

PART THREE

The Response

9

Education and Its Limits

When confronted with the threat of technological unemployment, the most common response from those who think about the future of work – commentators and economists, politicians and policymakers – is that we need more education. From this point of view, the problem facing us is ultimately a skills challenge, and if we give people the right education and training, then this challenge will be resolved. If most people get their income as a return on their human capital, then we have to stop that flow from drying up. Jason Furman, the former chair of President Obama’s Council of Economic Advisers, captured this conventional wisdom in a tweet. ‘Work has a future,’ he wrote, and ‘whatever it is, education will help.’¹

For the moment, this is indeed our best response, and the most pressing task that we face is figuring out what ‘more education’ actually means. That is what I try to do in the first part of this chapter. However, as time goes on and machines become ever more capable, education will be of diminishing help. The idea that education can *indefinitely* solve the employment problems created by technological progress is pervasive and largely unchallenged; it is also, as we will see in the second part of this chapter, a big mistake.

THE HUMAN CAPITAL CENTURY

The faith in the power of education to help workers adapt to technological progress comes largely from the past. As we have seen, in the twentieth century technological progress tended to be skill-biased, making the efforts of better-educated workers more valuable relative

to those of others. During that time, people who acquired and honed the right skills flourished. And today, an education is still one of the best economic investments a young person could make. If you go to college in the United States, it will cost you about \$102,000 on average (in tuition and four years of forgone salary while studying), but as a college graduate you can expect to earn more than \$1 million during your lifetime – more than twice the amount you would earn with only a high school diploma.² Put another way, a college degree in the US has an average annual return of more than 15 per cent, leaving stocks (about 7 per cent) and bonds, gold, and real estate (less than 3 per cent) trailing far behind.³

Education also does more than just help individuals: it is responsible for thrusting entire economies forward as well. Again, this was particularly true in the twentieth century, so much so that economists called it the ‘human capital century’. During the eighteenth and nineteenth centuries a country’s prosperity depended on its willingness to invest in traditional capital, its factories and industrial machines, but in the twentieth century that changed, and prosperity started to depend far more upon an eagerness to invest in human capital, the skills and capabilities of its workers. Why the switch? Because new technologies increasingly required specialized skills, and countries that had better-educated workforces were better equipped to put these technologies to proper use. ‘Simple literacy and numeracy’, write Claudia Goldin and Lawrence Katz, two leading scholars of these changes, were ‘no longer sufficient’ for economic success.⁴ More education was needed.

What ‘more’ actually meant, though, changed over the course of the twentieth century. In the beginning, it meant *more people*. The ambition was mass education: that everyone, whatever their background or ability, should have access to proper schooling. This was slow in coming. In the 1930s, Goldin and Katz report, the US was ‘virtually alone’ in providing free secondary school education.⁵ But as time passed, other countries caught up and copied that initiative. Today, it is commonplace. And by the end of the twentieth century the meaning of ‘more’ had transformed. It no longer meant simply educating more people, with schooling available to all, but *more advanced* education, with a focus on colleges and universities. You can see this

shift in priority in the statements of politicians around the turn of the century. In 1996, US president Bill Clinton introduced sweeping tax changes that he hoped would make ‘the 13th and 14th years of education as universal to all Americans as the first 12 are today’.⁶ A few years later, UK prime minister Tony Blair declared that he had ‘no greater ambition for Britain than to see a steadily rising proportion gain the huge benefits of a university education’.⁷ And in 2010, President Barack Obama proclaimed that ‘in the coming decades, a high school diploma is not going to be enough. Folks need a college degree. They need workforce training. They need a higher education.’⁸

For now, this is likely to be right, and ‘more education’ remains our best response at the moment to the threat of technological unemployment. But how should ‘more’ be interpreted in the face of increasingly capable machines? The answer involves three changes to our current approach: in what we teach, how we teach it, and when we teach it.

WHAT WE TEACH

In the last few years, an array of policy proposals has come out to respond to the threat of automation. Running through all of them is a single underlying principle: that we must teach people skills that will make them better at whatever machines are bad at, not at what machines are good at. In other words, people should learn to perform tasks in which machines will complement them, rather than substitute for them.

A major implication of this advice is that we must stop teaching people to do ‘routine’ work. As we have seen, ‘routine’ tasks – ones that human beings find it easy to explain how they perform – are where machines already excel, and where the substituting force is already displacing human beings. Instead of channelling people into that sort of work, we must prepare them to pursue roles like nursing and care work: jobs that involve activities that draw on faculties that, for the moment, remain out of reach of even the most capable machines. Alternatively, we could teach people to build the machines themselves, to design them and set them to appropriate use – another activity that, at the moment, machines cannot really do. For now,

focusing on these sorts of activities will give workers the best chance of competing successfully with machines.

Some might bristle at the use of the word *compete*, preferring instead to use one of the many terms that suggest machines help human beings: augment, enhance, empower, cooperate, collaborate. But while words like that may be comforting, they give an inaccurate sense of the changes taking place. Today, new technologies may indeed complement human beings in certain tasks, raising the demand for people to do them; but, as we have seen, that arrangement will only continue as long as people are better placed than machines to do those tasks. Once that changes, though, the helpful complementing force will disappear. The complementing force is only a temporary help: competition, the never-ending struggle to retain the upper hand over machines in any given task, is the permanent phenomenon.

It might be tempting to scoff at the simplicity of the advice here: do not prepare people for tasks that we know machines can do better than human beings. But in fact, that basic principle remains largely ignored in practice. Today we continue to spend a great deal of time teaching people to do exactly the sort of ‘routine’ activities that machines are already superior at, to say nothing about their future capabilities.

Think of the way that we teach and test mathematics, for instance. Many of the problems we set students in secondary school, if not university, can now be solved by apps like PhotoMath and Socratic: take a photo of the problem, printed or handwritten, with a smartphone, and these apps will scan it, interpret it, and give you an instant answer. It is not a good sign that we still teach and test mathematical material in such a routine way that free off-the-shelf systems like these can handle lots of it with ease. The challenge here is not new: decades ago, basic calculators shifted the emphasis of much mathematical instruction away from brute-force calculation to mathematical reasoning and problem-solving. (Think of the ‘calculator papers’ that British students have to sit, where calculator use is required and questions are tailored accordingly.) A similar shift is now needed in response to these new technologies as well. And the same principle holds across all subjects: no matter what we teach, we need to explore the material in ways that draw on human faculties that sit out of reach of machines.

On the flip side, right now we also often fail to prepare people for tasks that machines are poorly equipped to do. Take computer science, for example. In the top quarter of US occupations by pay level, almost half of the job postings already require coding skills.⁹ In the future, the subject will almost certainly become even more important. And yet in England, for instance, it still remains a dull and uninspiring add-on to the national curriculum, entirely detached from the excitement unfolding at the field's research frontiers. A recent survey found that English computer science teachers often had 'no background' in the subject and 'do not feel confident' teaching the material.¹⁰ In part, this is because those now tasked with teaching computer science are often the same people who used to teach the old-fashioned (and now discontinued) course in ICT, or Information Communication Technology – where students were taught to use Microsoft Word, Excel, and the like. Policymakers seem to have thought that because both subjects have something to do with computers, there was no urgent need to hire new teachers. Given the quality of the instruction, it is no surprise that only about one in ten students in England take GCSE computer science at sixteen.¹¹ More broadly, one in four adults across thirty-three OECD countries has 'little or no experience of computers', and most are 'at or below the lowest level of proficiency' in using technology to solve problems.¹²

The simple-seeming guidance of preparing people for tasks at which machines will complement them, not substitute for them, is also useful for another reason: it forces us to think more carefully about where exactly in the labour market those complemented tasks are likely to be. Today, it is often assumed that those tasks are found in the most complex and well-paid roles. The aim of much policy-making, therefore, is to encourage people to 'up-skill', to pull themselves up through the labour market and try to secure a role at the top. That was the thrust of the comments made by Clinton, Blair, and Obama about college degrees for all. But that twentieth-century strategy is starting to look outdated. As we have seen, the level of education required by a human being to perform a task (in other words, whether it requires a high-skilled worker or not) is a diminishingly useful sign of whether the task can be automated. In fact, many tasks that cannot yet be automated are found not in the best-paid

roles, but in jobs like social workers, paramedics, and schoolteachers. Preparing people for such careers will require a very different approach from the traditional one of trying to push an ever-greater number of students through an increasingly advanced formal education.

In the more distant future, however, the simple rule of avoiding ‘routine’ tasks is not going to be enough. We know that machines will not be perpetually confined to ‘routine’ tasks: they are already starting to perform tasks that, in humans, require faculties like creativity, judgement, and empathy. In some ways, machines are also starting to build themselves. (Think of AlphaZero, for instance, the game-playing system that figured out for itself how to become an unbeatable chess player.) This makes it doubtful whether humans eventually will even be able to hold on to work as machine builders.

The trouble with attempting to give any detailed advice for that more distant time, though, is that an impenetrable shroud of uncertainty hangs over exactly *which* tasks will remain out of reach of machines. All we really know with any confidence is that machines will be able to do *more* in the future than they can today. Unfortunately, this is not particularly useful for deciding what people should be learning to do. But that uncertainty is unavoidable. And so we are left with just our simple rule for the moment: do not prepare people for tasks that we know machines can already do better, or activities that we can reasonably predict will be done better by machines very soon.

HOW WE TEACH

Along with changing what material we teach, we also need to change *how* we teach. As many people have noted, if we were able to travel a few centuries back in time and step into a classroom, the set-up would look remarkably familiar: a small group of students assembled in a single physical space, addressed by a teacher through a series of live lectures each roughly the same length and pace, following a relatively rigid curriculum.¹³ With talented teachers, serious students, and deep pockets to draw from, this traditional approach can work well. But in practice, those resources are often not available, and that traditional approach is creaking.

Today's technology offers alternatives. Take one feature of the traditional approach, the fact that teaching in a classroom is unavoidably 'one size fits all'. Teachers cannot tailor their material to the specific needs of every student, so in fact the education provided tends to be 'one size fits none'. This is particularly frustrating because tailored tuition is known to be very effective: an average student who receives one-to-one tuition will tend to outperform 98 per cent of ordinary students in a traditional classroom. In education research, this is known as the 'two sigma problem' – 'two sigma', because that average student is now almost two standard deviations (in mathematical notation, 2σ) ahead of ordinary students in achievement, and a 'problem' since an intensive tutoring system like this, although it can achieve impressive outcomes, is prohibitively expensive. 'Adaptive' or 'personalized' learning systems promise to solve this problem, tailoring what is taught to each student but at a far lower cost than the human alternative.¹⁴

Or consider another feature of the traditional classroom approach, the fact that there are only a limited number of people who can fit in a traditional classroom or lecture hall before it starts to get too cosy. In contrast, there is no limit to the number of students when teaching is delivered online, no 'congestion effects', as economists might say. A computer science course taught by the well-known Stanford computer scientist Sebastian Thrun, for instance, managed to reel in over 314,000 students.¹⁵ There are serious economies of scale with online education, too: the cost of providing a class online is almost the same whether it's seen by 100 people or 100,000, a pleasing financial situation where the per student cost falls as more students use the service.¹⁶

These 'massive open online courses', or MOOCs, were greeted with great enthusiasm and fanfare when they first emerged, a decade or so ago. Since then it has become clear that while a vast number of people might sign up for the courses, very few actually finish them; the completion percentage rates are often in the low single figures.¹⁷ We should not be too quick to dismiss this approach, though. Completion rates may be low, but enrolment numbers are very high, and a small proportion of a very large number is often still a large number: for instance, the Georgia Tech online master's in computer science alone boosts the number of Americans with that degree by

about 7 per cent every year, despite the many dropouts (about 1,200 Americans enrol annually, and about 60 per cent of them finish the course).¹⁸ Also, while students who enrol in MOOCs may not follow through on their initial enthusiasm, its very existence shows that there is a huge demand for education that is currently not being met by our traditional educational institutions. This demand can come from remarkably talented places, too. When Sebastian Thrun taught his computer science class to 200 Stanford students, and then to 160,000 non-Stanford students online, the top Stanford student ranked a measly 413th. ‘My God,’ cried Thrun on seeing this, ‘for every great Stanford student, there’s 412 amazingly great, even better students in the world.’¹⁹

WHEN WE TEACH

Finally, the third change we need to make in response to increasingly capable machines is how *often* we teach. Today, many people conceive of education as something that you do at the start of life: you put aside time to build up human capital, and then, as you get older, you dip into it and put it to productive use. On this view, education is how you prepare for ‘real life’, what you do to get ready before proper living begins in earnest.

I have been on the receiving end of this way of thinking myself. After working in 10 Downing Street, I returned to academia to study for a postgraduate degree. And when asked at a dinner table what I did for work, I would reply, ‘I am working on a doctorate in economics.’ Invariably, my interlocutor would blanch, regretting having steered into a conversational cul-de-sac, and say with a wry smile: ‘Ah, a *perpetual student*.’ That response captures an unhelpful conventional wisdom: after a certain age, further education is considered to be a sign not of productivity, but of indolence and flippancy.

In the coming years, this attitude will need to change. People will have to grow comfortable with moving in and out of education, repeatedly, throughout their lives. In part, we will have to constantly re-educate ourselves because technological progress will force us to take on new roles, and we will need to train for them. But we will

also need to do it because it is nearly impossible right now to predict exactly what those roles will be. In that sense, embracing lifelong learning is a way of insuring ourselves against the unknowable demands that the working world of the future might make on us.

In some places, these ideas are already ingrained. The Nordic countries, including Denmark, Finland, and Norway, are particularly fond of the idea. And Singapore offers all its citizens over twenty-five a lump-sum credit worth about \$370 to spend on retraining, with periodic top-ups to refresh the balance. It is a relatively modest sum, given the scale of the challenge, but distinctly better than nothing at all.²⁰

THE BACKLASH AGAINST EDUCATION

If we can adapt what, how, and when we teach, then education is our best current bulwark against technological unemployment. In the last few years, though, there has been a surge of scepticism about the value of education – in particular, about the relevance of the teaching that is currently provided in universities and colleges. Just 16 per cent of Americans think a four-year degree prepares students ‘very well’ for a well-paying job.²¹ In part, this may have been prompted by the fact that many of today’s most successful entrepreneurs dropped out from these sorts of institutions. The list of non-graduates is striking: Sergey Brin and Larry Page left Stanford University; Elon Musk did likewise; Bill Gates and Mark Zuckerberg left Harvard University; Steve Jobs left Reed College; Michael Dell left the University of Texas; Travis Kalanick left the University of California; Evan Williams and Jack Dorsey left the University of Nebraska and New York University, respectively; Larry Ellison left both the University of Illinois and the University of Chicago; Arash Ferdowsi (co-founder of Dropbox) left MIT; and Daniel Ek (co-founder of Spotify) left the Royal Institute of Technology.²²

This list could go on. Though these entrepreneurs stepped away for various reasons, all shared the same trajectory afterwards: out of education, and into the stratosphere of the labour market. It is tempting to dismiss them as exceptional cases. It is certainly true that not

all dropouts start large, successful technology companies; it is also true that the point of education is not necessarily to raise everyone to start a large technology company. But among those who do, dropouts are not uncommon, and it is a pattern worth reflecting upon for a moment.

Alongside that list's anecdotal power, there are also deeper arguments about why faith in 'more education' might be misplaced. The entrepreneur Peter Thiel offers the most provocative version of that case. He claims that higher education is a 'bubble', arguing that it is 'overpriced' because people do not get 'their money's worth' but go to college 'simply because that's what everybody's doing'. Thiel does not deny that those who are better educated tend to earn more on average, as we saw before. Instead, he is suspicious that we never get to see the counterfactual: how these students would have done without their education. His sense is that many of them would have earned just as much, and that universities are 'just good at identifying talented people rather than adding value'. Thiel now offers \$100,000 grants to young students who choose to 'skip or stop out of college' to start companies instead.²³ The Thiel Foundation, which manages the grants, points out that its recipients have started sixty companies worth a combined total of over \$1.1 billion. (The foundation omits to mention, though, that we never see their counterfactual, either: what those entrepreneurs would have done without their grants.)

The question of whether universities are 'just selecting for talented people who would have done well anyway . . . isn't analysed very carefully', Thiel complains.²⁴ In fact, though, many economists have spent large portions of their lives thinking specifically about this issue. The problem is so popular that it has its own name: 'ability bias', a particular case of what's known in econometrics as 'omitted variable bias'. (In this case, the omitted variable is a person's innate ability: if higher-ability people are more likely than others to go to university in the first place, then attributing their greater financial success to their education alone leaves out a significant part of the story.) Economists have developed a tool kit of techniques to address this omission, and their sense – contrary to Thiel's – is that even once ability bias is accounted for, universities still appear to have a positive impact. Talented people might earn more than others in any case, but education helps them earn even more than they would otherwise.

But *how* do colleges and universities help people earn more? There are influential economists – several Nobel laureates among them – who think that it has very little to do with giving students new skills or making them more productive workers. Instead, these economists argue that a large chunk of education is a wasteful phenomenon known as ‘signalling’. In this view, education may well increase people’s wages not because it makes them more able, but because it is difficult – so only people who are *already* very able before they start school are able to complete it. So just as a peacock signals his virility to a potential mate by having a particularly fancy set of tail feathers, a student can signal her ability to a potential employer by having a particularly fancy degree. Some suggest that up to 80 per cent of the financial reward from education is actually just this ability to stand out from others.²⁵ On this view, education really has very little to do with giving people new skills at all.

Thiel’s general scepticism, then, is important, even if his particular complaint is overstated. Even more important, in general, is a willingness to critique our education system. We tend to treat our schools, universities, colleges, and training centres as if they are sacred: questioning their economic usefulness provokes strong reactions, from discreetly raised eyebrows to more vociferous outrage. Larry Summers, pulling no punches, once described Thiel’s \$100,000 grants to young students who chose not to go to college as ‘the single most misdirected bit of philanthropy in the decade’.²⁶ Yet no institution, however venerated and esteemed, should escape critical examination in thinking about the future, our educational institutions included.

THE LIMITS TO EDUCATION

In addition to the current doubts about the value and usefulness of higher education, two other problems are likely to emerge when we look to ‘more education’ as a reprieve from technological unemployment. Of course, education has other purposes beyond simply making sure people are able to find well-paid work, and we will turn to such non-economic concerns in later chapters. For now, though, I want to focus on education specifically as a response to

the economic threat of automation – and on the limitations it has in that regard.

Unattainable Skills

Today, when people propose ‘more education’ as a response to the threat of automation, they do so with a readiness that does not reflect quite how difficult it can be to bring about. New skills are treated as if they were manna from heaven – falling down from the sky in plentiful supply, to be gathered up with little effort by those who need them. But education is not like that. It is hard.²⁷ It is all very well to say that if workers are displaced by machines, and new work arises that requires different skills, they can swiftly learn them and all will be well. In practice, things do not work like that at all. The difficulty of retraining is part of the reason for frictional technological unemployment: even when there is work out there for human beings to do, those jobs may sit tantalizingly out of reach of people without the skills required to do them. And this is the first limit to education: for many people, certain skills simply may not be attainable.

