(IN)EQUALITY IN THE DIGITAL SOCIETY

WORKSHOP SUMMARY

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In November 2016 Friedrich Ebert Stiftung and the New Economics Foundation jointly hosted a workshop in London to discuss and debate new technological trends and how they impact inequality on society. The workshop was attended by representatives from industry, civil society and government, and discussion was stimulated by contributions from Professor Daniel Buhr from the Universität Tübingen, based on research conducted by himself and colleagues,[1] and Annie Quick and Stephen Devlin from the New Economics Foundation. This paper summarises the key points that emerged from the workshop and serves as a basis for further discussion.

INTRODUCTION

Technology is increasingly central to our lives in all manner of ways and is continuously opening up new possibilities. But who will most benefit from them? Some claim that tech companies and the products they develop are empowering ordinary people to take more control over their economic and social lives, enhancing their personal wellbeing and smashing up the old monopolies and economic power bases of the 20th century. But is this really the case? Without proper governance, the increasing role of technology in our lives and in our economy could change relations between people and institutions in a way that strengthens existing inequalities of power, rather than dissipating them. This paper explores the channels through which this could occur, the consequences of those changes, and some of the public policy questions that result.

This paper covers three broad and interrelated topics:

1. **Automation & Industrial Transition**: Changes to production processes resulting from new technology
2. **Consequences for the welfare state and fiscal policy**: The effects of technological change on the need for and effectiveness of social security and redistribution
3. **Big Data & Digitalisation**: Changes to how information is captured, stored and shared that affects how people (as consumers, workers, employers, etc.) relate to one another

[1] Buhr, D., Christ, C., Frankenberger, R., Fregin, M., Schmid, J., Trämer, M. (2016). On the way towards Welfare 4.0? Digitalisation of the welfare state in labour market, healthcare and innovation policy: a European comparison

AUTOMATION & INDUSTRIAL TRANSITION

New technologies that simulate human capability, either through mechanical manipulation of the physical world or through applying intelligence to a particular problem, are expected to become sophisticated enough to undertake tasks that were previously the exclusive domain of people. There has been much recent discussion on the potential for artificial intelligence in particular to transform our economy and society, but little agreement on the implications for economies or power dynamics.

Technological unemployment?

This new wave of technological advances, in which robotics and artificial intelligence combine to make many tasks automatable, will have consequences for all aspects of our society, but it is in the labour market that we are likely to first feel the change. There is passionate disagreement on what the outcome will be: technological unemployment or techno-utopia?

Most expect that machines will become relatively more important in production in the future, so that labour intensity falls over time. The question is whether output will increase enough to compensate for this fall. Historically, the effects of technological advances have led to increased demand for output both by making workers richer and products cheaper (though in recent decades workers as a whole have suffered from a declining total share of economic output), but some expect that this technological revolution will be different.

The care sector epitomises many of the issues at stake. The dexterity and empathy required to care for another human is a job that seems most difficult to automate. And would people accept robotic carers? On the one hand, many will certainly still demand a human touch, on the other many may prefer the anonymity of non-human carers. The demand for care will increase significantly in high-income economies, while vast swathes of the world still don't receive the basic care they need. Care may be an area in which demand could feasibly increase in a profession where humans will retain their comparative advantage. However, jobs in care are generally badly paid and precarious, so a great shift towards this sector could come at the cost of job quality for many. Paradoxically, improving the quality of jobs in the care sector by increasing wage levels would erode any cost advantage of human versus machine labour, potentially incentivising automation. More generally, the strength of labour in a given economy will be a key determinant of how far and fast investment in automation will proceed – if, as in the UK, trade unions have been deliberately weakened and wages are low and stagnant for most of the population then it may continue to be profitable to rely on this low-cost pool of labour. This could create a self-reinforcing cycle of inadequate wages and low productivity.

Concern about the effects of automation on employment levels has swelled significantly in recent times in the UK and the USA, yet in other countries, such as Germany, the debate has taken a much more optimistic stance. More research is needed to determine what factors and institutions lead different political cultures to hold diverging perceptions of technological trends. For example do more cordial relations between trade unions and government lead to more optimism that the gains of automation will be fairly shared? It is important to understand these drivers since the task at hand is not just to describe and understand technological change but also to ask the normative questions about where we *should* be heading. Is it necessary to defend jobs against automation, or should we move confidently towards a post-work future? Arguably, in either case there is an irreplaceable role for trade unions to champion workers' interests and manage the transition.

