) and which can be done by a person (typically those with non-routine, cognitive-based tasks).

Yet the past year, in which more than a third of the workforce has been based at home, has created a new category in the future of work: non-routine, knowledge-based jobs that can be done fully remotely and, so, can be done anywhere in the world.

Identifying Anywhere Jobs

The potential to work from anywhere will be determined by the tasks and activities inherent to a role, not just by looking at the occupations themselves. Using the Occupational Information Network (O*NET) data set, we were able to analyse 100-plus work activities in more than 800 occupations (see the box entitled Anywhere Jobs Methodology and the Technical Appendix for further details) to identify which need to be carried out in the UK and those with the greatest potential to be done anywhere in the world (i.e. an Anywhere Job).

What emerges through this analysis is a set of Anywhere Jobs, which have non-routine tasks with one or more of the following three characteristics:

- **Limited physical activity:** Most of the tasks are completed on a computer and require a degree of technical, specialist or creative knowledge that makes them non-routine, meaning the work is typically done digitally and is not tied to a physical location.

- **Limited responsibility:** Most of the activities in these jobs ultimately require the individual to make decisions only around two to three times per month or less. Typically, the activities in these jobs tend to have relatively limited direct commercial consequences for the business, making the work largely self-contained and more peripheral to the core of the business.

- **Asynchronous and detailed tasks:** While these jobs require high attention to detail, the work rarely, if ever, needs to be done in the same location or time zone as work in the rest of the business.

Anywhere Jobs are therefore distinctly different from those with routine tasks that were automated or offshored in the manufacturing sector, for instance. They are also a different class of jobs than typically

discussed in the current debate on automation, which tends to divide into so-called exploration jobs (non-routine creative) that are relatively safe and execution jobs (routine) that are at risk of automation. [33] Anywhere Jobs tend to be non-routine roles that involve a degree of creativity and specialisation complemented by digital skills – but which are more likely to be relatively peripheral to the core operations of a business and its decision-making.

In contrast to Anywhere Jobs, we think most positions are likely to be rooted to offices (even if there will be greater potential for hybrid-working arrangements), factories or shops across the UK. The jobs most likely to stay in the UK tend to fall into one of three categories:

- **Location-oriented**. These jobs typically require employees to be regularly physically located onsite on a regular basis and include construction workers, chefs and manufacturing workers.

- **Working with others.** These jobs tend to include proximity services, such as teaching, care work or hospitality, but also ones that require softer, interpersonal skills involved in resolving conflict, coaching or negotiating.

- **Leadership responsibilities.** These jobs tend to require management and strategic skills, and include responsibility for setting development objectives and strategies, outcomes, and the building, developing and motivating of teams.

These jobs typically require face-to-face contact two or more days per week. So, while some of these workers will have some degree of flexibility to work remotely (especially those requiring softer, interpersonal skills or leadership responsibilities), they will also need to be within easy travel distance for regular in-person meetings.

Anywhere Jobs Methodology

Our categorisation of Anywhere Jobs is based on an analysis of the tasks and activities involved in different occupations: if a job requires frequent, in-person customer contact or extensive onsite manual work, for instance, we consider it less likely to be done remotely and therefore abroad than a solitary, desk-based role. Overall, we consider a tasks-based approach a strong predictor of whether a job can be done abroad because it encapsulates the practical reality of performing any given role and, by extension, whether the daily aspects of the work involved necessarily bind it to a specific location.

Our analysis is based on O*NET, a statistics database (sponsored by the US Department of Labour) of roughly 800 occupations, each scored against more than 100 distinct work activity and context metrics. These O*NET scores are based on how important an activity is for that specific role: an accountant, for example, scores highly on metrics such as "Analysing Data" or "Determining

Compliance with Standards" while a nurse's core activities include "Establishing and Maintaining Interpersonal Relationships" and "Assisting and Caring for Others."

Among these 100-plus metrics, we used an algorithm to select 18 variables that we feel best predict whether a job is difficult to move abroad: we create a manual flag for whether a job could be offshored in principle based on its O*NET job description, and then iteratively select work task variables that best predict against this manual flag until the variable selection is optimised (see the Technical Appendix for full details).

These variables are broadly grouped into the three categories already defined: occupational tasks that usually require a worker to be physically present onsite, meaning the job necessarily cannot be done from abroad; activities that require extensive interpersonal skills and for which face-to-face, in-person contact is important and, by extension, long-term remote working is impractical; and tasks that demand leadership and managerial skills.

For each work task variable, we set a cut-off score above which we consider an occupation practically difficult to be carried out productively from abroad: jobs above these thresholds cannot be offshored in the model. We then looked at the occupations our algorithm suggested could be done abroad and analysed the 100-plus metrics to determine the characteristics they have in common and which make them distinct from the jobs flagged as difficult to move abroad.

We then map our O*NET occupations' analysis to a standardised ONS list of occupations in the UK. The UK data presented in this paper is taken from the ONS Labour Force Survey (LFS), broken down by occupation and occupational mix in each industry. More details on our methodology, including the full list of O*NET variables, are included in the Technical Appendix.

The Who, What and Where of Anywhere Jobs

Overall, we find that 18 per cent of jobs in the UK – 5.9 million in total – are Anywhere Jobs, and tend to be clustered in certain occupations, sectors and regions. Looking at the occupational breakdown (Figure 4), Anywhere Jobs are predominantly in professional (36 per cent), technical (30 per cent) and administrative (24 per cent) occupations. As suggested above, the occupations with the fewest Anywhere Jobs include senior managerial roles, proximity services, and plant and machine operators.

Figure 4 – Almost 90 per cent of Anywhere Jobs are in professional, technical and administrative occupations
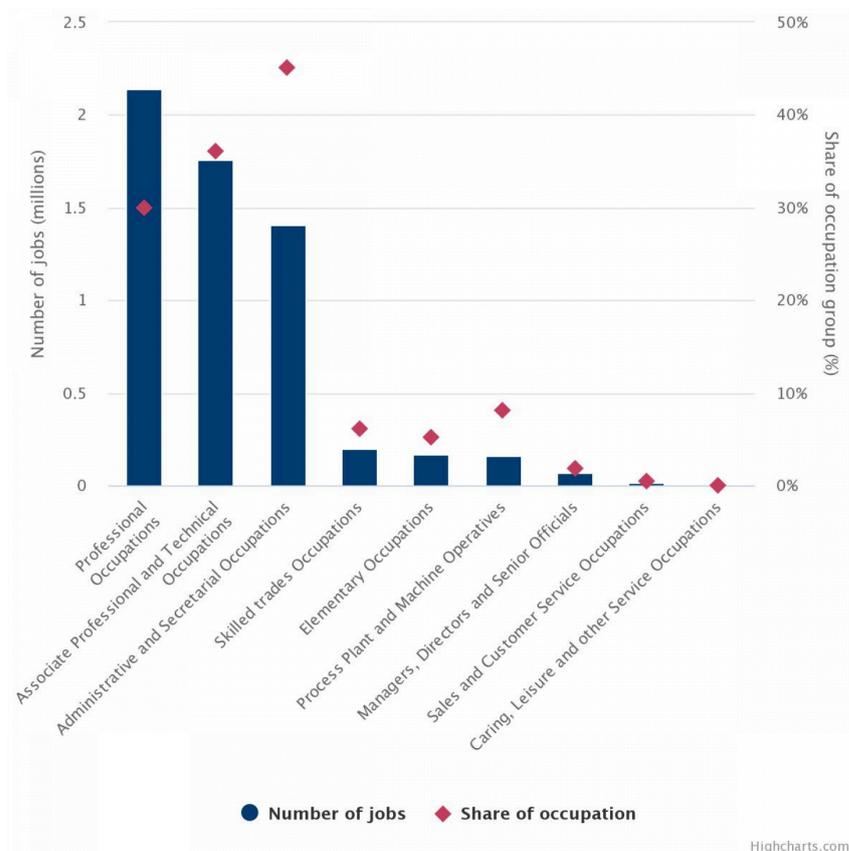
*Source: TBI calculations using O*NET and ONS's LFS*

Of the 5.9 million Anywhere Jobs, 1.7 million (28 per cent) are in the finance, research and real estate sectors, 1.1 million (18 per cent) are to be found in transport and communication, and 0.8 million (13 per cent) in manufacturing. These are also the sectors most vulnerable when considering the percentage of their workforce at risk (Figure 6).

