HOUSE OF COMMONS

Business, Energy and Industrial Strategy

Oral evidence: UK plc 2050, HC 1120

Tuesday 7 February 2023

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Watch the meeting

Members present: Darren Jones (Chair); Alan Brown; Ruth Edwards; Jane Hunt; Ian Lavery; Andy McDonald; Charlotte Nichols.

Questions 1 - 41

Witnesses

I: Mike Keoghan, Deputy National Statistician and Director General for Economic, Social and Environmental Statistics, Office for National Statistics; Dr Anna Valero, Senior Policy Fellow, London School of Economics Centre for Economic Performance, and Deputy Director, Programme on Innovation and Diffusion, London School of Economics; Torsten Bell, Chief Executive, Resolution Foundation; and Rt Hon. Lord Deben, Chair, Climate Change Committee.

Examination of Witnesses

Witnesses: Mike Keoghan, Anna Valero, Torsten Bell and Lord Deben.

Q1 **Chair:** Good morning. Welcome to the Business, Energy and Industrial Strategy Committee for the first of a couple of hearings on the future of the UK economy and where we might be heading in the future. This is more of a free-flowing inquiry than some of the inquiries we are used to, but we are doing a bit of horizon scanning as opposed to detailed evidence gathering.

I am delighted to have four witnesses before the Committee today. We have Mike Keoghan, the deputy national statistician from the Office for National Statistics; Dr Anne Valero, senior policy fellow at the London School of Economics and deputy director for the programme on innovation and diffusion at LSE; Torsten Bell, chief executive of the Resolution Foundation; and Lord Deben, chair of the Climate Change Committee. Good morning to all of you. I am sorry that this committee hearing is distracting from the political gossip on social media about Departments and Ministers, but by the end it will be a surprise to all of us so we can enjoy it when that comes.

To go to question one, there is a lot of pessimism in the debate at the moment about the UK economy, or, depending on who you are talking to, a load of optimism. Can you give us an independent view about the direction of travel in the UK? Should we be hopeful or depressed? Mike, do you want to go first?

Mike Keoghan: The ONS does not do hope or depression.

Q2 **Chair:** That is true. I should not have started with you, really, should I? What does the data show us?

Mike Keoghan: I will tell you what the data shows us. I am going to talk in terms of productivity to begin with; another Committee has done work on the labour force. Where are we currently, in the UK? On productivity per hour of work, which is the best measure of labour productivity, the productivity of UK workers is £46.92 per hour. In the G7, the UK is top of a group including Canada and Italy in the mid-40s. Across the G7, France, Germany and the US all produce around £55 to £58 an hour, so as an international comparison on productivity the UK is behind the leaders of the G7. That has been a relatively long-term productivity gap. It is well known and well understood. People on the panel with me have all written extensively on this.

It is probably worth thinking about some of the trends that have allowed that to happen. We tend to think about this in terms of cycles, so we are trying to compare like with like. From 1998 to 2009 and the great financial crisis, productivity growth in the UK was around 1.4% per annum. If you are as old as I am, when you were taught your economics you were told that the UK economy would grow on average by about 2% to 2.5% and productivity would be 1.5% to 2%. That is the stylised fact we all grew up with. Up until the GFC, the UK was where you would expect it to be. Only the US grew more quickly during that period. From 2009 to 2019—and I am not going to talk to the pandemic period because there is so much else going on there—we grew 0.4% per year, so substantially lower, and only ahead of Italy in terms of the G7. There has been a substantial deceleration in our productivity performance.

When you then look at factors underpinning that—I am sure we will get into much more detail—and at the drivers of productivity, you see that the UK's performance in areas like business investment has been relatively weaker over that period. R&D was long thought to be a particular problem. We revised the data during the autumn on that, which puts the UK R&D performance in the middle of the pack across the OECD over that period. There are big issues around skills, but there has been a substantial increase in the graduate share of the labour market and a rising participation age.

When looking at business dynamism, we have observed a reduction in dynamism in the period from 2010 to 2019, so less entry and exit, and the productivity performance of the economy being driven more by a smaller number of firms rather than the broad mass. People have talked about a tail. It is not really about a tail; it is about the mass of firms not really progressing and being as productive as they were and they could be.

Q3 **Chair:** Dr Valero, do we know why that has happened?

Dr Valero: I agree that a key issue underlying our productivity problem has been our lack of investment. In one of the reports we did for the Economy 2030 Inquiry called *Business Time*, we examined our productivity gap in levels, our productivity puzzle since the financial crisis, and a number of the candidate explanations.

A number of things are happening. There is perhaps some decline in business dynamism, the process through which new firms enter and firms that are not performing leave the market. There is also this phenomenon of some of the top firms pulling away from the middle and the middle not really seeing the growth, but those things are also happening in other advanced economies, so it is not clear that they explain our problems relative to other countries. We know we have done relatively worse since the financial crisis than our main comparators.

As Mike said, business investment is the area where we have been doing worse for some time. The latest OECD figures put us just below 10% of GDP in terms of business investment as a share of GDP. Our comparators—France, Germany and the US—are about 12.5% on average. What we saw was that we all took a hit following the financial crisis. Ours was worse. There was then a recovery across all these countries, but then, while other countries continued recovering after 2016, our business investment rate suffered again, and this has been linked to uncertainty following the EU referendum.

Since then, we have had a number of shocks, which have hit many economies, but in some senses we have been quite vulnerable to those shocks in the UK, for example the energy crisis, how we heat our homes, the structure of energy markets and the cost of living crisis. A lot of the shocks we have faced, against this weaker background in the UK and the uncertainty we are already facing, have hit us harder.

When you look at business investment, as Mike said, we are now doing better on R&D than we previously thought, but we are still around the OECD average. We are still below France and the US. If we want to be an innovative economy and an advanced knowledge economy—and we are—we should be aiming higher. Also, investment is an input. We need to also think of the outcome of that. Ultimately, the outcome is productivity and TFP growth, which is the part of productivity that is due to technological change. You can then look at various proximate outcomes such as patenting intensity, management practices and the digitisation in the economy. They are all things where there is definitely room for improvement.

In terms of your first question, should we be pessimistic or optimistic? We need to be realistic about our position, which right now is not particularly good versus our comparators, but we can still be optimistic in terms of our potential to act on that, because we know there is room for catchup. We know we have a number of strengths. We know there is quite a lot of evidence on some of the policies that can help us realise those strengths. We can be optimistic about the future; we just need the right policy frameworks and a bit more stability to get there.

Q4 **Chair:** Torsten Bell, we have looked at what has happened in the years preceding. We can be hopeful about the future. Are we going in the right direction or does something need to change?