Industrial transition

Regardless of whether or not we expect technological unemployment on any scale, what remains clear is that there will be substantial transitional turmoil in labour markets. Even if jobs destroyed are replaced with jobs created, there remains the question of how to get individual people from the former to the latter. The history of industrial transitions is not littered with success – nothing guarantees that new industries will conveniently match the skill sets and geographical distribution of displaced workers.

A prime example of this problem is truck drivers. Driverless vehicles are a key component of the wave of expected technological changes that could become mainstream in relatively little time. Driverless technologies could also be safer and more fuel-efficient. In the UK there are nearly 300,000 people employed as truck drivers that could find themselves no longer necessary as a result. The demographics and skill set of this group (largely older men with low educational attainment) could make them particularly unsuited to new careers in a digitalising economy.

For this reason much focus has been given to the imperative of investing more in skills and education. This is undoubtedly important, but it is no simple undertaking – it will need to be an initiative that is targeted where it is most needed and implemented at a scale that is unprecedented. This is a type of predict and supply strategy, where the state intervenes so that the requirements of the evolving digital economy can be fulfilled. **An alternative approach is to ask how the digital economy can be shaped so that it fulfils our needs and enhances our wellbeing**. This requires a fundamental shift from asking what government and individuals need to do for the economy, to asking what the economy can do for us.

The New Economics Foundation has proposed that one solution is to consciously shift towards a labour market in which a shorter working week is the norm. The UK

currently suffers a severe problem with both under- and over-work, having simultaneously high levels of under-employed workers and long hours for those who do have employment. As intuition suggests, there is strong evidence that both overwork and underwork are bad for our wellbeing. The available work could surely be distributed more evenly across the workforce by adopting a lower standard number of working hours in each week. This could be phased in gradually by first extending the right to a shorter working week for any new employees.

Ownership

The transformation of the means of production by new technology will affect economic relationships, especially in the labour market, but this is only one subset of the ways in which power may shift. Who will have power in the digital economy, and will that be concentrated or widely shared?

Inequalities of power, either economic or political, are a determining factor of the inequalities of outcomes that we observe. The optimistic vision of the digital economy was that it would disperse power by giving people platforms to spread messages, convene with others, or find employment. Even the means of production could be distributed if the promise of 3D printing came to fruition. However, on the face of it at least, the prospect of a significantly greater role for machinery in production would seem to strengthen the hand of capital in relation to labour. There are **two categories of solution to the inequalities created or exacerbated by technology:** one is to use the tax system to redistribute the gains of machine production (and the much-discussed Universal Basic Income usually falls into this category); the other is to re-think the actual ownership of the machinery.

On the latter, there could be a useful role for the public sector and other non-profit actors to play in the development and deployment of automated production processes. In practice this is likely to mean state-financed research and development and encouraging different business models for production, including worker ownership and new forms of public ownership. This would allow the gains of increased productivity to be democratised and shared widely. Solutions based around ownership, rather than redistribution, could be more economically and politically durable since they fundamentally reallocate power, and not just resources.

CONSEQUENCES FOR THE WELFARE STATE AND FISCAL POLICY

An economy in which the gains from automation have been concentrated in the hands of a small number of business owners, shareholders and technologically adept workers, while many others are either economically unproductive or have been displaced to less financially lucrative sectors, such as care, will be an economy in which the social contract of our current welfare state will be especially fragile.

The current welfare system in the UK relies on the understanding that both the financing and receipt of social security are spread widely but progressively. In a society that is permanently divided into those that can participate in production and those that cannot (or only in a marginal or undervalued way) this understanding may break down. If those financing the welfare state become a non-overlapping group with those that receive support from it this is a precarious situation in which the former may withdraw consent. This may happen in a more gradual manner if the increasing automation of production narrows the tax base to a smaller and wealthier group.

Such narrowing would be a consequence not only of potentially greater economic inactivity among the population but also of stagnating or falling wages for most workers, perhaps exacerbated by the rise of self-employment and the gig economy. The categorisation of economic activity that dominates in this system may also reduce the tax base, since supposedly self-employed workers pay less in National Insurance, and income from renting your home on Airbnb or your time on TaskRabbit is harder for HMRC to monitor.

