Institute for Fiscal Studies

Getting people back into work

IFS Briefing Note BN286

Monica Costa Dias
Christine Farquharson
Rachel Griffith
Robert Joyce
Peter Levell

UKRI Economic and Social Research Council

Getting people back into work

Monica Costa Dias, Christine Farquharson, Rachel Griffith,

Robert Joyce and Peter Levell

IFS

4 May 2020

1 Introduction

The COVID-19 pandemic has led to unprecedented social distancing measures around the world to contain the spread of the virus. The UK has, like many countries, effectively closed down entire sectors of its economy and severely limited activity in many other sectors. This curtailing of activity is likely to lead to a sharp recession. At the same time, the risks of easing these measures too soon, or in misguided ways, are obvious, not only for public health but also for the economy. A world with no lockdown and a pandemic spreading rapidly through the population does not make for a healthy economy either; nor, in all likelihood, does a world in which containment measures have to be repeatedly re-instated after being eased prematurely or in sub-optimal ways.

The government faces these incredibly difficult trade-offs in deciding when and how to ease lockdown restrictions to restart the economy. It will have to take these decisions with limited knowledge of what is happening to firms, families and workers, what the health and economic consequences of alternative policies will be, and considerable uncertainty about how events will unfold and how best to promote inclusive economic recovery.

In this article we discuss some key economic issues that should be considered when thinking about how best to get people back into work: we assemble some basic empirical evidence, identify some challenges that policy-makers will need to confront, and discuss some policy considerations. Many of the specific issues that we overview could be examined in more detail, and we hope that this paper might make some contribution in setting the agenda for that.

When thinking about this highly unusual crisis, there are a few insights from economics that can be helpful in guiding policy thinking in relation to easing the lockdown and getting people back into work. These underlie a number of the more specific policy options that we discuss in the rest of the paper, and it is useful to describe them up front.

The first is that pervasive economic uncertainty in itself typically dampens economic activity, and additional policy uncertainty can be particularly damaging. On some measures economic uncertainty is now greater in magnitude than during the 2008 financial crisis (Baker et al., 2020). Restarting the economy while mitigating the rate of virus transmission will require firms to reorganise working and workplace arrangements, which will often involve costly investments. Many workers too may need to invest in new skills, and perhaps even relocate, in order to continue working. Neither firms nor workers will take these steps as much as would be ideal if it is unclear for how long those investments will be needed.

In other contexts, uncertainty – and policy uncertainty in particular - has been shown to discourage firms from taking action and from investing (e.g. Pindyck (1990), Bloom et al. (2007) and Baker et al. (2016)). Of course, flexibility and discretion over future policy is necessary in a situation where much of the relevant science remains unknown, as is currently the case – and claiming certainty now only to change guidance later would probably undermine certainty more than simply saying nothing. But there may be things on which basic 'forward guidance' can already be provided. For example, it seems safe to say that the desk-based economy will be expected to largely work from home, and that many workplaces will be expected to implement social distancing measures, for some time after the full lockdown is eased. Being clear about that now will help ensure that firms do not under-invest in making these things happen effectively, under the mistaken impression that things might soon return to normal for them once lockdown is eased. The damaging effects of uncertainty – particularly where this cannot be easily removed by government, given the inevitably uncertain environment – also highlight the importance of effective state insurance schemes, so that firms and workers do not bear all of the risks of further disruptions or lockdowns.

Second, the need for innovation will be a central feature of the post-lockdown, pre-vaccine period. Successfully navigating trade-offs between economic activity and rates of virus transmission will require adaptations to the ways in which work is organised, to reduce crowding in the workplace (both by enabling working-from-home and by increasing social distancing within the workplace) and on public transport as people commute. The appropriate innovations will tend to be different in different sectors and contexts, and it is industry – rather than government – that will be best placed to identify them. But there are crucial things that government can do to encourage and facilitate this type of innovation. Providing certainty where possible is one important example, as discussed. As with innovation in other areas, regulation, monitoring and the sharing or publicising of best practice are all policies that potentially can encourage it. Fiscal policy instruments might also play a role to align firms' incentives with society's wider interests: the presence of a contagious virus creates obvious externalities meaning, for example, that many of the gains from innovations to enable workers to work from home will be felt by the rest of society (in the form of lower rates of virus transmission) rather than those workers or firms themselves. There are also subtler reasons why firms' investments may fall short of what is socially optimal. Returns to the investments of one firm depend on similar investments being made by firms in its supply chain and by other businesses that purchase its output, so that they too can re-open normal activity. Here there is a useful analogy with the economics of climate change, where strategic complementarities mean that individual firms under-invest in adaptations towards cleaner energy, even in the presence of a carbon tax (Aghion et al., 2014). This market failure could be tackled through a combination of targeted subsidies, insurance schemes that reduce investment risk and regulation establishing, for instance, minimum distance requirements in the workplace.

Third, there is an unusually strong case for the government playing an active role in helping the labour market adjust to the huge shock that it has gone through. The severity of this crisis combined with the fast adoption of new technologies to facilitate social distancing in work is already leaving many workers without a job as their firms shut down or their occupations become redundant; in all likelihood more will follow. Other workers are being temporarily furloughed while their firms are in lockdown.

Millions of workers may need to look for different sorts of work, in different firms and different sectors, either temporarily or permanently. In any given local labour market there is no guarantee that the skill sets of workers looking for new jobs will match the new needs of firms, and – particularly in markets with lots of small firms – the logistical exercise in forming matches between large numbers of workers and firms can be slow and inefficient, as we have seen in the example of fruit pickers. More generally we know that large mismatches in the labour market can hamper employment and economic growth (Sahin et al., 2014). To minimise such negative and long-lasting effects, there is a strong case for public intervention – not of the command-and-control type, but to minimise the frictions in the labour market by, for instance, providing platforms for job posting and matching in specific sectors or occupations. Policies to incentivise re-training on the job may also facilitate the formation of new high-quality matches. And there should be firm steps to remove obvious barriers to sensible labour market re-allocation, such as exclusivity clauses which prevent some furloughed workers from taking up temporary work in sectors where there is demand for their labour. In some localities where private sector vacancies are poorly matched to the skill sets of unemployed or furloughed workers, there may be a case for more direct intervention, e.g. by employing such workers to conduct valuable public investments that will pay off later. All of this will require good data (better than is currently available) on where vacancies are arising and the locations and characteristics of the furloughed and unemployed.

Fourth, the impacts of lifting the lockdown will depend on how individuals respond to the new rules. Individuals and families face very variable constraints and incentives to go back to work. Many workers will be incapable of returning to work, either because they have health vulnerabilities or because they live with vulnerable people or key workers. In addition, while schools and nurseries remain closed many parents will find it difficult to return to work and support their children. We estimate that, among non-key workers who cannot easily work from home, two-thirds could have constraints that limit participation in the labour market or have circumstances such that the risks of their participation are relatively high. Any strategy for easing lockdown which is based on letting some population groups go back to the workplace before others should be prepared for the fact that there will still be many difficult cases within those groups, and the need to ensure safety on public transport and in the workplace will still be paramount.

Another running theme is that the most appropriate policy in each case depends on the balance of information and know-how between the government and the economic agents. Where firms or workers have better information than government, policy should be designed to encourage them to take the best actions, for instance through regulation, subsidies, or the (possibly temporary) removal of existing regulation, taxes or subsidies that provide disincentives. Where government has better information it should be more directional.

Some caveats are in order before we proceed. First, there are important limitations to what we can say empirically now, as most of the information we have is from the pre-crisis period. The real time data that already exists is limited and we comment on where we think this is a particularly important concern.

Second, we do not consider what tolerance society may have for infection risk and whether that changes as the crisis unfolds. These are clearly key inputs to decision-

making, which we are not best placed to comment on. Tolerance to the risk of getting infected is likely to vary across individuals.

Third, there are important behavioural factors that we again are not well placed to comment on here. As the lockdown is eased, some individuals may behave more carelessly, possibly speeding up contagion and making the outside environment riskier for all and especially for the most vulnerable. Conversely, under continued strict restrictions some may increasingly flout them. These should be important considerations when assessing different policies.

Fourth, scientific or practical advances, such as widespread testing or the rapid development and deployment of medical treatment, would have important consequences for how one views alternative policy avenues. A discussion of the economic policy implications of such developments is outside the scope of this paper.