Workers in Anywhere Jobs comprise a quarter of total manufacturing employment and a third of finance, research, transport and communication professionals. We get further insights when these numbers are broken down further for each industry. Looking at industry division (Figure 7) we can see that Anywhere Jobs are disproportionately in computer programming, research activities and insurance.

Figure 5 – A snapshot of typical Anywhere Jobs

	Job description	Average pay [34]
Accountants	Accountants and actuaries are professionals whose core tasks involve analysing and interpreting financial information as well as preparing reports to maintain records of financial activities. Their work is mostly asynchronous, technical and indispensable to firms with complex tax liabilities.	£60k ($85k) per year for a chartered accountant
Graphic designers	Graphic designers are professionals that design and create graphics to meet specific commercial or promotional needs, such as packaging, displays or logos.	£35k ($50k) to £50k ($71k) per year
Software developers	A software developer helps identify, design, test or install a software system (or parts of a system) that they have built for a company from the ground up. The work can range from creating internal programmes that help businesses to be more efficient to producing systems that can be sold externally.	~£40k ($57k) per year

As we would expect, there are a lot of common occupations across the different industries: IT, human resources, legal secretaries and personal assistants are among the most common Anywhere Jobs in the industries most affected. Then there are the industry-specific occupations that most commonly have a creative, research or technical element. In finance and professional services, they are financial and accounting technicians, pensions and insurance clerks, and social scientists. In manufacturing, they are production and development engineers, engineering professionals, and marketing and advertising roles. In transport and telecommunications, Anywhere Jobs include programmers, software developers and marketing professionals.

Figure 6 – Most Anywhere Jobs are in the finance and professional services sectors
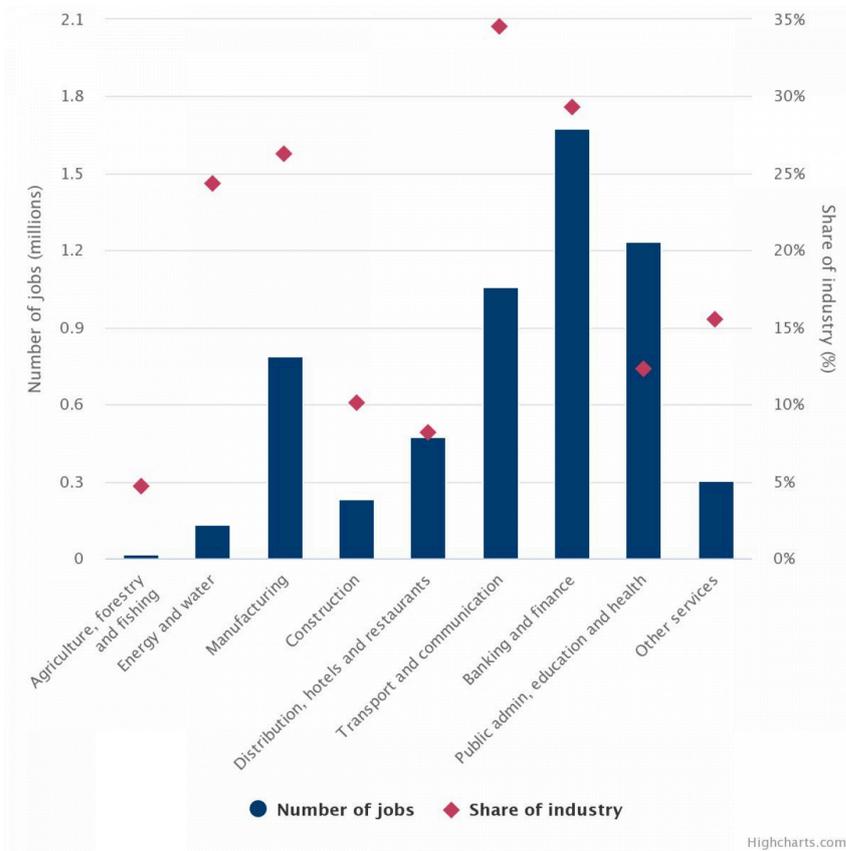
*Source: TBI calculations using O*NET and ONS's LFS*

Figure 7 – The top-10 industries most vulnerable to Anywhere Jobs

Industry division	Share of industry	Number of jobs
1. Computer programming, consultancy and related	65.7%	561,493
2. Insurance, reinsurance and pension funding	56.5%	119,570

3. Telecommunications	56.3%	89,438
4. Other professional, scientific and technical activities	53.0%	178,550
5. Advertising and market research	50.5%	93,235
6. Postal and courier activities	50.5%	170,834
7. Information service activities	49.6%	21,004
8. Publishing activities	46.1%	97,732
9. Manufacturing of worn apparel	42.7%	14,770
10. Manufacturing of computer, electronic and optical products	41.2%	72,049

Source: TBI calculations using O*NET and ONS's LFS

The Geography of Anywhere Jobs

The composition of Anywhere Jobs also reflects the UK's industrial geography, with a notable concentration in London and the commuter belt. Of the 5.9 million Anywhere Jobs, 1.3 million (21 per cent) are in London (in particular the City and Tower Hamlets) and 0.8 million (14 per cent) are in the

South East (including Reading, Crawley and Rushmoor), underlining the fact that the vast majority of Anywhere Jobs are in the finance, professional services and tech sectors.

But other big cities and their surrounding areas will be affected too. There are local authorities in the North West (including Liverpool, Cheshire East and Stockport) and in the Midlands (such as Birmingham) where between 18 and 27 per cent of people work in an Anywhere Job. Given that prior to the pandemic most people would commute to work, we see a similar geographic pattern when looking at Anywhere Jobs according to where a person lives.

Figure 8 – One third of Anywhere Jobs are located in London and the South East
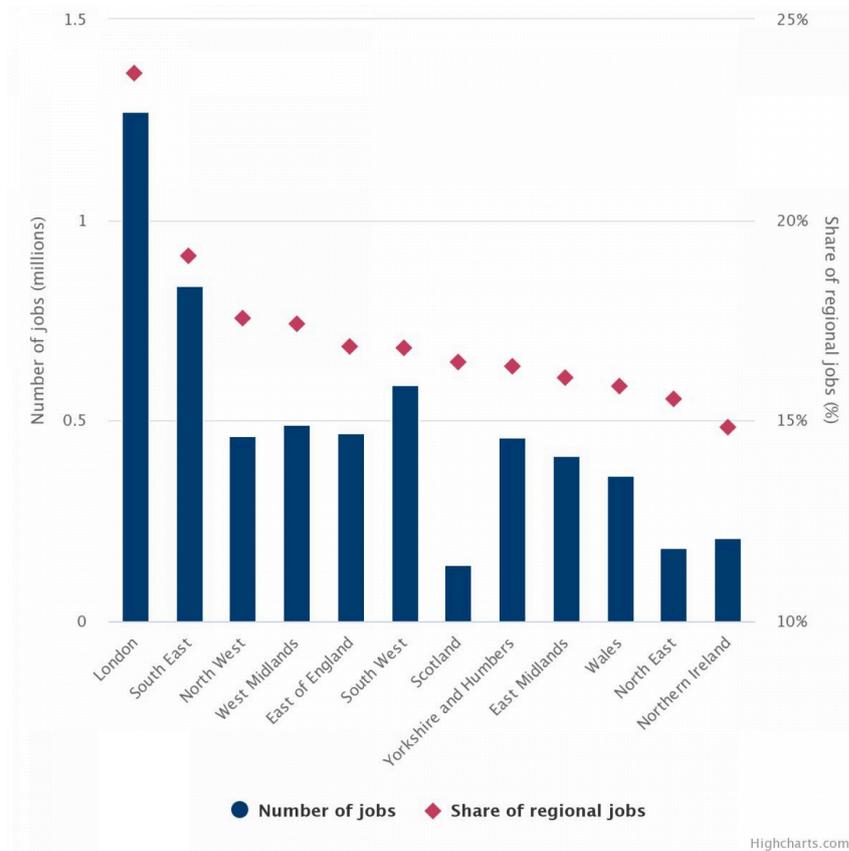
Source: TBI calculations using O*NET and ONS's LFS