The issue of a breakdown in the social consensus is particularly severe in the **liberal model of the welfare state**, where access to welfare is typically contingent on contribution to markets. In other welfare state models the issues may be slightly distinct. For example, in the social-democratic (or Scandinavian) model, which emphasises universalism and equality, an increasingly divided labour market may not have such clear consequences for the social consent given to the welfare system, but will still have the emerging problem of a narrowing tax base. In welfare states based on the conservative model (e.g. Germany and Austria), which emphasises the role of the family and individual social insurance, are particularly reliant on financing the welfare state through taxes on labour and so could be especially vulnerable to technology-induced changes to the tax base. In this context it may be necessary to attach social rights to people rather than to jobs.

For liberal welfare states, such as the UK, one proposal is to take a whole new approach to the social contract between citizens and the state. The challenges of this century may require an entirely new social entitlement - an explicit understanding of what each citizen can expect from the state to meet their needs and enable them to flourish. The content of this entitlement should be reached through a process of democratic dialogue but would likely include health, education, housing and perhaps the right to meaningful work. This approach would promote the solidarity and collectivism of a social commons that could be undermined by a segregated labour market.

Others advocate an overhaul of the current welfare state to provide a Universal Basic Income, which would pay each citizen an unconditional sum of money that would be sufficient to reduce or eliminate their requirement for paid employment. Critics

argue that this solution is politically and financially infeasible for the foreseeable future and that it is too individualistic.

Across all welfare state types there are some common challenges. For example, across Europe welfare states will have to adapt to deal with an increasing variety of employment types and an increasing rate of flow of individuals between different types. Current welfare systems can be slow to support workers that have changing circumstances. Another common challenge is equipping populations with the appropriate education and skills both to engage meaningfully with the labour market, but also to make the most of the digital society more widely.

There is also a question of **how digitalisation will change the actual operation of government** – what we might call internal modernisation as opposed to external modernisation. For example, Estonia is widely regarded as a leader in the digitalisation of government, including digital identification cards, tax returns and even online voting (see Figure 1). The welfare system seems to be a particularly contentious realm for digitalisation – how can we balance the increased simplicity and integration of a digital welfare system with its greater potential to alienate particular groups or raise concerns about privacy?