One reason for this is natural differences. Human beings are born with different bundles of talents and abilities. Some are nimble-footed, others manually dexterous; some have sharp minds, others a finely tuned empathetic touch. These differences mean that some people will inevitably find it easier than others to learn to do new things. And as machines become increasingly capable, narrowing the range of things remaining for people to do, there is no reason to think that everyone will necessarily be able to learn to do whatever is left to be done.

Another reason why skills might be unattainable is that learning to do new things consumes time and effort. We spend large parts of our lives trying to perfect whatever talents and abilities we have, and like the proverbial oil tanker we find it difficult to slow down and change course. Whenever I take a ride in a London taxi, for instance, I am in awe of the drivers: each one has spent years memorizing every street in London, all 25,000 of them, building a legendary body of street smarts known as ‘the knowledge’. Worrying about their future in the age of self-driving cars, I wonder how they might have fared as

doctors or lawyers if they had turned their remarkable memories to remembering symptoms and illnesses, or regulations and court cases, rather than destinations and routes. At this point, though, for older drivers a U-turn like this is likely to be a fantasy. What's more, even if it were possible, it might not make financial sense for them. It is one thing to incur the expense of training at the start of your life, with decades of potential earnings ahead to pay it back, but older workers may simply not have enough productive time left in the labour market to recoup it if the burden of repayment falls on them alone.

It would be nice to think that as human beings we are all infinitely malleable, entirely capable of learning whatever it is that is required of us. And you might argue that the difficulty of education is no reason to avoid it. After all, did President Kennedy not say that we do important things 'not because they are easy, but because they are hard'?²⁸ The thrust of Kennedy's comment may be right. But we have to temper our idealism with realism. If 'hard' turns out to mean impossible, then inspirational rallying cries to re-educate and retrain are not helpful.

As part of the Program for the International Assessment of Adult Competencies (PIAAC), the OECD recently conducted a survey of literacy, numeracy, and problem-solving skills of adults around the world. The results are striking. 'There are no examples of education systems that prepare the vast majority of adults to perform better in the three PIAAC skills areas than the level that computers are close to reproducing,' the report states. 'Although some education systems do better than others, those differences are not large enough to help most of the population overtake computers with respect to PIAAC skills.'²⁹ In this account, even the *best* existing education systems cannot provide the literacy, numeracy, and problem-solving skills that are required to help the majority of workers compete with today's machines – never mind the capabilities of machines in the future. At present, the survey estimates, only 13 per cent of workers use these skills on a daily basis with a proficiency that is clearly higher than that of computers.³⁰

Such observations might seem uncompassionate. To highlight differences in ability among human beings feels divisive, and the thought that education might not work for everyone seems pejorative.

Moreover, both of these seem to carry an unpleasant undertone that some people are ‘better’ or ‘worse’ than others. In his book *Homo Deus*, the historian Yuval Harari argued that technological trends will lead to the rise of a class of ‘economically useless people’. When he made this point in an interview with Dan Ariely, an influential psychologist, the latter was so irritated and offended that he blurted out: ‘Don’t call them useless!’³¹

Yet Harari’s point is not incompatible with Ariely’s sympathizing instinct. Harari was arguing, rightly, that some people may cease to be of economic value: unable to put their human capital to productive use, and unable to re-educate themselves to gain other useful skills. He was not claiming that they would end up without any value as human beings. That we so often conflate economic value and human value shows just how important the work that we do (or are seen by others to do) can be. It is a conflation we will return to at the end of this book, when contemplating the search for meaning in a world with less work.

Insufficient Demand

Aside from the difficulty of retraining everyone, the second difficulty with ‘more education’ as an answer to technological unemployment is that it can, at best, only tackle one small part of the problem: the scenario where people lack the skills to do the available work. As we have seen, though, the threat is far more multifarious than that. Frictional technological unemployment is not only caused by workers having the wrong skills: it may also be a product of identity mismatch and place mismatch. (If displaced workers choose not to take up available work because it sits uncomfortably with the type of person they want to be, or if they are unable to move to where new work is being created, then education will not help at all.) But more importantly, education will also struggle to solve the problem of structural technological unemployment. If there is not enough demand for the work that people are training to do, a world-class education will be of little help.

That is not to say education can be of *no* help in solving the problem of structural technological unemployment. Just as new technologies

can increase the demand for the work of human beings by making them more productive at their work, so, too, can education. If a doctor or a lawyer, for instance, becomes more productive thanks to better training, they may be able to lower their prices or provide a better-quality service, drawing a bigger clientele. One hope, therefore, is that if structural technological unemployment is caused by a lack of demand for the work of human beings, education could help prop up that demand by making people better at the work that remains for them to do.

As time passes, however, the burden on education to act in this way will grow larger and larger. With technological progress causing the demand for workers to wither away, education will continually have to create more and more demand to make up the shortfall. It is very difficult to see how this could happen indefinitely. As noted before, we are already reaching the point where workers' skill levels are plateauing. There are some limits on how effective education can be in making human beings more productive.

What's more, no comparable limit appears to exist in how productive *machines* could be in the future. As we have seen, when machines operate in different ways from human beings, there is no reason to think that our capabilities must represent the peak of their capabilities. Today, people interested in the future of work spend a great deal of time speculating about the capabilities of machines and where the limits of engineering might be; rarely, though, do we look at ourselves with the same critical eye, to ask about our own boundaries and the limits of education. My sense is that these human limits may be far closer than we think.

THE END OF THE ROAD

When I began to research and write about the future, my preoccupation was with 'work'. I wanted to know what technological progress would mean for people currently working for a wage: everyone from accountants to bricklayers, teachers to dog-walkers, lawyers to gardeners. What would actually happen to them? The reluctant answer I reached is the one set out in the book so far. It is hard to escape the

conclusion that we are heading towards a world with less work for people to do. The threat of technological unemployment is real. More troubling still, the traditional response of ‘more education’ is likely to be less and less effective as time rolls on. When I reached this conclusion, my challenge seemed clear: to come up with a different response, one that could be relied upon even in a world with less work.

Yet as I started to imagine what such a response might look like, I came to realize that my focus on the future of work alone was far too narrow. Instead, I found myself grappling with the more fundamental question set out in the last chapter: how should we share our society’s economic prosperity?

Today, as we have seen, a large part of our answer to that question is ‘through work’. Almost everyone has a bundle of talents and skills, their human capital, and they go out into the world of work looking for a job. In turn, these jobs provide workers with a slice of the economic pie in the form of a wage. This is why we regard work as so vital today, and why the idea of obtaining enough education to keep being employed is so attractive. But it is also why the prospect of a world with less work is so disconcerting: it will put the traditional mechanism for slicing up the economic pie out of use, and make the familiar response of *more education* far less effective than it once was.

Properly responding to technological unemployment, then, means finding new answers to the question of how we share out our prosperity, ones that do not rely on jobs and the labour market at all. To solve the distribution problem in the future, we need a new institution to take the labour market’s place. I call it the Big State.

IO

The Big State

The great economic dispute of the last century was about how much economic activity should be directed by the state, and how much should be left to the undirected hustle of individuals, free to do their own thing in the market. It was a deep intellectual conflict, a violent clash of ideas regarding the theoretical merits of two very different ways of organizing economic life: central planning on the one hand, and the free market on the other. Friedrich Hayek, perhaps the best-known champion of markets, thought that planning was ‘the road to serfdom’, a path not only to economic catastrophe, but to totalitarianism and political tyranny. Then there were others, like Hayek’s student Abba Lerner, who felt quite differently: defecting from his teacher’s thinking, Lerner wrote what his biographer described as a ‘user’s manual’ for central planners, *The Economics of Control*.¹

The disagreement divided the world. The United States and its allies thought free markets were the way to go; the Soviet Union and its allies viciously disagreed. At times, central planning appeared to have the upper hand. In 1960, the US government polled ten countries and found that the majority in nine of them thought in a decade’s time the Russians would be ahead scientifically and militarily. As the century progressed, statistics trickling out of the Soviet Union painted a picture of astounding economic performance. Then there was the great American humiliation of 1961, when the Soviet cosmonaut Yuri Gagarin became the first person to travel to outer space; hanging in victory above the world, he almost seemed to be mocking the West below. But as the century went on, cracks started to appear – then canyons. We now know the Soviet statistics were not so much massaged as pneumatically drilled into a flattering shape. In the late

1980s, a Russian economist called Grigorii Khanin recalculated the country's growth statistics and published his findings to great outcry in his homeland. While the Soviets had claimed that economic output in 1985 was more than 84 times that of 1928, Khanin found the multiple to be around a measly 7.² A few years later, the Soviet Union fell apart.

Given this history, calling for a Big State to solve the distribution problem in the future might sound odd. It appears not just to hark back to this old contest between markets and central planning, but to back the losers of the race – the planners. Didn't the twentieth century emphatically show that they were mistaken? Indeed it did. It provided compelling confirmation that for making the economic pie as big as possible, teams of smart people sitting in government offices and trying to coordinate the economic activity of all citizens according to a master blueprint are no match for the productive chaos of free markets. In calling for a Big State, however, I mean something different: not using the state to make the pie bigger, as the planners tried and failed to do, but rather to make sure that everyone gets a slice. Put another way, the role for the Big State is not in *production* but in *distribution*.

If left to its own devices in a world with insufficient work, the free market – and in particular the labour market – will not be able to continue performing that distribution role.³ As we have seen, the journey to a world with less work will be characterized by large and growing inequalities. The precedent for dealing with these sorts of major economic imbalances is not encouraging. In the past, such vast inequalities have been reduced on just a few occasions, and only through apocalyptic catastrophes. In Europe, for instance, the last two big falls in inequality were caused by the Black Death plague pandemic in the fourteenth century, and then by the slaughter and destruction of the two world wars in the twentieth. It is hardly a stomach-settling precedent.⁴

This, then, is the reason the Big State has to be big. If we are to find a way to narrow the inequalities by a less cataclysmic route than in the past, it is clear that tinkering and tweaking, as the state has tried before, will not be enough. The only way to deal with the looming disparities is to attack them aggressively and directly.

WHAT OF THE WELFARE STATE?

But do we not already have a Big State – the ‘welfare state’? It is true that, today, in most of the developed parts of the world, there are many institutions in place alongside the labour market that are designed to support those who find themselves without reliable or sufficient incomes. The particular design, sophistication, and generosity of these mechanisms differs across countries, of course, but they operate in a shared spirit, drawing on a centuries-old argument which says that society has an obligation to help the less fortunate. It is sometimes said that this thinking began with a young Spaniard, Juan Luis Vives, and his 1526 book *On Assistance to the Poor*. At the time, the idea was so controversial that Vives was unwilling to even write the title in a letter to his friend, for fear that ‘it would fall into the wrong hands’.⁵ For a long time, the needy relied upon the charity of the prosperous and the free time of volunteers. Gradually, though, local authorities started to respond to beggars and vagabonds by providing them with support or the chance to work.

At the turn of the twentieth century, these welfare institutions started to grow in both generosity and complexity. Countries began to provide unemployment insurance and industrial injury benefits, sickness insurance and old-age pensions, all in an effort to offset the reality that those who lacked a job for any reason would have no income at all.⁶ In the UK in particular, serious change started with a 1942 government report called *Social Insurance and Allied Services*, written by economist William Beveridge. Despite its dry title, the Beveridge Report, as it became known, was remarkably influential and well received. Polls showed a majority of all social classes at the time supporting Beveridge’s call for more state-provided support. Copies were circulated among troops and dropped behind enemy lines; versions were found, carefully annotated, in Hitler’s final bunker.⁷

Since the time of the Beveridge Report, many other proposals have also been made to make sure that everyone in a given society has enough income. Some have remained only theoretical; others became actual policy. For the most part, these plans have tended to piggyback on the labour market, trying to boost people’s incomes either by

supplementing the wages of low-paying jobs or by attempting to get more people into work in the first place.⁸ For example, ‘working tax credits’ or ‘earned income tax credits’ provide tax-offsetting payments to people who earn below a certain amount despite having a job (hence these credits are ‘earned’ through work); most OECD countries have introduced schemes like this in the last few years. Straightforward wage subsidies are another way of addressing insufficient incomes: here, the state, rather than fiddling around with tax credits, instead directly subsidizes low-paid workers to raise their earnings. In various ways, these policies all try to ‘make work pay’ – or, in the case of unemployment benefits, which generally require recipients to be looking for a new job, to make ‘looking for work’ pay instead.

Given that such income-boosting institutions and interventions are already in action around the world, why should we not simply focus on improving and expanding them, perhaps with additional funding and a few tweaks? Why do we need a Big State at all? The answer is that almost all of these schemes were designed for a world where employment is the norm, and unemployment a temporary exception. In a world with less work, neither of these would be true.

Consider the Beveridge Report again, for example. Central to Beveridge’s plan for improving British society was the labour market itself. Those who had jobs would make contributions to a collective pot that supported those who could not work (perhaps the ill or the elderly), as well as those who were able to work but found themselves temporarily without a job. The unemployed could draw payments from that pot, but only on the condition that they would be prepared to train for new work while receiving this support. Today, systems like this are often called social safety nets, but they are meant to act more like trampolines, throwing people back up into work after a stumble. Yet if technological unemployment comes about, this approach would fall apart. With fewer jobs, it would be far harder to bounce back after a slip. And the trampoline would start to strain and creak under the weight of all who gathered on it in expectation of support.⁹

The Beveridge Report, with its talk of slaying five ‘Giant Evils’ of society – want, disease, ignorance, squalor, and idleness – did not read like a run-of-the-mill government policy paper. It is furious and

polemical, rallying its readers up front with a call to arms (and alms): ‘a revolutionary moment in the world’s history is a time for revolutions, not for patching.’¹⁰ Today, we may be approaching a similar moment. Indeed, the challenge we face is probably even larger. The problems of Beveridge’s time, though severe, were limited to some segments of society, particularly the poor. But as we have seen, the problem of technological unemployment is unlikely to discriminate in that way. It will reach into many more corners of the labour market. Our instinct should not be to tinker and tweak the institutions we have inherited. Instead, as Beveridge did, we have to free ourselves from old ideas, and be far bolder.

In that spirit, the Big State will have to perform two main roles. It will have to significantly tax those who manage to retain valuable capital and income in the future. And it will have to figure out the best way to share the money that is raised with those who do not.

TAXATION

Today, taxes are not a topic that tends to excite people. People like talking about taxes almost as little as they enjoy paying them. But in a world with less work, taxation will be a critical mechanism in solving the distribution problem. A Big State will have to tax income where it still remains and share it out to the rest of society.

The first question, then, is whom or what to tax. And the simple answer is to follow the income. The previous discussion of the trends in economic inequality provides a strong sense of where money might be found in the future: increasingly, the part of the pie that goes to workers is shrinking relative to the part that goes to those who own traditional capital. What’s more, as we have seen, both of those parts are themselves being sliced up ever more unequally, the traditional capital segment particularly so.

As we approach a world with less work, these trends may not hold at the same pace in all places. The Big State will need to be nimble-footed in identifying exactly where income is tending to gather and accumulate. But given current trends, there are three likely places to look.

Taxing Workers

First, the Big State will have to tax workers whose human capital increases in value with technological progress. As we have seen, there will be no ‘big bang’ moment where everyone suddenly finds themselves without work to do. The effects of technological unemployment are likely to be stuttering and uneven. Importantly, too, there will be some people who escape the harmful effects of task encroachment, who continue to prosper for many years in their work even as others get displaced. New technologies will go on complementing the efforts of these workers, rather than substituting for them. Think of a software developer in the future, for instance, simultaneously more productive because she has increasingly powerful systems at her disposal and more sought-after since the demand for her craft is likely to be voracious. There are others, too, who will likely be able to boost their wages, such as the ‘supermanager’ CEOs we saw before. Both of these types of prospering workers will have to be taxed more than they are now. Economic theory suggests that, even today, the best tax rate to impose on the most prosperous might be as high as 70 per cent – quite some distance from where it is at the moment.¹¹

Taxing Capital

Second, the Big State will have to tax the owners of traditional capital. This may seem intuitive, given all that has been said about the way that new technologies increase the traditional capital owners’ share of the economic pie. But policymakers are still likely to face an uphill struggle, and not just for political reasons. Part of the challenge here will be a theoretical one: according to the most popular models in economics today, the best tax rate to set on this capital is zero. Different models give slightly different reasons for the zero rate. One argument says that capital taxes create distortions that grow explosively over time so they are to be avoided; another essentially proclaims that you can always tax labour efficiently, so why bother taxing capital.¹² And while economists recognize that these models are limited, a feeling has still managed to seep through the economics

profession that when talking about taxing traditional capital, the conversation ought to begin close to zero. As Thomas Piketty and Emmanuel Saez delicately put it, ‘The zero capital tax result remains an important reference point in economics teaching and in policy discussions.’¹³ This bias will have to be corrected.

A more practical difficulty is that the idea of taxing traditional capital is very ambiguous, far more so than taxing labour. Recently, public discussion has veered towards so-called robot taxes. Bill Gates is partly responsible for this, having caused a stir with his views on the subject. ‘Right now, the human worker who does, say, \$50,000 worth of work in a factory, that income is taxed,’ he said in a recent interview. ‘If a robot comes in to do the same thing, you’d think that we’d tax the robot at a similar level.’¹⁴

Well before Gates, others proposed robot taxes as well. Back in the early 1980s, for instance, during a previous bout of automation anxiety, a *Washington Post* reporter found himself in a car workers’ union hall ‘in the sickly heart of car-making country . . . on a slate-gray Sunday afternoon’. A union president stood up to declare that ‘high technology and robots may eliminate each and everyone in this room.’ As various experts ‘explained how robots could turn them into blue-collar anachronisms, the auto workers seemed, at first, bewildered. Then they got mad.’¹⁵ In response, the Machinists’ Union drew up a ‘Workers’ Technology Bill of Rights’, which, among other things, called for a robot tax. Unemployment, they wrote, would ‘decrease local, state, and federal revenues’ and this ‘replacement tax’ would be needed to fill the gap.¹⁶

To be sure, there are many problems with the idea of a robot tax. One is that thinking in terms of ‘robots’ is overly simplistic, suggesting that we can perform a simple head count for them as we do for human beings. Even in Gates’s simple factory scenario, it is hard to know how to conduct a robot census and what exactly to tax. Another difficulty is that, as we have seen, machines do not simply substitute for workers, but also complement them. Since it is hard to disentangle these effects, how do we know that taxing robots would put a penalty on the harmful ones rather than on the helpful ones? And perhaps most importantly, we must remember that technological progress (of which robots are a part) drives economic growth – it makes the economic pie

bigger in the first place. That is why Larry Summers calls the robot tax ‘protectionism against progress’.¹⁷ A robot tax might mean fewer robots and more workers, but it might also mean a smaller pie as well.