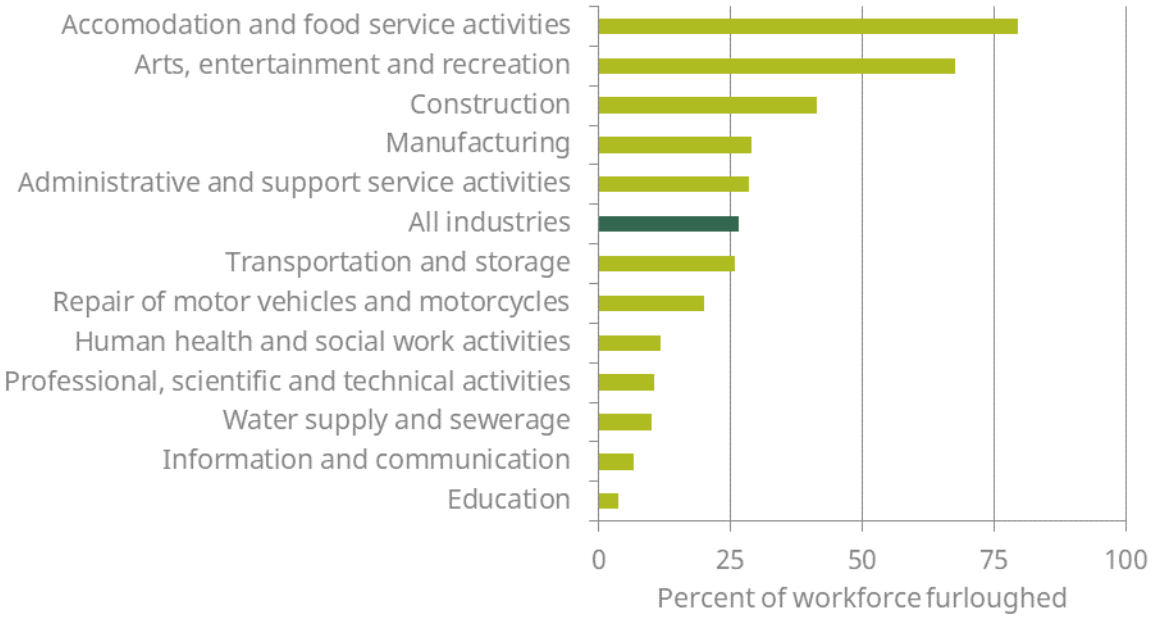
In Section 2 we set the context with what we know about who is and is not working under lockdown. In Sections 3-6 we run through some of the key factors that we need to think about in order to restart the economy, covering working from home, commuting, safety in the workplace, and individual- or household-level constraints or risks to going out to work. In each section we set out some key empirical facts and discuss the role for government, with reference to some of the key principles outlined above. In Section 7 we discuss which firms will want or be able to employ workers as we restart and issues around supply chains and productivity. In Section 8 we summarise and conclude.

2 Who is and is not working under lockdown

To set the scene for much of what is to come, it is useful to set out what we know about who is, and is not, working under the current lockdown. Figure 1 shows the proportion of workers who have been furloughed in different industries, among businesses that responded to a survey conducted by the Office for National Statistics (ONS) between the 23rd of March and 5th April this year.[1] The survey is intended to cover firms that either continue to trade or have temporarily paused trading; not firms that have shut down completely (hence, it is possible that the 0.3% of firms who had ceased trading is a substantial under-estimate of the true figure across the UK). These figures also do not include the self-employed of unincorporated businesses. More generally there is no guarantee of representativeness. But it is perhaps the best information we have at present.

[1] The survey asks firms what proportion of their workforce they have furloughed and these figures are then weighted according to firm employment data taken from the Inter-Departmental Business Register. 6,150 businesses responded to the survey.

Figure 1: Proportion of workers furloughed by businesses responding to ONS survey, 23rd March – 5th April 2020



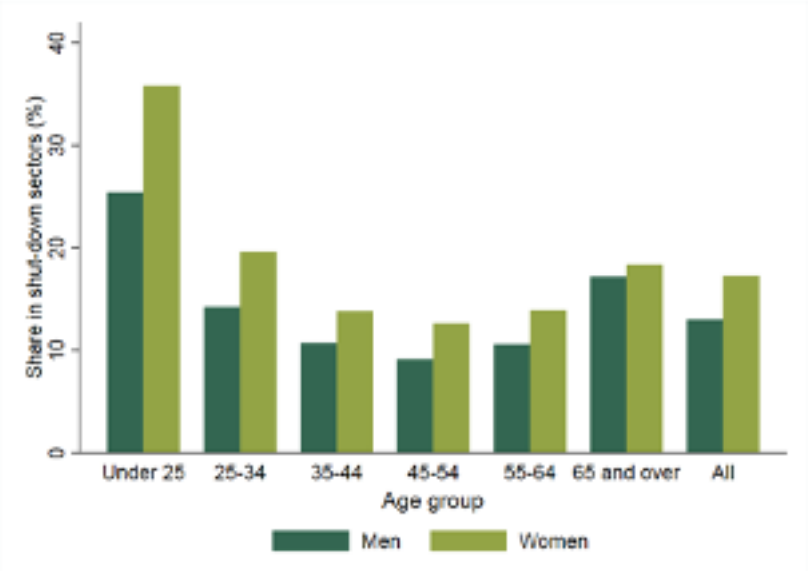
Note: Office for National Statistics (2020)

Figure 1 suggests that in late March and early April 27% of employees had been furloughed. Furlough rates were greatest for businesses in the accommodation and food services and arts, entertainment and recreation sectors, which respectively furloughed 80% and 68% of their workers. The same survey indicates that 0.5% of employees had been made redundant over this period (again, note that this may exclude significant numbers of employees who are now without work because their firms have folded altogether).

Another approach to estimating the number of workers who have been furloughed or laid off is to survey individuals. Adams-Prassl et al. (2020) report the first available results from an online survey of 3,974 individuals taken on 25 March 2020. Their figures suggest much greater proportions of individuals no longer working, but largely corroborates the kinds of variations seen across sectors shown in Figure 1, and provides additional detail suggesting that younger workers and women are more likely to have lost work. This accords with ex-ante analysis of pre-crisis data by Joyce and Xu (2020), which showed that sectors which have been entirely shutdown – like hospitality – disproportionately employ those groups (see Figure 2).

The fact that the Adams-Prassl et al. survey includes the self-employed and people whose firms have gone bust would be one potential reason for the gloomier picture it paints when compared to the ONS, though it is also likely that surveys of this kind under-sample people who still have plenty of work to do and hence less time to fill in surveys. Clearly more real-time data will help. But, taken together, what these useful and timely analyses do reveal very clearly is that large fractions of the workforce are not currently doing productive work and that this varies greatly across sectors and hence types of people.

Figure 2: Share of workers in shut-down sectors by age group and gender



Note: Joyce and Xu (2020), based on Labour Force Survey.

These figures are crucial context to the challenge of easing lockdown. They provide a sense of scale for how far out of equilibrium the labour market will be as restrictions are eased, with huge numbers of people and firms looking to restart work and production at around the same time. As we discuss later, the potential role for government to help smooth this huge exercise in coordination and re-allocation is unusually significant, as it could otherwise take a very long time and lead in the interim to inefficient labour markets (e.g. unnecessary labour shortages in some sectors, as we've seen recently for fruit pickers) and needless hardship for unemployed workers. More specifically, one may look at some of these figures and discern with fairly high probability that a number of the furloughed or laid-off workers will not be able to return to their previous work for some time – for example, many of those furloughed in the food and accommodation sectors. It should be a priority to identify now where those workers are, and to ease barriers to them taking up alternative work, at least on a temporary basis, rather than simply accept that they will be furloughed and not doing productive work for many months. Moreover, this sector has space and other capital that is currently not being used. Repurposing such space for alternative uses that will be more compatible with social distancing as the lockdown is eased could maximise its value and allow more workers to restart their activities.

