



Home-based Working in the UK Committee

Corrected oral evidence

Monday 30 June 2025

2.15 pm

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Members present: Baroness Scott of Needham Market (The Chair); Lord Farmer; Baroness Featherstone; Lord Fink; Baroness Freeman of Steventon; Lord Fuller; Baroness Manzoor; Baroness Nye; Lord Parker of Minsmere; Lord Stevenson of Balmacara; Baroness Watkins of Tavistock.

Evidence Session No. 23

Heard in Public

Questions 231 - 239

Witnesses

I: Professor Carl Frey, Professor of AI and Work, Oxford Internet Institute; Professor Efraxia Zamani, Associate Professor of Information Systems, Durham University.

Examination of witnesses

Professor Carl Frey and Professor Efpraxia Zamani.

Q231 **The Chair:** Good afternoon, everybody, and welcome to this House of Lords Select Committee on Home-based Working in the UK. This afternoon, we welcome Professor Carl Frey and Professor Efpraxia Zamani. We will be talking about technology, in particular AI. You are both very welcome indeed. This session is being broadcast. A transcript will be sent to you in a few days' time to check for transcription errors. You are very welcome to provide any supplementary evidence in writing after the meeting.

I will ask Professor Frey to kick us off with some general reflections on how remote and hybrid working are likely to be affected by AI, and how this would vary across different work types. We have had a bit of mixed evidence, some suggesting that remote working is going to be particularly vulnerable to being taken by AI and others saying not so much. It would be really interesting if you could give us your take.

Professor Carl Frey: First of all, thank you very much for your kind introduction. It is a real pleasure to be here with you from Oxford today. By way of introduction, I am an associate professor of AI and I work at the internet institute at Oxford University.

To go to your question, it is pretty clear that there is a significant overlap between job roles that can be done remotely and their exposure to artificial intelligence, though there is very limited evidence, if any, to suggest that the reason why those job roles are exposed to AI has anything to do with the fact that they can be done remotely. It is more a question of the tasks and activities that make up the job rather than whether it can be done remotely per se. Jobs that can be done remotely tend to be concentrated in occupations that are heavy in knowledge work and cognitive skills in particular. Obviously, things that can be done cognitively on a computer—knowledge work—are more prone to be exposed to generative AI as well.

Thinking more about the impact as such, I think of generative AI in particular as a technology that reduces barriers to entry in knowledge work and content creation, rather than as an outright automation technology at this stage. We have a variety of experimental studies to show that whether you write, are in coding or do repetitive customer service, the productivity gains from gen AI are significant. More importantly, it is novices and low-skilled workers who benefit most in terms of productivity. To put it differently, if Dostoevsky had had access to large language models, I doubt that his novels would be any more interesting—in fact, they would probably be less interesting. But if you are an academic like me who is not very good at writing, then you benefit more and your writing is more likely to be improved as a consequence. I think of the impact as being similar to what happened with Uber and its impact on taxi services. With GPS technology, knowing the name of every street in London was no longer a particularly valuable skill. Then, with the

platform matching supply and demand, basically anybody with a driver's licence could get into their car and top up their incomes. We are seeing something similar with generative AI, with the difference being that most of the occupations that are being affected are traded rather than non-traded.

If you look at some of the striking wage differentials across the space, even within the same company, you can see how this is likely to go. A software engineer at Google in the Bay Area earns an order of magnitude more than a software engineer at the same company in Manila or Cairo. The same is true if you look at the big four auditors and other companies. If you throw generative AI into the equation, which gives a productivity boost to low-skilled, low-income workers in particular, it will make the worker in, say, Manila more productive relative to his or her counterparts in the Bay Area, so more firms will try to shift more of the production towards Manila. What I am trying to say is that I think generative AI will do to services what we have seen happen with global value chains in manufacturing and offshoring to China, only now it is more related to services and more likely to go to countries with good digital infrastructure in places like the Philippines and India.