Each of these criticisms has some weight. Together, though, they represent a very narrow interpretation of a ‘robot tax’. If instead we treat the idea in a broader, more charitable way, as just a recognition of the fact that we will need to tax the income that flows to owners of increasingly valuable traditional capital, then it must be right. Quibbles about details and scope do not affect the fundamental point: solving the distribution problem in a world with less work will require the Big State to follow the income, wherever it comes from.¹⁸ In the Age of Labour, most people receive their income as a wage, so human capital has been the most important income source. But in a world with less work, traditional capital will start to matter far more.

A critical first step in taxing traditional capital will be achieving clarity regarding where that capital is located and who actually holds it. At the moment, its location is often unclear. Since the 1970s, the amount of household wealth held offshore, often in tax havens, has shot up; today, it stands at about 10 per cent of global GDP, though, as Figure 10.1 shows, there is a lot of variation across countries.¹⁹

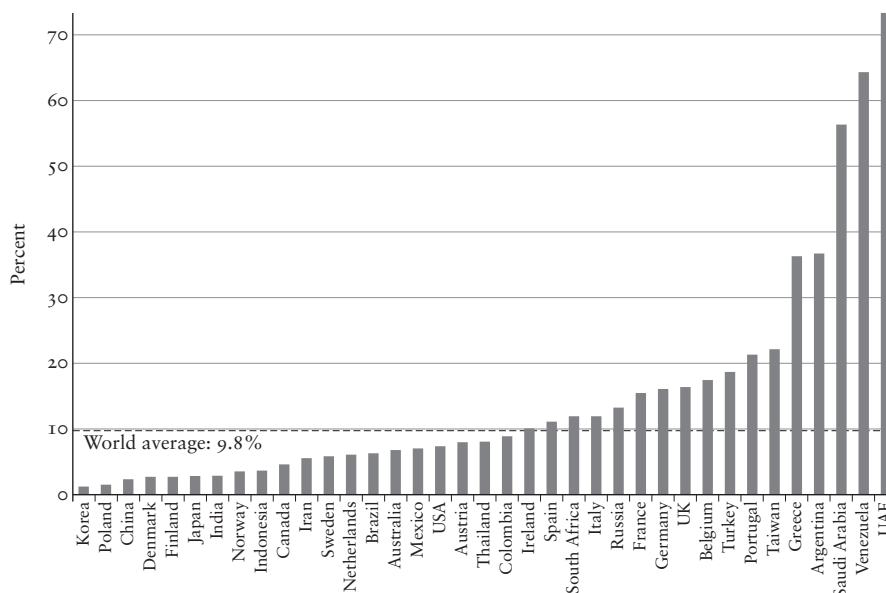


Figure 10.1: Offshore Wealth as a Percentage of GDP (2007)²⁰

Tracing the owners of traditional capital is not an easy exercise, either. Apart from Switzerland, no major financial centre publishes detailed statistics on the amount of foreign wealth held by its banks. Many of those who hold this capital do not want others to know about it.²¹

Inheritance tax will also become increasingly important. Of all taxes, this one – often tendentiously nicknamed the ‘death tax’ – ranks as one of the least popular. Parents feel strongly that they should be able to pass on whatever they want to their children; their children feel strongly that they have a right to inherit, unfettered, from their parents.²² As a result, most places in fact are currently trying to reduce such taxes: in OECD countries, the proportion of government revenue raised by inheritance taxes has fallen by three-fifths since the 1960s, from more than 1 per cent to less than 0.5 per cent. Some countries have abolished them altogether.²³ This is in spite of the fact that inherited wealth remains a big driver of inequality, and a particularly important explanation for why some people are extraordinarily wealthy. Over the last fifteen years, the number of billionaires in North America who inherited their wealth has increased by 50 per cent. In Europe, it has doubled.²⁴

In the Age of Labour, we are resigned to the fact that we have to tax people’s inherited human capital: when we tax workers’ wages and salaries, we indirectly tax the talents they were lucky to be born with, as well as those acquired later on. As we approach a world with less work, we will have to become more comfortable with taxing inherited traditional capital instead.

Taxing Big Business

Third, and related, the Big State will have to tax large companies. In exploring the trends in inequality, we saw that more and more industries are becoming dominated by a shrinking number of corporations. This was important because these superstar firms appear to be partly responsible for the fall in the labour share of income. But this dominance leads not only to fewer workers, but also to healthier profits.²⁵ As we move towards a world with less work, we will need to make sure that these profits are properly taxed as well.

In practice, this is already proving difficult. In the last few years,

many large companies – particularly technology companies – have managed to minimize their tax payments with extraordinary success. With great economic power, it seems, often comes great irresponsibility. In 2014, for instance, Apple was able to pay almost no tax in Europe at all. Through assorted tax-planning wizardry, they managed to be taxed at an effective rate of 0.005 per cent, a pathetic \$50 on every million dollars they made in profit. To put this in context, in Ireland (where Apple's tax bill was due), citizens with the lowest incomes paid their tax at a rate 4,000 times higher than that.²⁶ In the US, the effective tax rate paid by US-owned companies to the American government has fallen consistently over the last few decades, even though the nominal tax rate – the one actually set by law – has been steady since the 1990s. Gabriel Zucman, the leading scholar of these trends, estimates that the effective tax rate paid by businesses to the US government fell by 10 per cent between 1998 and 2013, with about two-thirds of that reduction due to increased tax avoidance. Again, tax havens play an important role in enabling this: since 1984, the share of US corporate profits reported in places like the Netherlands,

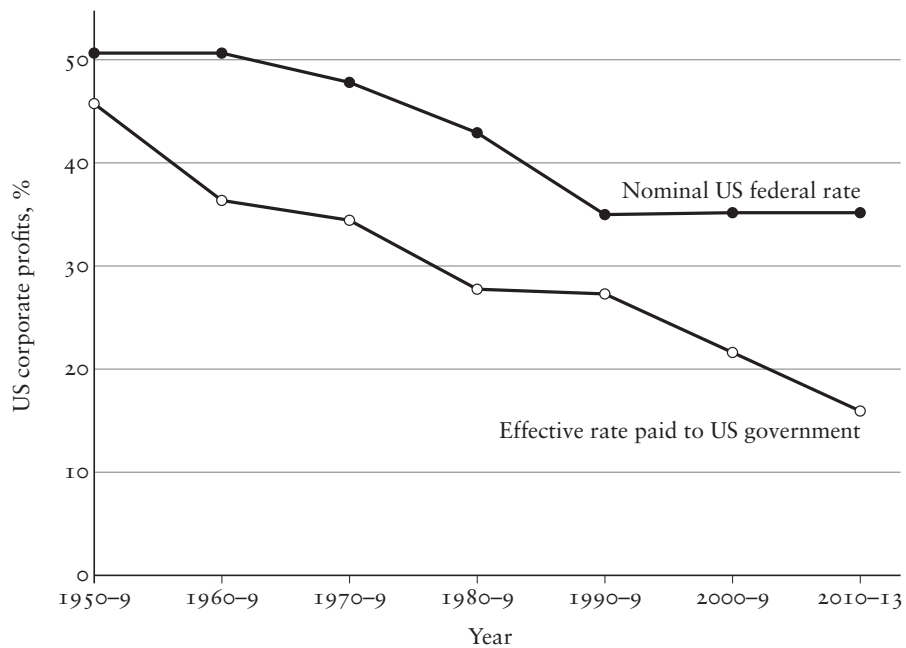


Figure 10.2: Nominal and Effective Tax Rates on US Corporate Profits²⁷

Luxembourg, Ireland, Bermuda, Singapore, and Switzerland has increased more than eightfold.²⁸

Tax avoidance by large corporations usually does not break the letter of the law governing corporate taxation, though it frequently offends the spirit of the law. (Sometimes it does both: the European Commission determined that Apple's Irish tax breaks violate international regulations, and served Apple a bill of €13.1 billion.)²⁹ In other words, corporate tax avoidance stirs public outrage not because it is illegal but because it is immoral.³⁰ When highly profitable businesses rely on legal loopholes and technicalities to avoid paying a reasonable level of tax, it is seen as a betrayal of the trust that people placed in these companies.

This does not mean that people should be thrilled to pay their taxes. Not everyone has to share the enthusiasm of the great American jurist Oliver Wendell Holmes, who once said, 'I like to pay taxes. With them I buy civilization.'³¹ What it does mean, though, is that there is a need to bring the letter of corporate tax law in line with the spirit. In other words, we need tighter legislation so that big companies are forced to pay their fair share.

The next challenge will then be to enforce any such new legislation. In part, this requires greater political will and grit than what we see today; for instance, the number of potential tax cheats that the US Internal Revenue Service refers for criminal prosecution, relative to the size of the population, has collapsed by 75 per cent over the last twenty-five years.³² In part, it also requires better officials and regulators – or, at least, officials and regulators who are as capable as the companies they are regulating. Most major companies are likely to instruct their tax experts to devise clever new moves and uncover new loopholes to avoid whatever rules are imposed on them. There is also the problem that even if regulators do catch up to the tax advisers, and one country is able to enforce a higher effective tax, a company can simply slip away and relocate somewhere else where taxes are lower. Many businesses, rather than bother to evade stricter tax laws, will move instead. (This is true not only for large companies, of course, but all owners of valuable capital.) For that reason, better international coordination to prevent such tax-evading relocations will be needed, too.

Greater political will, better officials and regulators, and more coordination between tax authorities are not new ideas. To date they have not been wildly successful ideas, either. What else could we do, then? One underexplored alternative is to try to shape the behaviour of accountants – the people responsible for helping companies with their tax affairs. Today, accountants often see their role as helping clients pay less tax by any legal means necessary. This is the current culture of the profession. But perhaps it could be shifted in a better direction. Suppose a mandatory code of conduct were introduced that required accountants to follow the *spirit* of tax law, not merely the letter. Codes like this are already used for lawyers, doctors, and other professions today, with relative success, and they have sanctions built into them for members of the profession who ignore them.

Accountants might object that the spirit of the law cannot be definitively ascertained. And that is true – but the letter of the law can be mind-bogglingly ambiguous, too. That is how accountants make their money, after all: by helping people navigate and exploit those uncertainties in the tax system. Under this new code of conduct, their work would shift to helping navigate ambiguities in the spirit of the law instead, a step towards ending the tax avoidance industry that flourishes today.

THE INCOME-SHARING STATE

Once the Big State has raised the necessary revenue, the next question is how to share it so that everyone has enough income. In the twentieth century, as we have seen, answers to this tended to rely on the labour market. Revenue was spent on raising the wages of the lowest-paid workers and on supporting those who found themselves unemployed while encouraging them back into the job market. In a world with less work, however, these approaches will be markedly less effective than they were in the past.

This is why, among those who worry about the future of work, there is a lot of excitement about the idea of a universal basic income, or UBI. This scheme sidesteps the labour market altogether: it is a regular payment that the government provides to everyone, whether

or not they are employed. Support for the UBI can also be found well beyond just those who are anxious about automation: it is one of those rare policy proposals that makes the political spectrum bend back on itself, with people on opposite ends meeting in violent agreement. Conservatives like the UBI because it is simple, promising to do away with the inefficient complexity of existing welfare systems, while liberals like it because it is generous, promising to get rid of poverty altogether. For our purposes, though, it is its implications for the world of work that are particularly interesting.

This enthusiasm for the UBI may be relatively new, but the idea itself is not. It was first proposed by Thomas Paine, one of America's founding fathers, who published a pamphlet about it in 1796. In the opening pages, Paine describes his irritation on hearing a bishop preach that 'God made *rich* and *poor*.' This, he thought, was completely wrong. God did not create inequality, Paine argued, but gave everyone 'the earth for their inheritance' to share. And yet, looking around him, Paine saw that in practice only a small class of landowners came to enjoy that inheritance. To solve this, he proposed that everyone should be given an annual lump of cash to compensate them for their loss – a sort of UBI.³³ Since then, the idea has continued to appear in various guises: as a 'territorial dividend' and 'universal benefit', 'citizen's income' and 'citizen's wage', 'state bonus', and 'demogrant'. (Today's preferred label, 'basic income', appeared in the twentieth century.) Along the way, the concept has gathered illustrious supporters, from Bertrand Russell to Martin Luther King, Jr.

The wide range of support for the UBI disguises the fact that key details of it are subject to uncertainty and disagreement. For instance, how are payments made? UBI supporters often argue that payment in cash is a 'fundamental' part of their proposal, but in practice there are other reasonable ways to make people more prosperous.³⁴ One approach, for instance, is to make important things available in society at no cost: rather than just give people cash, the state in effect makes certain purchases on their behalf. Already in the US, about 40 million people use the Supplemental Nutrition Assistance Program, or 'food stamps', to receive basic sustenance for free, worth about \$1,500 a year.³⁵ In England, healthcare and primary and secondary education are free for everyone who wants them, each worth

thousands of pounds per year.³⁶ Add up such initiatives, and you end up with a sort of UBI – though one that the state has already spent for you.

And if the income payments do get made in cash, how generous should they be? The UBI says ‘basic’. But what does that mean? Some economists think it implies a minimal payment, not very much at all. John Kenneth Galbraith, for instance, said that introducing ‘a minimum income essential for decency and comfort’ is the right thing to do.³⁷ Friedrich Hayek similarly spoke of ‘a certain minimum income for everyone’.³⁸ Today’s prominent UBI advocates often agree. Annie Lowrey, author of *Give People Money*, makes the case for ‘just enough to live on and not more’; Chris Hughes, author of *Fair Shot*, argues for \$500 a month.³⁹ But there are others who feel differently. Philippe Van Parijs, today’s leading UBI scholar, wants to use UBI to build a ‘truly free’ society, where people are not tied down by what they earn. That is a far loftier goal than what is envisaged by Galbraith and Hayek – and a far more expensive one, too. Or consider Thomas Paine, the man who invented the idea in the first place. For him, it was not about not about alleviating poverty, like Galbraith, nor providing security, like Hayek, nor achieving freedom, like Van Parijs; it was about compensation for lost farmland. Paine wanted the UBI to be large enough for everyone to ‘buy a cow, and implements to cultivate a few acres of land’ – worth, it is said, about half the annual earnings of a farm labourer at the time.⁴⁰ Again, that adds up to a rather sizeable sum.

In large part, then, how basic ‘basic’ actually is will depend on what the payment is intended to do. For Galbraith and Hayek, the emphasis was on a ‘minimum’ because their ambitions for a UBI were relatively modest. Galbraith envisioned his UBI only as a floor in the standard of living beneath which nobody should be allowed to fall. Hayek proposed it to make sure that people had a baseline level of economic security: ‘food, shelter, and clothing’ so everyone was fit and healthy and able to work, and little else. But if we are thinking about a basic income in the context of a world with insufficient work, the aim is likely to be much closer to the ambitious goals of Van Parijs and Paine. In that world, for many people the payments would provide not just a baseline income that they could top up through their

work, like Hayek or Galbraith imagined, but their entire income full stop.

Finally, there is one more question to ask about the idea of a basic income. What are the conditions attached to the payment? Most UBI proponents would answer that, by definition, there are none. But in a world with less work, I believe, it is crucial to depart from this assumption. To deal with technological unemployment, we will need what I call a *conditional* basic income – a CBI, for short.

A CONDITIONAL BASIC INCOME

People who say that a UBI should be ‘universal’ tend to have two things in mind: the payment is available to everyone who wants it, and it is made available without imposing any requirements on the recipient. The CBI I propose is different in both of those respects. It is only available to some people, and it explicitly comes with strings attached.

The Admissions Policy

When UBI advocates say that the basic income payment should be made available to everyone, most of them don’t really mean *everyone*. A literal interpretation of universality would imply that any visitor could drop by a country with a UBI, pick up her payment, and head right back home with a fatter wallet. To avoid this scenario, most advocates imagine that a UBI would only be available to the citizens of the country paying it out. (That is why it is sometimes called a ‘citizen’s income’.) This adjustment is often treated as if it is the end of the matter. In fact, though, it is just the beginning. A fundamental question remains unanswered: who gets to call themselves a citizen? Who is in, and who is out of, the community? In a UBI, the *admissions policy* is missing.⁴¹

Over the last few decades, Native American tribes have shown just how contentious drawing up an admissions policy for a community can be. Within the borders of Native American reservations, the tribes have a degree of ‘tribal sovereignty’, meaning they are allowed

to run some of their own affairs.⁴² Economic life on the reservations has always been very difficult: Native Americans have the highest poverty rate of any race group (26.2 per cent compared to the US national average of 14 per cent), and a suicide rate among young people that is 1.5 times the national average.⁴³ In response, some reservations have used their sovereignty to start up gambling operations, building casinos to lure outsiders onto the reservations and boost the local economy. Today almost half of the tribes run casinos, some very small, but others large enough to rival the grand spectacles of Las Vegas. It is big business, too – over \$30 billion in annual revenue.⁴⁴

Some of the successful tribes, flush with income, have drawn up ‘revenue allocation plans’ to share out this money among their members. And these plans look a lot like a UBI: all members of the tribe, often through no real productive effort of their own, get a slice of the income. The sums can be vast, as much as several hundreds of thousands of dollars per person every year. But here is the problem: payments like this create a huge economic incentive for recipients to kick others out of the group in order to secure a bigger slice of the income for themselves. And this is exactly what is happening with Native Americans, as long-standing community members find themselves getting expelled from their tribes by corrupt tribal leaders.

As we approach a world with less work, this sort of struggle over who counts as a member of the community will intensify. The Native American experience shows that dealing with questions of citizenship is likely to be fractious. The instinct in some tribes was to pull up the drawbridge – a reaction we can see in other settings, too. Consider the financial crisis in 2007 and its aftermath. As economic life got harder, the rhetoric towards immigrants in many countries hardened as well: they were said to be ‘taking *our* jobs’, ‘running down *our* public services’. There was a collective impulse to narrow the boundaries of the community, to restrict membership, to tighten the meaning of *ours*. In much the same way, support for so-called welfare chauvinism – a more generous welfare state, made available to fewer people – is on the rise. In Europe, for example, a survey found ‘both rising support for redistribution for “natives” and sharp opposition to migration and automatic access to benefits for new arrivals’.⁴⁵

In the Age of Labour, there has been a persuasive economic response to this instinct to exclude others: through their work, immigrants make the country's economic pie bigger. As a result, letting in more people does not necessarily leave existing citizens with a smaller slice; on the contrary, there is often more income per capita to share out. But in a world with less work, that response will be far less compelling. There will be fewer opportunities for newcomers to contribute through their jobs, and a greater chance that they will depend on the efforts of others for their income. In that world, it is more likely that adding new members to a community will in fact lead to existing members having smaller slices of the pie. At that point, it will be far harder to respond to the hostility to outsiders with the economic reasoning of the past.