3 Working from home

As lockdown is eased, ensuring that those who could work from home reasonably productively are doing so should be a policy priority. It dampens the trade-off between the level of economic activity and the rate of virus transmission. It benefits not only those who can work from home; it also enables more of those who *cannot* work from home to go to work, without society once again seeing a spike in virus infections large enough to precipitate the re-introduction of lockdown which would once again threaten their livelihoods. But there is obvious potential for market failure

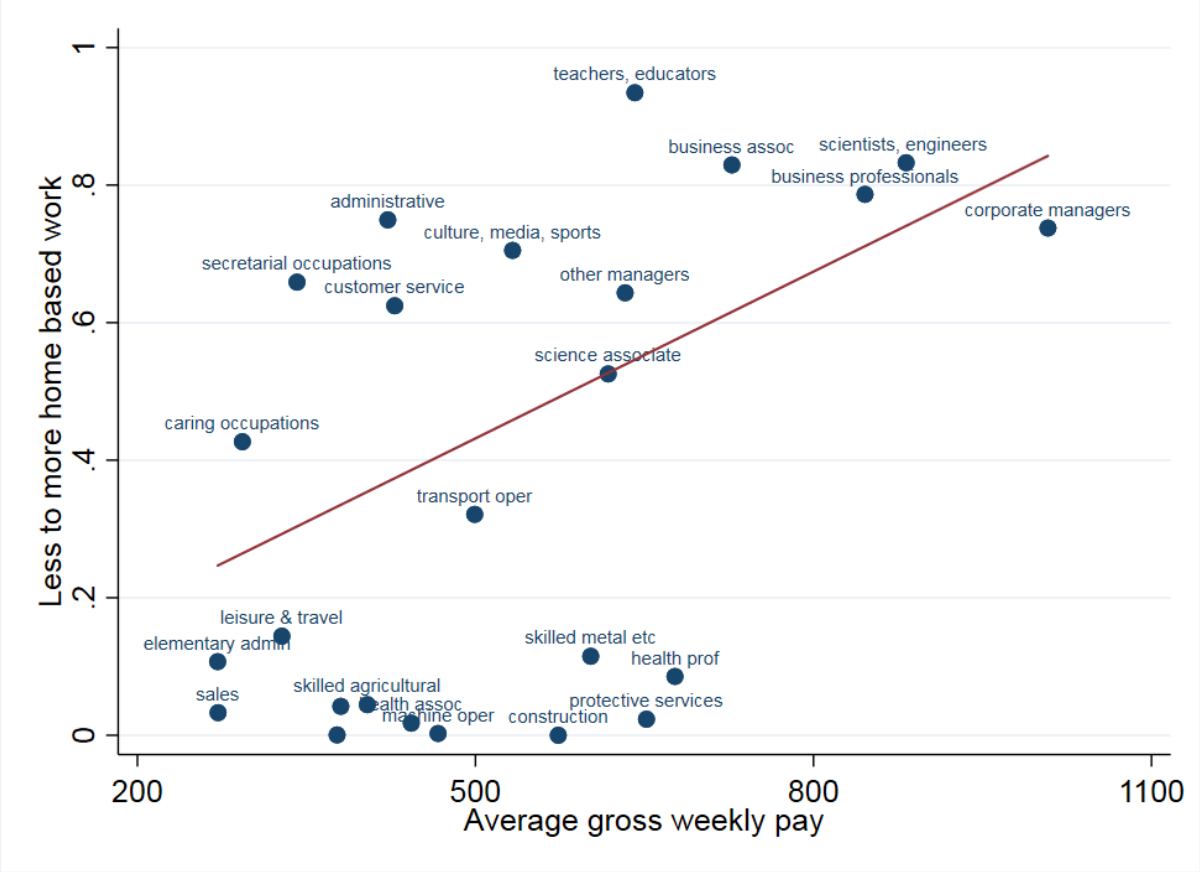
here resulting in insufficient working from home. Some of the benefits from doing so accrue not to the individuals or firms themselves but to others in society (through lower virus transmission); and working from home may require investments and adaptations that the uncertain environment could inhibit.

3.1 Ability to work from home

Figure 3 shows occupation-level estimates of the degree to which workers might be able to work from home, against average earnings in that occupation. To produce this we have applied the approach of Avdiu and Nayyer (2020), which was based on the tasks involved in different occupations in the US (which itself utilised analysis of the O*NET task database undertaken by Dingel and Neiman (2020)). Each occupation at the 4-digit level of the Standard Occupational Classification (SOC 2010, ONS) is classified as either amenable or not amenable to home working. For example, jobs that necessarily involve working with machinery, close contacts with customers or working outside will not be amenable to home working, all else equal. On the other hand, many desk-based occupations such as legal, management and computer programming (shown on the right of the graph) will be. There are two caveats to this. First, it is based on pre-crisis information on task content. These are not immutable, and the nature of some roles could be adapted (discussed further below). Second, they assume that the US-based classification of occupations by task content translate perfectly to the UK setting.

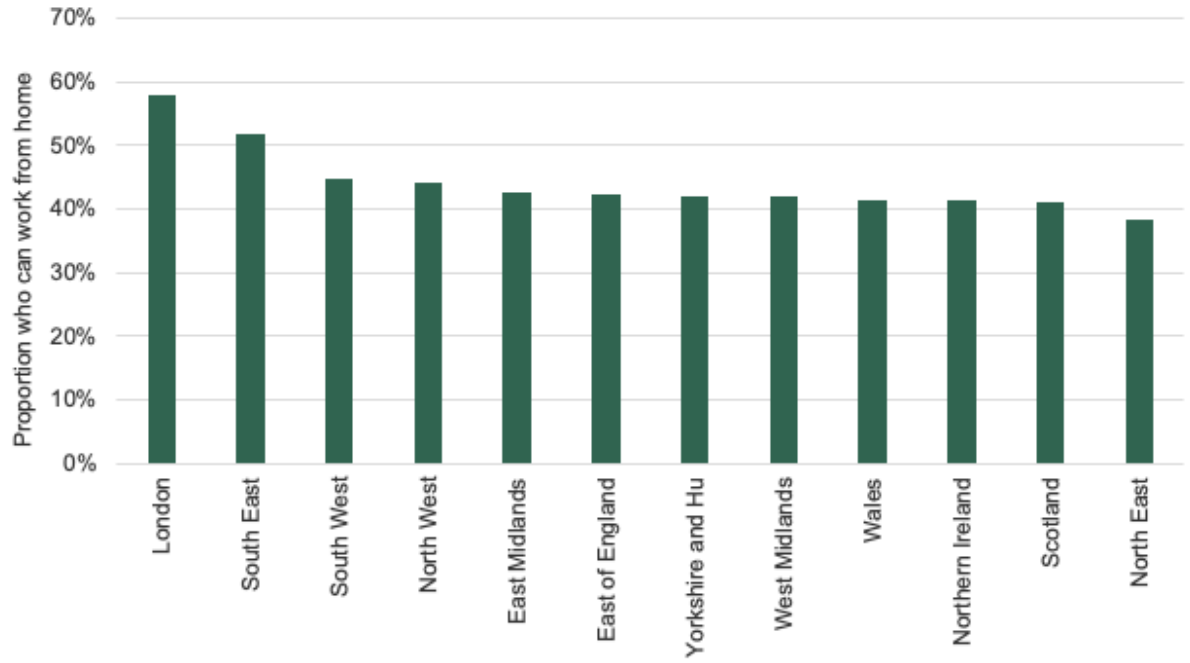
Figure 3 shows the proportion of occupations that can be worked from home within each 2-digit level SOC-2010 group against the average pay in that group of occupations. It demonstrates that lower-paid jobs are less likely to be amenable to do from home. This emphasises the likely need for effective insurance from government for some time, to help those who cannot be accommodated safely in the workplace. Figure 4 splits the analysis instead by region, which shows that the occupations of workers in London are on average considerably more amenable to home working than those in the rest of the country. For example, 58% of workers in London are in occupations amenable to home-working compared to 38% in the North East of England (Magrini (2020) provides information on the possibility of working from home at a more granular level.) This is actually a convenient fact in the context of mitigating virus transmission since, as we shall see, if Londoners do not work from home they are much more likely than others to commute by public transport, in which the risk of spreading the virus is relatively high. An emphasis on ensuring that home working happens wherever it can looks particularly appropriate in London.

Figure 3: Amenability of different occupations to home-based work against average earnings for different occupations



Note: LFS data for 2018-2019. "Can work from home" assessed on o-net characteristics of jobs, including whether works outdoor every day, deals with safety equipment, machinery, deals with public, etc. Vertical -axis measures the proportion of occupations that can be worked from home within each 2-digit level SOC-2010 group.

Figure 4: Proportion of workers in occupations which could be done at home by region



Note: Authors' calculations using Quarterly Labour Force Survey 2019 and measures of whether occupations can work from home taken from Dingel and Neiman (2020). Calculations based on region of residence.