Torsten Bell: If we are looking backwards, one thing that has changed in the last year is that almost everybody now recognises it has not been going well. Britain is definitely now well into a phase of relative decline. That is in statistics in terms of productivity, but you can see that if you look at what has happened to relative household incomes in the UK versus those other countries too. These are not abstract statistics. This is about the actual buying power of British households. Middle Britain is now significantly poorer than middle French or German, and certainly American, citizens. That is a very real issue. Honesty about that in a backward-looking sense is really important.

Pessimism going forward is not massively helpful. What matters is what we can actually do. There are grounds for optimism if we are honest about what the strengths of the UK economy are and how they can be made to work for British households in the future, but that does involve growing up a bit about what those are.

Britain has loads of service strengths that we do not like to talk about very much at all. We are the second biggest service exporter in the world after the United States. Those service sectors could be more spread out across the United Kingdom and help deliver a meaningful levelling-up agenda with enough focus, but that requires us to stop living in a dreamland about some reindustrialisation existing as a possible strategy, particularly for our big cities, which it does not. Those conversations about that are holding us back. That would help us close our big productivity gaps across the country, which we are all worried about and your Committee has talked about lots of times before.

In terms of other grounds for optimism from that, first, people sometimes say to me, "You can only become richer if you are not this kind of service economy". That is not true. Lots of service-led economies are richer than we are these days, so we just need to get on with being better at it. Secondly, people say, "But trade is only about goods in the end. Services is small." That is not true. The growth in services trade is significantly outstripping that in the goods trade. That is another ground for optimism. The fact that the UK economy has declined is not because of global economic changes. It is because we have done things. In some ways, the structural things actually point in our direction. We should have done better than we have.

Are there other grounds for optimism? We have a big participation-led market problem right now in terms of what has happened since the pandemic, but if we look over the 20 years we have bucked the trend of demographics pushing down labour markets. All else equal, an older society and a sicker society in terms of mental ill health should have pushed down labour market participation over the last 20 years. By raising female labour market participation, the propensity to work for particular disabilities and the labour market participation of older workers, we have massively bucked that trend over the last 20 years. We should be thinking we can continue doing that going forward.

Lastly on positivity, one of the good things about having had a disastrous 15 years is that we are a long way behind now, which means there is a lot of catch-up potential. We do not need to suddenly become as innovative and as brilliant as the United States, where the average American, by the way, is now 60% richer than we are. It is not 6%; it is 60%. That is why whenever people go on holiday in America they are like, "Well, this is nice". They are a lot richer. They can get away with really high inequality and still have middle Americans earning hugely more than average Britons.

We do not need to become as good as that. Just getting somewhere towards that by being a competent country that gets on with improving things and that has businesses that actually do some investment would make a real difference to people's lives. Catch-up can actually happen.

Q5 **Chair:** Lord Deben, net zero flows through all of this. I know you are an advocate for that being a good thing for the economy. Do you think the Government recognise that?

Lord Deben: To some extent. The real problem with Government is that they partly recognise everything rather than wholly recognising things. There are Departments that recognise it very well, like MoD, and other Departments that are still slow.

On the pessimistic side, we have to accept that we have a real problem about investment. That has been worsened by the uncertainties that have been created by a series of events, some which we could not help, like Covid, but others which we should have understood, like leaving the European Union. The problem with that is not just that it was, in my view, clearly a wrong thing to do, but that, more importantly now, having done it, there was no programme as to what you did after you had done it.

You are faced with the situation of debates yesterday in the House of Lords on this Bill about getting rid of the rules and suchlike passed under the European Union. It was absolutely unmistakable that there was no plan. The only thing was to get rid of them, but there was no plan for what you should do. There is now a whole lot more uncertainty out there. We do not even know how many of those rules there are. It may be 3,000; it may be 4,000. There are all sorts of people who are affected by rules who do not know what to do. I only use that example because it is immediate and it is going through. I am sorry the Government have not recognised that this was one bit of detritus they could have got rid of to let us get on with the real issue: how do you deal with things in a post-Brexit way?

Apart from 16 years as a Minister, I have been in business all my life. Uncertainty is the thing that really makes business unwilling to invest and, therefore, you need certainty. Government can give certainty if they stick to what they say instead of constantly trying to change and "improve" what they have decided. In this case, perfection is the enemy of the good. It would be much better to stick to a less than good programme as long as you stick to it, because then business knows how to invest and knows what to do.

As we have been saying regularly in the Climate Change Committee, the fortunate fact is that what we have to do for net zero is exactly what we have to do to level up. It is exactly what we have to do in the cost of living crisis. It is exactly what we have to do when it comes to dealing with the dependence we have on overseas oil and gas. We have lived in a delusory period in which we believed, since the fall of the Berlin Wall, first, that there would never be another war in Europe; secondly, that we would always be able to get power; thirdly, that we would always be able to get food. All three of those are not right.

We have to face the point that Torsten makes about ourselves as a nation. We do not believe in many areas that our productivity is low. The productivity of British agriculture is very low compared with our neighbours. You talk to any farmer and they will try to prove to you that it is not so. Until we face the fact that we have to improve our agricultural productivity, we will not be able to get the food we need or to meet the net-zero demands of that. We have to learn that.

Lastly, we have to accept, too, that we only went halfway in understanding the nature of our economy when we stopped supporting dying industries. That was a necessary change, but we did not move to the other bit, which was recognising that we should be encouraging the things we are good at. For example, we are good at the now very big area of service industries. There are things that we are good at. I am optimistic about all this because we may well learn our lesson more quickly than we have in the past, perhaps because we have made bigger mistakes than we have had in the past.

Q6 **Charlotte Nichols:** Just to clarify, what would you consider a dying industry?

Lord Deben: I was referring to the time in which we stopped supporting our shipbuilding industry and our mining industry, and recognised that those were industries in which we were not going to be able to be competitive in the future. You can come back into that if there is something that you could use, but, frankly, that was a sensible thing to do. At the moment, we have a system that does not sufficiently support the commercialisation of the very considerable ability we have of inventing things and of creating new opportunities. That is what makes jobs. If you look at where all the new jobs have come from, they are coming from precisely that. That is why I am so keen on it. It is jobs I am interested in and the future of my children and grandchildren.

Q7 **Ruth Edwards:** Could I just push you all a bit further about the reasons for us being behind in terms of the levels of wealth that your average Brit has compared to the average American? Lord Deben mentioned uncertainty, but that cannot be the only reason, particularly when we are talking about a lack of productivity in British agriculture. I am really interested to find out a bit more about why we are in the position we are in.

Torsten Bell: That is a big question, so I will give you a totally imperfect answer that attempts to wrestle with some of that. If the exam question is, "Why is the typical Brit poorer?", then you need two components. We have been focusing on one of them here, which is the recent economic underperformance over the last 15 years. Why are we diverging from Germany and America, when economic theory tells us we should be converging and catching up? That is telling us why our GDP per capita—in particular, productivity—has not done well.