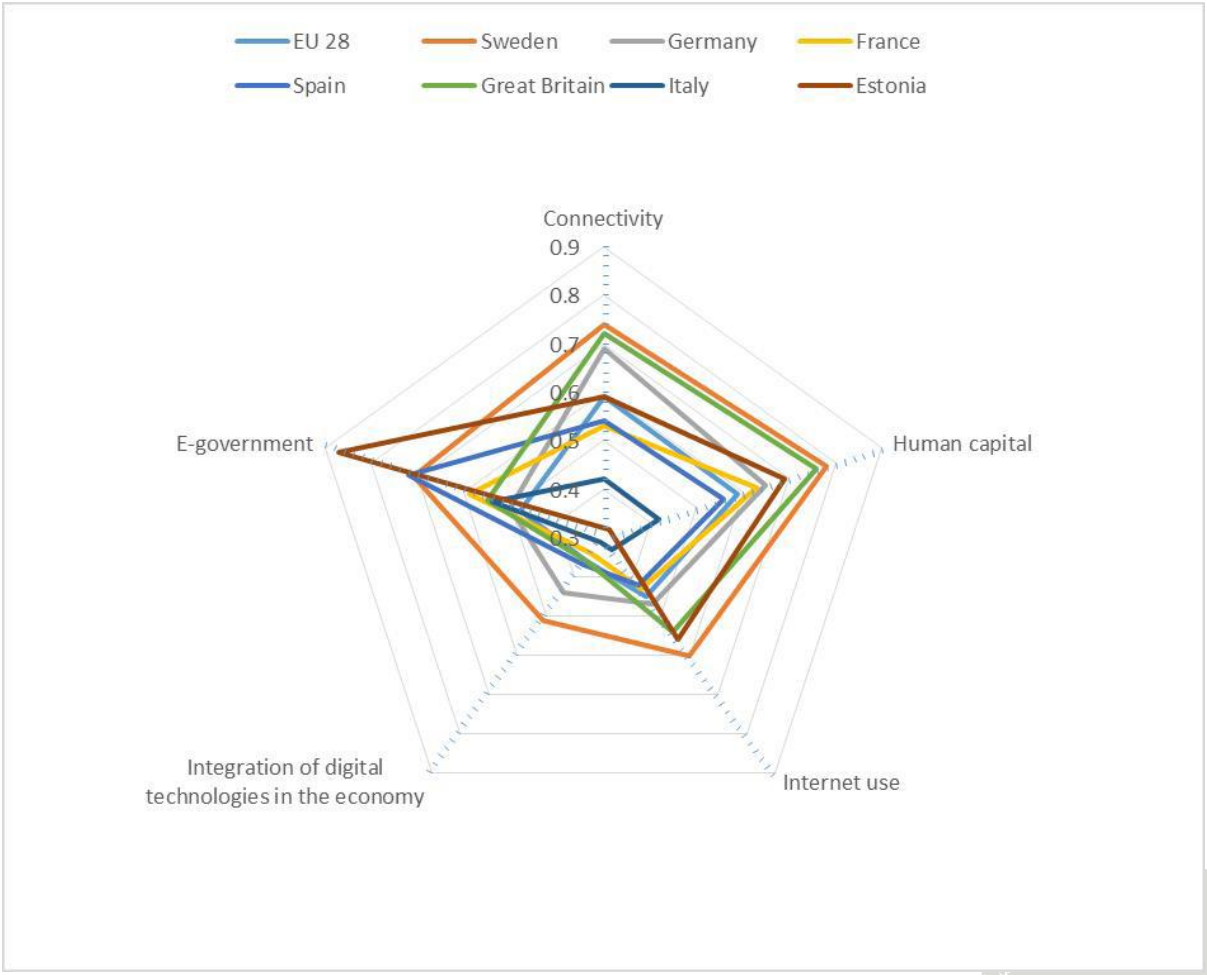

Figure 1. 2016 Digital Economy and Society Index. Source: Buhr et al. (2016)

BIG DATA & DIGITALISATION

As well as performing distinct tasks, new technology is transforming the way that we collect and share information, through connecting people in new ways, or by monitoring people more closely. These trends are progressing at different rates across countries, with countries like Sweden and Denmark leading the field in terms of access to high quality mobile or broadband connection, while some Southern European countries lag behind.

The platform economy

The rise in new methods of connecting people has led to a flourishing of business models in which a tech company provides a platform through which buyers and sellers of a good or service can exchange with one another, while paying a fee to the platform. This is sometimes misconstrued as the "sharing economy", but rarely has anything to do with sharing. In many cases it is precisely the opposite - it brings ever more areas of our lives (doing chores, providing care, putting someone up in the spare room) into the market economy. And arguably, its apparent success and profitability encourages us, or at least the entrepreneurs among us, to seek ever more parts of our lives that we can sell.

The recent rise of this type of business model can be observed in the labour market data available. Figure 1 shows the trends for the number of non-employing firms – i.e. businesses that do not employ anyone other than the proprietor, which would include most people (i.e. one-person businesses) working in the gig economy. It also shows the level of employment in firms that do employ at least one other person. The lighter lines show this data for the whole UK economy, indicating that non-employing firms are growing faster than jobs in employing firms, while the darker lines show this data for the transport and storage sector (including taxis and delivery businesses) in London. This sector is where we expect to see most impact from platform working and the data does show that non-employing firms are growing much faster than other types of employment (which is actually declining).