3.2 Ensuring that working from home happens as much as it should

The possibility of working at home given the tasks involved in one's job pre-crisis is not necessarily a good guide to whether one could do one's job from home after sufficient ingenuity and innovation to reorganise working practices or service delivery. Adaptation is possible. In the education sector working from home was not the norm prior to the crisis, but universities were able to make the shift towards remote teaching relatively quickly and easily. Similarly, school teachers have to some extent been able to use existing technology to enable them to work from home, although potentially with diminished quality.

There may be longer-term benefits from innovations of this kind. In some industries, and at least when it is partly the worker's choice, working from home has been shown to improve productivity significantly (Bloom et al., 2018). In other contexts too, "forced experimentation" of methods that would not otherwise have been tried has led to people discovering that they were not previously doing things optimally: namely, the 2014 London Tube strikes led to permanent changes in commuting behaviour as people were forced to discover commuting routes or methods that they preferred to what they were doing before (Larcom et al., 2017). It is certainly possible that this crisis does something similar for remote working as, for example, people re-evaluate the need to travel rather than use videoconferencing facilities.

However, the most basic case for policy action to encourage working from home is much more simple. There are negative externalities associated with travel and social contact in the workplace during a pandemic. Hence, there is a clear potential role for

government in encouraging working from home or the innovations that facilitate it. And an uncertain environment may prevent firms from making the investments that are required, so there is a role for government in mitigating that uncertainty.

Potential policy levers include:

- **"Forward guidance" about the expectation of working from home in certain parts of the economy**. Despite all the uncertainties ahead, it seems highly likely that under any sensible and balanced approach to lifting lockdown, many people in desk-based occupations should be continuing to work from home for some time. Making this clear now could have real benefits. Company decision-makers who think they will be filling offices again as soon as lockdown is lifted are unlikely to be investing as much as they should be in innovation to enable productive working in a remote context.
- **Loans or grants to cover the up-front investment costs in remote working technologies**, perhaps targeted at smaller businesses where cash-flow issues are likely to be most significant. (Ideally there would be monitoring to ensure that working-from-home is actually taking place for recipients of this – see below for wider benefits of monitoring).
- **Sharing of best practice.** Firms and sectors will tend to be best at figuring out how to most effectively conduct remote working in their particular context. But the government could play a role in helping new innovations and best practices to spread as quickly as possible.
- **Subsidies for firms or workers who are operating from home**. The theoretical case for these is clear, given the externalities, though the practical design could be challenging, e.g. to avoid large deadweight.
- **Norm-setting**. Simply sending a strong signal that certain sectors or occupations are expected to work from home, and that failing to do so is deemed unacceptable and irresponsible, may have a significant effect. The government could play its part in making it reputationally or psychologically costly to flout this societal expectation, effectively internalising the externality without the cost or design challenges of a financial subsidy to work from home.
- **Regulation and monitoring.** As well as the direct benefits, this can help spur innovation in working-from-home.

4 Commuting

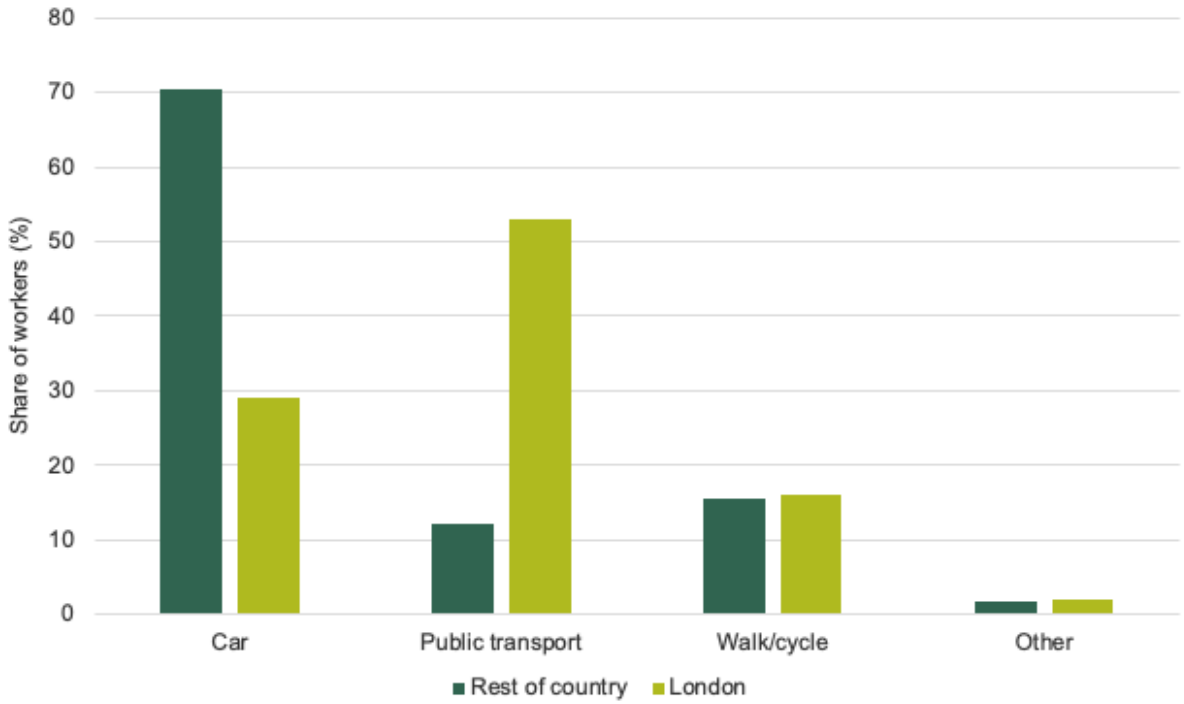
The crisis has turned normal assessments of the social desirability of different forms of transport on their head. The externality calculus normally favours public transport and works against driving. Now, travel on crowded public transport – particularly at peak times – comes with obvious negative externalities, given the risk of spreading illness. On the other hand, travel by car is not only much better for containing the virus, but also associated with lower-than-normal congestion externalities as road use has fallen. This calls for temporary changes in policy.

Some simple empirical facts help to highlight the challenges that need addressing. First, there are large regional differences in commuting patterns. It is in London where commuting by public transport is by far the biggest issue. Figure 5 shows that just over half of workers resident in the capital commuted to work via bus or train

before the crisis, compared to around 1 in 8 workers living in the rest of the UK. Journeys in London also frequently involve several forms of transport (for example, changing lines on the London Underground); this can heighten infection risks, particularly at crowded times (Goscé and Johansson, 2018).

On the other hand, and fortunately given the previous figure, London residents are also disproportionately likely to work in occupations amenable to home-working. Figure 6 shows the proportion of those taking public transport to work who could potentially work from home. Almost two-thirds of London residents who used to rely on public transport could work from home. Hence, one way of addressing the challenge caused by hazardous commuting is to pay particular attention to the policy levers encouraging working-from-home (discussed in the previous section) in London.

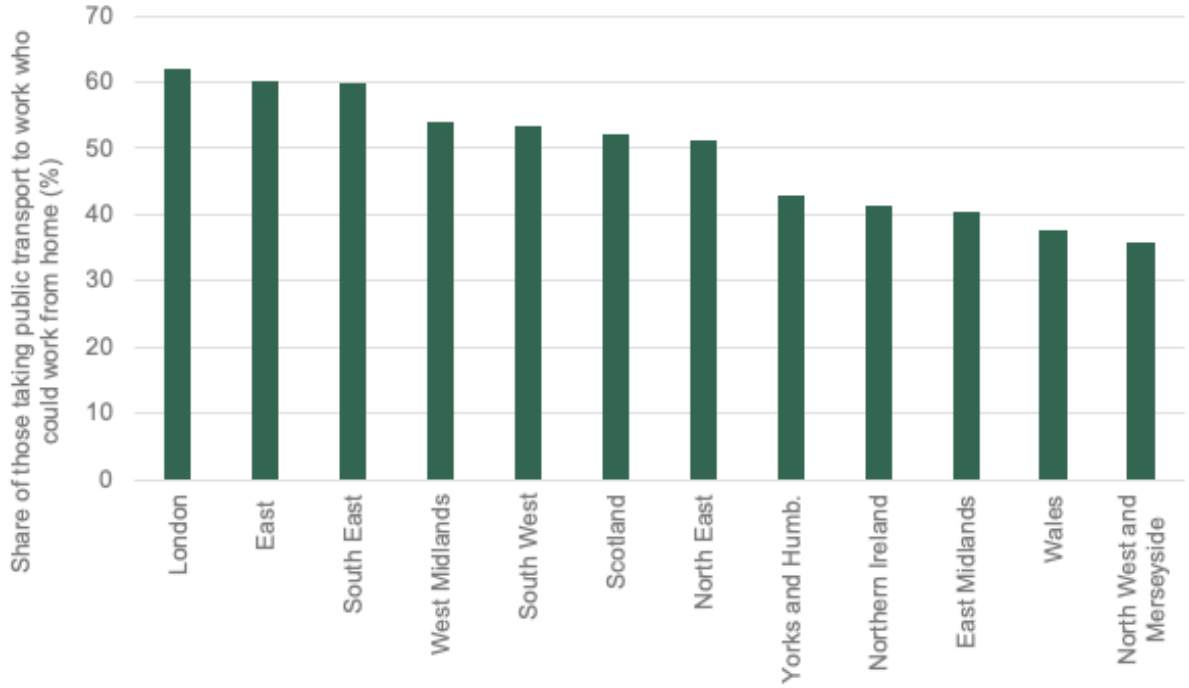
Figure 5: Means of getting to work in London and in the rest of the country[2]



Note: Authors' calculations using UKHLS (Wave 8). Calculations based on region of residence.