As a quick final point, I do not think that all jobs that are exposed to AI are likely to be offshored by any means. In fact, I think artificial intelligence is likely to make in-person communication more valuable in the remaining job roles. The way I think about that is simply that if AI writes and does most of your virtual communication, how do you distinguish yourself in such a world? We know that the output of competing foundational models, for example, is becoming increasingly similar over time—it is having a homogenising effect—but if you are an employer, you want to differentiate yourself towards your customers. The key point of differentiation will come from in-person communication, so it is actually quite likely that AI is likely to make in-person communication and office work more valuable in the remaining roles, not less valuable. I have probably already spoken for too long, so I will stop there.

The Chair: That was fascinating, thank you very much.

Q232 **Lord Fink:** Could I ask a question primarily to Professor Zamani? To what extent does the UK's digital infrastructure facilitate emergent hybrid working? Where could the Government focus their attention in this area, such as improving network reliability or raising awareness among SMEs of how to leverage digital toolboxes?

Professor Efpraxia Zamani: Very briefly, to introduce myself as well, I am professor of information systems at Durham University Business School. My research work relates to issues of digital poverty, digital inequalities, exclusion and so on at the intersection of emerging technologies, including AI.

To come to your question, I have been involved in several funded projects on digital exclusion so far and how we can address it following place-based approaches. I have worked in South Yorkshire and

Derbyshire. On whether the digital infrastructure is sufficient, it is, but it depends where you are. To put it very briefly, as an example, for the project I ran in South Yorkshire, we did some geographical mapping of digital poverty, coupled with information from the *Connected Nations* dataset in terms of connectivity, quality of connectivity and speed of connection. There were large areas within that area where, basically, we found not-spots—the Peak District, for example. After that, we did some work in Derbyshire with some charities from the voluntary sector there. There were also areas where connectivity was pretty poor or non-existent. It depends where people are located. I do not want to say it is a postcode lottery, but the more rural areas and the harder-to-reach areas have poorer infrastructure, generally speaking.

On your second question about what the Government could focus their attention on in this area in terms of network reliability, it is not so much about the reliability; it is more about its availability and affordability. Even in areas where we found there was a good connection—it was reliable, it was robust—households were still unable to get the connectivity that would allow a deeper use of technologies, applications and the internet, precisely because they could not afford the higher rate of broadband connection so they would remain within 10 to 30 megabits per second rather than 50, and so on. So it is a matter of availability and affordability.

Q233 Baroness Watkins of Tavistock: Following on from the previous question, what do you think is the role of digital tools such as office management systems and collaborative platforms in ensuring the equitable application of hybrid work policies across teams and hierarchies? Do you think technologies are systematically underused in the UK?

Professor Efpraxia Zamani: On the first part of your question, digital tools are there to be used however people and managers feel is most conducive. The technology itself is not going to provide more opportunities, or be more equitable across the hierarchy; it is about how it is used, designed and implemented. There are tools readily available right now with a bit of AI functionality at the back end, or at least advertised as such. These have to do with scheduling meetings, desk-booking applications, workplace analytics and people analytics—for example, rewards can be decided on the basis of engagement with certain functions. There are tools such as knowledge repositories or information repositories, where people who work in a particular organisation basically deposit their work, their reports and so forth, and those become available across the organisation. Everyone has access to that repository, which means that it is more equitable sharing, if you will. There are applications like—I am sure I am allowed to name companies here, right?—Zoom or Teams, which offer a transcription. That means people who may not be as capable in the use of English language or who use screen readers because of impairment have a more equitable way to participate in a meeting with others.