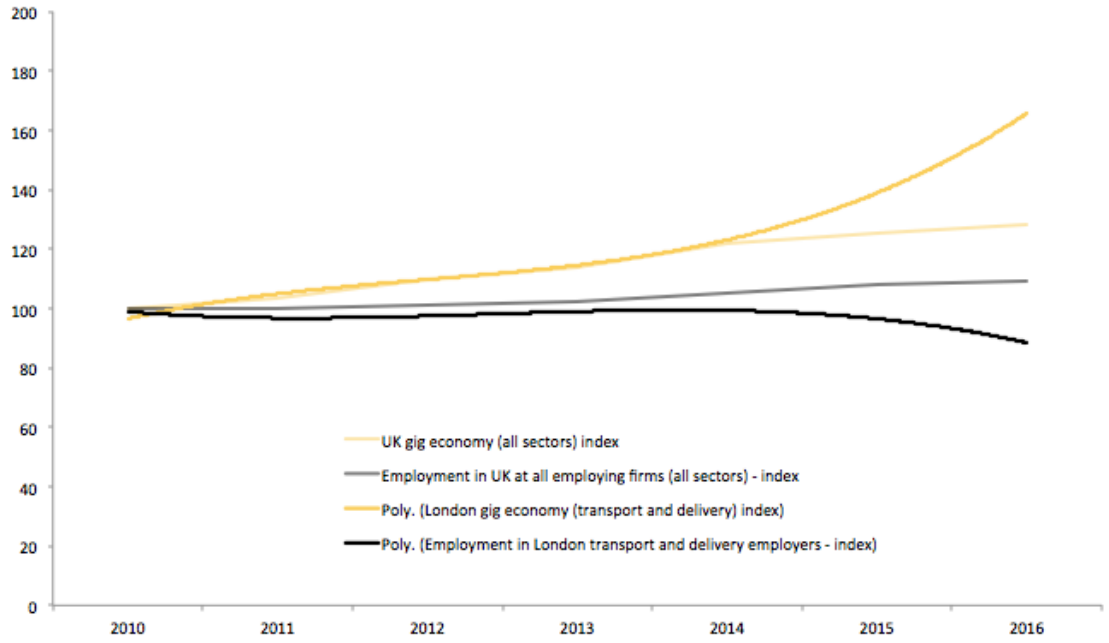

Figure 2. Employment in London transport and storage gig economy, compared to UK economy. Source: ONS

This vision of the economy, in which anyone can sell anything to anyone with few restrictions or frictions, should be closely identified with a libertarian philosophy. For example, Hayek and Friedman repeatedly bemoaned the system of licensing for professionals in particular industries (such as doctors), and the platform economy effectively side-steps this regulatory system by re-classifying providers of a good or service as amateurs or, more ludicrously, "sharers".

The increasing dominance of the platform economy and the digitalisation of increasingly numerous areas of our lives may have significant **distributional consequences**. Many systems in which there is unregulated growth and high degrees of connectivity tend to settle into a **power law distribution**. This is a distribution characterised by a small number of agents that capture most of the distribution and a long tail of agents that capture practically nothing – i.e. extreme inequality (see Figure 2). This power law has been shown to characterise the distribution of population in major cities, wealth among households, and the popularity of videos on YouTube. The concern is that digital technologies will subject ever more areas to the conditions that encourage this kind of distribution — i.e. high connectivity and unregulated growth. We already see these conditions in platform industries, where market share is distributed highly unequally.

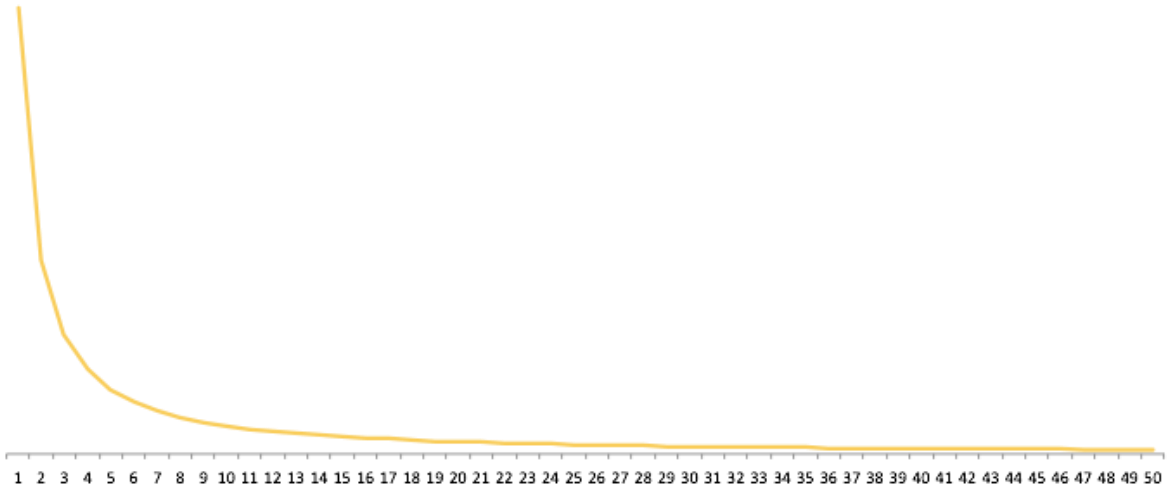

Figure 3. Power law distribution. Source: Author's illustrative calculation

Job quality

Technological change isn't just affecting how much work there is and in what sectors: it's also having a massive impact on how we work and our experience of work. In many ways new technologies are improving conditions at work, for example by eliminating back-breaking physical work and speeding up communications between people, but we must also be aware of the more systemic ways in which job quality can be threatened by new technologies and the new powers they create.

The business model of new platform tech companies, such as Uber and Deliveroo, cause deep concern for the quality of employment for providers that use the platform. Until a recent court case, platform companies typically require their providers to operate as a single-person business, with no claims to employment rights, including the minimum wage. In this way, platforms profit from the labour of providers without assuming any responsibility for them. Providers therefore have no protection from low pay and excessive hours, and in some cases could face a disciplinary cut-off from the platform, which prevents them from earning at all.