I would highlight that a lot of the things we are talking about come together to say that British business and British Government do not invest in basically anything. We spend all our time debating, "Okay, can we now slash this bit of HS2 to do this other thing?" That is what everyone spends the entire debate on, rather than on the fact that British firms and British Government do not invest and have not done so for donkey's years. Unsurprisingly, our longer-term income is not higher as a result. British workers have less capital to work with than French workers. That explains almost all of their higher productivity than ours. That is on the growth side.

There is another bit, which is the UK's higher inequality. It is the two together that make middle income and poor British households much poorer than their northern European comparators. We have a slightly smaller pie, particularly than Germany and America, but it is much more unequally shared. The top in Britain have roughly the same incomes as the top in the Netherlands, Canada, Australia or Germany, so the top feels like Britain is doing basically the same as those countries because they have a bigger share of a smaller pie. The result of that is that the middle in Britain is poorer not just because the country is less productive, we do not invest and we have spent the last 15 years messing around, but because they have a smaller share of that smaller pie. That is why you get such big gaps. That is why you get these really large gaps.

The reason why Britain is in such a hole is that we have very high inequality, the highest of any large economy in Europe. Only the US manages to do better than we do, and they cope with it by being incredibly rich. We have US inequality but without the US richness. On top of that, we have had slow growth for 15 years. The two together are why you have poor families in Britain who are far poorer than poor families in France, even though our GDP per capita is not that different. You need to do both.

Dr Valero: To say a little more on why we are less productive, as Torsten said and as we have discussed, some of that is because we have done worse since the financial crisis, but there was already a gap before that point, which we were just closing, because we were actually growing pretty well up until the financial crisis. Why do we not invest in the things that matter for productivity? Let us talk through infrastructure, skills and innovation, which are the broad ways to think about the things that matter. We have not been doing enough public or private investment in a number of areas of infrastructure. Even before the current energy crisis, there were concerns about our energy security. That has come into sharp relief recently. There are well-known issues with our infrastructure connectivity among cities outside of London.

When you look at publicly funded R&D budgets, while there has been this commitment to increase them, which luckily was maintained in the autumn statement, they are still less than many other countries, and in some of the areas that really matter now. Take Government support for R&D into energy. As a share of GDP, we are at about 0.4%, which is way lower than what we were in the 1980s.[1] It is a lot lower than what we

[1] The witness notes that the correct statistic for government expenditure on energy R&D is 0.04% GDP according to data from the IEA (IEA Energy Technology RD&D Budgets - October 2022). This is lower than in the early 1980s, when it was around 0.08-0.09%. In the latest data for 2021 (estimated) the relevant statistic

invest in health R&D, which is obviously very important too. While there has been a little increase recently, that has largely been in nuclear R&D. The data are a couple of years old now, so maybe things have improved in light of what is happening, but this shows we have not been making some of those long-term investments in things that actually matter in terms of our productivity and our security.

When you look at skills, we know that we do pretty well in our higher education but we have this big group of people who do not go on to university. We are not investing enough in those skills. There are obviously many initiatives to try to deal with that, but it is still a problem. When you look at intergenerational outcomes, we stand out from other countries. Our younger generations have lower numeracy and literacy skills versus older generations. That is a step backwards.

When you look at firms investing in their workers, on-the-job training has been in decline, in terms of how much workers are being trained and whether they are trained. That has been in decline. That is supported in different surveys, if you survey businesses and ask them, "Are you training your workforce?" or if you ask workers, "Have you received training?" It is about investment in all these areas that matter.

We might be investing in R&D, but how are we converting that into commercialised products and into processes in our businesses? What is the diffusion process through the economy? That is where we have a number of bottlenecks. While we are a great place to start up a business and to get seed capital, there are well-known issues in terms of the scale-up phase. There are lots of Government initiatives looking into this. There was the patient capital review and now there is the productive finance working group. There are lots of these longstanding issues that need to be addressed, which are now particularly stark in light of our ongoing stagnation and the various crises that we have faced.

Mike Keoghan: I basically had the same list: investments, the diffusion around R&D and technology, corporate dynamism, company entry and exit, the ability of entrepreneurs, animal spirit in the economy, which has weakened, and management practices. I can talk to that at length. There are certain management practices, which are known to improve productivity, that our surveys and academic research suggests are available but have not been taken up. The point about agglomeration is really important. The evidence does suggest that British cities are smaller and less productive than you would expect them to be when compared to cities everywhere else.

Lord Deben: There is one other thing, which is our appalling inability to deal with local government. In other words, we are so centralised and everything has to be done here. There is not a partnership with local government in a way that you find in many other European countries. Until we get that right, it is very difficult to get the atmosphere in our

is 0.046%.

second cities that you would expect to see. The Chris Skidmore report makes quite an interesting point about that.

I spent some time with the Mayor of the West Midlands. It is notable that we do not think about this in the way in which—of course, in historic terms—the Germans do with the Länder, but the French, who are always thought to be terribly centralised, are much better at this than we are. We could do an awful lot more if we were willing to engage the locality. You do not do skills unless you can engage the locality. You do not do a lot of these things unless you have local enthusiasm for what we need to do.

Q8 **Jane Hunt:** This is a very interesting conversation. Lord Deben, I agreed with quite a lot of the things you were talking about. You referenced shipbuilding to Charlotte, and you talked about wanting jobs out of this. You get that from every Government Department. If you have a company bidding for money for anything—and it has been for decades—they ask how many jobs are going to come out of it, not what we are going to do in terms of investment or productivity that is going to come out of it. Please can I ask your thoughts on that? Other people are nodding, so you are very welcome to come in if you would like to.

Lord Deben: You are absolutely right. You do not start with the jobs. I am old enough to remember when we sent the Hillman Imp to Liverpool on the basis that it would produce jobs. What it did was practically close the company down, because it was not where it should have been and for all sorts of other reasons. You are absolutely right. You have to start with, "What are the productive activities that people are going to pay for?" and if you get that right then you get the jobs to do it.

That is why I am so passionate about the opportunities of net zero, because, if you look around the world, that is the direction the whole world is moving. We need to be ahead of that. We are under huge pressure there, because what the Americans have done brilliantly but uniquely in their Anti-Inflation Act is to undermine and undercut everything that we might be doing. The rest of Europe is now doing what we cannot do. Our problem is that we have to find original ways of encouraging investment and carrying that investment on. I agree that we are quite good at inventing things and not very good at turning those into real businesses that make real money. When businesses make money then businesses are able to employ. That is when the jobs come.

Q9 **Andy McDonald:** It has been a fantastic discussion thus far. Lord Deben, on that last point about finding our own original ways, is it simply that in this current configuration, as we go through which laws of the European Union we are going to retain and which ones we are going to give away, there is not that certainty? Is that really a significant hamper on our ability to take on these opportunities, in your view?

Lord Deben: The real hamper is that we are not prepared to say, "We now live in a new and different world. Stop worrying about why we got ourselves into this. That is where we are, and we now have to correct ourselves to make us more relevant and more effective in that new world".