Having said that, the second part of the question, about whether things are systematically underused, is very difficult to answer. That would in effect require us knowing all the possible applications out there that could be used. I will flip the question, if I may, and say that essentially there are applications that are overused, and that has created a lock-in. Professor Frey mentioned a few things about creativity. Office workers, knowledge workers and more rules-based workers are locked in, in terms of what the collaboration suite does or allows us to do. If we want some additional functionality that is not provided there, it means that we cannot engage with that more creative process. When I say “overused”, I am talking about the very big software companies with their products that exist across all businesses, organisations, universities and so on. There is an opportunity being missed, because there are other, smaller, lightweight applications that develop solutions for problems that we have that are not addressed by these big companies—scheduling that offers additional flexibility, for example, or scheduling that allows us to find not just the time slot but also the place when it comes to where to have the meeting, or other applications that encourage us to take a break from working non-stop from 9 to 5.

Q234 Baroness Manzoor: First, congratulations on your promotion. For me, AI is very different from just scheduling, which I see as technology. Yes, there are lots of different technologies that you can buy, but artificial intelligence is different, for instance, in policy areas or indeed in the legal sector, where you have loads of casework that you could pull together and maybe present an argument based on it without your student having to go through and do that research. Scheduling is easy because it is technology. I think we are using “technology” and “AI” interchangeably but they are not. Am I right or am I missing something?

Professor Efpraxia Zamani: I think you are very correct. We conflate technologies. We say “digital technologies” and that is an umbrella for everything underneath it, including AI. In many cases, when it comes to the AI technology we have available right now—LLMs and so on—from what I have seen from research papers and engagement with my students, I personally would not put my confidence in having an AI tool summarise a legal contract, for example. That would be very difficult. In a contract, you need to read everything, all the clauses, and I would not give it to an AI system to summarise what it said. It is the same with research papers or books. We have seen many cases in universities where students are using AI very actively, in many cases with very good use applications, but when it comes to summarising things, again it is not very good because it is not an exact summary; it is a combination of words that may possibly be found in the corpus of papers but the takeaway lesson may be entirely different from what the original research actually says. We need to draw a line between what we call digital technologies and what we call AI tools. There is probably an intersection or overlap there, but not 100%.

The Chair: Professor Frey, do you have a perspective on that?

Professor Carl Frey: In my view, the key difference is that AI can be used for many more things than standard productivity tools. It can be used for automation in a variety of use cases. It can potentially be used for monitoring and tracking workers—and arguably that might become more attractive as the fraction of the workforce that is remote increases. Employers that cannot monitor the workers because they are not in the office might either opt for tools to do that at distance or they may potentially try to adjust incentives and use more variable compensation, which could also increase earnings volatility in the economy more generally. In our research, we found some evidence of the latter: firms that tend to offer more remote work are also more likely to introduce variable compensation. I have not seen much research on whether there has been a significant uptake in AI tools for monitoring in particular, but that strikes me as something potentially interesting to look into.

Lastly, AI could conceivably be used to do entirely new kinds of things. We could use AI the way we used automatic elevators, just to get rid of the operator, or we can think of AI as a new telescope that did not replace a single person but allowed us to look at the moons of Jupiter and do new and previously inconceivable things. In terms of productivity, the latter is more much more important. If all we had done since 1800 was automation then we would have productive agriculture and sheep textiles but not much else—we would not have vaccines, antibiotics, cars, aeroplanes, rockets, computers and so on. Most progress comes from doing new things. The difference with AI is that it potentially allows us to do that if we use it in that way.

Q235 **Lord Fuller:** This is a working from home or flexible-working committee. We are not here purely to look at AI. You are right, it is going to have many different applications, but we are potentially getting stuck in some loops here. The *Financial Times* this morning—at least, it appeared on my feed this morning—said that AI was having a profound effect on entry-level jobs. We know that home-working jobs are disproportionately transactional by their nature. Professor Frey, you said that low-cost transactional jobs are shifting to low-cost places like Manila. If you cannot get a starter job in the first place because it has been eaten by AI, and those people who manage to get a starter job are being offshored to Manila—other places are available—how will anybody get a job? Will those to whom starter jobs working from home are available because of disability, family circumstance or geographical location be able to get any useful employment from home, or will they have to go to the office? I am conscious that that is quite a multilayered question, but I am thinking about the person who is working from home at the moment. Will AI close off a lot of avenues that might previously have been available not just to them but to people who have got on to the first rung of the ladder?