Figure 9 – Local authorities with the highest share of Anywhere Jobs are clustered around cities
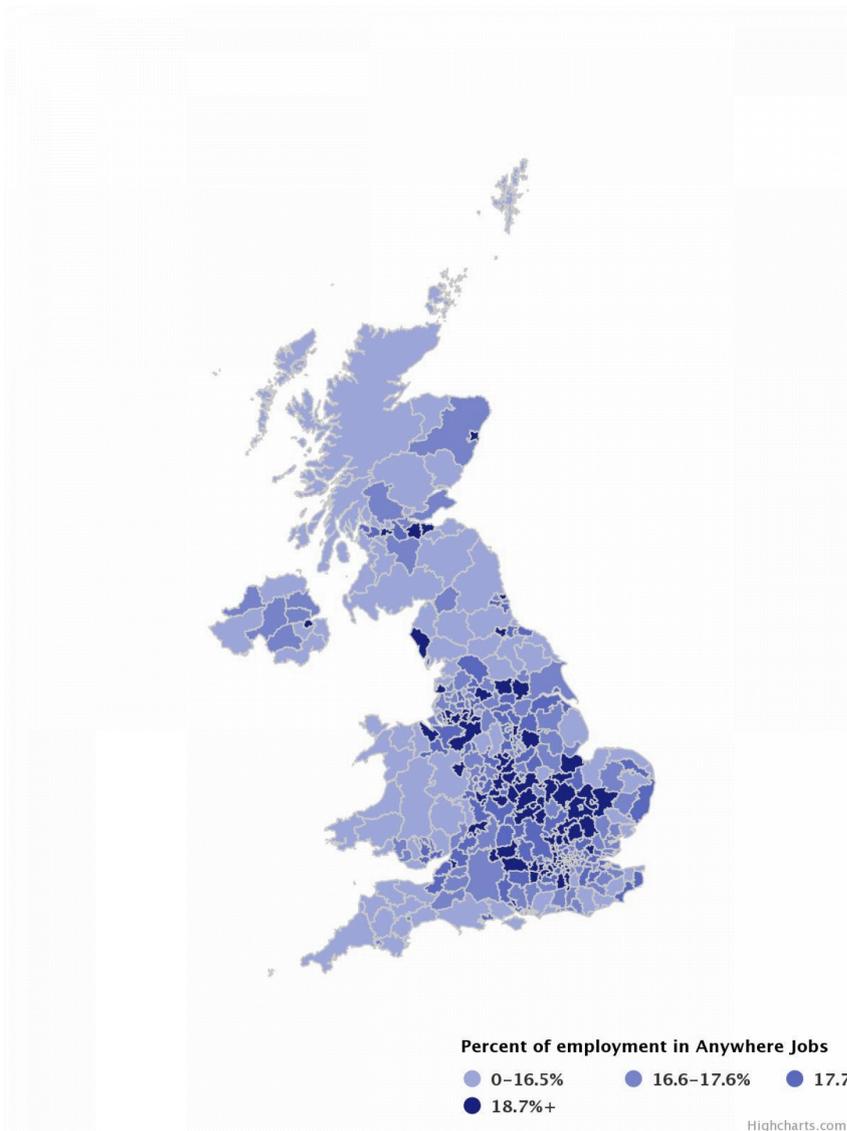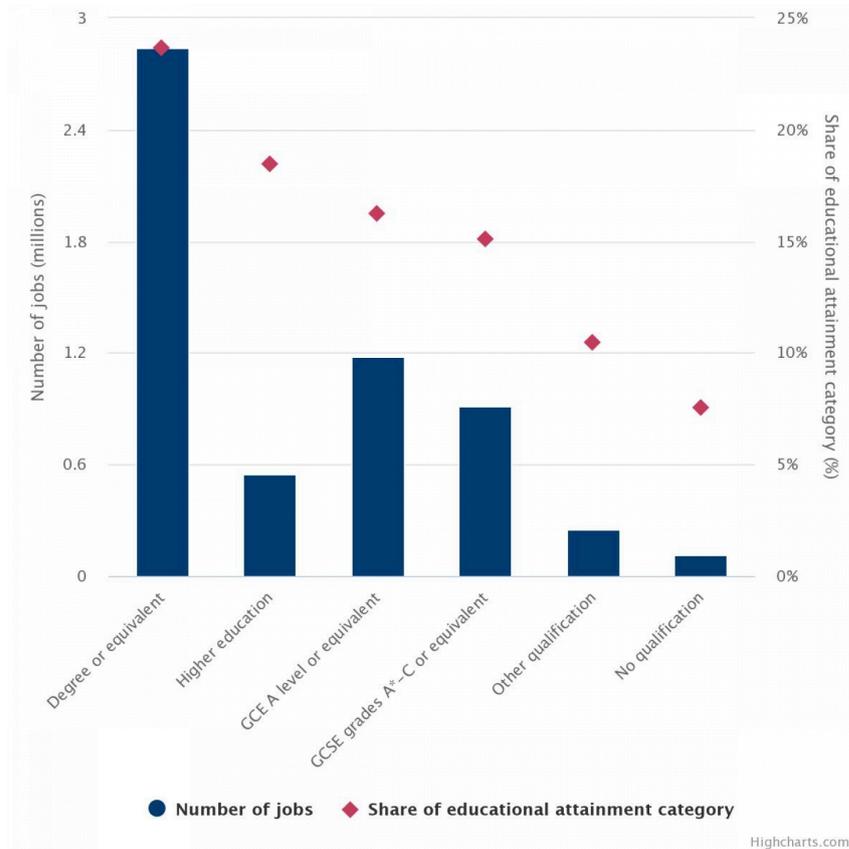

*Source: TBI calculations using O*NET and ONS's BRES*

View to see how Anywhere Jobs affect your area

Who Works in An Anywhere Job?

Professional jobs had been sheltered from globalisation but remote work during the pandemic may have changed this. Unlike the effects of automation and pre-pandemic globalisation, the Anywhere Jobs phenomenon is most likely to affect relatively high-skilled individuals. When looking at the skills composition of offshorable occupations, 48 per cent (2.8 million) of those in Anywhere Jobs have a degree. Indeed, one in five people educated to degree level or higher are working in an Anywhere Job. In an apparent reversal of the trends seen over recent decades, the technological transformation is putting

highly skilled individuals in non-routine jobs at risk of being moved abroad or of facing greater competition from elsewhere.

Figure 10 – Anywhere Jobs by qualification level

Source: TBI calculations using O*NET and ONS's LFS

The relatively higher levels of education mean that Anywhere Jobs tend to be better paid: the median (mean) gross weekly pay of jobs with the potential to be offshored was £544 (£641) compared to £438 (£524) of jobs not at risk. Looking by earnings decile, we see that the share of Anywhere Jobs increases across the earnings distribution. If Anywhere Jobs are outsourced to digital piecework platforms or offshored to lower labour-cost economies, this competition could put pressure on earnings at the top end of the earnings distribution.