In short, the world of less work will not let us avoid the question of who is in the community and who is out. A CBI will force us to address that issue directly, rather than trying to dodge it with a UBI.

The Membership Requirements

The second piece of what UBI advocates mean when they say that payment is 'universal' is that there are no demands placed on those who receive it. Whether a person is in work and what she earns, for instance, does not matter. There are no 'means tests' or 'work tests', no strings attached. Put another way, once people meet the admissions policy, there are no *membership requirements* for maintaining eligibility.

This is sometimes a source of puzzlement. It seems to imply that a UBI would go not only to those with a very small income, who might really need it, but also to those with vast incomes, who do not. That appears to be a very poorly targeted waste of money. UBI advocates tend to reply that, on the contrary, it is actually very important that everyone receives the payments. First, they say, it is not wasteful: if payments are funded through taxes, then the rich may receive a payment, but they will also pay far higher taxes to support other people's payments, more than making up for the income they get. Second, the approach makes practical sense: universal payments are easier to administer and less confusing for the recipients,

removing any uncertainty about eligibility. And third, and most importantly, UBI advocates argue that universal payments remove any stigma associated with claiming support. If everyone receives the payments, nobody can be labelled by society as a ‘scrounger’ and no individual will feel ashamed to have to claim hers. As Van Parijs puts it, ‘There is nothing humiliating about benefits given to all as a matter of citizenship.’⁴⁶

The idea of payments made without any conditions runs completely contrary to how things tend to be done today. Most supportive payments from the state do tend to come with strict requirements, often demanding that recipients are in work (albeit work that might not pay very much) or vigorously seeking employment. This is partly because economists worry that, without such strict requirements, state payments will create a strong disincentive to work – encouraging those in work to work less, and those without work to stay put. Imagine somebody on the fence about the labour market, not sure whether to get a job or not. A guaranteed income paid to them regardless of what they choose to do may well tip them off the fence and out of the market. As it happens, the evidence on whether a lack of requirements actually creates these disincentives is not very decisive.⁴⁷ Nonetheless, some economists are suspicious that a no-strings-attached UBI will harm its recipients’ willingness to work.

In today’s Age of Labour, these disincentive effects may be a sensible reason to think that a basic income must come with some conditions: you want to make sure that those who receive it still want to work. However, as we move towards a world with less work, this argument becomes far less compelling. Encouraging people to work only makes sense if there is work for everyone to do, which would no longer be the case.

There is a different reason, however, for why a basic income in a world with less work should have conditions attached – why it should be a CBI rather than a UBI. The point will not be to support the *labour market*, but to support the *community* instead.

A world with less work will be a deeply divided one. Many members of the community will not be able to make much of an economic contribution of their own, and instead will have to rely on the productive effort of others for their income. Keeping such a split society

together will be a serious challenge. How do you make sure that those who receive payments, but do not work for them, are thought to deserve them? How do you avoid feelings of shame and resentment on either side? After all, those are not unprecedented reactions. They already exist in today's welfare state – and, somewhat ominously, they crop up in response to payments that are far more modest than those that will be required in the future.

The UBI fails to take account of these responses. It solves the *distribution* problem, providing a way to share out material prosperity more evenly; but it ignores this *contribution* problem, the need to make sure that everyone feels their fellow citizens are in some way giving back to society. As the political theorist Jon Elster put it, the UBI 'goes against a widely accepted notion of justice: it is unfair for able-bodied people to live off the labour of others. Most workers would, correctly in my opinion, see the proposal as a recipe for exploitation of the industrious by the lazy.'⁴⁸

In contrast to the UBI, today's labour market tackles both of these problems at the same time. It solves the distribution problem, at least to some extent, by paying people a wage in return for their work. And it addresses the contribution problem by allowing people to contribute to the collective pot through the work that they do and the taxes they pay. Social solidarity at the moment comes, in part, from the fact that everyone who can is trying to pull their economic weight. Unpleasant rhetoric gets directed at those who do not – think of the tendency to label those who rely on others as 'spongers' and 'free riders'.

In a world with less work, it will no longer be possible to rely on the labour market to solve the distribution problem, as we have seen – or this contribution problem, either. So how can we re-create that sense of communal solidarity? A big part of the answer must involve membership requirements attached to the basic income. If some people are not able to contribute through the work that they do, then they will be required to do something else for the community instead; if they cannot make an economic contribution, they will be asked to make a non-economic one in its place. We can speculate about what these tasks might turn out to be; perhaps certain types of intellectual and cultural toil, caring for and supporting fellow human beings, teaching children how to flourish in the world. It will fall to

individual societies to settle on what these contributions should look like, a theme we will come back to in the final chapter.

The Question of Diversity

Another part of the answer to the question of communal solidarity might involve making the CBI's admission policy more exclusive. There is a large, albeit contested, body of research that suggests a trade-off between the diversity of a community and the generosity of state provisions to it. Economists have found that US cities that are more ethnically fragmented, for instance, tend to have lower spending on public goods, like education and roads, sewers and rubbish collection.⁴⁹

There is an argument that race might explain why America lacks the sort of generous welfare state you find in many European countries. Racial minorities are highly overrepresented among impoverished Americans, and due to poor race relations, other Americans might be unwilling to support a generous welfare state that would disproportionately help those minorities.⁵⁰ The political scientist Robert Putnam caused controversy with a study showing that inhabitants of diverse communities are less likely to trust anybody. 'In the presence of diversity, we hunker down', he said. 'It's not just that we don't trust people who are not like us. In diverse communities, we don't trust people who do look like us.'⁵¹

Clearly, such findings should not be celebrated. If they are right, the way to improve welfare provision in the US is to enhance race relations, not to push for a more homogeneous population. Putnam, for his part, was furious when his research was 'twisted' by other academics to make the case for less diversity.⁵² His overall message, he said, was one of inclusivity, not exclusivity: that we ought to build a bigger sense of 'we' to fight against discord and distrust.

Nevertheless, these results should prompt broader questioning. Diversity is not only about race. Most of us do feel stronger obligations to our families than to a stranger on the other side of the globe; and somewhere between those two extremes sit our communities of shared places and mutual interests, similar work and common country. What is the moral significance of these communities? Is valuing or protecting them necessarily parochial and xenophobic? As the

THE BIG STATE

political philosopher Michael Sandel asks, are there no ‘legitimate grievances’ buried in the frustration of those today who chant, ‘American Jobs for American Workers’?⁵³ What about the equivalent slogan in a world with a basic income – ‘American Incomes for American Citizens’? And even if you think that such communities have no *moral* significance, what about their *practical* significance? What if tightening membership criteria to strengthen social solidarity is the only way to stop a community with cavernous economic divides from falling apart?

In the century to come, questions about distributive justice, how we share out resources in society, will become more urgent. But these questions about contributive justice, how we make sure that everyone feels their fellow citizens are giving back to society, will become more pressing as well. A UBI engages with the first set of questions, but not the second. The CBI, by explicitly confronting who is eligible for the payment and on what terms, addresses both.⁵⁴

THE CAPITAL-SHARING STATE

The primary role for the Big State, then, will be to tax and share out income, perhaps with a new set of non-economic conditions attached to build social solidarity. But there are also other things that it could do to help address a world with less work. One of these is to share out the valuable capital itself, the source of that income in the first place. Whereas a UBI or CBI provides a basic income, this would be a basic *endowment* – giving people not a regular flow of cash, but their own stock of traditional capital to hold on to.⁵⁵

There are two reasons why sharing out capital might be attractive. The first is that it would reduce the need for the Big State to act as an income-sharing state. If more people owned valuable capital, income would flow more evenly across society of its own accord. The second reason is that such sharing would also help to narrow economic divisions in society. If the underlying distribution of capital stays the same, and the state only shares out income, then profound economic imbalances will remain. If left unresolved, such divisions could turn into non-economic strife: ruptures of class and power, differences in

status and respect.⁵⁶ By sharing out valuable capital, and directly attacking the economic imbalances, the state could try to stop this from happening.

In a sense, governments already do this: since the start of the twentieth century, the state has tried to share *human* capital as widely as possible. This is the point of mass education. Making good schools and universities open to all is an attempt to make sure valuable skills are not left only in the hands of a privileged, well-educated few. Now, as we move out of the Age of Labour, the Big State must try to share traditional capital as well.

The sharing of traditional capital could happen without the state having to step in – but it is very unlikely. For one cautionary tale, consider a company called Juno. Like Uber, Juno is a ride-hail company, but with an important difference: while Uber was owned by its founders, Juno was initially owned by some of its drivers as well. When drivers joined Juno, they were given the chance to receive some Juno stock, which could translate into a stream of income if the company came to enjoy financial success. That was the promise, but it was never kept. A year after it was founded, Juno was bought by Gett, another taxi company, whose owners promptly voided the drivers' stock plan. The new owners could not resist taking control of the valuable capital and keeping the income for themselves.⁵⁷ The fact that Juno's initial plans were so widely celebrated, and that other examples of such arrangements are so rare, suggests that the free market alone is unlikely to share traditional capital out by itself.

In theory, buying shares in the stock market gives people the same opportunity to acquire an ownership stake in many companies. The problem, of course, is that the stock market, as has been said of the legal system, 'is open to all – like the Ritz Hotel'.⁵⁸ In practice, most people do not have either the financial wherewithal or the know-how to invest profitably in this way. In the US, for instance, reflecting the inequalities we saw earlier in the book, almost everyone in the top 10 per cent of earners owns stocks, but only about a third of the people in the bottom 50 per cent of earners do.⁵⁹ One possibility, then, is that a capital-sharing state might acquire a stake on behalf of those without one, pooling their investments into a fund on behalf of its citizens – a Citizens' Wealth Fund.

There is a precedent for this. Today's sovereign wealth funds, large pools of state-owned wealth that are put into a spread of assorted investments, perform a similar role. The world's largest such fund, worth over \$1 trillion, is owned by Norway. After Norway started developing its oil reserves, rather than spend all the profits right away, the government set up a fund 'on behalf of the Norwegian people'.⁶⁰ Since the country has a population of about 5.2 million, each citizen effectively has a stake worth about \$190,000. Every year, some of the fund is siphoned off and spent on the Norwegian economy.

Then there is the Alaska Permanent Fund, worth a more modest \$60 billion. Since 1976, about a quarter of the annual royalties from the production of oil and gas in the state of Alaska have been saved in a fund. And each year, a percentage of the fund is also siphoned off and spent on all Alaskans, in this case via direct payments to every resident of the state – about \$1,400 a year for every adult and child.⁶¹

At the moment, though, funds like these are exceptions. In many countries, as shown in Figure 10.3, the amount of publicly held

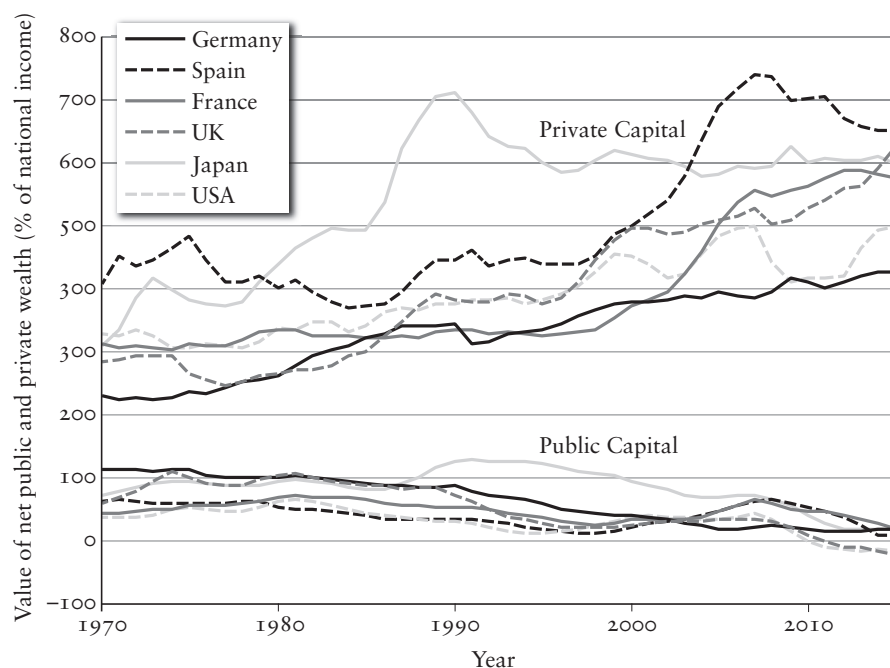


Figure 10.3: Private Capital and Public Capital⁶²

traditional capital relative to the size of the national economy is falling, whereas the amount of privately held traditional capital relative to the size of the national economy is rising.

James Meade, the Nobel Prize-winning economist, anticipated the capital-sharing role for the Big State back in the 1960s. Worrying about automation in the future, he suggested a possible approach where the state would own capital on everyone's behalf. He called this the 'socialist state', but that label is not quite right: it ignores the difference between the state having some *ownership* in these companies, which is what I have in mind, and the state having complete *control* over how these companies operate, which is what traditional socialists tend to be preoccupied with. As a name, the 'capital-sharing state' is a better fit.

THE LABOUR-SUPPORTING STATE

Until now, I have taken the direction of economic travel for granted – towards a world with less work. With that in mind, the role I have set out for the Big State is to go with that flow, to step in and redistribute the economic prosperity created by these new technologies if the labour market, our traditional mechanism for sharing out prosperity, can no longer be relied upon to do it. There is an alternative, though: to resist this direction of travel. A Big State would still be needed, but to work in the opposite direction – not to be passively carried along on the current of technological progress, but to actively defend the world of work from the changes that are unfolding.

My response to this notion is to shake my head and nod simultaneously. The economist in me sees little reason to defend the labour market, to try to keep everyone in traditional paid work. After all, from a ruthlessly economic point of view, work only has two purposes: to make the economic pie bigger, or to make sure that everyone gets a slice of the pie. But work is not the only way to achieve those ends. New technologies, the ones that drove human beings out to work in the first place, will continue to make the pie bigger. And there are ways, such as the CBI, to slice up that pie even in a world with much less work. So why should we resist the direction of travel at all? One

obvious answer is that work has non-economic purposes – the focus of this book’s final chapter. But the purely economic case to defend the world of work is not particularly compelling.

And yet I also find myself nodding in agreement with the impulse to push back. A world with less work will not come about in an instant. There will not be a ‘big bang’ moment before which some people have work and after which they do not. Instead, there will be a stuttering decline in the demand for the work of human beings, beginning in small corners of the labour market and spreading as time goes on. While this is happening, the world of work will see changes not only in the number of jobs, but in the pay and quality of those jobs as well. In turn, as the demand for human beings gradually falls away, workers will wield a weaker economic punch, carry less economic clout, and possess a diminished collective ability to challenge profit-seeking employers, whose incentive will tend to be to pay them as little as they can. Workers do not start from a strong position today, either: in the developed world, organized labour has slumped over the past decades, and trade union membership has nose-dived.⁶³

This means that the Big State has a middle ground between trying to change our direction of travel and passively going along with it. It can be the labour-supporting state: stepping in to support workers during this transition, to make sure that whatever jobs remain are well-paid and high-quality. The purpose is not to change our final destination, but to make sure the journey is as smooth for workers as it can be. So long as there is work to be done, there will be a role for the state in making sure it is ‘good’ work, especially since workers acting alone will have an ever weaker ability to do this for themselves. John Kenneth Galbraith coined the term ‘countervailing power’ to describe the different forces that might hold concentrations of economic power in check.⁶⁴ In the twenty-first century, as the countervailing power wielded by workers falls away, the state should step in to wield it on their behalf.

We have to be realistic about the way in which a labour-supporting state can work. There is a popular line of thinking that says we ought to ask businesses to develop new technologies that complement rather than substitute for human beings, that help rather than harm workers. Microsoft’s CEO, Satya Nadella, has called this ‘the grand

challenge'.⁶⁵ But simply asking companies to do this, if it is not in their financial interest, is akin to asking them for charity – an idealistic, unrealistic basis for large-scale institutional reform. At the 2019 World Economic Forum in Davos, the *New York Times* reports, business leaders talked a good game in public about how to contain 'the negative consequences that artificial intelligence and automation could have for workers', but in private these executives had 'a different story: they are racing to automate their own work forces to stay ahead of the competition.'⁶⁶

In trying to shape how institutions act, we must do so on the basis of how people actually behave. We have to take them as they are in economic life, selfish and partial, not how we would like them to be, benevolent and impartial. For that reason, the state's labour-supporting efforts should be focused primarily on changing the actual incentives that employers face, forcing closer alignment between their interests and those of the society of which they are a part.

One way to align employers and society is through the tax system. In the US, for instance, the tax system right now unwittingly encourages automation, granting those who replace human beings with machines 'several major tax advantages' – such as not having to pay payroll taxes on employee wages.⁶⁷ The problem is that this system was created in the Age of Labour, and so was designed to raise revenue in large part by taxing employers and employees. It was not designed to operate in a world with less work. Removing such advantages will get rid of this incentive to automate.

Another approach is to use the law. For instance, there is an ongoing controversy over the legal status of Uber drivers. Are they self-employed, as Uber argues, left to fend for themselves as they run their own driving businesses? Or are they Uber employees, entitled to holiday pay, a pension, the minimum wage, and all the other rights that come with that status? There is a role here for the labour-supporting state to help these workers, by updating the law to bring them under protections akin to those offered to people elsewhere in the labour market. Other legislative interventions, for instance, could set new floors beneath which the level of pay is not allowed to fall, building on established minimum wage regulations.

There is scope here to be innovative. Traditionally, policymakers

set minimum wages with living standards in mind, trying to make sure that the lowest-paid workers still have enough to live on. But there are other criteria that could be used in addition to that. For instance, a distinctive feature of many hard-to-automate roles, like care work and teaching, is the vast gap between their economic value and their social value: this work tends to be low-paid, and yet is widely recognized as being extremely important. In the UK, a poll found that 68 per cent of people think nurses are underpaid; in the US, 66 per cent think that public school teacher salaries are too low.⁶⁸ When the labour-supporting state intervenes to influence wages, it could take the opportunity to narrow this gap as well.

In a similar way, policymakers traditionally think about working-time regulations in terms of hours. In Europe, by law, your employer cannot force you to work more than forty-eight hours a week. Other countries aspire to forty hours. Germany's largest union even secured a 28-hour working week for its members in 2018 (and a 4.3 per cent pay rise along with it).⁶⁹ In time, though, it may make sense to establish limits not just on the number of *hours* but also *days* per week. In 2018, for instance, the Trades Union Congress (TUC), the collective voice for forty-eight unions and their 5.5 million members in the UK, called for a four-day workweek as a possible response to automation.⁷⁰ This is the sort of proposal that should be taken increasingly seriously.