[2] We do these calculations in the UKHLS, where we only observe workers' 3 digit occupations. We define workers as being able to work from home if their chance of being to work from home in their 3-digit occupation is greater than 50%.

Figure 6: Proportion of those who normally commute to work via public transport in occupations who could work from home



Note: Authors' calculations using Quarterly Labour Force Survey 2019 and measures of whether occupations can work from home taken from Dingel and Neiman (2020). Calculations based on region of residence.

Second, there is very substantial clustering of commuting at peak times. Achieving greater dispersion of commute times is one way to reduce the public health consequences of a given amount of commuting (and may well be complementary to other measures, such as trying to enforce minimum distances between people on public transport). Figure 7 shows that commuting, especially in London and the South East, clusters heavily around peak times. At 8:30am, 20% of London workers are commuting. Flattening these peaks – both by reducing absolute demand for public transport and by shifting demand into less-busy times of the day – would reduce the risk of infection.

One way of flattening these peaks would be to encourage firms to be innovative in how they structure working hours and shifts, to enable workers to spread their commutes more throughout the day. This could be achieved by shifting working hours on a firm-by-firm basis but, where possible, it will be preferable for firms to achieve this by enabling workers within the firm to start at different times. This not only reduces the need for coordination between firms (which the government would be well placed to help with, if necessary); it also reduces contact between workers within the workplace. It is therefore discussed further in the next section.

Finally, given the temporary change in the externality calculus of different modes of commuting, the government could alter the relative prices of different types of commutes to better reflect this new reality. Examples would be to increase the relative price of commuting at peak times on the London tube and bus network, or to suspend the London congestion charge for drivers. The government should, however, be mindful of the political economy of reversing temporary policies when

they are no longer optimal. For example, we are hesitant to recommend temporary cuts in fuel duties if there are good alternative ways of discouraging public transport use, given that recent history suggests the government would find it very difficult to increase fuel duties again in the face of inevitable lobbying post-crisis.

Figure 7: Proportions of workers travelling to work in 10-minute intervals over the course of a weekday

Note: Authors' calculations using UK Time Use Survey 2014-15. Chart shows the share of workers who report their main activity in a 10-minute interval as commuting. Data are for a randomly selected weekday.

5 Making work safer

5.1 Ability to socially isolate at work

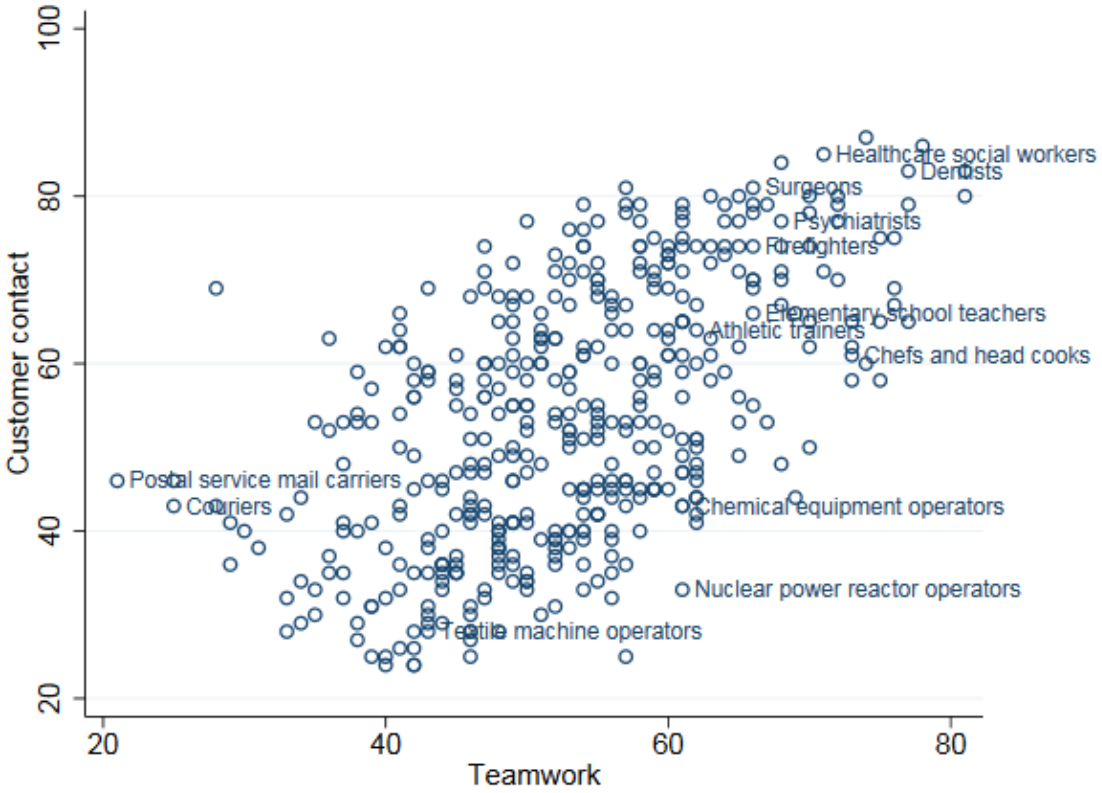
Social contact in the workplace – whether with customers or colleagues – will be another important dimension of risk when easing lockdown restrictions. The UK government has been consulting unions, large firms and business groups on the ease of social distancing in different types of workplaces – for example, outdoor work or work in another person's home. Assessing social distancing risk by workplace has the advantage that it is likely relatively easy for businesses and workers to self-assess which category they belong to. However, this is likely to be a crude tool. For example, a small number of workers sitting at well-spaced desks in an office might come into less contact with others than workers in a small garden centre who regularly come into contact with customers.

This points to two other dimensions for the ease of social distancing at work. Consumer-facing industries are likely to find social distancing measures more difficult to adopt compared to intermediate industries. And workplaces where physical teamwork is required will tend to have more social contact than those where workers are able to work individually on tasks most of the time.

Based on O*NET data for the US, Koren and Peto (2020) categorise occupations by the level of close contact that is required between workers, indicated by teamwork on the horizontal axis, and the need for face-to-face communication with customers on the vertical axis. Figure 8 shows that these two indicators of the ease of social distancing are highly correlated. This suggests that there might be a fairly clear hierarchy of ability for social distancing in different roles.

However, these categorisations are necessarily based on pre-pandemic data. A crucial issue is the extent to which firms and workers can innovate, changing work practices to reduce the risk of infection in the workplace. Notably, some of the riskiest professions in Koren and Peto's taxonomy are considered key roles (such as healthcare, social work, psychiatry and teaching). We have already seen rapid innovation in each of these industries, as their workers have been asked to continue to work during the lockdown period.

Figure 8: Occupation-level correlation between intensity of contact with team members and with customers



Note: Figure 3 from Koren and Peto (2020).

5.2 Encouraging firms to adapt to make social distancing easier

After lockdown is eased, it seems inevitable that workplaces which remain open will be asked to take measures to ensure social distancing. Doing this effectively will, in many cases, require considerable innovation, the nature of which will differ depending on the context.

One of the most obvious innovations is to rearrange work to reduce the number of employees in the workplace. This can come partly through encouraging employees to work from home where possible (see Section 3), which will improve safety for those who must work on site. Another option is to change shift patterns. Figure 7 shows that the majority of workers are in their workplace during the traditional work hours of 9-5. Adapting the timing of work and shift patterns such that this is spread more evenly throughout the day could ease congestion in some workplaces.