Evidence on the determinants of wellbeing at work provides cause for concern that the increasing prevalence of platform working, and casualised working more generally, will be highly detrimental. Even after controlling for income, having a short-term, temporary contract is associated with significantly lower wellbeing (see Figure 3) and working long hours is associated with substantially higher incidence of tension, stress and worry.

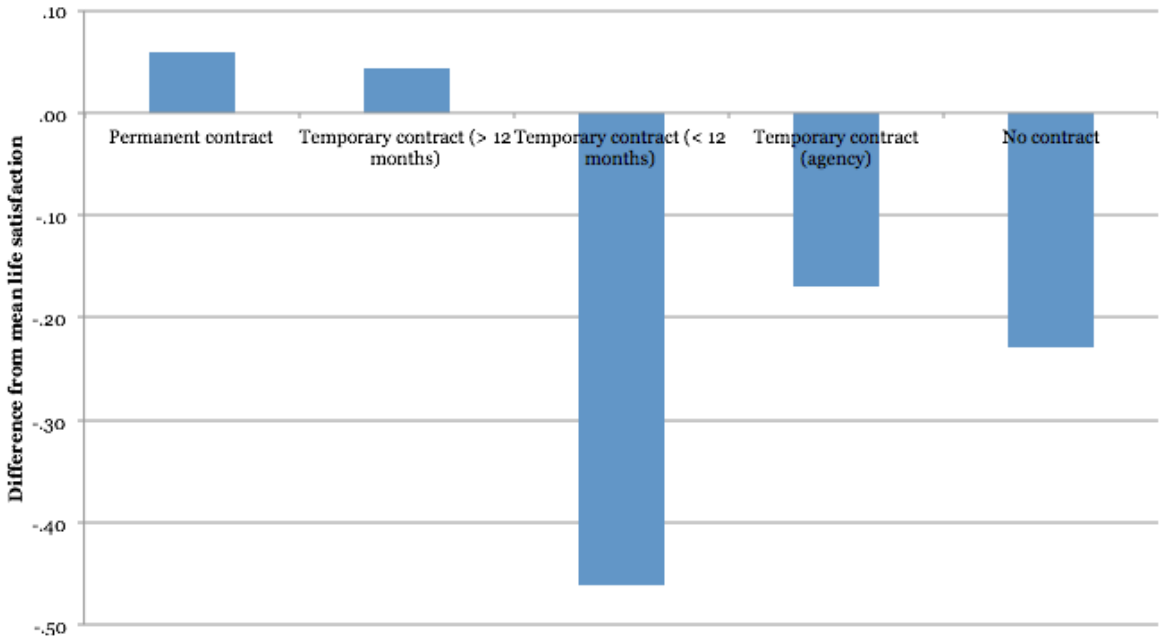

Figure 4. Wellbeing impacts of temporary work. Source: European Quality of Life Survey, 2011

What's worse is that the self-employment model creates higher barriers for providers to work together to improve their conditions. The platform workforce is highly individualised: in a sector based on networked technologies it's ironic that there are very few ways for providers to communicate with one another. The platform economy has ever fewer communal spaces where workers meet and socialise, so the typical methods of union organising no longer work in the same way. We need meaningful and comprehensive opportunities for workers to organise among themselves to protect their interests. For example, one demand could be that providers that use a platform should be able to freely communicate with one another through the platform, without surveillance.

This way of working – creating and monopolising a market, then weakening the power of workers to maintain a dominant position – is crucial to the business plan of platform companies, so there is considerable doubt about the implications of a recent UK employment tribunal's ruling that Uber drivers are employees, not independent businesses. This change to the classification system could afford many platform workers more rights and higher standards at work.

Customers are not particularly well protected in these industries either, with most platforms relying on online ratings to indicate the reliability of individual providers. It is generally difficult to verify the accuracy and independence of such ratings, as testified by numerous scandals involving fake reviews.

Big data and HR

A specific example of the potential misuse of gathered data is in the realm of human resources. The same kind of data collection methods that are changing the

consumer-producer relationship may also come to **redefine the employee-employer relationship**. Data analytics companies already sell services to companies that purport to improve the bottom line by demonstrating optimum levels of pay and screening practices that will maximise the efficiency of their workforce. More insidiously, employers may be able to acquire anonymised data about their workforce – for example, what proportion of the women are, or expect to become, pregnant – that may influence recruiting decisions.