The thing that is so depressing is that the Government are not out there building a relationship with our nearest neighbours, who are our biggest markets in every way, and finding a new way to live with them. I am sorry we lost the old way, but now we have done it. It is people like me who are drawing the line underneath it. It is the people who went in for Brexit who are always on about it. For goodness' sake, forget that. Draw the line, get on with your neighbours in a new way, and find ways of co-operating with them when we cannot do it on our own.

Unfortunately, we have this attitude to Britain of exceptionalism. We want to do things on our own, and if we do not do it on our own we tend to say, "Well, that is actually not what we wanted to do anyway". We have to get into a world where co-operation is crucial. America is big enough and rich enough to have established a system that does not depend upon co-operation. None of the rest of us is like that, and we have to learn it. We have to learn it afresh. I am sorry, but the real problem is that for political reasons neither major political party is actually doing that. Somebody has to break through that and say, "We live in a world where, if we want to grow and to have more investment, we have to be seen to be partners and not stuck up off one coast of Europe".

Q10 **Andy McDonald:** You talked about Germany and the Länder. Is part of this devolution of power giving much greater responsibility and resources to our local levels of government? At the moment, our local authorities are performing some fairly difficult functions around adult social care and children's services. That is the grinding daily reality for them, rather than trying to drive their economies. We appear to have a system of doling out certain powers and beauty parades to favoured sons and daughters of this place. Should we not be looking at empowering the nations and regions of these islands if we are going to drive that agenda?

Lord Deben: The Climate Change Committee has made it quite clear that that is what we think is essential, not just that it is a choice. We have to do that. We need, first of all, to stop the system whereby people spend most of their time bidding for money, and that is what they spend their resources on, instead of having a much clearer way of receiving money.

We need to make local authorities more accountable. At the moment, they get money and they are not accountable for it. You hear various mayors blaming everything that they do not get on the Government, and then accepting the praise for anything that they do get. That is not a sensible partnership system. You have to have much better accountability, but you also have to trust local authorities much better. That is a problem of our system.

Many, many years ago, I was the Secretary of State responsible for this. What you found was that whenever you wanted to devolve powers the people who were least wanting it were the civil servants, because they have a view of local government officers that somehow or other is rather inferior. We have to have a much better way. That is why I am very much in favour of Gisela Stuart. Perhaps I am not in favour of her in lots of other ways, but she is absolutely right in saying in her new role that we have to have a much closer link between the local authority officers and the Civil Service. There has to be a movement between them. There has to be a proper career structure. We can do that only if we are prepared to risk it.

Of course, there will be some hopeless local authorities, like Conservative Thurrock. Just to show I am being entirely unbiased about this, there will be hopeless ones like that. There will be very good ones, which we will want to support, but we have to accept that there will be failures. One of the other problems of our society is that the system we have of control—and that is right from Parliament; it is our parliamentary system—believes that you have to be 100% right. When they look at what the Government have done, they say, "Well, it is not done perfectly so we will criticise it". As a businessman, if I get 50% of my decisions right we are doing, all right. If I get 60%, we are doing well. If I get 70%, we are doing bloody well. If I get 80%, I am lying. You have to recognise that local authorities will not get it all right, but then I do not see Defra getting it all right, as a matter of fact.

Q11 **Andy McDonald:** Can I switch your attention to the whole basis of our economy? Charlotte has gone now, but some of your remarks about this move away from manufacturing shocked me, in saying that the service economy model we discussed in the noughties is the way to go. At a time when our resilience as a nation has been stretched and really tested in regards to energy and so on, where the innovation is that we have been talking about is around advanced manufacturing. Surely that is an opportunity for us in terms of skills, education and economic prosperity. Why on earth would we switch our attention away from those glorious things that could actually make a real impact on people's lives and their prosperity to get us to the American levels? I am really struggling to understand why we would turn our back on some of these industries. Why would an island nation turn its back on shipbuilding? Surely to God we should have some capacity to build the occasional ship. Why would we do that?

Torsten Bell: We should distinguish between what you think should happen and what has happened. The question is, "What do you do, given the world as it is?" Narrowly, as you have just framed it, of course we should make a success of advanced manufacturing, and there are lots of sectors where that could be really important. There are certainly parts of the country where that is really important. Only an idiot thinks you should be waving goodbye to that as desirable. That is not the question.

The question is, "Stepping up to the level of the economy as a whole, are you talking about the British economy or are you talking about a very small part of it? Are you putting too much weight on that bit, be it advanced manufacturing or net zero, given what the overall shape of the UK economy is?" Let us just do facts. It is not about what people want. Let us do facts about what the nature of the UK economy is.

Q12 **Andy McDonald:** It is about what people want. People want net zero and it is absolutely critical that we achieve it.

Torsten Bell: Let me answer your question. You are just giving a speech. I am not disagreeing with you about that, but let me just get to why you need to go broader than that. Obviously we need to do net zero. That should bring lots of growth opportunities with it, as well as some opportunity to save the planet. We should definitely be doing that. All I am suggesting is that that is one component of your growth strategy. Advanced manufacturing will be another one. Those are the two things that are fashionable to focus on, but they are small, they do not employ that many people, and they will not be enough to pay Britain's way in the world when the next energy crisis hits and we need to pay for high energy bills.

I am just encouraging you to focus on where most of the jobs and the value added come from, which is from higher-value services in the UK. Neither main party talks about them, how to make them better, how to make them more geographically spread, how to sustain their growth, or how to raise their productivity in the future. People want to set this up as a binary, "Is it this or is it that?" This is what I am saying to you: step back, look at the UK economy as it exists, and then be really tough on yourself. Is the thing that you want to focus on big enough? Is it really an economic model change that that is going to somehow replace the service?

I would like our advanced manufacturing sector to be slightly bigger. Is it going to replace all of our advanced services? No, because there are long-term structural changes that are pointing in that direction. For net zero, we need to do lots of things. Is it ever going to be plausibly big enough to be the growth driver for our economy? No, it is just really important and we have to do it. There could be lots of good jobs and growth opportunities, but they are not going to be enough to sort out the fact that we are significantly poorer than France or Germany. Do not pick a fight on that.

Q13 **Andy McDonald:** I am not. You are saying it is illusory to think that is our success and our salvation is in those two areas.

Torsten Bell: It is not our salvation. It is just really important.

Q14 **Andy McDonald:** I entirely get that. That comes back full circle to the critical issue of redistribution. That is where it really matters, and nobody has talked about that either. We are not talking about redistribution of wealth in this country.

Torsten Bell: Some of us talk about it quite a lot. You get to decide what the Committee is about.

Andy McDonald: Good point.