A second set of changes might be aimed at reducing contact between employees (and customers, where applicable) when they are on site. Some types of face-to-face communication can be replaced by online meetings. Retail shops and restaurants that traditionally required close contact with customers have already shifted to click-and-collect or take-away. New software has allowed pharmacists to easily transfer information between them, minimising the cost of workers working non-overlapping hours and requiring less face-to-face contact. Construction sites are assigning workers to a small, consistent team which alternates shifts with other teams.

As even that short discussion helps illustrate, the appropriate innovations will be very idiosyncratic to the particular context in which they are applied. As such, it will be firms and industries that are best placed to work out *how* to innovate. But there are market failures that may prevent them from doing so, and the government has a key role in trying to mitigate them.

First, there is uncertainty over how long social distancing will need to remain in place, meaning that firms cannot easily judge how much benefit they will see from innovation. It seems clear that, where workers cannot reasonably work from home, workplaces will be required to implement social distancing measures for some time after lockdown is eased. Being absolutely clear about that now, even without being quantitatively precise about the timeline, would probably help to mitigate some of the effects of uncertainty and ensure that firms are not under-investing in adaptations in the false hope that the end of lockdown means a return to normality.

Second, there are positive externalities from safer workplaces, as consumers and workers' wider networks of contacts will benefit from reduced infection transmission. Market forces may help: survey evidence suggests that consumer preferences are evolving to favour businesses with strong social distancing measures in place,[3] and firms with stronger social distancing practices might find employees more willing to return to work, and less likely to become sick. There may be a significant role for government in helping this along by signalling social (un)acceptability with its own statements on social distancing. But the positive externalities to such measures, and

[3] For example, a YouGov survey on 20-21 April found that the majority of consumers would "feel uncomfortable" visiting premises like restaurants, pubs and gyms once restrictions are loosened. https://yougov.co.uk/topics/health/articles-reports/2020/04/22/dont-count-customers-returning-once-covid-19-lockd

hence the potential for under-investment, will remain. There is a case for the government to use other tools, such as fiscal subsidies, to more closely align the private and social returns. Regulation and monitoring of social distancing in the workplace would not only help directly ensure that firms do the socially desirable thing by reorganising work; it would also help spur the innovation needed to make that social distancing as compatible as possible with productivity.

Finally, the government can assist by playing a central coordinating role in sharing examples of best practice of industry innovations, helping these to spread as quickly as possible. In fact, it may have something of a head start, since most of the public sector are “key workers” (compared to 22% of the workforce as a whole), meaning that different parts of government have already gained experience in adopting innovations to bolster workplace safety during the pandemic.

6 Constraints making it difficult or undesirable for some workers to return to work

There is likely to be a substantial asymmetry between entering and exiting the lockdown. Compliance with lockdown restrictions was high and almost immediate, with Google mobility data showing retail and recreation locations receiving almost 80% less traffic than pre-social distancing (Google, 2020). It is not clear how people will respond to an easing of restrictions.

The likely consequences of infection differ widely across individuals, as do other costs of returning to work. Even if the risk of infection in the workplace can be reduced, some people may be unwilling to return to work if they or someone they are in contact with is at greater risk from the virus. Others will face other barriers such as caring responsibilities, especially while school and childcare closures remain in place.

In addition, from society’s point of view there can be greater risks from certain individuals commuting and spending time in the workplace, which may or may not coincide with the risks that are salient to individuals themselves. For example, if someone married to a key worker goes to work, gets infected and passes the virus to their spouse, there is an additional cost to society from the fact that a key worker may now be absent from work and that, as someone who tends to have greater-than-average social contact, they may spread the virus further. A similar argument may apply to parents in the scenario where schools and childcare settings reopen, since this could spread the virus indirectly through their children, though the importance of this infection channel is unknown.[4]

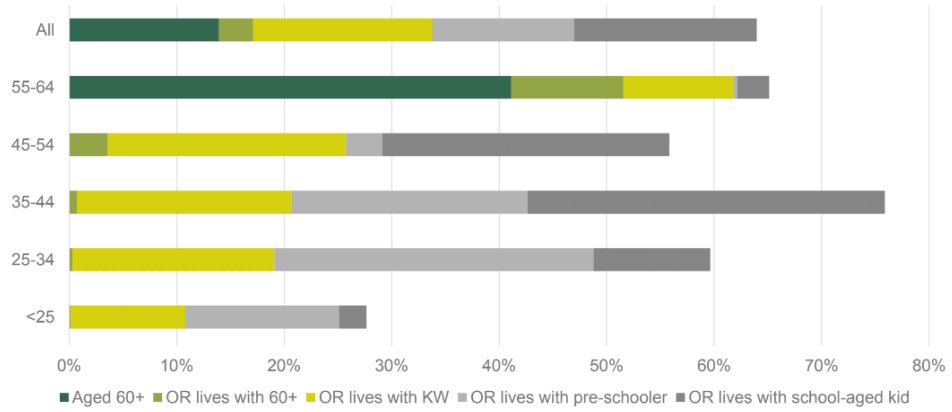
To give a sense of scale for how important these risks or constraints to commuting and/or working on-site could be, we focus on the group of workers who are the most plausible candidates for the next stage of loosening lockdown restrictions: those who are not key workers (since they are already working), and who cannot easily work from home. Figure 9 shows the prevalence of different risks or constraints among this group. Two thirds of them have at least one flag associated with elevated risks or constraints (though note that, of course, these are only statistical proxies; actual risks will differ according to lots of unobservable factors, including genetics): being

[4] Our understanding is that the extent to which children could transmit the virus is an active area of research for the scientific community: https://www.bbc.co.uk/news/health-52180783

aged 60+, living with someone who is 60+, living with a key worker, or having pre-school or school-age children. About a sixth have one of the age-related flags, another sixth live with a key worker, and another third have a school-age or pre-school child.

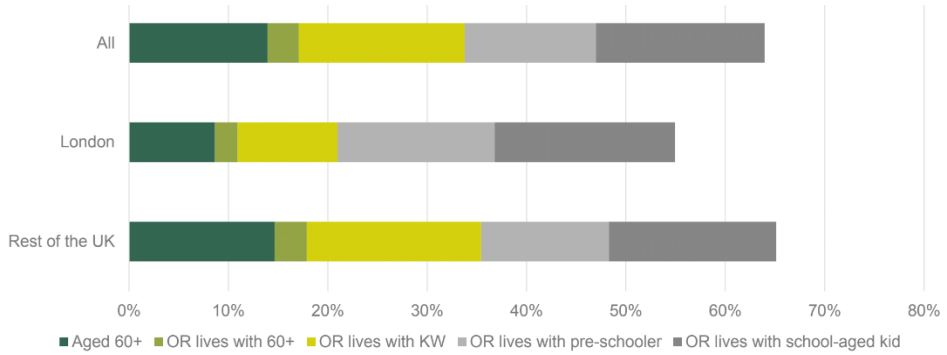
One of the reasons why so many workers have elevated risks or constraints is that there is relatively little overlap between them, as Figure 9 shows. Older workers will tend to have greater health vulnerability, and the age-groups below them tend to have children. There are, however, some groups who appear to have lower overall prevalence of risks of constraints than others. This includes the youngest workers, as Figure 9 shows, and – to a lesser extent – those in London, as Figure 10 shows. It is worth recalling the evidence shown and discussed in Section 2, which suggests that the youngest workers are disproportionately likely to be furloughed and in sectors that have been shutdown – many of which, like hospitality, are unlikely to be allowed back in full very soon. This suggests that policy to support the matching of workers to (perhaps temporary) new roles, and to remove barriers which stop this (such as exclusivity clauses imposed by furloughing firms), could be particularly important for this group, and particularly relevant to any exit strategy that involves letting young workers out to work first.

Figure 9: Constraints on working outside the home among non-key workers whose jobs do not typically allow home working: By age



Note: Authors' calculations using UK Labour Force Survey (Q42018-Q32019). Classification of ability to work from home based on Dingel and Neiman (2020). Key workers are identified based on the methodology used in Farquharson et al. (2020a). This graph builds up who faces constraints to working. Workers will be counted in the left-most category that applies to them, i.e. there is no double-counting. The sample is all non-key workers who are in occupations where fewer than a third of workers are predicted to be able to work from home (pre-crisis).