Professor Carl Frey: First, I agree with the *Financial Times* article and the evidence you cite. There seems to be a real slowdown in the hiring of graduates in particular. The key question is: is this a transition phase that will go away after the current experimenting with AI and the efforts to figure out what can and cannot be automated—when the technology and

the skills that might be needed are in flux and firms are trying to redesign their business models to figure out what this technology can do—or is it part of a more long-term trajectory whereby the type of work that grad students will do is gradually and permanently disappearing?

As I alluded to earlier, I think a long-term transition is happening, where more work will move abroad for the reasons I mentioned. I should caution, though, by saying that I do not have a lot of solid empirical evidence to back that up. It is somewhat anecdotal and theoretical, but with the improvements that we are seeing in machine translation and the language barriers being eroded, in my mind it is quite likely, and it also speaks to the evidence you cited.

However, I suspect that there will be some kind of correction down the line. If you are a law firm, you can automate a lot of the work that associates would do, but you also need a talent pool to make partners. Who becomes a partner is one of the most important decisions made at a law firm and if you do not have a pool of talent to choose from you are in trouble. There is a risk of going for some low-hanging efficiency gains early on, and that might be a correction down the line. That may not be of great relief to people on the edge of the market this year.

As I mentioned, there are certain roles and activities that AI cannot do that will increase in value as a result of AI. In-person communication is one, and the resilience and ability to deal with novel situations is another. Human ingenuity is particularly good where precedent is thin. Large language models, for example, need vast datasets to draw on; humans can learn from just a few examples. If your job involves doing exactly the same thing day in, day out—if it was exactly the same yesterday as it is today—you will probably be replaced by AI. On the other hand, if you are dealing with very new circumstances every day, you are much less likely to be replaced by AI. The jobs in which uncertainty and volatility are the facts of life are less likely to be replaced.

Finally, a lot of jobs are just not that exposed to AI. It is hard to get a plumber, a roofer or a construction worker to do anything if you need some help with your home, et cetera. A huge amount of infrastructure updates are required, and those jobs will not be done by AI. I do not want to create the impression that we are just about to run out of work, but it is a very difficult labour market at the moment for graduate students coming out of university and doing knowledge work.

Professor Efpraxia Zamani: You mentioned an article in the *Financial Times*. There was another in *Forbes* which reported on the opposite side of the same problem: businesses wishing to hire entry-level people for internships, graduate schemes and so on, and being flooded by fake CVs that fit perfectly the criteria for their role. Because it is so easy to do that, the human in the loop cannot simply go through all these CVs and find out which are fake, which are real, which have potential and so on. That is the other side of the same problem.

I think that many jobs or roles will indeed be displaced—or changed, at the very least. I do not think it will be 100% due to AI, but it will be due to some extent to automation, which is not exactly AI. We are already seeing this. Some roles, such as mine as an educator, will probably be the first to be scrapped. We will have to be creative and find something else to do with our lives.

However, I will draw on a metaphor from decades ago. When the first calculators launched and became available in schools, people were very frightened that we would no longer be able to do division, multiplication and so on because we would simply ask the calculator to do it. There were several papers on that in the mid-1980s to early 1990s. It did not happen. What happened is that we do the more laborious or difficult calculations with a calculator, but we are still able to do long division, for example. We do not waste our time doing nitty-gritty calculations, and we are more creative.

We ask what can be affected by AI, what may disappear and what may change, but the question we need to be asking is: what kind of tasks are we comfortable handing away to AI systems? I would be very happy to have payroll, for instance, run by AI, but I would not want my creative work, reading or research work to be given to AI. If we are looking at what will happen in 20, 30 or 40 years' time, the question we need to ask is probably a bit more nuanced.