A final role for the labour-supporting state is blunter: to encourage the emergence of new forms of organized labour. In the twenty-first century, trade unions must not only help workers respond to technological change, but must also use that very same technology to transform the way that they work. At the moment, the ways in which unions recruit members, raise finance, express grievances, and exercise their power often look remarkably similar to the antiquated methods that have been used for centuries. Few trade unions, if any, provide their members with access to customized e-mediation platforms or dispute resolution systems, despite the success of such systems elsewhere. Social networks and digital tools remain peripheral to old-fashioned ways of working; the rise of 'connective action', where people use technologies to coordinate and cooperate, is largely happening outside traditional unions.⁷¹ In part, this explains why

membership has fallen so precipitously among younger people: they simply do not see today's unions as a relevant response to contemporary problems. In the UK, less than 8 per cent of workers aged sixteen to twenty-four are members. (Among those who are members, 40 per cent are aged fifty or over.)⁷² Frances O'Grady, the leader of the TUC, recognizes the challenge: 'Unions have to change too – change or die,' she admits.⁷³

Just as technological unemployment will not happen overnight, there is no need for the Big State to establish itself in the coming weeks. But as time goes on, the need for one will only grow. Some combination of the three roles (the income-sharing state, the capital-sharing state, the labour-supporting state) will eventually be required to keep our increasingly divided societies from falling apart. This chapter is not meant to be overly prescriptive about what these roles involve. There is no definitive list of interventions that all countries must adopt. There is a variety of different ways in which the Big State could deal with technological unemployment – and it must fall to citizens in each country, to their unique moral tastes and political preferences, to determine how exactly to strike the best balance between them.

II

Big Tech

As we approach a world with less work, our economic lives will become increasingly dominated by large technology companies. And with that growing economic power the companies will acquire great political power, too. They will not only shape how we interact in the marketplace, what we buy and sell, but how we live together in broader society, our existence as political animals as well. Understanding the rise of Big Tech and the nature of their growing political power is as important as making sense of the decline of work – for in a world with less work, constraining these companies will demand more and more of our attention. The challenge is that, at present, we are almost entirely unprepared to respond effectively.

WHY TECH?

Today, when we think about technology companies, the ‘Big Five’ come to mind: Amazon, Apple, Google, Facebook, and Microsoft. And their figures are startling. In the US, Google gets 62.6 per cent of search engine traffic and has 88 per cent of the market in search advertising.¹ Facebook is used by almost a third of the world’s human beings, and across its various platforms (like Instagram and WhatsApp) it is the gatekeeper for 77 per cent of mobile social traffic. Amazon is the shopkeeper of choice for 43 per cent of all online retail and 74 per cent of the e-book market.² Apple and Google combine to control 99 per cent of mobile phone operating systems. Apple and Microsoft account for 95 per cent of desktop operating systems.³ In 2018, these five companies were among the top ten most valuable in the world.⁴

Notwithstanding these remarkable numbers, though, we should not be too preoccupied specifically with this small collection of names. Yes, those companies are likely to remain prominent for some time. But new technologies that reshape our lives will also come from people and institutions well beyond the Big Five. Indeed, point to any part of modern life, and you can be fairly certain that someone, somewhere, is working away in a metaphorical garage, trying to develop a new system or machine to change it. In 2011, the venture capitalist Marc Andreessen wrote that ‘software is eating the world.’⁵ In the years since, its appetite has indeed proven voracious. There are very few industries, if any, that new technologies do not find at least partially digestible. All corners of our lives are becoming increasingly digitized; and on top of our world of physical things we are building a parallel world of ones and zeros. In the future, it is hard to see how our economy will escape being run almost entirely by technology companies of various sorts.

Of course, some of these dominant powers might be the same technology companies we already know. When IBM developed Deep Blue, and Google acquired DeepMind, they did not do so because they wanted to win at board games. They spent their respective fortunes in the pursuit of far bigger ambitions – at times, astonishingly grand ones. The story of WeChat is an inspiration to them. What began as a simple messaging app in China, a cheerful way to send notes to one other, now helps its 1 billion users run much of their lives. As one of Andreessen’s partners notes, they can use WeChat to ‘hail a taxi, order a food delivery, buy movie tickets, play casual games, check in for a flight, send money to friends, access fitness tracker data, book a doctor appointment, get banking statements, pay the water bill, find geo-targeted coupons, recognize music, search for a book at the local library, meet strangers . . . follow celebrity news, read magazine articles, and even donate to charity’.⁶

But again, we should remember that the technology companies that populate the future might not be today’s most familiar ones. Dominance today does not imply dominance in years to come. Back in 1995, for example, it was unthinkable that Microsoft’s technological rule would ever come to an end, yet now they are being talked about as the ‘underdog’ in the sector.⁷ Nor do striking contemporary

achievements necessarily mean that further remarkable successes will follow. For one cautionary tale, consider IBM's Watson, the celebrated *Jeopardy!*-winning computer system. Over the last few years, there has been great excitement about its broad potential. But despite their best efforts, a recent high-profile partnership between the Watson team and MD Anderson, a large American cancer hospital, ended in conspicuous failure: the \$60 million system designed to help treat cancer was deemed 'not ready for human investigational or clinical use'.⁸

Indeed, the companies behind the healthcare technologies that really change our lives may not exist yet. And the same goes for the rest of the economy. After all, many of today's most familiar technology names – Airbnb, Snapchat, Spotify, Kickstarter, Pinterest, Square, Android, Uber, WhatsApp – did not exist a dozen years ago.⁹ Many technologies that will be household names in the future probably have not yet been invented.

WHY BIG?

Like today's tech giants, the technology companies that dominate in the future are also likely to be very big. In part, this is simply because it costs an enormous amount to develop many of the new technologies. The best machines will require three expensive things: huge amounts of data, world-leading software, and extraordinarily powerful hardware. Only the largest companies will be able to afford all of these at the same time.

The first thing they will need is immense collections of data. We have seen examples of this at work already: AlphaGo, the first version of Google's go-playing system, learned in part from an archive of 30 million past moves by the best human players; Stanford's system for detecting skin cancer used almost 130,000 images of lesions, more than a human doctor could expect to review in their lifetime.¹⁰ Sometimes, though, the necessary data is not readily available and has to be gathered or generated in costly ways. Consider what it takes to train and evaluate a car-driving system, for example. To do this, Uber built an entire mock town on the site of an old steel mill in

Pennsylvania, complete with plastic pedestrians that occasionally throw themselves into traffic, and gathers data as their cars drive around it. Tesla, meanwhile, collects data from its *non*-autonomous cars as they are driven by their owners, with about a million miles' worth of data reportedly flowing in every hour. Google has adopted yet another approach to the problem, creating entire virtual worlds to gather data from cars driving around in these simulations.¹¹

Then there is the matter of the software. Beneath all of these new technologies is the code that makes them work. Google's assorted internet services, for instance, require 2 billion lines of code: if these were to be printed out on paper and stacked up, the tower would be about 2.2 miles high.¹² Writing good code requires talented – and expensive – software engineers. The average salary for a developer in San Francisco, for example, is about \$120,000 a year, while the best engineers are treated as superstars and receive pay packages to match.¹³ Today, when we recount economic history, we punctuate it with people like James Hargreaves, the inventor of the spinning jenny. In the future, when people tell the history of our own time, it will be filled with names like Demis Hassabis, of DeepMind, and other software engineers, as yet unknown.

As for processing power, many of the new systems require extraordinarily powerful hardware to run effectively. Often, we take for granted quite how demanding even the most basic digital actions we carry out can be. A single Google search, for instance, requires as much processing power as the entire Apollo space programme that put Neil Armstrong and eleven other astronauts on the Moon – not simply the processing power used during the flights themselves, but all that was used during planning and execution for the seventeen launches across eleven years.¹⁴ Today's cutting-edge technologies use far more power still.

To be sure, some trade-offs can be made among the three requirements. Better software, for instance, can help compensate for a lack of data or processing-power. AlphaGo Zero needed neither the data nor the processing power of its older cousin, AlphaGo, to beat it emphatically in a series of go games, 100–0.¹⁵ How did it do this? By using more sophisticated software, drawing on advances in the field of algorithm design known as reinforcement learning.¹⁶ The most

powerful machines of the future, though, will probably be the ones that can draw on the best of all three resources: data, software, and hardware. And while small institutions may have one of them – perhaps a talented engineer capable of writing good software or a unique set of valuable data – they are unlikely to have all three at the same time. Only Big Tech will.

Aside from this issue of expensive resources, the dominant tech companies are also likely to be ‘big’ for another reason: many new technologies benefit from very strong ‘network effects’. This means that the more people who use a given system, the more valuable it becomes for those users. The classic explanation of these effects goes back to the days when telephones got installed in people’s houses: adding a new person to a phone network is not only useful for her, but also valuable for everyone already on the network, because now they can call her as well. It follows that as a network grows, each additional person is even more valuable to the network than the one before. Mathematically, this idea is sometimes referred to as Metcalfe’s law: the value of a network with n users is n^2 .

Today, of course, we have moved beyond telephone landlines, and the obvious place to start when thinking about networks is with social media platforms. Facebook and Twitter, for instance, would be far less fun for their users (and far less lucrative for their owners) if there were no other people online to read what they share. This is also true of many other systems. Platforms like Airbnb and Uber become more valuable the more people there are using them: more flats to rent and travellers looking for a place to stay, more cars to hire and passengers wanting a ride. What’s more, they are built upon rating systems so that users can avoid a dud service – and, again, the more feedback there is, the more reliable such systems become. Think of the suspicion you might have about a solitary five-star rating with effusive praise on an arbitrary taxi website, versus the thousands of driver ratings on a platform like Uber.

Populous networks also let companies gather data that improves their products. Navigation systems like Waze and Google Maps gain a sense of the traffic on the road from the speed at which their users’ phones move as they drive along. Amazon and Spotify tailor their purchasing and music recommendations based on what they glean

from other people in their network like you. And then there is the basic bandwagon effect: once a particular network is popular, it makes sense to join it rather than a fledgling rival. I have a friend named Faiz who once thought about starting a new social network – but it is a curious person who would choose Faizbook, with just a few other patrons, over Facebook with its 2 billion users. Network effects do not make social platforms completely invulnerable – think of Friendster, MySpace, and BlackBerry Messenger, once-popular networks now consigned to the technological graveyard – but they certainly make it harder for small upstarts to gain traction.

All of this explains why large technology companies are acquiring so many other technology companies and start-ups. In the decade to July 2017, the Big Five made 436 acquisitions, worth about \$131 billion.¹⁷ These companies are trying to gather up valuable resources – particularly useful data, engineering talent, and network popularity – for themselves by buying them up when they see them on display in other companies.

THE ECONOMIC CASE AGAINST BIG TECH

For all the reasons described above, in the future our economies are likely to become dominated by large technology companies. Traditionally, the state has not relished the rise of this sort of economic dominance. It has developed competition policy, driven, in broadest terms, by the idea that monopolies are bad and competition is good.¹⁸ Today's top technology companies already find themselves clashing with the authorities tasked with putting this policy into practice – because all of them aspire to monopoly power, if they have not obtained it by now.

This ambition is not unique to the world of technology. Look through the literature on management and strategy, and you will find plenty of ideas for achieving economic supremacy, packaged in the disarmingly benign-sounding language of business writing. Take Michael Porter, the definitive business strategy guru of the last few decades, whose 1980s books *Competitive Strategy* and *Competitive*

Advantage were on the shelves of all discerning corporate leaders. Those books guided readers towards nothing less than economic domination: first, find markets ripe for monopolizing (or create new ones); second, dominate and exclude others from these chosen markets. Today, the same advice is given even more forthrightly. ‘Competition is for losers,’ wrote Peter Thiel, the entrepreneur, in the *Wall Street Journal*. ‘If you want to create and capture lasting value, look to build a monopoly.’¹⁹

What, then, is the problem with an absence of competition? The economic argument advanced by competition authorities is that a monopoly in a given market means that our welfare is lower, both today and tomorrow. It is lower today because companies without competitors are able to inflate their profits, either by charging higher prices or providing poorer-quality products and services to customers. It is lower in the future because without being prodded by competition, these incumbent companies might be less willing to invest and innovate for the years ahead. These sorts of arguments are behind a handful of successful legal actions regarding anti-competitive behaviour by Microsoft, Facebook, Apple, and Google, and there is speculation that Amazon is heading towards legal trouble as well.²⁰

In practice, though, this economic argument in favour of competition is difficult to apply. First, it is not entirely clear what we mean by the word *welfare*. Do we only mean that consumers are happy or satisfied? If so, how do we measure that? The textbooks tell us to look at prices and imagine how much lower they might have been with more competition, but many of the large tech companies already give their products away for free. Secondly, it is often unclear what *market* we are actually talking about. Take Google, for example: if we think of it as being in the search engine business, then the fact that it controls 62.6 per cent of search traffic and 88 per cent of search advertising might set alarm bells pealing. But is this really Google’s primary market? Given that Google gets most of its revenue from advertising, perhaps it is more accurate to think of it being in the advertising business. Then the competitive situation looks less troubling. The US search engine advertising market is worth about \$17 billion a year, whereas the total US advertising market is worth \$150 billion a year. Even if Google ended up owning the entire

market for search engine advertising in the country, it would still have less than 12 per cent of the American advertising business. 'From this angle,' writes Peter Thiel, 'Google looks like a small player in a competitive world.'²¹

In short, finding answers to even the most basic questions of competition policy is not straightforward. And perhaps the biggest complication of all is that monopolies can be a very *good* thing. This may sound like economic sacrilege, but the early-twentieth-century economist Joseph Schumpeter famously made just this case.

For Schumpeter, economics was all about innovation. He called it the 'outstanding fact in the economic history of capitalist society'. His argument for monopolies is that, were it not for the prospect of handsome profits in the future, no entrepreneur would bother to innovate in the first place. Developing a successful new product comes at a serious cost, in both effort and expense, and the possibility of securing monopoly power is the main motivator for trying at all. It acts as the 'baits that lure capital on to untried trails'.²² Moreover, monopoly profits are not simply a consequence of innovation, but a means of funding further innovation. Substantial research and development very often draws on the deep pockets established by a company's past commercial successes. Think of Google, and its history of expensive failed ventures: Google Glass and Google Plus, Google Wave and Google Video. Just one of these flops would have broken a smaller company. But Google was able to withstand them, stay afloat, keep innovating and profit from the ventures that did end up succeeding.

Schumpeter was not troubled by concerns that monopolies might entrench themselves and lower welfare. Economists who worry about 'nothing but high prices and restrictions of output' are missing the bigger picture, he said: economic dominance by any company is not a permanent state of affairs. In time, today's monopolies will be blown away by the 'perennial gale of creative destruction'. New ones will inevitably take their place, but only temporarily, for they, too, would eventually be broken up by the same storms.²³ These are the intellectual origins of the idea of 'disruptive innovation', so popular today among management theorists and strategy consultants.

And Schumpeter was right: time and again, companies that seemed

to be permanent fixtures of economic life have faded away. Take the Fortune 500, an annual list of the five hundred largest corporations in the United States, which together make up about two-thirds of the American economy. If you compare the lists for 1955 and 2017, only about 12 per cent of the companies made it from the first to the second. The other 88 per cent went bankrupt, dissolved into other businesses, or collapsed in value and fell off the list.²⁴ Today, the names of corporations that did not survive – Armstrong Rubber, Hines Lumber, Riegel Textile, and the like – are unrecognizable, indistinguishable from the sort of fictional companies that fill the pages of novels. In their day, no doubt, they must have seemed like immovable giants. (This, again, is why we should not focus too much on the current Big Five tech corporations. Our attention should be on the more general problem, the fact that at any given moment in time a small number of tech companies are likely to dominate.)

Competition authorities are tasked with the balancing act of evaluating these various arguments for and against monopolies, judging the merits and dangers in any particular case of economic dominance. In the future, the nature of that task is likely to change dramatically. For instance, a few decades ago, if some companies wanted to collude and simultaneously raise their prices, it meant secret meetings and clandestine communications to coordinate their plans. Now, though, algorithms can monitor and move prices automatically, facilitating collusion without relying on old-fashioned anticompetitive tradecraft.²⁵ Indeed, today this may even happen unintentionally: a recent study found that the sorts of algorithms used by online firms to price their products might learn to implicitly cooperate with each other, keeping prices artificially high without any direct communication and without any instructions to collude.²⁶ Whether such algorithmic behaviour should be targeted by competition policy is an open question.

Likewise, consider how, in the past, competition authorities might have viewed a prolonged period of outsize profits to be a sign that a large company was abusing their economic clout. Yet today, some companies seeking economic power intentionally endure long periods of staggering *unprofitability* – pursuing rapid growth and competition-neutering expansion, attempting to crowd out their competitors through

scale and dominance. As Figure 11.1 shows, for instance, for most of its history Amazon made almost no profit.²⁷ Uber has followed in their footsteps, failing to make a profit each year since it was founded.²⁸ Authorities should not be thrown off the scent: at this point, traditional economic indicators like the level of profit may no longer be a reliable guide to anti-competitive behaviour.²⁹

As large technology companies continue to become more dominant through the twenty-first century, it is inevitable that they will clash more frequently, and intensely, with competition authorities. Some of these firms, no doubt, will be in breach of competition and antitrust laws, will become too economically dominant, and will have to be broken up accordingly. That said, in decades to come the most compelling case against Big Tech will not be this economic one. Rather, as technological progress continues, our concern will shift from the *economic* power that these companies wield – however mighty it may be – to their *political* power instead.