Figure 10: Constraints on working outside the home among non-key workers whose jobs do not typically allow home working: By location



Note: Authors' calculations using UK Labour Force Survey (Q42018-Q32019). Classification of ability to work from home based on Dingel and Neiman (2020). Key workers are identified based on the methodology used in Farquharson et al. (2020a). This graph builds up who faces constraints to working. Workers will be counted in the left-most category that applies to them, i.e. there is no double-counting. The sample is all non-key workers who are in occupations where fewer than a third of workers are predicted to be able to work from home (pre-crisis).

7 What jobs will be available?

Many jobs will not be available again immediately, or perhaps ever. Demand for some goods and services, most notably hospitality, tourism and travel, will remain low for some time, and innovations to how work is organised may permanently reduce demand for certain occupations (while increasing demand for others). In the month starting on March 25th, job vacancies on DWP's Find a Job website fell by over 65% as compared to the levels registered for the same period one year earlier.

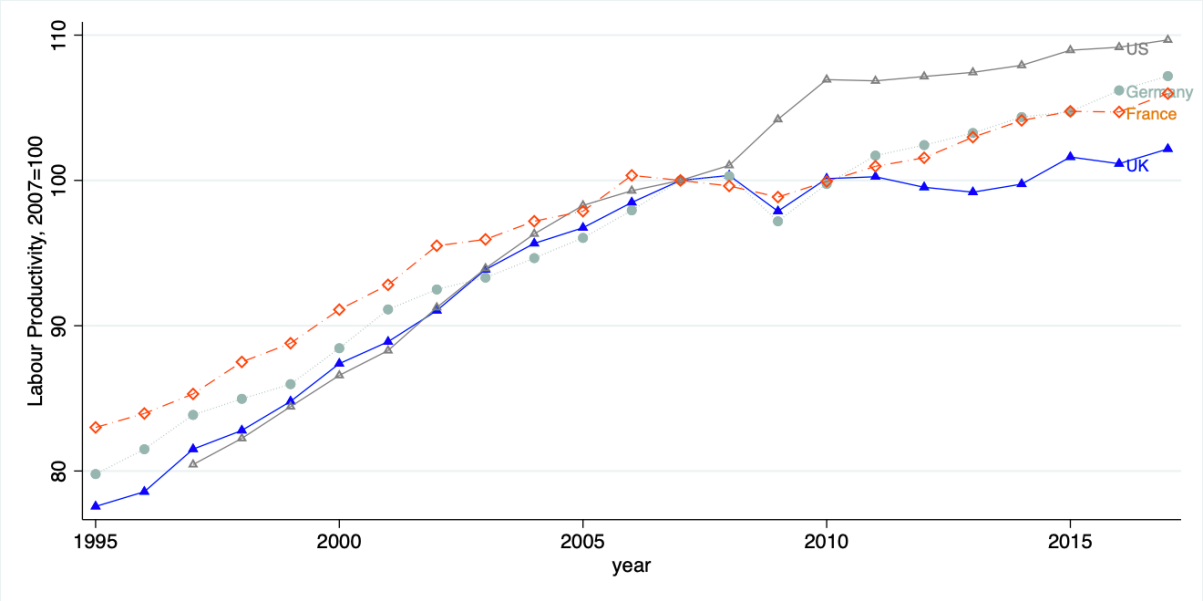
Monitoring vacancies and how they match with the skill-sets of the pool of furloughed or unemployed workers in each local labour market can help to inform policy-makers on where skills are in short supply and where it looks hard to find productive work for the unemployed without re-training or other measures. The effects of the crisis will be unequal across areas and difficult to precisely predict, making it likely that area-based policy will need to be responsive as information comes in (Overman, 2020), and that the quality of that information will be key. It is, of course, already obvious that some sectors are facing huge demands while others have been unable to operate. In order to provide essential services during the lockdown while keeping the economy ready for a smooth re-start once restrictions are eased, policy will need to balance the need to reallocate employment to essential activities in the short term while maintaining workers' attachment to their previous employers in the longer term if that employer-employee match has a viable long-term future (Costa Dias et al, 2020): preserving the aggregate stock of firm-specific human capital, and avoiding long-lasting mismatch in the labour market which would take a long time to unwind (Fujita et al., (2020)).That may be a difficult trick to pull off, but there are some obvious things that the government could do, such as prohibiting furloughing firms from inserting exclusivity clauses into their workers' contracts which prevent them from taking up other work while furloughed.

Given the amount of labour market disruption taking place, even with highly successful labour market policies it is likely that there will be areas where the unemployed find it difficult to find jobs appropriate to their skills, at least in the short term. In such cases it could be a good time for the government to consider public

investments that would employ these people in the interim to do productive work that will pay off later, such as improving national infrastructure. The opportunity cost of doing this will be unusually low, if it can indeed be well targeted at areas where private sector vacancies are not providing opportunities well matched to people's skill-sets. Given the benefits from well-planned and coordinated public investments – rather than rushed ones – the government would be well advised to be on the front foot in thinking about any such measures now.

It is not just jobs that we want, but good jobs (see Acemoglu (2019)). Productivity concerns are important. As **Figure 3** shows, the UK performed very poorly in terms of productivity growth coming out of the last recession, for a number of reasons. We were already in a challenging situation, and we want to avoid it getting even worse after this crisis.

Figure 3: Labour productivity before and after the financial crisis in the UK and other major economies



Note: Authors' calculations from EUKLEMS.

The government will face a lot of lobbying by firms and industries. Ideally we would like to promote work (and growth) in industries that will grow in future, and not use resources to protect declining industries. To some extent the situation before the crisis tells us about the viability of certain industries. Some industries will not come back to where they were pre-crisis. High street retail was already in decline (see for example the decline in retail employment depicted in Figure 1 of Slaughter and Bell, 2020); while a shake-out of the airline industry had already looked likely, and demand for air travel may well be reduced for some time, perhaps even permanently.

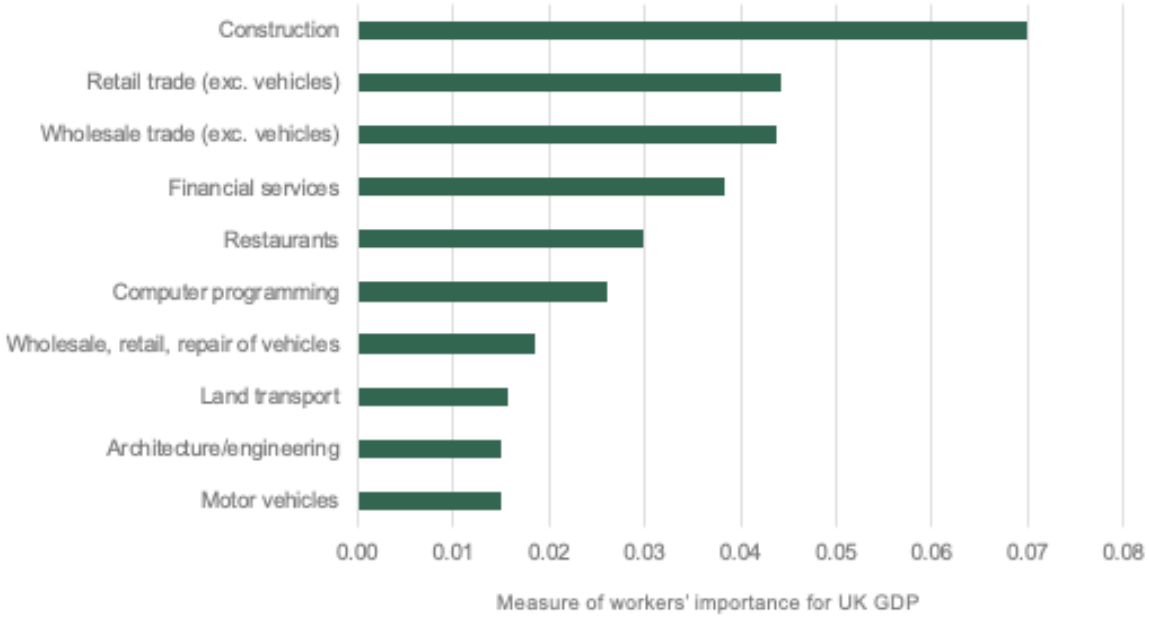
Workers in different industries also differ in their potential contribution to the overall economy. Figure 12 shows the potential contribution of workers in different industries to UK Gross Value Added (GVA) using a simple input-output model following

Fadinger and Schymik (2020).[5] This measure reflects three factors: the value-added of the industry, each industry's labour intensity, and the amount this industry supplies to other industries (and the amount these industries in turn supply to others, and so on).