Lord Fuller: We are considering working from home, flexible working and home-based working. Accepting the generality of what you both have said about the risks and opportunities from AI, which will happen anyway, will they affect in particular that cohort of person who works from home, is able to work from home or has to work from home? I can see that there will be opportunities. If you are geographically in another country, perhaps because you want to escape a high-tax economy and go somewhere where the tax load is lower, you still get to do the same work. What are those interactions?

Professor Efpraxia Zamani: I am not sure that it has anything to do with where the work is being done. It is not a matter of AI or no AI, or digital tools or no digital tools. Based on my own research, I can say that it has to do with whether a remote worker has access to the infrastructure and tools at a price that is affordable, or they are provided by the employer in some shape or form. Whether activities will be replaced has to do with the activity that worker is engaged with. As Professor Frey said, if it is rules-based and, day in, day out, the job is the same, it is obviously more likely to be impacted because the organisation that is employing that remote worker may not have to have them in their roster any more because they can replace them with some kind of technology that automates the task itself.

Q236 Baroness Freeman of Steventon: Picking up on some of the things we have discussed about creativity and innovation, what is the evidence on the effects of hybrid and remote working on creativity and innovation? I suspect that "hybrid" and "remote" are two different things in that

context. What tools exist, or might exist soon, to help people to foster creativity when they are not physically in the same location as each other? Professor Frey, I know you have published on this recently. Perhaps you would like to start.

Professor Carl Frey: First, there is a reason why creativity has always been clustered, whether in Renaissance Florence, Victorian Birmingham, Detroit in the 20th century or Silicon Valley today—which is at the forefront of developing these digital tools that we are talking about. Our research shows clearly that if teams split, whether that is in the 1960s, the 1970s, the 1980s or the 1990s, you face a significant penalty in terms of how creative the output you produce is going to be. Within existing teams, though, it seems to be the case that, beginning in the 2000s and particularly in the 2010s, that penalty begins to disappear, and that seems to be related to advances in remote-work technology.

I should say that in this case the setting is basically academia, so you can think about it this way: if I have a collaborator here in Oxford that I work with and he or she moves to Stanford in 1995, our tools of communication are quite limited. If that happens in 2015, we have much better tools of communication, and that person will then develop new local knowledge networks in Stanford and bring in new ideas to the collaboration that I can benefit from as well. So in that case it is not just a story of remote collaboration; it is a story of bringing global knowledge and networks together and these teams acting as catalysts for knowledge transfer globally.

However, if you look at all teams, not just existing ones, we find that it does not matter that much which decade you look at; onsite teams outperform distributed teams when it comes to breakthrough innovation. Remote teams are much more likely to sort of incrementally develop existing work or technologies but much less likely to make breakthroughs. Part of the reason for that is that geography is just very valuable when it comes to new team formation. To set up a collaboration and do something new, you have to meet in the first place. You are unlikely to make that introduction from the beginning virtually. So, when it comes to new team formation or new business development, geography is still really important.

Baroness Freeman of Steventon: Is there any evidence on hybrid working? I have worked in the creative industries, and I know that there are inputs from the buzz from talking to people, but then you need creative time on your own to develop those and craft the outputs.

Professor Carl Frey: The tricky part with creativity is that it is hard to measure. In our data we look at research outputs and patents. I do not have an algorithm for determining what is creative and not creative in the artistic sector, so there is a measurement problem there. In principle, hybrid should allow you to get the best of both worlds, provided that you are synchronised so that you are both at the office—or wherever it is you meet—at the same time. There have been several studies of productivity, and maybe we will come to this later, but they seem to suggest that,

whether hybrid or completely onsite, the productivity differential is essentially non-existent.