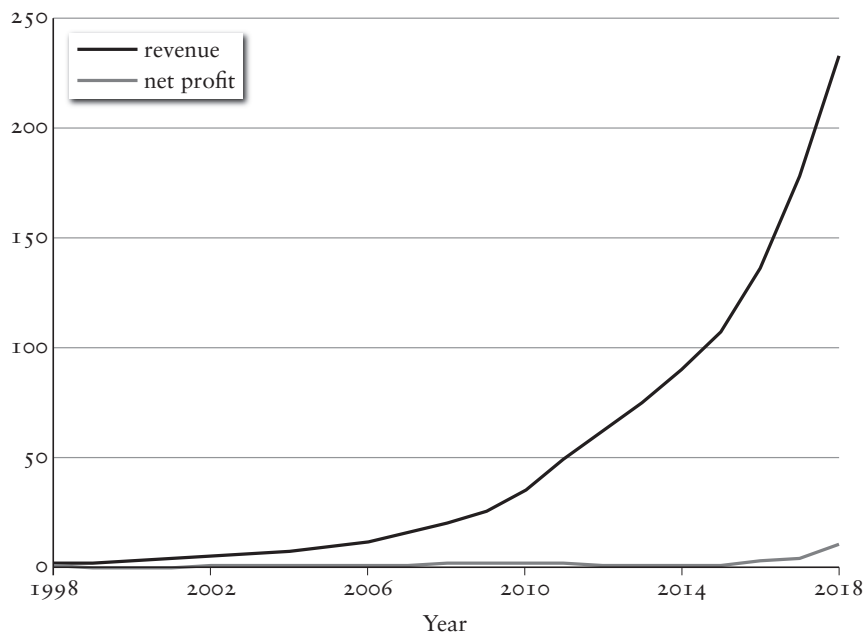


Figure 11.1: Amazon's Annual Revenue and Net Profit, 1998–2018 (\$ billions)³⁰

THE POLITICAL CASE AGAINST BIG TECH

Commentators today often like to draw a comparison between Big Tech and Standard Oil, the American giant founded by John Rockefeller in 1870. When that company was established, it owned the largest oil refinery in the world.³¹ By 1882, it controlled 90 per cent of the country's oil production.³² Its dominance continued until 1911, when the United States Supreme Court stepped in on antitrust grounds. In perhaps the best-known case of its kind, it concluded that Standard Oil had become a monopoly, and broke it up into thirty-four smaller companies.

It is easy to see the appeal of the analogy. Standard Oil's dominance of oil refining in the US at the turn of the twentieth century is similar in scale to the way that today's Big Five tech firms dominate their respective industries. And there is a certain similarity to their operations, too: companies like Facebook and Google control the flow of valuable personal data, seen as 'the oil of the digital era'.³³

Yet this comparison is most revealing for what it *fails* to capture. Think about the nature of the legal objections to Standard Oil's dominance: at the time, they were overwhelmingly economic ones. In the language of the Supreme Court, the accusation was that Rockefeller's company was engaged in 'an unreasonable or undue restraint of trade'. They had gained too much economic power and were using it to distort the oil market.³⁴ By contrast, when we examine the sort of objections that are increasingly levelled at Big Tech, unlike Standard Oil, they often have very little to do with economics at all.

Consider some concerns that have been aired about Google. If you search for an African American-sounding name, for instance, you are more likely to be served up an advertisement for criminal background checks.³⁵ A few years ago, if you tried to use Google's image recognition algorithm to tag photos, it might have labelled black people as 'gorillas'; the company has dealt with the problem just by removing the tag 'gorillas' from its algorithm altogether.³⁶ More generally, there

are worries about Google's ability to promote and demote particular websites returned by a search; reportedly, this ability has been used to remove file-sharing sites from search results.³⁷ In the last few years YouTube, owned by Google, has been criticized for recommending far-right videos and anti-vaccine channels, tolerating hate speech and encouraging paedophiles.³⁸

Or take Facebook. The company ran an internal experiment which showed that displaying positive or negative stories could influence the emotions of its users; the 689,000 users involved did not know they were lab rats.³⁹ By looking at a person's 'likes' alone, it is possible to guess their sexuality correctly 88 per cent of the time; this technique is said to be useful for advertisers to tailor what they show and to whom they show it.⁴⁰ In fact, Facebook was sued by the US Department of Housing and Urban Development for allowing advertisers to intentionally target ads by race, gender, and religion; these groups still receive different ads from one another.⁴¹ During the 2016 US presidential election, Russia bought Facebook ads and set up groups to fire up political division among voters; Facebook identified several thousand of them, but only after the damage was done.⁴² In a study of over 3,000 anti-refugee attacks in Germany, researchers showed that regions with higher Facebook usage experienced significantly more attacks, with online hate speech from the far-right Alternative für Deutschland (AfD) party translating into real-life violent crimes.⁴³

Then there is Amazon. In 2009, after a dispute with an electronic publisher, they logged into every Kindle device and deleted any e-books users had bought from that company; ironically, among these was George Orwell's *1984*.⁴⁴ In 2017, Amazon put on sale a set of iPhone covers with images such as heroin-filled needles, an old man with a crutch wearing a giant nappy, and a close-up of five toenails infected with fungus; an algorithm was pulling stock images from the Internet and creating products without any human supervision.⁴⁵ In 2015, an Amazon Echo device – which records any commands or questions put to it – was the sole 'witness' to an alleged murder in Arkansas, and the prosecution sought to obtain the recording of that night's interactions. (The case was eventually dismissed.)⁴⁶

Or take Apple. The company has complete control over what apps

can appear on the iPhone: they refused to host an app that is critical of their manufacturing methods, but supported an app that is highly critical of climate change science; they banned an app that helps its users track US drone strikes, but allowed an app that helps men in Saudi Arabia track women and limit their movements.⁴⁷ In 2016, Apple refused to help the US government to unlock the iPhone of one of the terrorists involved in the San Bernardino mass shooting, arguing that forcing them to write new software to break the encryption was a violation of their freedom of speech.⁴⁸

And, finally, think about Microsoft. In 2016, they launched a Twitter chatbot called Tay, which was designed to learn from other Twitter users and imitate the way a teenage girl might speak. It was very swiftly removed after it began to post racist slurs, praised Hitler, denied the Holocaust, and made sexually explicit comments to its followers. Microsoft said it was ‘making some adjustments’.⁴⁹ A year later, it released a new chatbot, called Zo, which was programmed to avoid talking about politics and religion. Yet Zo quickly showed the same troubling tendencies: ‘the quaran [*sic*] is very violent’, it wrote in response to a journalist’s question about healthcare. Microsoft kept Zo active for two and a half years.⁵⁰

Some of these stories may seem abhorrent. Others might appear less troubling, or perhaps even amusing. But what all of them share is that they have very little to do with economic power, and with the measures of consumer welfare that might keep an economist up at night. Instead, they are worries about the role that these new technologies might have in distorting the social structures that support our shared existence. They are, in short, concerns about *political* power. They are worries that these large technology companies, and not the society in which they operate, are in control of shaping how we live together.

In the case of Standard Oil, political power was not really the concern. Anxieties focused on their economic power, on the possibility that the oil they sold would become too expensive because there was not enough competition in the market. Yes, some critics of Standard Oil accused the company of having a malign influence on US politics. But there is something fundamentally different about Big Tech’s political power today, as Jamie Susskind – a lawyer and political

theorist who also happens to be my brother – shows in his book *Future Politics*.

The word *politics* is sometimes used in a narrow way, denoting just the hustle of politicians and the decision-making of the state. That sense is what critics of Standard Oil's political power had in mind. But politics, properly understood, is much bigger than that. It is about how we live together in society, about all the different forces – not only the people and institutions of the traditional political process – that shape our collective lives. This is why when we call something *political* we tend to also mean that it is very important. The women's liberation movement of the 1970s, for instance, understood this very well.⁵¹ They fought to make the world wake up and see that the personal part of our lives – sex and relationships, child care and housework, fashion and pastimes – truly matters, that 'the personal is political'. And in that spirit, Jamie Susskind writes that these days 'the digital is political'.

In the future, Big Tech will be ever more politically powerful in this broader sense. As described in *Future Politics*, these companies will set the limits of *liberty* – think of a driverless car that cannot go above a certain speed, for example. They will shape the future of *democracy* – think of an electorate reared on political facts curated to their personal tastes and served up by algorithms. And they will determine questions of *social justice* – think of someone who finds their request for a financial loan or health treatment turned down on the basis of personal data they never agreed to give away.⁵²

In the twentieth century, our main preoccupation was with the economic power of large companies. But in the twenty-first, we will increasingly have to worry about this political power as well. New technologies may begin in the marketplace, with products that people are happy to pay for and put to personal use. But their effects will seep out and shape our shared lives as political creatures, too. In the past, questions of liberty, democracy, and social justice were answered by us, as citizens, and by our political representatives, living together in civil society. In the future, unless we act, those decisions will increasingly be made by engineers, doing their work out of sight at large technology companies. The threat, in short, is the 'privatization' of our political lives.⁵³

THE POLITICAL POWER OVERSIGHT AUTHORITY

Competition policy might involve ambiguous concepts that are cumbersome to apply, but it still provides a rough framework for action. We have an intuition about what too much concentrated economic power looks like, and we have sensible, well-rehearsed ideas about what to do in response. In the event of disagreement, at least we know what it is we are quarrelling about. At the moment, though, nothing comparable exists to help us think clearly about political power. The instinctive sense of unease most of us feel when we reflect on some of the examples above shows that we know something troubling has begun. But we do not know precisely how misuse of political power should be defined, and we do not have any systematic ways of responding.

What parts of our political lives should be shaped by these new technologies, and on what terms? The problem is that, at the moment, we leave it almost entirely to Big Tech to answer. While we impose tight constraints on the economic power of these companies, they are free to choose much of their own non-economic behaviour as they move onto this new political turf. We let them both set their own boundaries and police those boundaries. Executives from these companies increasingly sit on the commissions, boards, and bodies tasked with exploring the wider consequences of these new technologies, and understandably appear to be quite content to handle the problem themselves. Google's CEO, Sundar Pichai, for instance, accepts that fears about AI are 'very legitimate', but believes companies like his should 'self-regulate'.⁵⁴ This attitude is widespread.

But do we really trust Big Tech to restrain themselves, to not take advantage of the political power that accompanies their economic success? And even if they wanted to act to constrain their political power, are they actually *capable* of doing it? These companies may have the deep technical expertise needed to build these new systems, but that is a very different capability from the moral sensibility required to reflect on the political problems that they create. Software engineers, after all, are not hired for the clarity and sophistication of their ethical reasoning.

There are some on the political left who say that rather than leaving such decisions to Big Tech, we should nationalize the companies, giving control of entities like Google and Facebook over to the state.⁵⁵ But that proposal neglects something very important (among many other problems with the idea): there is little reason to think that the state would be immune from similarly abusing the political power created by these new technologies. Consider China's roll-out of a 'social credit system', for example: the government's ambition is that by 2020, all Chinese citizens will be scored and ranked according to information about them stored in a national database. In one pilot, scores are determined by acts as trivial as getting a traffic ticket (minus 5 points) and as ambiguous as 'committing a heroic act' (plus 30 points). Images of 'civilized families' with high social credit scores are posted on public noticeboards.⁵⁶ Officials say that they want the system to 'allow the trustworthy to roam everywhere under heaven while making it hard for the discredited to take a single step'.

Or, for a more mundane example, take the issue of data security. Today, headlines are dominated by stories of Big Tech mishandling our personal data. But not so long ago, the national conversation in the UK was preoccupied with cases of public officials losing our personal data instead. At one point, a UK official was being fired or sanctioned on average *every working day* for mishandling sensitive data.⁵⁷

Instead of nationalization, then, what is needed is a new regulatory institution – set up in the spirit of competition authorities that regulate the economic power of these large companies, but tasked with constraining their political power instead. Think of this as the Political Power Oversight Authority.

The first task for this new agency would be to develop a framework that allows regulators to identify, in a clear and systematic way, when political power is being misused. Competition policy does this for economic power; we need something analogous in this new political sphere. When is a restriction of our liberty so egregious, a threat to our democratic process so severe, or an instance of social injustice so utterly unacceptable that an intervention is required? These are big questions. The ambiguities that competition authorities face in answering their question – 'are consumers better off or not?' – might seem pedestrian in comparison. But complexity is not an excuse for

inaction; these new questions demand a response. At the same time, though, the new authority must not lurch into overreaction. The goal of the Political Power Oversight Authority should not be to strip Big Tech of any political power altogether. Just as competition authorities take into account both the merits and dangers of economic power, so, too, this new authority must perform a similar balancing act. These new technologies, after all, are responsible for improving our lives in countless ways as well.

But aren't people happy to use Big Tech's offerings and services? And doesn't that mean they have consented to all of the political consequences of those technologies as well? No. As *Future Politics* makes clear, the key question is whether Big Tech's political power is legitimate – and the fact that people are happy to use Big Tech's products and services is not enough to establish consent. Consumer satisfaction might justify the companies' economic power, their profits and executive pay packages, but political power should not be bought or sold in this way. The fact that people enjoy posting on Facebook does not authorize Facebook to ignore the way its platform gets used for sinister political ends. The fact that people like using Google's search engine does not mean that Google can turn a blind eye when their ads discriminate against users. Economic success is not a free pass to run roughshod over our political lives.

The Political Power Oversight Authority must have a spread of capabilities at its disposal if it needs to act. It will need investigative tools; the ability to inspect particular companies and scrutinize their technologies to determine whether political power is excessive or being abused. Then there must be transparency tools, to compel companies to be open about their operations and offerings: it is not possible for people to properly consent to new technologies if they do not know, for instance, what data about them is collected and shared, how it gets used, or even which vendors are developing those systems. More powerful tools would allow the new agency to mandate or restrict certain types of behaviour; and the most powerful would permit it to call for the breakup of big companies if their political power is judged to be too great. None of these capabilities are particularly revolutionary: competition authorities use very similar tools to police economic power today. The task now is to empower

regulators to apply a version of them in this new political arena as well.

Importantly, this new authority must be distinct from our traditional competition authorities. This problem is a political one, not an economic one, and the economists who tend to populate our existing agencies are not the right people to grapple with this challenge. The conceptual tools they deploy to think about prices and profits, however insightful and effective they may be, tell us nothing at all about ideas like liberty, democracy, and social justice, and whether they are under threat.

As an economist myself, I might seem to be shooting myself in the foot here. But listening to some economists today attempt to discuss these political problems – whether by arguing that these are actually economic problems after all, or by claiming to have expertise in political issues as well – can be a painful experience. We all have to recognize that solving these new challenges will require very different people from those who were best equipped to handle the challenge of economic power in the past. We need a new institution, staffed by political theorists and moral philosophers, to watch over individuals as *citizens* in a society, not simply as *consumers* in a marketplace. That is what this new authority must do.⁵⁸

I 2

Meaning and Purpose

There is an old joke about an elderly Jewish mother who finds herself at the seaside with her adult son. He heads into the sea for a dip, but it turns out that he is a bad swimmer. Drifting further away from the shore, he begins to panic and struggle in the water. And his mother, watching the trouble unfold from the beach, turns around and shouts out to everyone around her: ‘Help, my son, *the doctor*, is drowning!’

So far in this book, there has been no room for this mother’s pride in her son’s profession. I have looked at work from a purely economic perspective, where it only matters because it provides an income. This perspective is helpful because it makes the threat of technological unemployment very clear: by doing away with work, automation will deprive people of their livelihoods. But for some, like the anxious mum at the seaside, this will seem like a shallow account of why work is important. They will feel that the issue goes beyond economics, that a job is not simply a source of income but of meaning, purpose, and direction in life as well.

From this viewpoint, the threat of technological unemployment has another face to it. It will deprive people not only of income, but also of significance; it will hollow out not just the labour market, but also the sense of purpose in many people’s lives.¹ In a world with less work, we will face a problem that has little to do with economics at all: how to find meaning in life when a major source of it disappears.

MEANINGFUL WORK

In fairness to economists, not all of them have always used such a ruthlessly narrow conception of work. It is true that in economics textbooks today, work is treated as an inescapably unpleasant activity that people do purely for the sake of an income; it causes ‘disutility’, or unhappiness, that is only offset by the happy fact it earns a wage in return. And this sort of view has a long intellectual history, stretching back to Adam Smith, who once described work as ‘toil and trouble’.² But others have thought differently. Take Alfred Marshall, another giant of economic history. He proclaimed that ‘man rapidly degenerates unless he has some hard work to do, some difficulties to overcome’, and that ‘some strenuous exertion is necessary for physical and moral health.’ To him, work was not simply about an income, but the way to achieve ‘the fullness of life’.³

And beyond economics, some of the great scholars have written at length about work and meaning. Sigmund Freud is often credited with saying that human well-being only depends on two things, ‘love and work’.⁴ What he actually wrote, though, was characteristically more esoteric than that – ‘the communal life of human beings had, therefore, a two-fold foundation: the compulsion to work, which was created by external necessity, and the power of love.’ Freud believed that work is ‘indispensable’ for human beings, not so much for an income as for letting us live harmoniously in society: it is a necessary outlet for the deeper, primal impulses that everyone carries within them. Better to punch away violently on a keyboard in an office cubicle, Freud seems to suggest, than at each other’s faces.⁵

Another figure famed for his reflections on work and meaning is Max Weber, the classical sociologist. Why do people attach so much meaning to the work that they do? Because of religion, Weber said – in particular, because of the sixteenth-century Protestant Reformation. Before then, Christians in Western Europe were mostly Catholic. If they felt guilty about what they had done (or thought), they could fix it through confession: sit down with a priest, share your sins, and the Church would absolve you of your wrongdoings and rescue you from damnation. For Protestants, though, this was not an option. They did

not do confession. And this led to a 'tremendous tension', Weber proposes, since people never knew whether they would be damned to burn in hell for eternity.⁶ For them, the only relief was 'tireless, continuous and systematic work', through which they could try to prove that their souls were worth saving.⁷ Weber spoke of work as a 'vocation' and a 'calling', a task 'given by God', all terms that are still used today.⁸ In his view, the commitment to their work that some people show is, quite literally, a form of religious devotion.

Perhaps the most intriguing empirical examination of work and meaning is a study carried out by Marie Jahoda, a social psychologist, in the 1930s.⁹ Its setting was Marienthal, a small village outside Vienna, founded in 1830 to provide homes for workers employed in a newly built flax mill nearby. As the factory grew over the following decades, so did the village. But in 1929, the Great Depression hit. The next year, the factory closed down. By 1932, three-quarters of the 478 families in the village had nobody in work, and relied entirely on unemployment payments for an income.

Jahoda and her colleagues wanted to know what the impact of such widespread worklessness would be. Their methods were unconventional: to collect data on residents without making them realize they were being watched, the researchers embedded themselves in everyday village life. (Their various enterprises included a clothes cleaning and repair service, parent support classes, a free medical clinic, and courses in pattern design and gymnastics.) What they found was striking: growing apathy, a loss of direction in life, and increasing ill will to others. People borrowed fewer library books: 3.23 books on average per resident in 1929, but only 1.6 in 1931. They dropped out of political parties and stopped turning up to cultural events: in only a few years, the athletic club saw membership fall by 52 per cent and the glee club by 62 per cent. Unemployment benefits required that claimants do no informal work; in those years, Marienthal saw a threefold increase in anonymous denunciations of others for breaking that rule, yet almost no change at all in the total number of complaints that were judged well-founded. Researchers watching at a street corner even noted a physical change: men without work walked more slowly in the street and stopped more frequently.