The digitalisation of healthcare systems is a particular point of concern. New technologies, such as smart watches, are creating ever more detailed datasets on individual and public health. Careful thought needs to be given to whether and how this data can or should get into the hands of employers or the state. On the other hand, these technologies clearly offer chances to improve health outcomes and should not be impeded from doing so.

With these possibilities, we must reassess the fitness of current legislation on equal opportunities and workers' rights for a digital economy and society. It is already prohibited to make hiring or firing decisions for any particular individual on the basis of certain characteristics, but the arrival of big data and sophisticated surveillance methods increases the power of an employer to identify ways in which it could profit from discrimination. If the incentive to discriminate increases then so must the disincentive and enforcement.

Worker surveillance

In the extreme, employers may choose to collect detailed, real-time performance data on all of their employees that would allow a vast expansion of performance-related incentives. To some extent, companies such as Deliveroo already do this, and in a way that is not transparent. Other companies already monitor worker activity in a highly intrusive way, such as recording typing patterns or taking regular screenshots from a worker's computer. **The capacity to monitor in this way will only increase in the coming years.**

More research is required to understand the effects that extreme surveillance will have on workers' wellbeing and productivity, perhaps by examining the experiences of workers that already experience such practices.

A public dialogue is necessary to establish where and how the limits to worker surveillance should be drawn, given the increasing ease with which it can be done. How would companies be held accountable to the standards of privacy and personal agency that our society expects? Which of our public institutions should be responsible for enforcing these standards?

In the UK, the Information Commissioner's Office Employment Practice Code currently provides guidance for employers engaging in systematic monitoring of workers to ensure they are compliant with the Data Protection Act. This doesn't

prohibit any types of monitoring or require consent to be given, but only requires that any monitoring is justified by the benefits the employers obtains from it. Are these provisions still suitable for a working environment where surveillance is cheaper and easier? Or should they be strengthened? Does the current code of practice sufficiently take into account the negative impacts of extreme surveillance on health and wellbeing? Do any forms of surveillance need to be prevented entirely?

Ownership of personal data

Who owns personal data? This is a difficult question to answer because of the peculiar properties of personal data. Personal data is just a set of facts about an identifiable person that has been captured or recorded in some way. For example, Facebook captures your birthday, Uber captures how often you travel between particular places, and Google captures your most frequent internet searches. **Data is an unusual combination of public and private goods**. Public goods are non-excludable (if you provide it for one person you cannot prevent another from using it) and non-rivalrous (if I use it then it does not diminish the amount someone else can use it), while private goods are neither. Since data can be reproduced costlessly and used repeatedly without diminishing it is non-rivalrous, but since you can, in theory, prevent your data from being used by a particular party it is excludable. Personal data is, therefore, a public-private hybrid.

The specific dilemmas related to personal data reflect this duality.

- *Data collection: To what extent and how should people be allowed to exclude others from the use of their personal data?* This question is pertinent in numerous areas. The "right to be forgotten", the principle under which Google must now remove search results relating to a particular person at their request, highlights the excludability of personal data in practice. But is endowing individuals with exclusive property rights to their own data enough to protect their interests? Efforts to help individuals understand when and what data is being captured, such as cookie consent pop-ups on internet browsers, have had questionable impact. Unless we tackle governance and ownership questions more systemically, there will always be a major power imbalance between large tech companies and individual users that makes the latter vulnerable, regardless of how nominally strong their rights are. Another question is, to what extent should different rules govern data collection by private companies versus the state? To many, the misuse of personal data by the state is at least as worrying as the private sector. There is also a significant overlap between the two, since data collected by the private sector may become subject to laws that require businesses to hand it over to the state (e.g. the UK's Investigatory Powers Bill, known as the "Snooper's Charter").

- *Data sharing: What rules should govern the replication and sharing of personal data that has been captured?* Packets of personal data can be sold on to third parties, usually for marketing purposes, but few people actively consent to this practice. Once the data has been collected there is virtually no cost in reproducing it for sale to someone else (and, in fact, very little cost in collecting it either). In this sense, selling data is similar to extracting rent from an asset – the similarity is especially the case when the company capturing the data is a platform monopoly. In theory, the consumer benefits from more tailored advertising; however, it's not clear that these are consciously made choices. Do people realise that they are effectively paying for free services like Google and Facebook by handing over personal data? Surveys have found that people place a very high value on their own data, many times more than the actual value that such data can be sold for. Why is there such a discrepancy between our perceived value of data and its actual value?