Dr Valero: Could I add something to that, having done a lot of the analysis of what we are actually good at? The way we tried to look at this is, "What are areas that are pretty large globally? What are areas where we have a comparative advantage? What are areas that are growing, have been growing or are likely to grow?" Net zero is one area that is likely to grow and has been growing. We need to take a broad view there as well. Even if we are not likely to have significantly large-scale manufacturing activity across the value chain in the UK, there are certainly parts of the value chain, the IP, the invention and the associated services that go along with net zero, whether it is consultancy, financial services or green finance. We are a leading centre of green finance.

It is about being clear what we are good at. We are not just a financial services superpower. It is business services, broadly defined, including things like architecture, creative sectors, and then, on the goods side, pharmaceuticals and life sciences. These are all things we have highlighted. As you said, it is important to note, particularly in the current environment, that there might be resilience or security concerns that mean we need to be good at certain things, even if they are not going to be our growth story. We might need to have some capabilities and domestic supply chains in certain things. All of these things need to go into the decision of what we try to support. Where there is uncertainty, it needs to be a bit of a portfolio approach, as Lord Deben was saying.

You have to take risks. We might not always know the solutions in certain areas. In net zero, for example, there are some areas where we still have to explore different options, but it is about taking the portfolio approach and recognising that we as a country actually have a lot of that strength in our research system where we can capitalise on future invention a little better than we have done.

Torsten Bell: Andy, can I give you one concrete example on where the lack of focus is a problem? At the beginning, you raised the fact that the US is now hugely spending on subsidising basically any remotely net-zero-applicable technology. The EU is responding. It is finding it hard to respond because it is not set up as easily to do that, for a whole host of reasons, which we probably do not want to go into here. The UK debate is basically caricatured as looking at those things and looking scared, or asking, "Why are we not just doing the same and throwing money at everything?"

There is no discussion of the size of our economy and how that might shape your approach to this, or relative specialisms in different bits of that agenda. We spend our whole time having a theoretical row/fear, rather than getting on and saying, "Okay, the world has just got more complicated for delivering a net-zero comparative advantage in certain areas because our competitors have upped what they are doing". There is no debate about how you respond to that in a serious way at all. The Labour Party is saying we should just subsidise a load of things but not being clear about which things and how, and the Government are just saying, "Oh god, this is all very difficult. Did you know we are really busy changing all this legislation?" It is a joke. This is really hard. The world is hard. We are a small market. What are we actually going to do to have some stuff to flog?

Chair: I have a supplementary from Ruth Edwards. Just to let members know, we are running quite behind, so that just means we will run out of time. It is up to you guys.

Q15 **Ruth Edwards:** To be honest, this was the question I was planning to ask later anyway, but we seem to have arrived at it a little early. I accept the points you have been making about the debate in the UK at the moment about attracting green jobs. What I was interested in exploring on this panel is, in your view, given your understanding of the UK economy, what the UK strategy should be for attracting these jobs. It is fairly self-evident that we cannot outspend the US, so I would be really interested in your view on what that strategy should be.

Torsten, given your earlier comments about how net zero might not necessarily be that much of a game changer—correct me if I am mischaracterising that—what impact will it really have from an economic perspective? We all agree it is worth it from an environmental perspective, but it would be interesting to hear your views on that.

Dr Valero: What can we do? I personally believe—and this is how Chris Skidmore phrased it, as well as the work we have done at LSE with our colleagues at Grantham Research Institute, including Lord Stern—that this is the growth story of our century. We are not talking about marginal change here. We are talking about not just mechanically meeting net zero. You could do that by simply switching off power stations. We are talking about transitioning our systems to a cleaner, more sustainable model. This is complicated, and it is hard to foresee how everything pans out because we have not done this systemic change before.

It is all about these tipping points. There is a lot of analysis. Some tipping points have happened where technologies are already cost effective. Now that there is much more commitment internationally and much more investment going into it, maybe those tipping points will accelerate, and then actually lots of these technologies will make business sense. It is not just whether we can capitalise on the growth opportunities, because we have invented something, and scale it and sell it abroad; it is also the resource efficiency and the benefits we have from cheaper technologies, better technologies, cleaner air, the health impacts of that, et cetera. It is a broad picture, and for me it is the only picture for what we want, which is a healthier, stronger and more prosperous society.

In terms of what we can do about that, we are a small economy. We have distanced ourselves from Europe. As discussed, we need to go back to what we are actually good at and what our traditional strengths have been. Our traditional strengths have been our location, our rule of law, the language, our connectedness, our attractiveness for international talent, and a melting pot for new ideas to form. How can we turn our back on that now?

There are already worrying signs when it comes to Horizon Europe and the funds we have lost. Lots of great researchers are leaving the UK so they can retain their funds. It is not just, "Oh, we have lost a few researchers", but people in the UK cannot collaborate on those projects so easily any more, and we are just generally a less attractive destination for that kind of talent. We need to go back to being what we have been for some time, which is a small but attractive destination. That is why we have punched above our weight in many ways.

We need to try to continue doing that. I think we were going to discuss the recent Tony Danker speech. We have to be smart about it. We are not going to be able to outspend some other countries, but we need to combine our strengths to make this the location for certain activities.

Lord Deben: It starts by us being realistic about where we are. The trouble is our political structure, if I may say so. Both political parties are not in the right place on these issues. We have to face the fact that, if we are where we are, we have to spend our time and money on those issues and those things that we really can be best at. We really have to understand that our collaboration with our nearest neighbours is crucial to our future, particularly in science. The loss of that is really serious, and we are treating it as if it does not matter at all.

We also have to recognise that there are some things we could make a big change in. We know the cost to our National Health Service could be totally changed if we did something about diabetes. We are spending huge sums of money there, but to do that you actually have to do something about dietary change. We do not talk about dietary change, because it is too inconvenient on both sides of the House to say that people get fat and ought to get thin. We do not do it because we will not face reality. My one pessimistic concern is that we will only do that in the face of disaster, instead of doing it now when we can make the changes. It is just as important to reduce the costs we have where we can do so by behavioural change.

Q16 **Ian Lavery:** Lord Deben, could you clarify a couple of points you made? First, on local government, local government has been absolutely destroyed since 2010. It is struggling to survive. As Andy said, it is struggling to focus on the statutory obligations that it has. You are right: getting local authorities to use their resources to pitch against each other for the crumbs off the table is the reality of it. Most local authorities have had a reduction of more than 50p in the pound from central Government.

They are struggling; they have been destroyed.

The other point I wondered if you could clarify was when you mentioned to Charlotte that perhaps the Government should have stopped subsidising or supporting industries in the past like the coalmining and shipbuilding industries. You have been a Minister and a Secretary of State for a long time, and you are very experienced. When did the Government finish supporting the coalmining industry? When did they end the support to shipbuilding? It was not last week.

Lord Deben: One of the important things in this is for us to try to be as nonpartisan as we can. The truth is that both Labour and Conservative Governments ensured the closure of very large numbers of coalmines. In fact, if I were being party political—and I am not—you can do the figures and see that there were more closed under Labour than there were under Conservatives, but both parties did it because they knew they had to do it. The same is true of a sort of shipbuilding, but we can do some shipbuilding that is extremely good and profitable, and where we have niche markets.