Professor Efpraxia Zamani: Professor Frey mentioned something really important: what we measure when we measure productivity, innovation and creativity. My work is primarily with software engineers, developers and so on, where everyone is using agile techniques and so on. I am not going to bore you with that, but basically there are things that need to be done per sprint or per week, and that is measured towards their productivity. Obviously it is in their interests to complete as many tasks as possible because that means they have better velocity. Having said that, that does not mean those tasks were valuable for the business—whether, upon completion, they resulted in a new contract or solving a big problem—whereas if you have a software engineer, senior or otherwise, dealing with a particular bug in the code, even if it takes them a month, that counts only once towards productivity. So in absolute terms productivity is very low, but removing that bug means they are not losing clients anymore, and that is very difficult to measure.

When it comes to creativity and innovation, as we mentioned earlier, having people come together and have these serendipitous moments by the water cooler and what have you is crucial for this kind of work, because that is how we brainstorm and exchange ideas. That does not mean that working remote or hybrid is not possible any more; it is just a matter of giving the opportunities and providing an environment—let us put it that way—that will allow for that kind of serendipitous moments.

Since last year, I am leading on a Marie Curie project that has to do with virtual technologies, virtual reality—or the metaverse, as it is better known right now. One of the projects within that programme has to do with how we can reimagine the virtual office in the virtual space—not digital tools, not teams, suits and so on, but more like immersive experiences where the office is created. We can get that experience in a different way through different means of serendipity, collaboration and creativity. I have to say that there are already small businesses who provide these kinds of solutions. To go back to the previous question about what the Government should do and where we need to focus, we need to focus on those smaller businesses that are being very creative with limited resources and provide this new way of thinking about what is work, where it is done and what it means.

Alongside that, I do not have answers for the second question, but we have to think about how we measure “productivity”. It is not just a matter of me publishing 20 papers per year—if they are low quality and not impactful then nobody reads them—but if I publish just one and that changes my field then obviously that is very high in my productivity scale.

Professor Carl Frey: To add a footnote to that, a point that is worth making is that you can co-ordinate within the firm or organisation that people come in on the same days so you get those collaborative, creative moments. What is also happening, though, is that you see people moving

further away from their actual workplace. Purely anecdotally, I was in Canary Wharf for the first time in a long time a couple of weeks ago, and I was struck by how empty it was. If people move further out then they are much less likely to meet for a drink or go to a restaurant or something after work. We have some pretty good evidence from Silicon Valley showing that those knowledge spillovers really matter, even between Google and Apple workers. We have other experimental evidence from prohibition in the United States, where people's networks were disrupted and they no longer met at a saloon, and innovation suffered as a consequence.

All I want to say is that even if you are solving this problem within the firm or organisation, you may still reduce knowledge spillovers across firms and organisations, and those are arguably even more important to innovation on a national level than what is happening inside the company.

Baroness Freeman of Steventon: Do you think that we are at a point yet where we can produce any guidelines for businesses in order to overcome that barrier to collaboration, which causes the loss of creativity? Are there known techniques?

Professor Efpraxia Zamani: I would not say guidelines, because guidelines tend to become very restrictive very quickly; they become the pattern that everybody follows and they end up being less useful.

Best practices, for example, would be something more interesting in the sense that they help us think more creatively. We can see our business, our team and our organisation reflected in best practices. Therefore, we are thinking about possibly picking a few things from "best practice 1" and others from "best practice 2" or whatever—or even developing our own. Basically, I think that best practices would be more helpful.

However, I also think that it should not be top down, if I can use that term, but bottom up. For example, I personally know of examples from the businesses that I have collaborated with, but that is about it. There might be a greater pool of other start-ups, businesses or what have you with information, insights and ideas on how to do that. So it needs to come from the bottom up—that does not sound very good—then spread out because only they know whether A or B works for them and for what reasons.

Baroness Freeman of Steventon: Thank you. Professor Frey?

Professor Carl Frey: I agree. I think that you have to have fairly significant knowledge of the organisation you are dealing with in order to provide it with information that is useful for it. So, in my view, providing something generic across the board is likely to be semi-useful.