Figure 11 – Anywhere Jobs by earnings decile
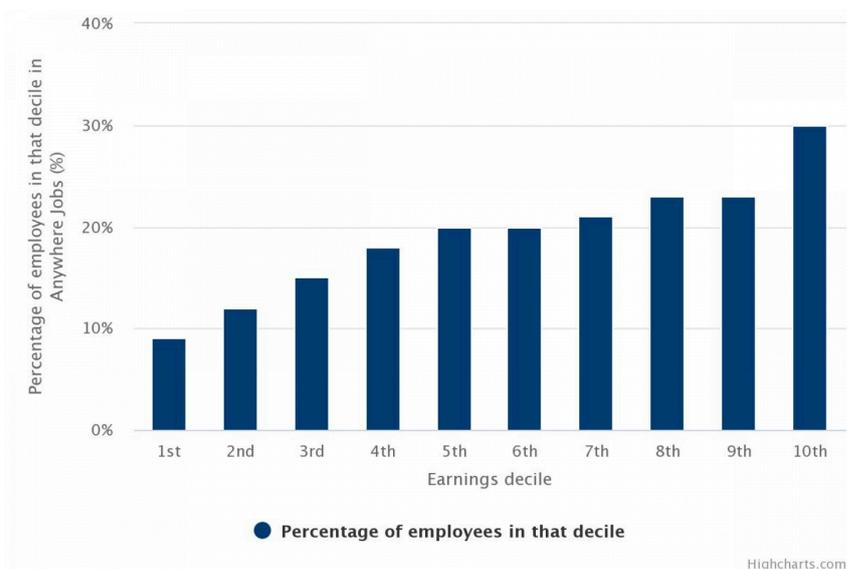
Source: TBI calculations using O*NET and ONS's LFS (Given the lack of earning data for the self-employed in the LFS, we were unable to include them in these calculations. To the extent the self-employed are concentrated among the lower deciles, this omission may slightly overestimate the risk gradient by earnings. However, given the small share of the self-employed relative to employees (roughly 5 per cent of those at work), including the earnings of the self-employed would not affect the overall finding that higher earners are at greater risk.)

Anywhere Jobs are predominantly taken up by men and relatively young professionals. Women, who comprise a disproportionate share of care occupations and are relatively underrepresented in some of the heaviest-affected sectors such as IT and banking, are at lower risk of being employed in Anywhere Jobs: 17 per cent of women in paid work have an Anywhere Job compared to 19 per cent of men.

Figure 12 – Men are more likely to work in Anywhere Jobs
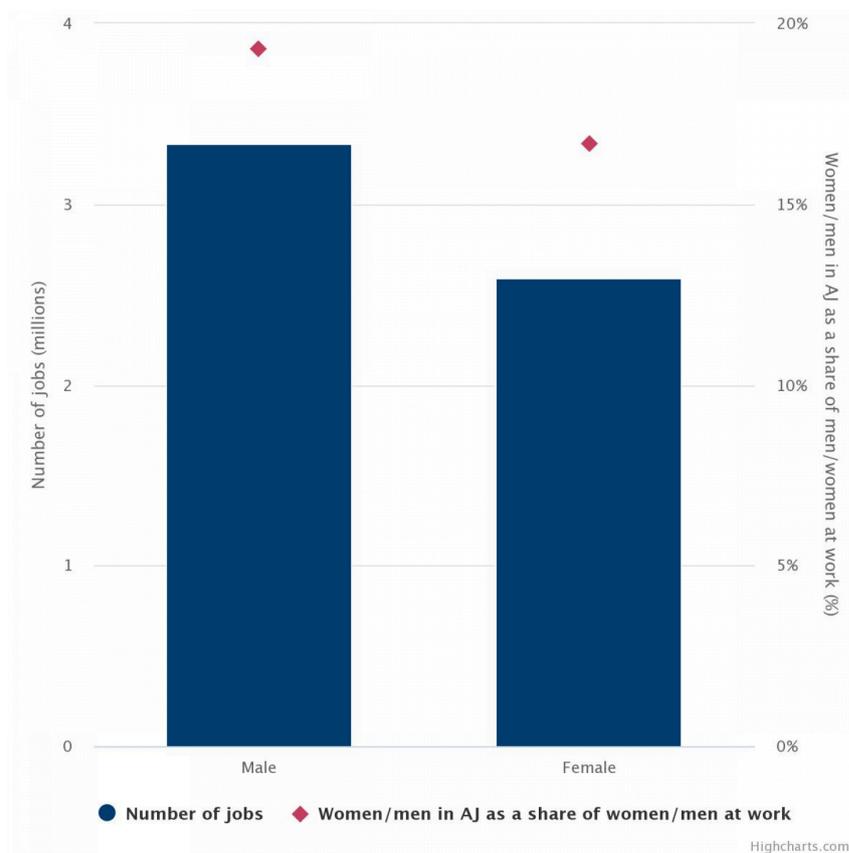
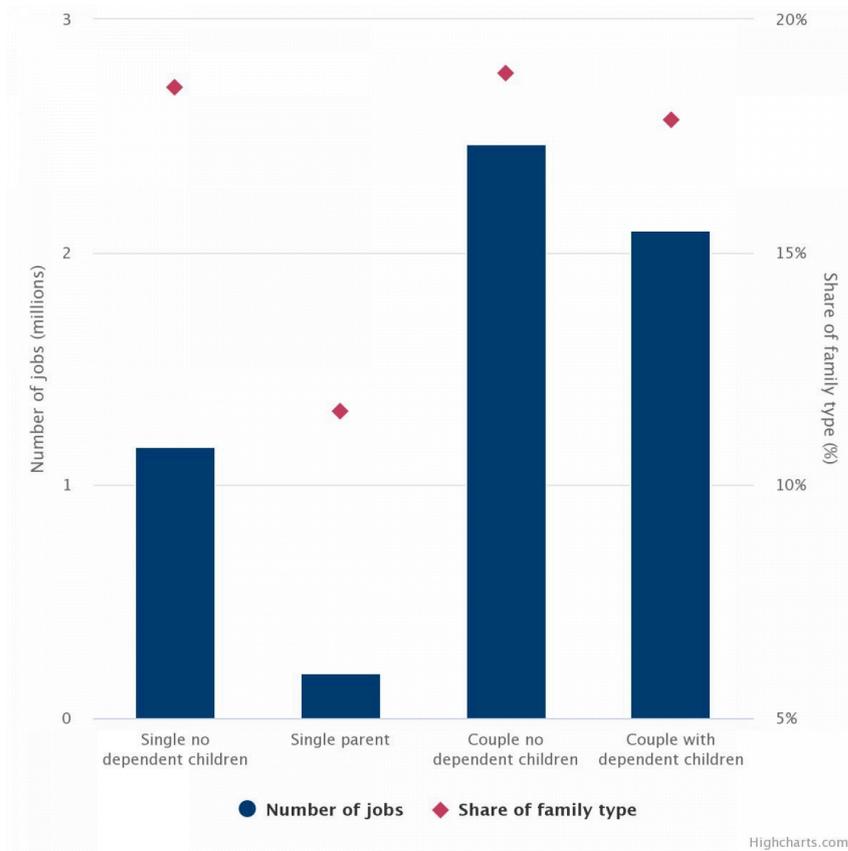*Source: TBI calculations using O*NET and ONS's LFS*

Young professionals in the 25–34 year-old age group account for 1.6 million (27 per cent) of Anywhere Jobs. They are relatively more vulnerable with 21 per cent of them in occupations with the potential to be offshored, compared to 16 per cent of the older age groups working in Anywhere Jobs. Given the challenges younger workers faced even before the pandemic in terms of security, pay and progression in the workplace, [35] exposure to Anywhere Jobs is an additional risk that could contribute to widening intergenerational inequalities. In addition, 2.3 million (39 per cent) of those in Anywhere Jobs are parents with dependent children (Figure 14).