Q17 **Ian Lavery:** The question is basically, "When was the last time that there was Government support for a coalmine?" You cited that as something new. There has not been any investment from central Government in the coal industry for decades and decades.

Lord Deben: Mr Lavery, that is not what I said. I must have said it incorrectly. I said that, when we stopped supporting industries that were dying, we did not do the other part, which was to support industries that could grow. We stopped supporting them almost before the time I was a Minister, but during the time I was a Minister. I was not suggesting we had been supporting them, but merely that the Government of the time—if you like, it was a criticism of the Conservative Government of the time—stopped supporting those industries but did not think forward as to where they ought to be putting Government support in the future.

Today, we are not supporting those industries. Of course we are not. We have not done for 30 years, but we are not recognising that, as Torsten so rightly said, we should be trying to ensure that those areas where we are good are given the consistency, continuity and support they need to be able to compete in a world that is much tougher and more difficult than it was 20 years ago.

Q18 **Ian Lavery:** We have been discussing UK GDP growth. As you mentioned before, Dr Valero, according to the OECD the forecast for 2023 is going to be somewhere in the region of 0.4% and it is the lowest in the G7 by a considerable margin. Why are we not performing as well as our international counterparts? I know we had a broad discussion on this, but surely it is not good enough to just say we can be hopeful for the future. I would love to be hopeful for the future, but I am wondering why when we are not even on the pitch with regards to the 0.4% for 2023. When can we expect it to get better?

Dr Valero: I will try to answer that, and I am sure Mike has some perspectives on this. Even more concerning was the recent IMF forecast, where we are the only negative forecast. Of course, the Bank of England has released its forecast of a recession that is shallower than previously anticipated. There is a consensus that we are going to go through some difficult times. That is because of where we are and perhaps the lack of something to compensate for it, as we have been discussing. We have had this longstanding poor productivity performance. We have been hit particularly hard by these shocks. We are now in a situation where the energy crisis is still going on. There is some hope that maybe it is going to start being less painful over time with the wholesale gas prices coming down, but households are still struggling.

We have now this rising inactivity and a smaller workforce, which is also holding back our ability to grow. These are the types of considerations in our near-term outlook. We have not turned the page in terms of trying to get businesses investing or having any framework that can give hope that that might be around the corner, in a sense. Part of it is that you are talking now about near-term forecasts. We are also talking here about some of these longer-term mechanisms that would start providing a more optimistic outlook for businesses to make the decision to make an investment in the UK.

What we have been discussing a lot here is, "Do we have an industrial strategy?" You may not want to call it an industrial strategy. Maybe it is a growth strategy, but this is another area of uncertainty. We have been grappling with all these massive areas of uncertainty. Some of them are self-imposed and some are external shocks. We have had a lot of internal uncertainty, too, in terms of what our strategies are with regards to Government support for different industries and types of technology. What are our approaches to encouraging diffusion through the economy?

We had an evidence session with this same Committee on the Help to Grow programme, for example. Help to Grow Digital has lasted just one year. If we give up after one year, that is not really enough time to be able to tinker with it and give it some time to evaluate what is working and what is not working. There were problems, of course. It was not necessarily recruiting enough people, but once all that effort has gone in to try to improve diffusion of digital technologies, why not try to learn from what might work and what might not to inform these policies at scale?

Q19 **Ian Lavery:** Did you say it is minus 0.4%, not 0.4%?

Dr Valero: The IMF forecast, yes.

Mike Keoghan: At the ONS, we do not forecast or comment on the forecast of the IMF. To pick up two of Anna's points, one is that we are dealing with this structural productivity problem, which we have spent the last hour discussing. The other short-term headwind that the UK has is the issue that the Committee discussed before the summer around the labour force, in particular the rise in inactivity, and in particular the rise in inactivity of over-50s, which has been a big switch from where we were before the pandemic.

Q20 **Ian Lavery:** Are you concerned that it is a negative forecast?

Torsten Bell: The country is getting poorer because there is a massive terms of trade shock as energy gets more expensive. We are energy importers. Consumers and firms are taking an absolute kicking. You know that from your own constituency. You will all know that from your own lives, paying your energy bills. That is the big picture of what is going on. The country is getting poorer.

I would not focus too much on individual year-to-year growth forecasts. I would focus much more on, "What does the last 15 years tell you about what has actually happened?" and then, "What can we plausibly think ahead about a number of years as a whole?" Yes, there are two big negative forecasts. Behind that lies the fact that as a country we are more reliant on gas. We are in Europe. Forget whether we are in the EU or not, but we are in Europe. It is European gas where the problem is. It does not matter whether we do not get Russian gas. We are more exposed. We use more gas because we use it to heat our homes and to create our electricity. You add the two together and then Britain is having a tougher time because of those things. Our consumers are getting poorer than other consumers because of that, and they are not spending money. That is what is driving these underlying forecasts.

You then have the longer-term structural things we are talking about. One of the reasons the UK is underperforming in the short term is to do with what is happening in the labour market, although the US labour market does not look that different. You have early retirements happening in the US as well. The big, big thing that is going on, which is hopefully cyclical, not structural—it is a mixture of the two, but we will find out—is what has happened to the gas markets. The UK is just most exposed to that.

Lord Deben: If you ask manufacturing businesses what their biggest problem is, it is the comparative energy prices because of that. That is certainly true in the West Midlands. As I said, I spent some time yesterday talking about exactly that. That is a real issue. We have to face up to the decline in our exports.

The West Midlands was growing more quickly than anywhere else in Britain until three years ago. It is now slipping backwards. Part of that is that it was the area most dependent upon exports and, of course, a very high proportion of those exports went to the rest of Europe. Again, we come back to it. We are in Europe. We are not in the EEC but we are in Europe and, if you want to sell goods, you have to be able to get those goods in. That is why I am waiting for somebody to be honest, get up and say, "The issue is not what you are going to do about the red wall and it is not about the historic issues. It is about where Britain goes". We need to get that right, get a proper relationship, and build ourselves an industry in both service and manufacturing—those things we are good at—in a world where partnership works.

Mr Lavery mentioned the local authorities. I perfectly accept the view that the local authorities have. That is why I want them to have much more independence, but also much more accountability, which they do not have at the moment. You need both of those. If we do that then that is the other thing that could help to start a different way of our economy progressing.

Q21 **Chair:** Mike, I wonder whether you can help clear something up for us. When the, as I understand it, now former Business Secretary came to the Committee before Christmas to talk about economic growth in the UK, we had bit of a—I am not sure this is parliamentary language—ding-dong about what the data showed. The then Secretary of State wrote to the Committee and claimed that we were the fastest growing country in the G7, and the data point was an OECD point, which was based on ONS data. There was then some issue about someone putting a decimal place in the wrong place or something, but we were actually the second slowest in the G7. Can you just help demystify that whole thing for us?