We take input-output coefficients from the input-output tables from the Office for National Statistics for 2015 (the latest available year). It is very possible that input-output coefficients may have changed in response to the crisis. For example, restaurants that are still operating will likely make more use of delivery drivers. However, this gives us an illustrative indication of the relative importance of different sectors to gross value added – and an example of how to think about the issue.

Figure 12 plots this measure for the top 10 private sector industries. A given proportional increase in the number of workers in construction would have the largest impact on UK GVA, owing to its large size, labour intensity and importance in supplying inputs to downstream industries. Other industries whose workforce is important are retail, wholesale, financial services, computer programming and land transport.

Figure 4: Effect on UK GVA of increasing the labour force in that industry by 1% for the 10 private sector industries with the largest impacts



Note:: Authors' calculations using 2015 ONS Analytical Input Output Tables following Fadinger and Schymik (2020).

[5] Goods and services in each industry are produced by a representative firm using Cobb-Douglas technology, constant returns to scale and constant capital inputs. Given these assumptions the effect on total UK GVA of increasing labour input in a given sector by 1% is

$$\beta(I - \Gamma')^{-1}\alpha_i$$

where Γ is the input-output coefficient matrix with element γ_{ij} being the value of inputs from industry *i* used to produce a unit of output in industry *j*, β is a vector of value-added shares in total UK GVA for different industries and α_i is a vector with the labour share of industry in in row *i* with all other entries 0.

8 Conclusion

The government faces very difficult trade-offs in deciding when and how to ease lockdown restrictions to get people back into work. There is large uncertainty and limited knowledge about how things will evolve. We have discussed some key economic issues. Most notably, the government can help to reduce uncertainty by providing clear statements about policy in those areas where it can be confident of the broad direction, and by reducing uncertainty through the provision of insurance where possible. Enormous change and innovation is required by firms and workers, and certainty will help create the incentives to invest in that change. There are numerous market failures related to externalities, co-ordination, and information. Policy can help to address many of these and we have discussed many specific kinds of policy instruments that could be well suited to doing so. Better data and the advice of the social science community on how these can best be targeted, designed and implemented will help to make better policy.

References

Acemoglu, D. (2019) “It's good jobs, stupid”, econfip Policy Brief 13. https://econfip.org/policy-brief/its-good-jobs-stupid/

Adams-Prassl, A., Boneva, T. Golin, M. and Rau, C. (2020) “Inequality in the impact of the coronavirus shock: new survey evidence for the UK”, Cambridge Working Papers in Economics CWPE2023. http://www.econ.cam.ac.uk/research/cwpe-abstracts?cwpe=2023

Aghion, P., Hepburn, C., Teytelboym, A. and Zhengelis, D. (2014), “Path dependence, innovation and the economics of climate change”, New Climate Economy. The London School of Economics and Political Science, London, UK. https://www.cccep.ac.uk/publication/path-dependence-innovation-and-the-economics-of-climate-change/

Avdiu, B. and Nayyar, G. (2020), “When face-to-face interactions become an occupational hazard: Jobs in the time of COVID-19”, Brookings, 30 March,.https://www.brookings.edu/blog/future-development/2020/03/30/when-face-to-face-interactions-become-an-occupational-hazard-jobs-in-the-time-of-covid-19/

Baker, S, Bloom, N., Davis S. and S. Terry (2020), “COVID-induced economic uncertainty and its consequences”, *VoxEU.org*, 13 April. https://voxeu.org/article/covid-induced-economic-uncertainty-and-its-consequences

Baker, S., Bloom, N. and Davis, S. (2016), “Measuring Economic Policy Uncertainty”, *The Quarterly Journal of Economics*, 131(4), 1593-1636.

Bloom, N. Bond, S. and Van Reenen, J. (2007) “Uncertainty and investment dynamics”, *Review of Economic Studies*, 74(2), 391 – 415.

Bloom, N., Liang, J., Roberts, J., and Ying, Z. (2015) “Does working from home work? Evidence from a Chinese Experiment”, *The Quarterly Journal of Economics*, 130(1), 165-218.

Boeri, T., Caiumi, A. and Paccagnella, M. “Mitigating the work-safety trade off”, *COVID Economics, Vetted and Real-Time Papers,* 2, 60-66. https://cepr.org/sites/default/files/news/CovidEconomics2.pdf

Cattan, S., Farquharson, C., Krutikova, S., Phimister, A. and Sevilla, A. (2020) “Trying times: how might the lockdown change time use in families?”, IFS Briefing Note, Institute for Fiscal Studies, 20 April. https://www.ifs.org.uk/publications/14814

Costa Dias, M., Joyce, R., Postel-Vinay, F. and Xu, X. (2020), “The challenges for labour market policy during the covid-19 pandemic”, IFS, https://www.ifs.org.uk/publications/14767

Dewatripont, M., Goldman, M., Muraille, E. and Platteau, J-P. (2020) “Rapidly identifying workers who are immune to COVID-19 and virus-free is a priority for restarting the economy”, *VoxEU.org*, 23 March. https://voxeu.org/article/rapidly-identifying-workers-who-are-immune-covid-19-and-virus-free-priority-restarting-economy

Dingel, J. and Neiman, B. “How many jobs can be done at home?”, *COVID Economics, Vetted and Real-Time Papers,* 1, 16-24. https://cepr.org/sites/default/files/news/CovidEcon1%20final.pdf

Fadinger, H. and Schymik, J. (2020) “The costs and benefits of home office during the Covid-19 pandemic: evidence from infections and an input-output model for Germany”, *COVID Economics, Vetted and Real-Time Papers,* 2, 107-134. https://cepr.org/sites/default/files/news/CovidEconomics9.pdf

Farquharson, C., Rasul, I. and Sibieta, L. (2020a). “Key workers: Key facts and questions.” IFS Observation, Institute for Fiscal Studies, 20 March. https://www.ifs.org.uk/publications/14763.

Farquharson, C., Rasul, I. and Sibieta, L. (2020b). "Keeping key workers working: the role of pre-school childcare." IFS Observation, Institute for Fiscal Studies, 2 April. https://www.ifs.org.uk/publications/14788.

Fujita, S., Moscarini, G. and Postel-Vinay, F. (2020) “The labour market policy response to COVID-19 must save aggregate matching capital”, *VoxEU.org*, 30 March. https://voxeu.org/article/labour-market-policy-response-covid-19-must-save-aggregate-matching-capital

Google (2020), “COVID-19, community mobility report”, 26 April. https://www.gstatic.com/covid19/mobility/2020-04-26_GB_Mobility_Report_en.pdf

Goscé, L., and Johansson, A. (2018). “Analysing the link between public transport use and airborne transmission: mobility and contagion in the London underground”, *Environmental Health*, *17*(84), 84.

Koren, M. and Peto, R. “Business disruptions from social distancing”, *COVID Economics, Vetted and Real-Time Papers,* 2, 107-134. 13-31. https://cepr.org/sites/default/files/news/CovidEconomics2.pdf

Larcom, S., Rauch, F. and Willems, T. (2017), “The benefits of forced experimentation: Striking evidence from the London Underground Network”, *The Quarterly Journal of Economics,* 132(4), 2019-2055.

Magrini, E. (2020), “How will Coronavirus affect jobs in different parts of the country?”, Centre for Cities, 17 March. https://www.centreforcities.org/blog/how-will-coronavirus-affect-jobs-in-different-parts-of-the-country/

Office for National Statistics (2020) “Furloughing of workers across UK businesses: 23rd March 2020 to 5th April 2020”, 23 April. https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/furloughingofworkersacrossukbusinesses/23march2020to5april2020

Sahin, A., Song, J.,Topa, G. and Violante, G. (2014) “Mismatch unemployment,” *American Economic Review*, 104(11): 3529-3564.

Overman, H. (2020) “How the UK government should respond to the unequal local economic impacts of COVID-19”, *VoxEU.org*, 22 April. https://voxeu.org/article/how-uk-government-should-respond-unequal-local-economic-impacts-covid-19

Pindyck, R. (1991) “Irreversibility, uncertainty and investment”, *Journal of Economic Literature*, 29(3), 1110-1148.

Slaughter, H. and Bell, T. (2020) “Crystal balls vs rear-view mirrors”, Resolution Foundation, 7 April. https://www.resolutionfoundation.org/publications/crystal-balls-vs-rear-view-mirrors/