Figure 13 – Young workers are relatively more likely to be working in Anywhere Jobs
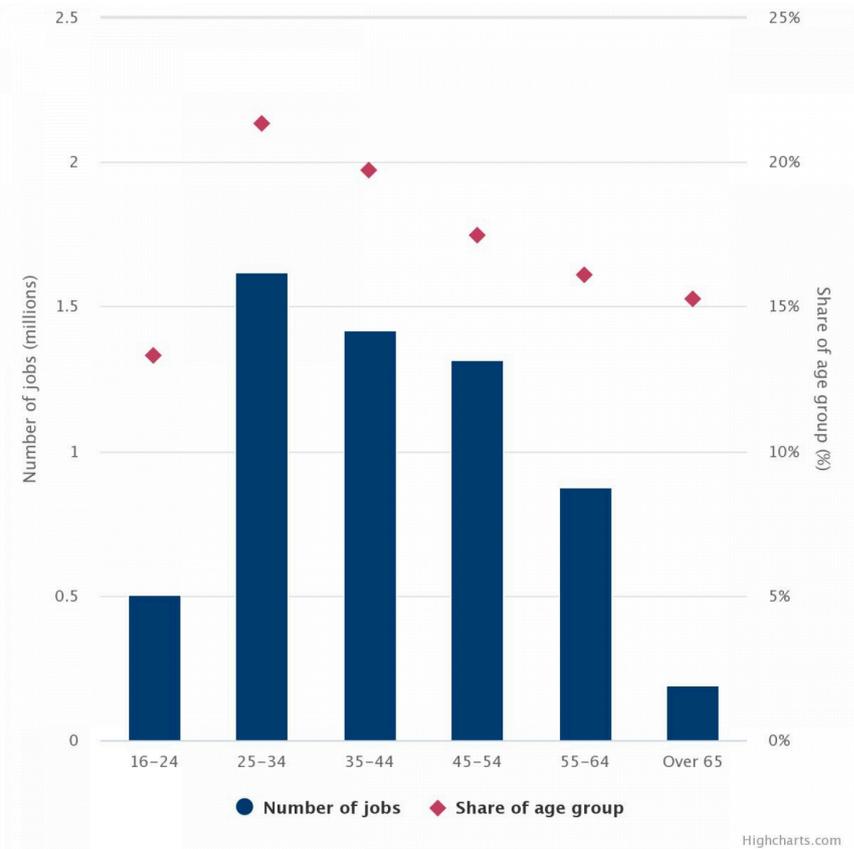
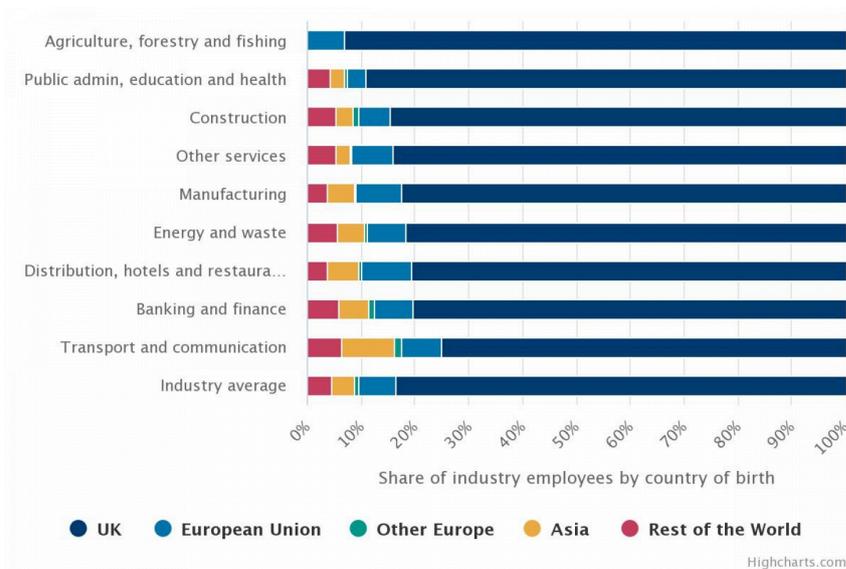*Source: TBI calculations using O*NET and ONS's LFS*

Figure 14 – Individuals in Anywhere Jobs by family type

*Source: TBI calculations using O*NET and ONS's LFS*

Ethnic disparities and immigration status are of interest too. Divides in the ethnic composition of risk may have implications for racial disparities in income and wealth while immigration status or country of birth may be a relevant predictor for the desire to move abroad when the opportunity is available, increasing the probability that a job is moved elsewhere conditional on its ability to be offshored. Looking at the country-of-birth composition of Anywhere Jobs across different industries, transport and communications is most exposed to this risk, with a quarter of its jobs having the potential to be offshored carried out by individuals not born in the UK.

Figure 15 – Individuals in Anywhere Jobs by industry and country of birth

*Source: TBI calculations using O*NET and ONS's LFS*

People of Indian or Chinese ethnic origin are around 10 percentage points more likely to be in an occupation with the potential to be offshored than other ethnic groups primarily because of the types of jobs and industries they work in.

Figure 16 – Ethnic composition of individuals in Anywhere Jobs

Ethnicity	Number of Anywhere Jobs (millions)	Anywhere Jobs share of individuals of this ethnicity at work (per cent)	Ethnicity share in UK population (per cent)
White	5.2	17.9	86
Mixed/Multiple ethnic groups	0.07	19	1.8

Indian	0.23	27.3	2.4
Pakistani	0.09	19.2	2.1
Bangladeshi	0.04	17.1	0.9
Chinese	0.04	23.1	0.5
Any other Asian background	0.05	13.8	1.2
Black/African/ Caribbean/Black British	0.15	14.6	3.5
Other ethnic group	0.09	18	1.7

*Source: TBI calculations using O*NET and ONS's LFS*

Overall, the profile of an individual working in an Anywhere Job – where they live and work, their education levels and earnings – is starkly different to those we typically expect to be at risk of automation and offshoring. Through our analysis, we find that it is no longer possible to have a binary division of the workforce into so-called execution jobs – routine work that can be automated and offshored – on the one hand and exploration jobs, the non-routine creative jobs that require people in the UK, on the other.

The rapid digitalisation and adoption of remote-working technologies during the pandemic has loosened the link between job and geography. Consequently, the possibility of working remotely full-time has created a new class of work that is vulnerable to outsourcing and offshoring: Anywhere Jobs, which tend to entail non-routine tasks completed by highly qualified, relatively better-paid workers in the finance, ICT or professional services sectors who typically live in London and the South East. As also noted above, it is young workers who are relatively more likely to be in an Anywhere Job: remote working has potentially made slightly more vulnerable those positions that were previously a good option for workers starting their careers.

Not All Anywhere Jobs Are Equal

Not all Anywhere Jobs will move abroad. But neither can the UK take it for granted that someone working in an Anywhere Job would want to stay in the country or move here from abroad. For example, a financial controller working for an engineering company based in Doncaster is far less likely to see her job moved abroad than a financial controller working for a global reinsurance company with offices based in central London. And if either worker is given a choice to work anywhere in the world, why would they pick either Doncaster or London over sunnier options such as a Greek island or Barbados, two countries providing financial incentives to attract remote workers?