Mike Keoghan: Which revisions were these?

Torsten Bell: Do you mean the GDP per capita revisions?

Q22 **Chair:** Yes, which led to the then Secretary of State being able to say that we were the fastest growing in the G7, but it was actually redone and we were the second slowest. What happened?

Mike Keoghan: On the productivity ones or the GDP per head? There are two sets.

Q23 **Chair:** I am asking you. I do not know, because the Secretary of State just said, "Hey, we are the fastest growing country in the G7, Mr Jones", and he wrote a letter to me from the Government on that basis, but I think that was an error.

Mike Keoghan: I am not sure I can talk to that specifically. I can look at the correspondence and I am happy to come back and confirm our perspective on that.

Chair: I would just like to get to the bottom of where we actually are. It got a bit confusing.

Mike Keoghan: I am happy to do that.

Chair: I am sure the new Secretary of State would be delighted to see the answer as well.

Q24 **Andy McDonald:** I will wrap a couple of things up, if I can. It is this issue about investing in our businesses. Mike touched upon the management practices. I am just trying to get my head round that. We are not investing in capital and ideas at the same rate as similar countries. Why is that? Is it because of the general economic climate or are there some practices that businesses just need to change? Mike, you did touch upon it. What is your take?

Mike Keoghan The expert on this issue is sitting next to me. We do surveys of businesses and ask them questions around their management practices. There has been a massive development in this. As a way of looking at the economy, this did not exist in 2008. It has been one of the great developments by British academics to move this.

The ONS does a management survey as part of that work. We find that, on average, the UK does not appear to be that bad, but it is quite clear that there are good management practices like the use of websites, databases or customer relationship management that are common, standard practices but are not totally diffused across the economy. Therefore, our businesses are leaving productivity, money and wages on the table in the absence of putting these things in.

The interesting question is, "How is that being allowed to happen? What are shareholders doing? Why are they not pushing forward?" I suspect that this is one for Anna.

Q25 **Andy McDonald:** Anna, is ESG the answer?

Dr Valero: Just to go back to management practices and how we measure them, they are complementary but slightly distinct from digital technologies. When we think about management practices, the question is, "What are the operational, monitoring, target-setting and people management practices that we would expect to be associated with productivity enhancement?" That was all developed by Nick Bloom and John Van Reenen at the Centre for Economic Performance. It has been tested in different sectors and different countries, and those same practices that were developed with that expectation have been shown to be strongly linked to better productivity.

We know that these are operational management practices that matter for productivity. They are different from strategic practices, which are much harder to measure. What are those processes through your business that you would expect to be good for productivity and then be complementary? If you have those kinds of processes, it is likely that you have some data and some digital technologies to help implement them.

As Mike said, it is not that we are really bad in this, but we tend to compare ourselves to France, Germany and the US. The thing is that we do lag behind the US and Germany on management practices. We are about the same as France, but France just has a higher capital intensity than we do. Basically, we lag on different things but, put together, we are less productive.

These international comparisons are done every few years. We are currently in the middle of our latest wave and, hopefully, there will be some new insights coming out of that. The ONS, meanwhile, has been doing surveys over time on UK firms, also on a broader range of sectors. There is something promising there that I have noticed, which is that the thick tail of the poorly managed firms seems to be getting a bit smaller over time, so there might be some improvement, but it seems like there is still more improvement when it comes to management practices.

We know that management practices explain a lot of our gap in productivity with America in particular. Digital technologies are another thing that matters when we are thinking about processes. Here, unfortunately, the data is not so good. It relates to leaving the EU and losing some of its data. Still, to my knowledge, and having discussed this with others, the best available data is this European Commission digital scorecard that it created based on surveys. The latest available one that we are in is from 2019. Since then, we are no longer in it, so it is quite hard to get an up-to-date picture of how we are doing on technology adoption.

We have been doing surveys on British firms in collaboration with the CBI to understand digital technology adoption in light of Covid. One thing that comes out there is that, while we saw lots of firms adopting new digital technologies in light of the pandemic, which was perhaps promising, we also saw a gap widen. The ones that were more likely to do that adopting were either already more digitised, or larger firms, so there is, again, some concern about smaller firms.

You asked why they are not investing. A lot of the barriers to management practice adoption or digital technology adoption relate to cost constraints—the cost of the technology, reorganisation costs or managerial time—or information constraints and just not knowing. It is a confusing world: "Which technology? Which practice?" They also relate to skills constraints. That was one of the questions that had been raised. There was a recent survey of CEOs that showed that it is the capabilities that are holding back the type of digitisation and technology vision in many companies. In our surveys, skills come out as a top constraint.

Mike Keoghan Just to pick up on the scale of this, our survey suggested that, if you can get a business from the 10th percentile to the 90th, that is a 44% improvement in productivity[2]. Small businesses tend to have fewer of these management practices than large ones, which you would probably expect, but it gives a sense of the scale of the opportunity if we can get that kind of movement in capability.

Lord Deben: You had a throwaway line about ESG. If I can wear my business hat, we have found that, where companies are beginning to deal with ESG properly and have to report properly, they begin to get their data right. When they get their data right, they start thinking, "Frankly, I

[2] Note from witness: The witness notes that the improvement in productivity is 25%, not 44%. This was estimated using the latest available Management and Expectations Survey data for 2020.

may be doing this because of the ESG thing that I have to do, if I have TCFD or whatever it is that I am having to meet, but, my goodness, I can reduce my spending in this way". It is just that trying to come to terms with ESG very often throws up ways in which you can make your business much more effective and efficient. This will be a very important way forward within the context of net zero.

Dr Valero: When I said before that we are talking about radical change, that is one of the areas that I am optimistic about, because we know that there is so much more that we can do in terms of digitisation and there are so many synergies between net zero, resource efficiency and digitisation. Many surveys, including ours, have shown that the firms that were already more digitised were more likely to be taking action for net zero and to consider sustainability across their operations.

Q26 **Ian Lavery:** Productivity is the most important thing. That is the buzzword. We need to increase productivity in companies. What skills do we need to increase productivity? In what sectors do we need to invest as much finance as we can to get the real boost that we need in terms of productivity?

Dr Valero: There are certain specific skills that we will need in certain sectors. There are always skills shortage lists, et cetera. Broadly, there is a general consensus that we can do better on basic skills such as numeracy and literacy. Digital skills seem to be really important.

Torsten may also want to say something about this, but given the way that technological change has gone and is likely to continue going, there is more of a premium or more value on abstract skills, such as the ability to analyse things and to think creatively and analytically. These are the types of skills that a modern economy, with better technology diffusion through the economy, needs for workers to be able to benefit from that change and also to enable such technologies to be productivity enhancing. Some recent analysis shows that there is a premium to those types of skills, so further investment is important there.