Q237 **Lord Parker of Minsmere:** As you predicted, Professor Frey, as if by magic, we are going to ask you about productivity specifically. We are half way into this, from what you have been saying, so it is a natural

flow.

I want to zoom out from creativity a bit and think about productivity as a whole concept, including at the macro level. Can you both share with us your observations about the effect on productivity, both in businesses and in the economy, of hybrid and remote working? Who wants to go first? Professor Frey, you threw the ball earlier. Do you want to hit it now?

Professor Carl Frey: I am happy to give it a go. On the individual level, the most compelling evidence that we have—we have done some studies on this—seems to suggest that the productivity gains of fully remote are mostly negative and that the effects of hybrid are mostly around zero. If you move up to the firm level, it seems that, through remote work, firms are able to reduce real-estate costs and are capable of tapping into larger pools of talent. So it is more positive on the firm level than it is on the individual level.

Moving down to the macro level, the key benefits are not necessarily in productivity as much; they are more in raising labour force participation. Nick Bloom and his collaborators have set out some really interesting work showing that people with a disability are more likely to work as a result of remote work possibilities; that parents who would otherwise not work are more likely to work because of remote possibilities; and that people in more remote locations are more likely to work as a consequence. Given some of the demographic challenges that we have, as well as the political divisiveness of immigration as a solution to those challenges, doing anything we can to boost labour force participation seems non-trivial. I just wanted to underline that as well.

Professor Efpraxia Zamani: I agree with Professor Frey that keeping in employment, or bringing back into employment, people with disabilities, people who are parents and people who are minoritised in one way or another is absolutely crucial; it may be their only opportunity to be in employment.

In terms of the other things, including the productivity question itself, for every study you find that says that productivity decreases because of remote work, there is another study that says that there has been no impact. How we measure productivity, and in which sectors, matters. It is not a question that can be answered straightforwardly; in many cases, it is not actually useful, either. If we measure productivity in terms of hours being engaged, number of outputs and so on, what is the impact of that? Is there any societal or business impact as a result of having published, I do not know, 3,000 patents that nobody knows about?

Also, these are productivity metrics that can be gamed very easily. During Covid, we did an interesting project. Employers were starting to monitor their employees with “camera on” orders or by measuring the number of clicks or keystrokes. There is software that can show you are busy from 9 to 5 producing absolutely nothing. If the employer is measuring time in front of a screen, what is the point of measuring

anything? I do not think that 50 years would be enough for us to answer this question.

- Q238 **Lord Fuller:** I thought I asked my question earlier. How do you see remote and hybrid working changing in terms of technological developments? I am not thinking about the mouse-jiggler or cameras. What is behind my question, I suppose, is the fact, elsewhere in the economy—in the other place, in particular—people are thinking, “How are we going to get people off PIP and into work?” What technical aids do we have to overcome some of the difficulties that you have highlighted—at least, to allow people with reduced mobility or those who are otherwise incapacitated to get their foot on the ladder and do some work from home in order to become more economically useful? I am concerned that the picture you have painted is that it is increasingly difficult for people in receipt of PIP to get back into work. What can we do to facilitate them? Is there any technology that exists? Perhaps you could set up a business; you might make a lot of money.

Professor Efpraxia Zamani: Of course, it will depend on what kind of disability we are talking about. I mentioned screen readers earlier, for example. People with a visual impairment can have a screen reader attached to Zoom—indeed, to any application—and it reads the text or describes the picture. Obviously, these things did not function as well 10 years ago, but they have improved and will keep on improving.

You ask me how remote work or hybrid work is going to change. We have had remote workers for the past 30 or 40 years. There is nothing that says to me that now is the time to think about how things are going to change in the next 20 years. More work can be done remotely because of the availability of the technology. For example, we have cloud applications. That means I can collaborate with somebody in Hong Kong. We can share our data, analysis or whatever without having to email: we can do it at the same time. It is a matter of making sure that people who need these assistive or non-assistive technologies—it is not just assistive technology—have access to this. For example, if we have a person who is unable to take the train because there is no train in their area, or it is very difficult for them to get on board that train, it is a matter of making sure that that person has the applications, the systems, and the availability and affordability of connection to be able to find work that can be done remotely. I do not think that is a question of AI or anything else. There are other job roles that they can take.