In making decisions about these arrangements, businesses and individuals will have to consider a variety of factors. Some of these will be quantifiable; others will be subjective and qualitative, acting as either anchors keeping Anywhere Jobs in the UK or as accelerants to push them abroad.

Typically, when businesses make decisions about where to make an investment, they consider a range of factors including political and economic stability, the generosity and complexity of tax and subsidy regimes, and the transport and skills infrastructure. [36] For these factors, there is no one-size-fits-all or hard-and-fast rules. Businesses of different sizes, in different sectors or with different business models will have varying capabilities, priorities and opportunities – and so will come to contrasting conclusions about investment decisions. The same will apply with Anywhere Jobs, except now social and cultural infrastructure could matter as much as physical infrastructure and regulatory systems.

Based on conversations with businesses and workers, we believe the anchors and accelerants likely to determine whether an Anywhere Job is relatively more likely to be located in the UK or be based abroad include:

- **Support systems and infrastructure:** Remote workers need a strong support system and infrastructure that can make full-time remote working from anywhere in the UK a realistic choice without creating unnecessary burdens for either the individual or the company. People with families, for example, may be more likely to be moored in place and want to weigh up the robustness of available support systems, such as childcare, in their decision to relocate. Stronger support systems may be needed not only as an incentive for workers to stay but also as a safety net, as workers whose jobs have been lost to competition from abroad try to migrate to another profession. Such systems that make remote working a more realistic day-to-day option for individuals include formalised, cheaper and readily available childcare; having easy access to appropriate remote-working tools including adequate housing and workspace, digital devices and reliable 5G or gigabit broadband; and readily available transport so a remote worker can get to an in-person meeting with ease, if and when necessary. For employers, the systems that will shape the choice of locating an Anywhere Job in the UK include the ease of navigating its personal taxation, employment and

identification regimes compared to similar systems in other countries. This will be determined partly by the relative complexity of the regimes but also by the company's ability and willingness to navigate different regimes.

- **Access to skills:** An increasing reliance on remote working and the rising use of work-from-anywhere policies have already begun to erode the dense, local labour markets that drove the success and prosperity of so-called brain hubs such as London, Hong Kong and San Francisco. [37] For businesses, this not only means they can recruit talent from a wider geography (as discussed above) but also that they can use technology platforms to reduce the search costs of finding and employing knowledge workers in increasingly decentralised and global labour markets. In contrast, easy access to a broad and deep pool of talent wherever it is located in the country could help make the UK's labour market an attractive destination to place Anywhere Jobs, whether the company is in the UK or abroad. Similarly, having leadership capable of managing hybrid teams of office-based and remote workers will be a factor as employees in Anywhere Jobs overseas decide to join a UK-based company or not. Lastly, sectors or occupations where skills shortages persist, or which have a high reliance on overseas workers (for example, Indians in the IT sector) could be at relatively higher risk of seeing Anywhere Jobs move abroad.

- **Investment in productivity and wellbeing:** As companies consider the return to the office, many are having to make difficult decisions about how best to restore their bottom lines. For example, some companies are proactively choosing to reduce their fixed costs, partly by downsizing their physical footprint but also by making employment costs more of a variable cost through the outsourcing and offshoring of non-core aspects of their business. This strategy allows companies to maintain capacity and capability levels while cutting costs. But it would put Anywhere Jobs in the UK at risk. In contrast, some companies are redesigning their office spaces and rethinking management practices in order to boost productivity, enhance wellbeing and foster collaboration. These companies are relatively more likely to keep Anywhere Jobs in the UK given that they see improved working practices as a better means of boosting productivity than cost reduction.

- **Connection to community:** As shifts in technology and remote working change the geography of work, connections to communities, the strength of social capital, and a shared culture, history and language could also play roles in determining what happens to Anywhere Jobs. For example, companies that have been effective in creating partnerships with local governments and communities are relatively more likely to place greater weight on those connections when deciding whether to outsource or offshore Anywhere Jobs than businesses that have little or no links to the communities within which they operate. This dynamic may be particularly true for smaller firms compared to larger companies. Similarly, companies operating in the UK but with stronger links to customers, suppliers, workers or communities abroad, such as foreign-owned multinationals, may be relatively more likely to outsource or offshore UK-based Anywhere Jobs when restructuring their operations. [38]

- **Competitive pressures:** As companies restructure their operations following the pandemic, the pressures they face from either competitors or investors could also determine how they reshape their business models and, therefore, where Anywhere Jobs fit within that framework. In particular,

companies seeking to scale or grow quickly (for example, in the tech industry) or companies looking to unbundle and disaggregate their value chains might have an incentive to only employ a core set of people and use digital freelancing sites such as Upwork, Remote.io or Fiverr to access a pool of agile, flexible and highly skilled but, ultimately, temporary workers. In contrast, companies that are more focused on local customers and suppliers may be relatively more reliant on local labour.

Figure 17 – Contextual factors that could determine if an Anywhere Job is based in the UK or abroad

Anchors (Factors that will decrease the risk of jobs shifting abroad or increase the attractiveness of jobs shifting to the UK)	Factors	Accelerants (Factors that will increase the risk of jobs shifting abroad)
Easy access to childcare, workspace, devices and high-speed internet. Onerous overseas regulatory, identification and tax requirements.	**Support systems**	Poor support infrastructure, including childcare, workspace or connectivity. Ease in navigating overseas regulatory, identification and tax requirements.
Access to a broad, deep pool of UK-based skills. Education and training designed around softer, interpersonal skills. Strong management capabilities in the UK.	**Access to skills**	Skill shortages in the UK. Overreliance on immigrant labour. An erosion of dense, local labour markets raising search costs in the UK. Ease of using dense, digital labour markets.

Anchors (Factors that will decrease the risk of jobs shifting abroad or increase the attractiveness of jobs shifting to the UK)	Factors	Accelerants (Factors that will increase the risk of jobs shifting abroad)
Working practices (especially office spaces and management practices) designed to optimise productivity, wellbeing and collaboration. The resilience of larger cities.	**Productivity and wellbeing**	Desire to boost productivity by cutting the cost of office space or staff without reducing capability.
Connection to UK-based people and places with shared interests, culture and/or language. Strong organisational capital and corporate culture.	**Community**	Weak, local connections in the UK. Pre-existing connections to communities outside the UK (for example, either via workers, customers or supply chains).
Business model is based on or related to the provision of proximity services.	**Competition**	Desire or pressure to scale or grow at pace. Desire or pressure to unbundle or disaggregate service provision. Using or adopting an intangible-intensive business model.

Source: TBI calculations using ONS's LFS

Implications

Prior to the pandemic, part of the debate on turning around the UK's persistently poor productivity performance advocated replicating the prosperity and agglomeration effects of London in cities, towns and communities across the rest of the UK.

But now that remote working has loosened the ties that bind a job to a specific geography, this could prove mutually beneficial for individuals and businesses alike. Talented graphic designers, accountants or programmers may no longer have to migrate to large cities such as London to find the best opportunities. They can choose to live anywhere in the UK, most likely earning more than would be otherwise possible in that area. Similarly, businesses no longer have to limit their search area when recruiting for Anywhere Jobs. They can recruit regionally, nationally or even globally for the best talent and niche skills, often paying less than would otherwise be necessary in expensive city centres.

Unbundling, Polarisation and Inequality

But this shift also presents risks for both individuals working in Anywhere Jobs and for the UK economy more widely. The pandemic has accelerated digital adoption for businesses of all sizes. [39] As discussed above, companies are using this digitalisation to unbundle service-sector value chains, [40] allowing them to not only automate, outsource or offshore elements of their workforce, but also to manage and monitor that work more closely.

This potential transformation in workforces could be as profound as that seen in manufacturing over the past 40 years, but with a potential timeframe of the next 5–10 years. And as with the hollowing out of routine manufacturing and clerical roles, the potential loss of Anywhere Jobs is likely to come with social and economic disruption as the composition of work shifts and competition for jobs puts pressure on wages.