For Freud, then, work was a source of social order; for Weber, it

provided people with a greater purpose; for Jahoda, it created a sense of structure and direction. And alongside these scholarly reflections we can also put more familiar, everyday examples of people searching for purpose in the work that they do. Walk into a bookshop, and you will find countless books telling readers how to achieve fulfilment in their working lives. Apply for a new job, and an eager employer may tempt you by promising not simply a healthy income but a meaningful career. Chat with a proud breadwinner, and they will mention the glow of earning one's keep or supporting a family. Talk to new parents about how it feels to leave their job for a new role at home, even temporarily, and they will often refer to a sense of loss that goes well beyond the value of the wages they once received. Look at prosperous people who could afford never to work again, and you will see many still get out of bed and go into the office on a daily basis, often after a brief and unsuccessful experiment with retirement. Sit down at a dinner party, and a stranger may ask, 'What do you do for a living?' – often presuming that the work that you do says something significant about who you are.

This last observation is important. Work matters not just for a worker's own sense of meaning; it has an important social dimension as well, allowing people to show others that they live a purposeful life, and offering them a chance to gain status and social esteem. Today, social media has supercharged this phenomenon. It is no wonder that LinkedIn, which started as a networking tool to help people find new jobs, is now used by some to broadcast how successful they are and how hard they are working, turning it into a platform for a kind of conspicuous self-aggrandizement instead.

For those with a job, the connection between work and meaning is wonderful: in return for their efforts, they get both an income and a sense of purpose. But for the unemployed, this link may become instead a source of further discomfort and distress. If work offers a path towards a meaningful life, the jobless may feel that their existence is meaningless; if work provides status and social esteem, they may feel out of place and deflated. This may partly explain why the unemployed often feel depressed and shamed, and why their suicide rate is about two and a half times the rate of those in work.¹⁰

A prevailing political philosophy of our time, the idea of meritocracy, does little to help.¹¹ This is the notion that work goes to those who

somehow deserve it, due to their talents or effort. Yet if work signifies merit, then those without it might feel *meritless*. Michael Sandel once quipped that in feudal times, at least those at the top knew that their economic fortunes were a fluke of birth, the simple brute luck of being born into the right family – whereas today, the most fortunate imagine they actually merit their positions, that being born with the right talents and abilities (and, often, supportive and prosperous parents) has nothing to do with luck at all.¹² An unpleasant corollary is that the less fortunate now often think they merit their bad luck as well.

At times, work does seem to get its meaning not from the positive thought that having a job is something to celebrate, but from the opposite, negative idea – that to be without a job is worthy of shame. When people call the unemployed ‘benefit scroungers’ or ‘welfare queens’, they are of course stigmatizing those without work, but they are also reinforcing the esteem given to those who are in work. And while it might feel like resentment of the unemployed is a new phenomenon, whipped up by tabloid newspapers in the twentieth century, it is in fact a very old sentiment. It is evident, for instance, in the Poor Laws, a body of rules that started to coalesce in medieval Britain, and introduced the first government taxes earmarked for helping the poor. (Before then, support for the poor was largely voluntary and informal, provided by friends, family, and the Church.) An early edition of the laws, from 1552, stated, rather dramatically, that ‘if any man or woman, able to work, should refuse to labour and live idly for three days, he or she should be branded with a red hot iron on the breast with the letter V and should be judged the slave for two years of any person who should inform against such idler.’¹³

The resentment runs both ways. While those in work rail against the unemployed, those without work also feel aggrieved towards those with it. This, in part, explains the curious reaction to Silicon Valley’s recent enthusiasm about the UBI. Mark Zuckerberg and Elon Musk have made supportive noises about the idea of a UBI; Pierre Omidyar, founder of eBay, and Sam Altman, founder of Y Combinator, have funded trials of it in Kenya and the US.¹⁴ But their interest has been met with widespread hostility. If work were simply a means to an income, that response might seem odd: these entrepreneurs were essentially proposing that people like them should do all the hard work and give

everyone else money for free. For many people, though, work means more than securing a wage – and so, in their eyes, the offer of a UBI from those in fantastically well-paid jobs might have felt more like hush money, or a bribe, perhaps even an attempt to monopolize a source of life’s meaning and deny it to others.

MEANINGLESS WORK

The connection between work and meaning is powerful indeed in many parts of today’s working world. Yet it is not universal – and what’s more, where it does exist it seems to be a relatively recent phenomenon.

Our prehistoric ancestors, for instance, might have found the idea that work and meaning are tied together very strange. Until the 1960s, it was thought that hunter-gatherers must have lived highly laborious lives, but recent anthropological research has shown that they probably did ‘surprisingly small’ amounts of work. When Gregory Clark, an economic historian, reviewed a range of studies about contemporary

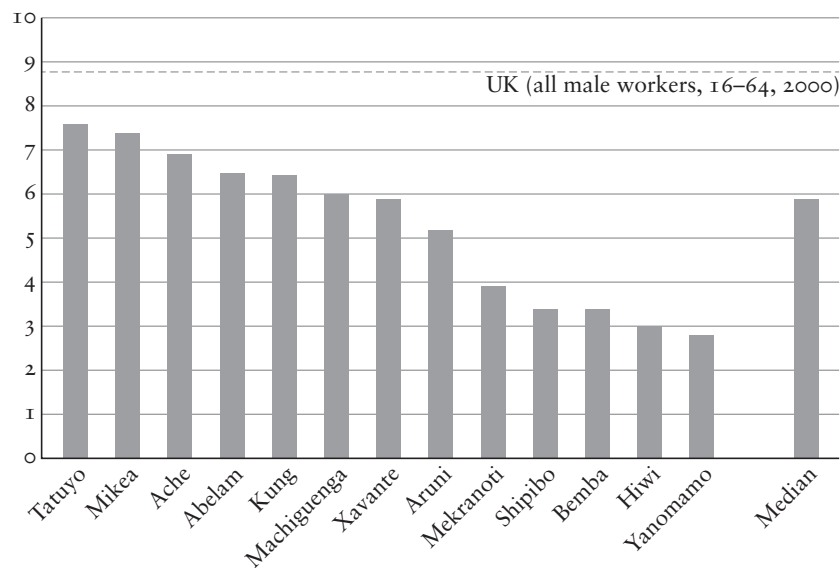


Figure 12.1: Male Labour Hours per Day, Hunter-Gatherers and the UK Today¹⁵

hunter-gatherer societies, he found that their members spent consistently less time engaged in labour than today's average male worker in the UK. (Clark's definition of labour includes not just paid employment but study, housework, child care, personal care, shopping, and commuting.)¹⁶ The data imply that hunter-gathers in subsistence settings tend to take about 1,000 more hours of leisure a year, on average, than working men in UK's prosperous modern society.¹⁷

This is not what you would expect if the hunter-gatherers were relying on work to find purpose and fulfilment. Clearly, they simply sought – and continue to seek – life's meaning elsewhere. As anthropologist James Suzman puts it, 'the evidence of hunting and gathering societies suggests . . . we [human beings] are more than capable of leading fulfilled lives that are not defined by our labour.'¹⁸

The attitudes were different in the ancient world, too. Back then, work was often thought to be degrading rather than meaningful.¹⁹ In the ancient Egyptian city of Thebes, the law stipulated that nobody could hold office unless he had kept away from trade for ten years.²⁰ Handling goods in the market was considered to be a prohibitively grubby affair. In Sparta, the warrior city-state of Greece, citizens were raised to fight and kept away from productive work by law. Trade was left to non-citizens, and manual labour to the 'helots', a vast state-owned population of slaves.²¹

When Plato set out his blueprints for his ideal state, he confined certain workers to their own 'artisan class', denying them a chance to run state affairs. 'The best-ordered state will not make an artisan a citizen,' he said. Aristotle, likewise, wrote that 'citizens must not lead the life of artisans or tradesmen, for such a life is ignoble and inimical to excellence.'²² He believed that meaning could only come through leisure, and that the only purpose of work is to pay for leisure time: 'We work in order to enjoy leisure, just as we make war in order to enjoy peace.'²³ In fact, the Greek word for 'work', *ascholia*, literally means 'the absence of leisure', *scholē*; for the Greeks, leisure came first, the opposite from how many think today.²⁴

In old myths and religious scriptures, work often makes an appearance as a punishment, rather than the font of a meaningful life. In the Greek myth of Prometheus, for instance, a mortal tricked the gods into accepting a sacrifice of bones instead of meat. Enraged at this

trickery, Zeus punished all of mankind with *work*.²⁵ ‘The gods keep the means of life concealed from human beings,’ the poet Hesiod explains. ‘Otherwise you would easily be able to work in just one day so as to have enough for a whole year even without working . . . But Zeus concealed it, angry in his heart because crooked-counseled Prometheus had deceived him.’²⁶

Or take the Old Testament. In the beginning, when Adam and Eve roamed naked in the bountiful Garden of Eden, all was well. After Adam ate the forbidden apple, though, God condemned them both to hard labour – Eve, metaphorically, to hard labour through painful childbirth (‘I will make your pains in childbearing very severe’), and Adam, literally, through making him toil from then on for his sustenance (‘by the sweat of your brow you will eat your food’).²⁷

These stories should remind us that the link between work and meaning, no matter how much Freud and Weber may extol it, may not in fact be so clear. In blunter terms, for many people work has always been pretty miserable, whatever theory might suggest. It is hard to argue that toiling in the factories and mills of the Industrial Revolution gave people a deep sense of fulfilment, for example. On the contrary, it was a life of gloom and despair. This is what enraged a young Karl Marx, prompting him to write at great length about ‘alienation’, the idea that certain work stopped human beings from becoming their true selves.²⁸ This is why Adam Smith, so often held up as the standard-bearer for unfettered markets, nonetheless feared that the dull monotony of labour would cause people to turn ‘as stupid and ignorant as it is possible for a human creature to become’.²⁹ And this is why Charles Fourier, an influential early-nineteenth-century French philosopher, described the working world of the time as a ‘veritable graveyard’.³⁰

Nor do we have to go back to the Industrial Revolution, when workers lacked legal protections and were exploited and oppressed, to question the relationship between work and meaning.³¹ Look at how people spend their working lives today, whether it’s stacking shelves or making sandwiches, sweeping roads or collecting rubbish, drafting legal contracts or reviewing financial accounts. Though these endeavours may not resemble the activities on the factory floor of a hundred years ago, none of them are self-evidently roles that bring their bearers a profound sense of meaning or fulfilment. In the

US, almost 70 per cent of workers are either ‘not engaged’ in or ‘actively disengaged’ from their work, while only 50 per cent say they ‘get a sense of identity from their job’.³² In the UK, almost 40 per cent of people think their work does not make a meaningful contribution to the world.³³ In the words of the sociologist David Graeber, many people today find themselves trapped in ‘bullshit jobs’.³⁴

Finally, even for those who are fortunate and privileged enough to find their jobs meaningful, it does not follow that they would want to work if they did not have to. Take the French. They attach more importance to their work than many other nationalities. Yet, at the same time, they wish to – and do – devote less time to it than people in most other countries.³⁵ At times, I wonder whether the academics and commentators who write fearfully about a world with less work are just mistakenly projecting the personal enjoyment they take from their jobs onto the experience of everyone else.

THE OPIUM OF THE PEOPLE

There are, then, two very different views of the relationship between work and meaning. There are those who imagine that there is an important connection between the two, who see work as a way not only of distributing income in society but of sharing out meaning as well. Reading the downbeat accounts of ‘bullshit jobs’ and miserable employment, they are likely to instinctively feel that things need not be that way, that with the proper changes even unpleasant work could be made fulfilling, too. Then there are those who have the reverse inclination, who question any link between work and meaning, and are likely to see any unhappiness or disillusion with work as confirmation of their beliefs.

In a sense, though, it may not matter which view you take. As we approach a world with less work, both tribes will be forced to address the same question: if people no longer work, what exactly will they do?

A popular idea for answering this question has been to look to the wealthy upper classes for guidance. Throughout history, many of their members have had the luxury of not having to worry about work for an income. Keynes called them ‘our advanced guard’,

imagining them up ahead in a world with less work, ‘spying out the promised land for the rest of us and pitching their camp there’.³⁶ Wasily Leontief invoked them as well, writing that ‘those who ask what the average working man and woman could do with so much free time forget that in Victorian England the “upper classes” did not seem to have been demoralized by their idleness. Some went hunting, others engaged in politics, and still others created some of the greatest poetry, literature, and science the world has known.’³⁷

Bertrand Russell, a philosopher and a member of the British upper classes himself, captured his views about his prosperous peers in a famous essay, ‘In Praise of Idleness’. He argued that ‘a great deal of harm is being done in the modern world by belief in the virtuousness of work’, and that ‘the road to happiness and prosperity lies in an organized diminution of work.’ It seemed to him that the leisure class ‘contributed nearly the whole of what we call civilisation . . . Without the leisure class, mankind would never have emerged from barbarism.’³⁸ He thought no one should be obliged to work more than four hours a day, leaving people free to devote themselves to the arts, sciences, literature, and economics.

The problem is that looking at the lifestyles of the well-to-do is not particularly revealing. For one thing, there is a tendency to romanticize how wisely they actually spent (or spend) their days. Thorstein Veblen, whose theory of conspicuous consumption mocked how prosperous people in Victorian Britain spent their money (‘in order to be reputable it must be wasteful’), also poked fun at how they occupied their free time – what he called ‘conspicuous leisure’.³⁹ For them, it was not enough to be seen wasting income on garish superfluities; they had to be seen wasting their time as well. That explained the attachment of the ‘leisure classes’ to everything from learning ancient languages to putting on elaborate exhibitions of punctilious manners and decorum. Of course, Veblen was being provocative. But he had a serious point, too: the upper classes often did spend their time in peculiar ways.

The truth is that imagining how we might spend our time profitably is very difficult. There is a famous line in Marx’s writing that hints at why: ‘Religion,’ he says, ‘is the opium of the people.’ This is often interpreted as an attack on the clergy and the upper classes – blaming them for cooking up religious doctrine that sedated working people,

blinding them to economic inequality and keeping them from starting a revolution. But this is not what Marx meant. He thought religion was created by ordinary people, not imposed top-down by others. It was their self-concocted way to add meaning to their lives.⁴⁰

Today, though, religion clearly no longer fulfils that role. Religiosity may be on the rise in certain communities, and some new additions have been made to the religious canon (the ‘scripture’ of Scientology, for example). But compared to Marx’s age, a time of widespread church construction and enthusiastic clergy recruitment, the modern world is very different.⁴¹ Religion no longer dominates everyday life in the way it once did.

What has taken its place? It is the *work* that we do. For most of us, work is the new opium. Like a drug, it provides some people with a pleasurable burst of purpose. But at the same time, it intoxicates and disorients, distracting us from looking for meaning elsewhere. This makes it difficult to imagine how we could live our lives any differently. Work is so entrenched in our psyches, we have become so dependent on it, that there is often an instinctive resistance to contemplating a world with less of it, and an inability to articulate anything substantial when we actually do.

Most of us know what it means to live in gainful employment; the same cannot be said of what it means to be settled into gainful unemployment. In the words of Hannah Arendt, we live in a ‘society of laborers which is about to be liberated from the fetters of labor, and this society does no longer know of those other higher and more meaningful activities for the sake of which this freedom would deserve to be won’. The worry, as Keynes put it, is that ‘there is no country and no people, I think, who can look forward to the age of leisure and of abundance without a dread. For we have been trained too long to strive and not to enjoy.’⁴²

LEISURE POLICIES

So, what should we do? How will people without work spend their time, and what can we do – if anything – to make sure that it provides them with the sense of purpose they might have hoped to find in a

job? One of the most haunting findings from Marie Jahoda's time in the village of Marienthal was the way that leisure became what she called a 'tragic gift' to those without work. Her hope had been that 'even amid the misery of unemployment, men would still benefit from having unlimited free time.' Instead, she found that, 'cut off from their work . . . [they] drift gradually out of an ordered existence into one that is undisciplined and empty', to the point that when asked to explain how they spent their days, they were 'unable to recall anything worth mentioning'.⁴³ In a world with technological unemployment, how do we avoid a similar despondency and despair from spreading?

Part of the answer is that, as a society, we will need to think more carefully and consciously about leisure: both how to prepare for it, and how to use it wisely and well. Today, we are familiar with *labour market policies*, a spread of interventions that shape the world of work in a way that society thinks best. As we approach a world with less work, though, I believe we will want to complement them with something different: *leisure policies* that inform and shape the way that people use their spare time.

Revisiting Education

A serious leisure policy must begin with education. Today, the priority for most schools and universities is preparing people for the world of work. (And where that is not the aim, it is still how they are judged.) With that in mind, I argued earlier that we need to change what, how, and when we teach. But as we approach a world with less work, that particular priority will no longer make sense. Education experts are fond of quoting the ancient Spartan king Agesilaus, who said that the purpose of education is to teach children the skills they will use when they grow up.⁴⁴ Their point in citing the king's seemingly self-evident advice tends to be that today's education systems fail to do that. But when considering a world with less work, that same quotation prompts a different thought: the skills needed to flourish in that future world will be very different from those in demand today.

At the moment, we tend to conflate working and flourishing. We believe that to succeed in work is to flourish in life, so the skills

required are the same. But if there is less work to be done, we need to prepare people for that instead. This would require a significant overhaul in what we teach – but big shifts of this magnitude are not unprecedented. If we travelled back to Agesilaus' time and took a look at the Spartan curriculum, we would be startled. Known as *agoge*, it was essentially a two-decade-long PE class designed to prepare men for war. Today, to the dismay of no one except perhaps PE teachers, organized exercise in schools is confined to a few hours a week. We no longer need to train young people to be warriors. In the future, we may no longer need to train them to work, either, but will have to teach them to flourish through leisure instead.

There are more recent sources of inspiration than the ancient Greeks, as well. About three-quarters of a century ago, the Education Act of 1944 introduced free secondary education for all in the UK.⁴⁵ The legislation's chief architect, an MP named Rab Butler, stood up in the Houses of Parliament to say that he hoped the reform would 'develop our most abiding assets and richest resources – the character and competence of a great people'. His wording suggests a dual aspiration: not simply to produce ever more competent workers, but also people of outstanding character.⁴⁶ In the decades that followed, the education system largely shed that latter aim, but in recent years it has made a comeback. Politicians, academics, and policy wonks increasingly talk about the importance of teaching 'character' and 'life skills' in school. One think tank, channelling the ethos of the classical philosophers, argues that we need to cultivate a set of 'virtues' in students: 'moral virtues such as honesty and kindness, civic virtues such as community service, intellectual virtues such as curiosity and creativity, and performance virtues such as diligence and perseverance.'⁴⁷ We might argue whether these are the exact skills needed to flourish in a world with less work. But this basic exercise, revisiting the role of education beyond basic workplace competence, is the right one.

Shaping Leisure

Beside preparing children for a world with less work, societies may also want to devise leisure policies that shape how jobless adults actually spend their spare time. That might sound like a step too far: it is

all very well for the state to try and influence the labour market, you might think, but should people not be left alone to choose how they spend their leisure? I am not so sure. Keep in mind that, in all countries today, the state already does this – without provoking discontent.