Professor Carl Frey: A critical determinant will be how technology interacts with our values and preferences. As the committee probably knows, young people today spend less time socialising, are less likely to have partners and are more likely to live by themselves, et cetera. A potential concern—but also a potential benefit, I guess—is that those people will seek more interactions with AI. If the preference for in-person interaction goes down then more people will want to have remote opportunities and they are less likely to want to come in to the workplace.

Similarly, if you look at manager attitudes, the older the manager is, the less likely he or she is to be positively inclined to permit remote or hybrid work. Obviously, younger managers will get older and they may keep the attitudes they currently have or they might change, but the experience of younger managers, who will be the future managers across most firms, will be a key determinant. They are more likely to permit remote work as well.

I think we are likely to have a generation that is more inclined to want remote work and we are more likely to have managers who are more likely to permit remote work. That will push in the direction of having more remote work rather than less. That needs to be counterbalanced with what I said earlier, which is that a lot of these remote roles will move offshore, so it will be very hard to predict the share of the workforce that will work remotely a decade from now. It has been relatively stable now since Covid, at least in the US and in most European economies. I do not foresee any dramatic shifts and I think it is here to stay, but those are the key trends to bear in mind.

- Q239 **Lord Farmer:** Just a quick question at the end; it is possibly a bit of a curveball. It seems that AI and automation are doing away with vast areas of what the human race has considered to be work. I wonder if you have any thoughts or ideas as to the creation of new areas of work that the human race will apply itself to when we have so much being automated and robotic? How do you see the future panning out in the whole work area? Will new areas of resilience be required? Is it in human sciences? What do you think?

Professor Efpraxia Zamani: This question is like looking into a crystal ball. If we had one, life would be so much easier. I have no idea, just to be very clear. I suppose certain jobs or roles will arise—AI auditors, for instance, because AI produces something right now, and if I have to accept the absolute truth and accuracy of it then I would also need somebody to audit the system's output. Obviously that does not talk about the automation, but I think there will be a shift in the skills needed.

Very briefly, thinking about the programmes and modules we have been teaching over the past 15 years in information systems and business-related programmes, there was no data scientist course. We were not talking about data scientists, but over the past six or seven years we have developed programmes, modules and skills for data scientists, who will work with AI systems in cleaning datasets, producing algorithms and so on. Yes, some things will disappear, but some things will change. As to exactly what, right now the only thing I can very clearly see in the next five to 10 years would be an AI auditor of sorts.

The Chair: Fairly briefly, please, Professor Frey.

Professor Carl Frey: Most work that people do today did not exist back in 1940, so those jobs were invented. I just want to underline changing consumer preferences—or non-changing consumer preferences. In principle, we could automate waiters and build restaurants that are giant

vending machines. Most people seem to prefer interacting with the human in those contexts. There are more professional chess players in the world today than when Deep Blue beat Kasparov. Humans still like to compete and are likely to continue to want to compete 10 years from now. If I wanted to go to a hot yoga session, I could watch YouTube and do my exercises. Most people still seem to want to go to a studio. Most people are keen on spending their income on travel, wine tastings or activities that are in-person services. I think that share will go up.

I think there will be a lot of people whose job it will be to troubleshoot when AI goes wrong, which it will continue to do for the foreseeable future. People dealing with resilience will be a growing share of the workforce, but I do not dare to make more specific predictions than that.

The Chair: That has been absolutely fascinating. Thank you both very much indeed for coming to talk to us this afternoon. I hope you have enjoyed the experience and we very much appreciate it. I bring this session to a close.