Such rapid technological shifts, if left solely to market forces, typically strengthen winner-takes-all dynamics, benefiting the few individuals or companies that can operate at scale while depressing wages and revenues for those that can't. [41] And against a backdrop of increased remote working and massive job losses, new tech platforms are further fragmenting labour markets [42] and fissuring workplaces. [43]

In addition, we are already seeing evidence that high-paying occupations are being concentrated in higher-paying firms (jobs that require leadership and softer, interpersonal skills as per our analysis) and lower-paid proximity services (typically roles in hospitality, cleaning and frontline services) are being concentrated in lower-paying companies. [44]

Offshoring or outsourcing Anywhere Jobs is likely to introduce greater wage pressure on jobs further up the earnings distribution. Yet if they are shifted abroad, the profile of the roles that are left – "more restaurants and more consulting firms" [45] – will only reinforce the polarisation we have seen in the labour market, increasing income inequality in the UK. Greater wage pressure on high earners may have fiscal implications as well. At the moment, the UK's economic model means a great part of our public services are paid through income tax and national insurance contributions of high earners in London and the South East. [46] Significant wage pressures at the top end of the earnings distribution could put stress on revenues.

Reshaping the Geography of Jobs

The UK does not have to be fatalistic about Anywhere Jobs: there is nothing inherent about them that means they will definitely all be outsourced and offshored. To the contrary, the contextual framework set out above demonstrates there are a range of factors that could not only help anchor Anywhere Jobs in the UK but equally attract remote workers here. Anywhere Jobs are likely to be a global phenomenon, giving the UK an opportunity to keep these jobs here and attract well-paid, remote workers from abroad.

With the right approach from government, Anywhere Jobs could also help support levelling up: individuals can earn more while living wherever they want in the UK, and businesses can cut costs without outsourcing or offshoring relatively well-paid jobs. But to benefit from Anywhere Jobs, the UK government needs to act now in order to make itself as attractive as possible to mobile labour. Priority actions include:

1. **Strengthening the support infrastructure** – such as childcare, transportation, 5G and gigabit broadband, and suitable housing and workspace – all of which would make remote working a reality across the whole of the UK. As it stands, this would require a significant change in policy focus in these areas. At a time when the Biden administration is pivoting towards significant investments in both child and social care, which it terms as "essential infrastructure", childcare in the UK costs 17 to 28 per cent of household incomes, [47] among the most expensive in the OECD. Parental-leave benefits are out of pace with increased flexibility at work; nearly 50 per cent of women and 40 per cent of men in the UK are not eligible for parental leave, [48] the third-highest percentage among European peers. In addition, affordable, good-quality housing with suitable work space near local infrastructure, adequate support systems and social connections will also influence remote workers in terms of where they choose to locate. [49] Finally, while average broadband speeds in the UK may point to a country well-positioned for anywhere working, the geographical concentration of connectivity suggests otherwise. In reality, large parts of the country such as the North, Cornwall and devolved nations experience connectivity far behind that of other English cities and the South. [50]

2. **Designing new forms of skills and (re)training.** As individuals with softer, interpersonal and team skills are likely to be the big winners in the future, a training system that recognises and advances them is essential to allowing employees to benefit from technological change and ease the frictions of moving between different professions. Over the past decade, jobs requiring higher levels of interpersonal skills have grown. [51] While cognitive and stem skills are still valuable, it is jobs that require an increased level of combined cognitive and social skills that have seen and will continue to see the highest levels of employment and wage growth. [52] This complementarity should be reflected in skills training. While Anywhere Jobs do not consist of routine work that can be easily automated, expert Carl Benedikt Frey's recommendations on how to rethink training to mitigate the risks of automation are still relevant. [53] In particular, leaning into technological change that untangles the bind between work and geography will require a system that goes beyond core skills and fosters the dexterities necessary in collaborative working.

3. **Renewing the social contract to support more mobile, flexible workforces.** The current system of social insurance is designed to be a safety net when a family or individual fall into crisis. Unemployment benefits in the UK, not linked to previous contributions, provide for some individuals, especially in the early months of unemployment, some of the lowest rates of income replacement in the OECD. [54] Instead, social insurance needs to be redesigned to fit a more flexible world of work and to help people be resilient to risk, cope with challenges and attain human capital. The UK also needs to recast the power dynamics between workers and firms. This would include modernising and better enforcing employment law to make labour markets less insecure. It needs to look at examples of how a stronger social safety net can increase the market power of workers relative to platforms. [55] And it needs to rethink how regulation, taxation and redistribution can deliver both flexibility and security for workers and sustainable operating models for businesses.

There is nothing inevitable about Anywhere Jobs being outsourced or offshored. But the economic, social and political legacy of accelerated deindustrialisation over the past 40 years shows that the UK must get ahead of this next wave of technological transformation in order to benefit economically – or find itself at risk of being swept away by it.

Technical Appendix

When is an occupation likely to be offshored? To understand this, we use the Occupational Information Network (O*NET) data set, a statistics database sponsored by the US Department of Labour, of more than 800 occupations – each scored against more than 100 distinct work activity and context metrics.

Each O*NET metric estimates how important a routine work activity is to perform a given occupation: an accountant, for example, scores highly on metrics such as "Analysing Data" and "Determining Compliance With Standards" while a nurse's core activities include "Establishing and Maintaining Interpersonal Relationships" and "Assisting and Caring For Others." Other types of O*NET variable exist in the database, such as the level of skill required by a task to perform a job. But in keeping with previous external literature, we focus on "importance" metrics for our analysis. Among the variable types available, we consider the importance metrics the best measure of whether a job is likely to be offshored because they encapsulate the core work functions of any given role and, by extension, whether aspects of a job's everyday work necessarily bind it to a specific location.

O*NET variable scores for an occupation are calculated as an average of survey responses from a sample of relevant US jobholders (or occupational experts in cases where jobholder responses are too few). Following O*NET guidance, we standardise these raw scores into a 0 to 100 scale, where 100 usually indicates that a task is completely essential to a job, and 0 indicates that a task is not relevant to a job at all. The exact interpretation of these scores varies by metric: higher scores on the variable "Face-to-Face Contact", for instance, imply that a job requires more regular in-person interaction, whereas higher scores on the variable "Structured versus Unstructured Work" suggest that jobholders generally have a higher level of freedom to define their work tasks and priorities, however survey responders may subjectively interpret these questions. Most variable scores, however, are based on survey responses that indicate how important jobholders subjectively consider a task is to their daily work, from a five-option range of "Not Important at All" to "Extremely Important." Where metrics differ from this interpretation, we use the guidance files provided by O*NET to ground our analysis.

Approximately 95 per cent of the O*NET scores across the "Work Activities" and "Work Contexts" data sets that we have used for our analysis are based on surveys from the past ten years, and about 60 per cent are from the past four years. Therefore, the O*NET scores we use largely reflect contemporary work sentiments, reducing the risk that our results are skewed by incorrectly capturing outdated routines. In the November 2020 O*NET database release, the latest data set available to us at the time of research, only about 20 per cent of variable scores are from 2020 surveys. This suggests that responders' sentiments about the importance of routine tasks perhaps underestimate how many jobs have the potential to be offshored because respondents presumably gave, on average, higher scores to

in-person metrics, such as the need to be physically present in a work office, in a pre-pandemic context compared with the evaluations they might provide today.

The starting point for our O*NET analysis is an academic paper entitled *Business disruptions from social distancing*, published in the journal *PLOS One* in September 2020, by Miklós Koren and Rita Pető. Koren and Pető use O*NET data to estimate which US industries will be affected most by homeworking during the pandemic in terms of employee productivity loss. According to the authors, there are three categories of tasks that prevent jobs from being done from home:

- **Teamworking**: If workers are not based in the same location, communication becomes more difficult.