Take the UK, where people tend to spend five to six hours a day in leisure. (The average number is 6.1 hours a day for men, 5.5 for women.) Britons might imagine that they spend this time as they see fit. In fact, the state is lurking in the wings, quietly influencing what they do. According to the Office for National Statistics, the most popular leisure activity is consuming ‘mass media’. This essentially means watching TV, with a little reading and music thrown in.⁴⁸ And it is true that people get to choose the TV channels and movies that they watch. But to own a TV in the UK in the first place, you have to pay an annual tax to fund the public broadcaster, the BBC. Their channels are the first you’ll see when flicking through the options. The state gets to shape what those channels show, too: the BBC is required to ‘inform, educate, and entertain’, lest it lose its ability to levy that tax.⁴⁹

And how do Britons spend their spare time when they are not watching TV? There are a few hours a week playing sports or being outdoors, and about another hour a week doing cultural activities, like visiting museums or going to the theatre. Once again, the state is here, quietly influencing things behind the scenes. In fact, in the UK, an entire government department – the Department for Digital, Culture, Media, and Sport – tries to shape how that time is spent. They make a range of interventions, like making sure all children have the chance to learn how to swim and ride a bike; providing entry to many of the best museums in the country completely for free; and banning the finest art in the country from being sold and taken overseas.⁵⁰ In fact, look to any area of our leisuring lives, and you are likely to find, if not a formal government department, then at least a network of publicly supported ‘trusts’ and ‘foundations’ and ‘bodies’ that are gently cajoling us to adopt certain activities and abandon others.

There are also instances of what can be described as unintentional leisure policies. Pension systems are one example. Around the world, these are all based on the principle that leisure is something you should do in the twilight of life. But as Sarah O’Conner asks in the *Financial Times*, ‘if state support is going to allow everyone to have a

period of leisure in their lives, why does it all have to be at the end?⁵¹ Already, in a world where life expectancy is improving, where workers would benefit from taking time off to retrain, and where people face substantial and irregular demands on their non-working time (to bring up children, perhaps, or care for elderly relatives), it is striking that the state has decided to only really provide financial support for leisure once most of life is over.

Or consider the volunteering sector. In Britain today, about 15 million people volunteer regularly – half as many people as there are in paid work.⁵² (Andy Haldane, the chief economist at the Bank of England, estimates that the economic value of this volunteering in the UK is £50 billion a year, making it as valuable as the energy industry.)⁵³ But the sector does not operate in a vacuum: the state has a spread of programs and procedures designed to support it. These, too, can be seen as leisure policies of a sort, encouraging people to spend their spare time in a variety of particular activities for free.

As these examples show, there is already a variety of ‘leisure policies’ in action today. However, right now they are a highly haphazard collection of minor intrusions, often accidental ones, on people’s spare time. In a world with less work, this scattershot approach will no longer be appropriate. Societies will need to think far more deliberately, comprehensively, and coherently about their leisure policy.

This would be a radical change in direction. Leisure today is increasingly seen as a superfluity rather than a priority. The state, when looking to present itself as austere in its spending, often treats leisure activities as disposable, low-hanging fiscal fruit that can be cut and discarded with ease. In the US, President Trump has tried to eliminate the National Endowment for the Arts, the Institute of Museum and Library Services, and the Corporation for Public Broadcasting.⁵⁴ In the UK, the number of public libraries has been cut by about 12 per cent between 2010 and 2016.⁵⁵ (This decline has struck a national nerve: when the writer Philip Pullman spoke to a small gathering in Oxford about the fight against library closures, the online transcript of his speech became, in the words of one enthusiastic commentator, a ‘viral sensation’.)⁵⁶

It is important, though, not to be overly prescriptive from today’s armchairs about what particular pastimes a community might want

to encourage its members to do. It is up to future generations to deliberate with one another about how to spend spare time in meaningful and purposeful ways. Attempts to forecast how people might spend their leisure time in the future have often turned out poorly. In 1939, for instance, the *New York Times* argued that TV would never catch on. ‘The problem with television is that people must sit and keep their eyes glued on a screen; the average American family hasn’t time for it’, the editorial confidently stated. ‘For this reason, if for no other, television will never be a serious competitor of broadcasting.’⁵⁷ Needless to say, that prediction would turn out to be very wrong indeed.

A RETURN TO WORK

After a period of leisurely exploration, some people might conclude that for them, no activity can match work in providing a sense of fulfilment or direction. Even if their income comes from elsewhere, they may decide that a ‘job’ is the only way to secure the meaning they seek.

One of my favourite poems, Alfred Tennyson’s ‘Ulysses’, is about this exact feeling. It tells the story of Odysseus, the Greek hero who, having won the Trojan war, takes a decade to return home from the battle. He is held up, amongst other obstacles, by lotus-eating people who try to sedate him, by the ghost of his dead mother who attempts to distract him, by a tribe of one-eyed giants who imprison him, and a different group of giants who try to eat him. It is, in short, a difficult commute home. And in the poem, Tennyson imagines how Odysseus would have felt upon returning from that adventure, having to settle down as an ‘idle king’ on his throne again. His answer is that it would have been unbearably boring. Odysseus would struggle to ‘rust unburnish’d’ but would want to ‘shine in use’. And so, in Tennyson’s poem, Odysseus prepares to set sail again, handing the throne over to his son, hoping that ‘some work of noble note, may yet be done / not unbecoming men that strove with Gods.’⁵⁸ In a similar way, arriving at a world of technological unemployment, Odysseus-like people in the future might still want to attempt their own ‘work of noble note’.

Until now, I have spoken about ‘a world with less work’. What

I have really meant, though, is a world with less *paid* work. Up to this point, there was little need to draw attention to that distinction. As we think about the future, though, it is important to look at this more carefully. Why? Because while we may be approaching a world with less paid work, there is no reason why it must be a world without any work at all. In the future, people who find themselves itching to keep at work despite having no economic reason to do so may hunt for roles that we would call ‘work’ today – the only difference being that for them, this work would not come with a wage in the labour market that is large enough to live on.

What might these roles involve? Anything, in a sense, once the constraint of having to earn a wage to live on is removed. They might draw on tasks that machines could do better, but human beings want to do anyway in spite of that. That might sound inefficient, but if this work is done for non-economic ends, in pursuit of purpose rather than productivity, then economic worries about ‘efficiency’ are a mistake.

The existence of these Odysseus-like people creates another role for the state: to help those who want to work find such work. One possibility is that the state may actively create work for people to do. This is not as radical as it sounds: in fact, governments already do this on a huge scale. Seven of the top ten largest employers in the world are state-owned institutions – the US Department of Defense, the NHS, the State Grid Corporation of China and the Indian Railways, to name a few. Even today, the idea of a ‘job guarantee’ is already gathering favour and interest. In the US, several Democratic candidates for the 2020 presidential election endorse the notion of offering everyone a job, and 52 per cent of Americans support the policy. To put those numbers in context, the pollster responsible described it as ‘one of the most popular issues we’ve ever polled’.⁵⁹

The discussion about people who want to *work* in a world with less *paid work* does leave us with a conceptual puzzle. If people no longer directly rely upon that work for an income, is it still right to call it ‘work’ – or is it leisure? In the Age of Labour, we have not had to worry too much about that distinction. Leisure is often defined simply as what people do when they are not at work, and work as what they do when they are not at leisure. In a world with less paid work, though, these definitions and boundaries become

murkier. Is something only 'work' if it is done for a wage? If so, that would suggest that housework, for instance, is not work. Is something only 'work' if it is strenuous and hard, or perhaps slightly unpleasant? That would require us to say that people in paid but pleasurable work are at leisure (and that sports fans intensely watching television as their team loses are at work).

Philosophers have spent a lot of time trying to pin down this distinction.⁶⁰ But in practice, I am not sure how much it matters. When considering a future with less paid work, it is far more illuminating to think simply about *free time*. Some may want to spend some of that time doing things that look a lot like 'leisure' today; others may incline towards more structured and directed roles, in the spirit of 'work' in the past. My suspicion, though, is that what people choose to do will mostly *not* look like work today. Work is a source of meaning for some people at the moment not because work itself is special, but because our jobs are where we spend the majority of our lives. We can only find meaning in what we actually do – and freed up to spend our lives differently, we will find meaning elsewhere instead.

A ROLE FOR THE CONDITIONAL BASIC INCOME

And so we come back to the initial question of this chapter. What will people without work do with all of their free time? Part of the answer is that they might pursue more leisure. To that end, as we have seen, the state might want to step in and help them to use that time in a meaningful way. Another response is that some might want to retreat to some activity that looks more like work, though not in direct pursuit of a wage. And the state might want to support those ambitions, too.

But these two options are unlikely to be the full answer. In a world with less work, few societies will be able to allow those without a job to fill all their time with idleness, play, or unpaid work as they alone see fit. This is because, as noted earlier, any society that allows that is likely to fall apart. Today, social solidarity comes from a sense that everyone contributes to the collective pot through the paid work that

they do and the taxes that they pay. Maintaining that solidarity in the future will require those without paid work to spend at least some of their time contributing to the pot in other, non-economic ways.

This is what the ‘conditional basic income’, the CBI I have proposed, is designed to support: it is a UBI, but one that requires its recipients to do something in return. If it is adopted, it means that, in the future, the daily lives of those without work are likely to be divided in two: not between leisure and paid work, but between activities that they choose and others that their community requires them to do.

We can speculate about what those required activities will be. Some communities, populated by people like Keynes and Russell, might be satisfied if those without work spend their time in pursuit of artistic and cultural ends: reading, writing, composing beautiful music, thinking deep thoughts. Others, channelling the ancient Greeks, might ask people to take their role as citizens more seriously; to engage in politics, to support local government, to ponder their obligations to others.⁶¹ Beyond such recreational and political activities, I believe that educational, household, and caring activities will be recognized as important as well. No matter how capable machines become, we will, I imagine, want human beings to have a role in preparing others to live purposeful lives, and in supporting them during hard times and ill health.

This list, again, is speculative, and no doubt incomplete. In the end, it will be up to future communities to decide what counts as a contribution and what does not. Different societies will be drawn to different conclusions. But all of them, engaged in the same exercise, will be forced to say what they consider to be valuable and what not.

Today, that sense of value is overwhelmingly shaped by the market mechanism: a thing’s value is the price that someone is willing to pay for it, and a worker’s worth is the wage that they receive. For all its flaws, there is something extraordinary about the inexorable simplifying power of this mechanism. In the white heat of the market, the clash between people’s infinite desires and the hard reality of satisfying them gets boiled down to a single number: a price.

Extraordinary, but still flawed. There are things we all recognize as being significant that have no price tag, and jobs we all think are

important that receive little or no pay in return. Most care work, for instance, is unpaid.⁶² In the US, about 40 million family carers provide \$500 billion of unpaid care to adults every year, two-thirds of it done by older women.⁶³ In the UK, around 6.5 million carers, again mostly women, provide unpaid care worth up to £100 billion.⁶⁴ Most housework, too, is unpaid. In the UK, the combined value of cooking, child care, laundry, and dealing with the general clutter of household chores is estimated to be about £800 billion – more than four times the size of the manufacturing sector.⁶⁵ Once again, it tends to be performed by women. A single number cannot capture all the different dimensions in which our sense of what matters can run.

In a world with less work, we will have an opportunity to repair this mismatch. President Obama hinted at this possibility in a set of parting reflections on the future of work. What we need to do, he said, is to begin to ‘re-examine what we value, what we are collectively willing to pay for – whether it’s teachers, nurses, caregivers, moms or dads who stay at home, artists, all the things that are incredibly valuable to us right now but don’t rank high on the pay totem pole’.⁶⁶ And if we adopt a CBI, we will be driven to do exactly that: to take activities that the invisible hand of the labour market had marked down as worthless, and, with the visible hand of the community, to hold them up as being valuable and important. We will have a chance to allocate value through community recognition rather than through market wages. Fulfilling the requirements of a CBI may turn out to provide a sense of self-satisfaction not too different from that of bringing home a pay cheque: the warm glow of earning one’s keep, albeit earned in a different way.

THE MEANING-CREATING STATE

This final chapter is the most speculative in the book. But it contains two important lessons. The first is that if free time does become a bigger part of our lives, then it is likely to also become a bigger part of the state’s role as well. Just as in the Age of Labour we have interventions designed to shape our working lives, in a world with less work we will need a set of tools to influence our free time, too. Those

can include leisure policies, designed to help people spend their time in purposeful ways; opportunities for people who still want to ‘work’ even if not for a wage; and requirements that people contribute to society, in return for the support that society provides. These are some possible directions. I am sure there will be more.

The second lesson is that work has meaning beyond the purely economic. That relationship does not always hold: for some people, their work is a source of income and nothing more. But for others, their work does provide a strong sense of purpose. They have economic identities, a sense of who they are, that is tightly rooted in the work that they do.

British coal miners show this very clearly. In the old mining city of Durham, the streets get closed to traffic once a year. The town fills up with crowds of miners and their supporters. There is music and marching, brass bands and celebratory songs; people carry huge banners above their heads decorated with the faces of historical mining heroes, and slogans like ‘unity’ and ‘community’ and ‘pride’. This is a group of people whose identities are clearly anchored in their particular type of work. The Durham Miners’ Gala, as the march is known, has been happening since 1871. But it is uncertain how much longer it will continue. At the end of 2015, the last deep coal mine in Britain, Kellingley Colliery, was closed, and the retired mining machines were buried in the old pits.⁶⁷ To me, the ceremony looked much like a set of religious funeral rites.

In a world with less work, the opportunity for economic identities like those of the British miners will shrivel. Instead, people will be forced to find non-economic identities elsewhere. Today, there is a surge in identity politics: people’s political tastes are increasingly shaped by their race or their faith or the place that they live. At times, I wonder whether this is in part a reaction to the insecurity of contemporary economic life, a retreat to a non-economic source of meaning that feels sturdier and more reliable than the economic alternatives. But there are reasons to worry about these non-economic identities, too. For one thing, people can be very bad at recognizing them. In Britain, the widespread failure among Remainers to imagine that Brexit could happen is a good example: there was a collective blindness to the fact that purpose in life might not only run in an

economic dimension, that arguments about ‘trade’ and ‘growth’ might be answering questions that many people were simply not prioritizing.⁶⁸ What’s more, the non-economic identities that emerge may be quite unsavoury. The recent rise of populist politics around the world, partly a response to economic insecurity, is an ominous example of this.

From these two lessons, a final role emerges for the Big State: as a meaning-creating state. As we approach a world with less work, a traditional source of purpose for many people will fall away and a gap will appear. New sources of purpose will emerge, not all of them benevolent. We may want a meaning-creating state to step in and, through interventions like leisure policies and the CBI, guide whatever floods in to fill work’s place.

Of all the roles that I have set out for the Big State, this is the most unfamiliar. Today, we are used to our politicians acting as managers and technocrats whose role is to solve esoteric policy problems. We tend not to think of them as moral leaders. We do not expect them to guide us on what it means to live a flourishing life. But in a world with less work, we will need them to help us do this as well. ‘Towards what ultimate point is society tending by its industrial progress?’ asked John Stuart Mill. ‘When the progress ceases, in what condition are we to expect that it will leave mankind?’⁶⁹ We may want a meaning-creating state to help us find answers.

Until now, modern political life has dodged philosophical questions like this. In the twentieth century, most societies agreed on the same goal: making the economic pie as large as it can be. And as Isaiah Berlin once wrote, ‘Where ends are agreed, the only questions left are those of means, and these are not political but technical, that is to say, capable of being settled by experts or machines like arguments between engineers or doctors.’⁷⁰ Accordingly, fixated on this economic end, we have tended to turn to economists, the engineers of contemporary life, to tell us how to relentlessly grow that pie. In a world with less work, though, we will need to revisit the fundamental ends once again. The problem is not simply how to live, but how to live *well*. We will be forced to consider what it really means to live a meaningful life.

Epilogue

In 1941, Stefan Zweig sat at his desk in Brazil, writing. A decade before, he had been probably the most popular writer in Europe, with book sales that would make some of today's bestselling authors green with envy. By now, though, he had become an exile, yet another displaced Austrian Jew forced to flee his home. Sitting at that desk in Brazil, Zweig was writing his autobiography, *The World of Yesterday*. When he was growing up, he explains, everything – the buildings, the government, their way of life – seemed to everyone to be unshakable. He called it the 'Golden Age of Security'. As a child, he felt that this world would last forever. Alas, as we now know, it was not meant to be.¹

Over the past decade, when reflecting on our future, I have often thought of Zweig sitting alone and working away at his book. To me, it seems that many of us have also grown up in an age of security – what I have called the Age of Labour. After the insanity and slaughter of the first half of the twentieth century, things took on a more predictable, calmer rhythm across much of the world, and the pursuit of paid work was an important part of that. The advice passed on to us from those further along in life was always the same. Our parents and teachers explained that if we kept our heads down, and tried hard at school or whatever else we chose to do, then a future of stable paid work would be waiting for us. As we got older we could expect to be paid more, and when we were old we could stop working and draw on the fruits of our labours. Life was all about work – preparing for it, doing it, retiring from it – and that seemed okay.

In this book, I have argued that our age of security, like Zweig's, is fated to come to an end. In the next hundred years, technological

EPILOGUE

progress will make us more prosperous than ever before. Yet that progress will also carry us towards a world with less work for human beings. The economic problem that haunted our ancestors, that of making the economic pie large enough for everyone to live on, will fade away, and three new problems will emerge to take its place. First, the problem of inequality, of working out how to share this economic prosperity with everyone in society. Second, the problem of political power, of determining who gets to control the technologies responsible for this prosperity and on what terms. And third, the problem of meaning, of figuring out how to use this prosperity not just to live with less work but to live well.

These problems are daunting and will be hard to solve. There will be fundamental disagreement about what we should do. Yet I am hopeful about the future. When we think about what lies ahead, it is important to look back as well, to remind ourselves of our 300,000-year-old story so far and remember the challenges we have already overcome. Not that many generations ago, almost all human beings lived on or around the poverty line. The struggle for subsistence was the challenge that preoccupied most of mankind. Our generation has been fortunate to wake up in a world where people need not be condemned to that fate, where there is in principle enough economic prosperity for us all to keep ourselves and our families alive. The looming problems – of inequality, power, and meaning – are just the consequences of this unprecedented prosperity. They are the price we pay for the material abundance that some of us (though as yet not all of us) have been fortunate to enjoy. And in my view, it is a price worth paying.

In the twenty-first century, we will have to build a new age of security, one that no longer relies on paid work for its foundations. And we have to begin this task today. Although we cannot know exactly how long it will take to arrive at a world with less work for human beings to do, there are clear signs that we are on our way there. The problems of inequality, power, and meaning are not lurking in the distance, hidden out of sight in the remote future. They have already begun to unfold, to trouble and test our inherited institutions and traditional ways of life. It is up to us now to respond.