Tackling market power

These problems are exacerbated by the monopolistic business models of many platform companies that give individual platforms particularly excessive power in relation to their workers and customers. These companies, including Uber and Deliveroo, have pioneered highly successful business models that harness the technology of mobile broadband, GPS and online payment to connect users and providers of a service. Critically, they have aggressively warded off or absorbed competitors in order to enjoy the fruits of a **natural monopoly**. Once a single platform has established its dominance it makes little sense for any user (e.g. taxi-seeker) or provider (e.g. taxi-driver) to use an alternative – the network effect creates an incumbency advantage. In the current system there is no incentive for these platform monopolies to forego their market position by making their platform open. They have effectively created and captured a market simultaneously – indeed, they created a market *in order to* capture it, since the former wouldn't have happened unless they expected the latter. Our current regulatory system is not equipped to treat these industries as the monopolies (or oligopolies) that they are. The legal system isn't even clear yet on exactly *what* they are.

To some extent, the market power of tech and platform companies is a manifestation of old problems in competition policy. But there are some inherent characteristics of these companies and industries that mark them apart. First, many of these companies are massively global in their user base and are governed primarily by international institutions and norms surrounding the internet. This can make it more difficult for any single country to take unilateral action. Second, the conditions that favour the emergence of monopolies are especially prevalent in the digital economy – in particular, the network effects created by a business model centred on connectivity. Finally, many players in the digital economy are creating new markets

or new business models that have not previously existed, and so the regulatory framework can be underdeveloped in these areas.

A typical economic solution to market abuse by a single firm is to encourage more competitors in the market. This is difficult for platform companies since the network effects make many of these natural monopolies. Rather than the blooming of a thousand flowers, as the digital economy was supposed to encourage, we have seen the emergence of extremely powerful tech behemoths whose business model is to achieve market dominance and then reap the rewards.

One suggested solution is to require **portability** – in other words, we should be able to easily move our data and profile from one platform to another. So if I'm not happy with Uber any longer I would be able to transfer my exemplary ratings history to another platform. This overcomes some barriers to switching, but doesn't fundamentally alter the natural monopoly characteristic of networks. A further step would be to require platforms to allow free access to their user and provider pools for other platforms – so an Uber driver might pick up a customer from Gett. In this model no single platform would be allowed to become the gatekeeper to a service.

These reforms would be a start, but we should learn the lessons from other industries where attempts have been made to foster competition. For example, the primary objective of Ofgem, the energy regulator, with respect to the energy supply industry is to make it more competitive – i.e. make it easier for consumers to switch from one supplier to another. But despite regulating the industry to make it easier to switch, it remains a deeply uncompetitive industry. More than half of all consumers have never switched – some of this may be because companies still find ways to make it difficult to switch, but many consumers have never even considered switching. One way or another, what is clear is that monopolistic or oligopolistic industries do not give up their privileged position easily.

Monopolies are not impenetrable to competition – it is conceivable that a platform company would get so complacent in its market position, and displease its customers so greatly, that a competitor could overcome the barrier to entry. However, the most likely outcome in this scenario is that one monopolist is replaced with another monopolist and the fundamental problem remains.

CONCLUSIONS AND KEY QUESTIONS

Technological change has the potential to exacerbate the inequalities of our current economic system. It could also have important impacts on the wellbeing of employees at work. To avoid these outcomes we need to appreciate who will wield power in the new digital economy and then act to distribute that power more widely. In particular, we must ask:

- How can the collective power of workers be strengthened in the digital economy, and what changes are necessary to make institutions such as trade unions more effective in dramatically changing working environments?
- What new forms of collective ownership of business and production would be appropriate in an age of automation?
- How should we arrange the governance and ownership of data so as to protect individuals from misuse of their information, while maximising the potential usefulness of data for the common good?
- What new rules and expectations should we have for employers in the context of increasing powers of surveillance?
- How can we work domestically and internationally to curb the excess power of large tech companies while still benefiting from the products they offer?

A number of policy solutions and next steps need to be considered, including:

- promoting education and skills
- encouraging and learning from policy experimentation in regions
- strengthening trade unions and worker representation
- moving towards a shorter working week
- establishing new business models for platform services that put more control in the hands of workers and citizens
- clarifying and updating data protection and equalities legislation to take account of the greatly expanding powers of data collection

A technological transformation is not just something that happens *to* us, it is something that we determine and shape. But who exercises most influence in that process of shaping the future is still up for grabs. We must take back more control for workers and communities so that the interest of the many prevails and a vision of our economy as a collective endeavour, in which everyone can expect to benefit, can ultimately be realised