- **Customer-facing:** Jobs that involve face-to-face communication with customers are less easy to perform remotely.

- **Physical presence:** If individuals require access to a particular piece of land, infrastructure or machinery that is only available at the job site, then remote working becomes more difficult.

In Koren and Pető's model, each of these three categories comprises five O*NET work task variables from the work activities data set listed below. For each category, the authors score each occupation as the average of the importance scores across these five variables. They also use the work context data set to flag whether a job requires a specific set of working conditions that may make remote working easier or more difficult: these context flags are frequent face-to-face interaction, physical proximity to co-workers and extensive use of email.

For each occupation, if both the average category score and the associated work context metrics scores are above a pre-defined cut-off, then the occupation is flagged as difficult to do from home.

Index	Tasks	Context
Teamwork	Work with group or team	Face-to-face discussions several times a week and more often than emails, letters and memos
	Provide consultation and advice to others	
	Coordinating the work and activities of others	
	Guiding, directing and motivating subordinates	

	Developing and building teams	
Customer	Deal with external customers	Face-to-face discussions several times a week
	Performing for or working directly with the public	
	Assisting and caring for others	
	Provide consultation and advice to others	
	Establishing and maintaining interpersonal relationships	
Presence	Handling and moving objects	Density of co-workers like shared office or more
	Operating vehicles, mechanical devices or equipment	
	Repairing and maintaining electronic equipment	
	Repairing and maintaining mechanical equipment	
	Inspecting equipment, structures or material	

Each social distancing index (column 1) is created as an arithmetic average of the component indexes (column 2). To be classified as an affected occupation, the average has to exceed 62.5 and the work context index has to exceed the threshold in column 3.

Our goal is to measure how likely a job is to be offshored, which is somewhat different from Koren and Pető's index measuring remote working. We therefore need to use a different set of work task variables. To select the new set of work task variables, we first construct an intuitive, manual flag of whether an occupation could in principle be offshored, based on job descriptions provided by O*NET.

We then use an algorithm to select the variables that best predict which jobs could be offshored, using the manual flag as a rough guide to sense check and benchmark different models. The algorithm works by varying the set of variables included in the model so as to both minimise the false negatives in our categorisation (cases where an occupation is incorrectly characterised as not likely to be offshored) and also to maximise the true positives. We select variables iteratively until the prediction is optimised.

In terms of score cut-offs for each variable, we start with Koren and Pető's measure for how important a task has to be before it is considered a binding constraint on working from anywhere. We then adjust these based on: the score cut-offs that make theoretical sense for offshoring, as opposed to remote working, given how O*NET defines a variable's scale; distribution plots of how variable scores map onto our manual, sense-check flag across occupations; and whether cut-off adjustments improve the performance of the model in terms of accurately flagging true positives.

The aim of the model is to predict which occupations cannot be offshored rather than those which can. The reason for this is that we believe there is no single work task that can, on its own, give a dispositive impression of whether an occupation can be offshored, but individual factors can convey whether someone is clearly required to stay in the UK. For example, a job with a very high score on metrics related to carrying out work on a particular job site clearly must be done in the UK, even if other characteristics suggest it could be offshored. For similar reasons, unlike Koren and Pető, we do not average across baskets of variables but rather apply standalone cut-offs for each variable: a high score in one variable, such as needing to perform a job at a work site, might be a strong indication of a job that cannot be offshored, whereas averaging across variables would potentially mask these variable-specific conclusions. For each work task variable, we set a cut-off score above which we consider an occupation practically difficult to be done productively from abroad: we conclude that jobs above these thresholds cannot be offshored in our model.

We end up with an 18-variable model that is presented below. Even though we do not average across different categories of tasks in the same way as Koren and Pető, we present the tasks in three broad groups for better intuitive understanding of what the index is aiming to capture.

Location oriented Requires being regularly physically onsite	**Working with others** Requires softer, interpersonal skills	**Leadership responsibilities** Requires management & strategic skills
Outdoors, exposed to weather	Selling or influencing others	Developing objectives and strategies
Exposed to hazardous conditions	Training and teaching others	Responsibility for outcomes and results
Very hot or cold temperatures	Coaching and developing others	Responsibility for health and safety
Spend time walking and running	Assisting and caring for others	Developing and building teams
Performing general physical activities	Resolving conflicts and negotiating with others	Judging the qualities of things, services or people
Inspecting equipment, structures and material	Performing for or working directly with the public	Guiding, directing and motivating subordinates

To understand the impact of offshoring specifically on the UK labour market, we bring this analysis to the UK Labour Force Survey (LFS) by the ONS. To avoid our results being susceptible to some of the short-term disruptive impacts of the pandemic, our analysis uses financial-year data from April 2019 to April 2020.

There is no direct correspondence between the US occupational codes in the O*NET data set and the occupational codes in the LFS. To match our index to the UK data, we use a set of crosswalks provided by the US Bureau of Labour Statistics and the ONS in the UK that match the O*NET occupations to previous versions of the Standard Occupational Classification in the US, which in turn match to the ISO occupational classification for which the ONS provides a UK occupational match.

2019 ONET -> 2018 US SOC -> 2010 US SOC -> 2008 ISO -> 2010 UK SOC

Bureau of Labour Statistics

UK Office of National Statistics

Some occupations in the LFS correspond to more than one O*NET code, as the O*NET classification includes a higher level of occupational disaggregation. When that is the case, we calculate the offshoring-likelihood index score based on the average score of each criterion across the different O*NET occupations corresponding to that one LFS code. We check the scores of the underlying occupations match the final index score and the occupational matches make intuitive sense. For the nine occupations in the LFS for which there is no ONET match, we manually provide the score of the occupation in closest correspondence.

9 LFS codes not in the ONS file

1116 – Elected officers and representatives → **1115 – CEOs and senior officials**

1171 – Officers in armed forces
3311 – NCOs and other ranks →
1172 – Senior police officers
3312 Police officers (sergeant and below)

6121 – Nursery nurses and assistants
3213 – Paramedics
6142 – Ambulance staff (excl. paramedics) →
6141 – Nursing auxiliaries and assistants
3218 – Medical and dental technicians
3219 – Health associate professionals

6125 – Teaching assistants
6126 – Educational support assistants →
25-3011.00 – Adult basic education instructor
25.2011.00 – Preschool teachers
25.2012.00 – Kindergarten teachers
25.3041.00 - Tutors

9232 – Street cleaners → **9233 – Cleaners and domestics**

The results presented above are based on population-weighted characteristics of the working age population in occupations classified as having the potential to be offshored or not by our index.

Charts created with Highcharts unless otherwise credited.

Footnotes

1. ^ https://www.ft.com/content/ab83270c-253a-4d7a-9ef8-a360d2e04aab

2. ^ https://www.vox.com/future-perfect/21445830/work-from-home-covid-19-offshoring

3. ^ https://yougov.co.uk/topics/economy/articles-reports/2021/04/13/one-five-want-work-home-full-time-after-pandemic

4. ^ https://voxeu.org/article/doughnut-effect-covid-19-cities

5. ^ David Weil, The Fissured Workplace: Why Work Became So Bad For So Many And What Can Be Done To Improve It, 2017

6. ^ https://www.mckinsey.com/featured-insights/future-of-work/whats-next-for-remote-work-an-analysis-of-2000-tasks-800-jobs-and-nine-countries

7. ^ http://cep.lse.ac.uk/pubs/download/cepcovid-19-009.pdf

8. ^ http://cep.lse.ac.uk/pubs/download/cepcovid-19-009.pdf

9. ^ https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever

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