When it comes to green skills, we know that we need more people to do energy efficiency or solar panel estimation. I am a member of the Green Jobs Delivery Group. Other than the general types of analysis that we have done on green jobs, trying to quantify them—and the ONS does that too—you have to, when trying to forecast specific skills needs, work with sector bodies to understand how many installations are required, how many workers we have and how many we need to upskill. The Green Jobs Taskforce approach of bringing together that kind of evidence on a sector-by-sector basis is really useful for the forward-looking part.

Lord Deben: I am meeting with the Secretary of State for Education, because we want to press our view that the skills arrangements have to be done locally and throughout the country. At the moment, there are too many different things happening, and there is no real co-ordination, which we need to have.

It is also a pity that Scotland has been doing some really good things on this, but the rest of the United Kingdom is then doing the same things separately and unconnectedly. One of the great advantages of devolution ought to be that the people who start off are copied by the others, rather than having a competitive arrangement. We are very keen that, in this area, as well as many others, the Scots are ahead of the rest of the United Kingdom, and we could learn a great deal from them and not try to reinvent the wheel.

The third thing comes back to the point that I raised about local government. Much of the improvement of skills depends on local delivery. If we are going to have that, we need to have an attitude, a willingness and the resources locally to make sure that this happens. It needs to be right across the board.

Our land-based colleges, for example, have to look very carefully at what they are teaching, because a new generation of people working in agriculture and horticulture is going to have to work in a wholly different way from the previous generation. That is really important. I am still not sure that the Department for Education has got its force behind these changes. It cannot do it all itself, but it does have to co-ordinate and encourage.

Q27 **Ruth Edwards:** We have been talking about skills. I would like to press particularly on the issue of digital skills. I know that quite a few surveys of CEOs find that those are one of the things that they think are most lacking in their organisations. PwC's most recent one showed that 40% of CEOs thought that their company's tech capabilities lagged behind the demands. Is that something that you agree with? What is your view on how that gap should be closed?

Dr Valero: It is something that I agree with, based on the surveys that we have run but also from the wider survey base. In our surveys with the CBI, we asked, in 2020 and then in 2021, what the biggest barriers to process innovation were, which is mainly digital technology adoption in our context.

In our second wave, the most important factor was skills of the workforce. In the UK innovation survey too, skills are often up there, also with financial costs, as I mentioned, as key barriers.

In terms of what we can do about it, it is digital through the education system, and then it is upskilling the existing workforce. What are the best mechanisms for that? There is some debate around this, but we in the LSE Growth Commission previously suggested that something like a human capital tax credit for accredited courses in the types of skills that are needed for today's economy could be a mechanism. There are all these skills bootcamps and they have different focuses. My colleague Sandra McNally is doing an evaluation of that, so we will find out what works there.

There is a lot of knowledge in terms of successful sectoral-focused skills programmes around the world. A recent MIT future of work report highlighted some of these local-based initiatives, where it involves local government, employers and communities. There are some evaluations there of promising courses that have managed to upskill people in quite a targeted and local way. It is this combination of the national and the local, and thinking about where the support is to be targeted. Is it support at the firm to make that investment for the worker? Is it support for a worker, or even information to improve decision-making about the types of skills that are needed for the modern economy?

Q28 **Ruth Edwards:** We spoke earlier, and one thing that was listed was that firms in the UK invest less in developing their workforce. In a way, I am asking to speculate, really, but, in your view, if firms are so concerned that they do not have the digital skills to meet their demands, why are they not investing more in their workforce? That would seem to me to be the logical thing to do.

Dr Valero: We do not have a full answer yet. There are various papers that have tried to look into certain parts. Some of have asked, "Is it because we have relied on immigration?" There is not much evidence for that. In careful studies, that does not seem to explain why firms are not investing.

There are lots of market failures at play. There is an issue from the economics that, if you invest in training a worker, they might leave, so you are not going to recoup all the benefits of that. Perhaps, particularly in general skills, there is more of that risk. Traditionally, companies try to mitigate that risk. I always use the example of chartered accounting. You go to a firm and it invests a lot in your skills. You stay for a while and work for three years. After that, the business model is a pyramid shape and they expect people to leave.

There are various mechanisms to try to help companies recoup the benefits of their own investment. We had a paper where we looked at the various candidate explanations, and none could fully explain what has been going on.

Torsten Bell: When the chief execs say that to you, you should ask them, "What have you done for investment?" The training numbers are a disgrace. They have been coming down year on year. They are particularly coming down for those on lower or middle earnings. Whenever any chief exec of any company says to me, "Britain has loads of skills shortages" or, "The youth of today cannot do maths and English like they did", I always say, "That is not true. In the Victorian era people did not come out with algebra, you idiot". Do you know what used to happen? Firms used to do some actual training.

There is an argument that the financial incentives do not add up for them to do that. If anything, the financial incentives have got stronger. People move jobs less than they used to do. All this, "People used to have a job for life and training" is nonsense. That was true for a subset of white men doing a few things. It is just nonsense. People used to move jobs a lot more. People actually, if anything, stay in their jobs too long these days, particularly the youth.

The firms do not have an issue. We have a broader cultural problem, which is that British businesses do not think that it is their job to train. They somehow think that magically the state is going to do it or whatever else, because it turns out that they are not Thatcherites. I am afraid that that is a question to ask of British business.

There maybe could be a bit of a tax incentive here or there, but we have a deeper cultural problem. British business does not think that it is its job to train workers. It does not think it is its job, often enough, to invest in its own future either. Until you address those big cultural challenges, all the rest of this is policy twiddling.

Q29 **Chair:** I can see that we have some horizontal priorities here around training and digital adoption. Is there a clear view anywhere about the vertical sectors that need to be prioritised for intervention from Government if we are really going to move the dial on economic growth? We all get lobbied by the well-lobbied industries. Is there any evidence behind which sectors in particular could do with a bit more support?

Torsten Bell: Do you mean for growth or on skills?

Chair: I mean for growth.

Torsten Bell: That is a big question. There are specific sectors—obviously we have identified some of these in the net-zero space and some areas of advanced manufacturing—where you have actual decisions to take. Steel has been mentioned, or some people would argue hydrogen, but they would often be funded by some heavy lobbying activity, which is why they are all knocking on your doors all the time. You should always discount, on the basis of the volume of lobbying spend, how much you take into account what on earth they just said, because it is all nonsense.

Yes, there are some sectors where you can see that materially. I personally would take a slightly different view. You should do some of those sector-specific things, but step back to the nature of the UK economy as a whole and you see the broad service-based strength. This is on tradeable services. There is a whole different agenda on non-tradeable services and good-quality jobs, which is not really about growth. It is about equality, status and people being able to live in different parts of the country.

On the tradeable service sectors, the strength is broad-based. I do not think the exam question is, "Pick particular bits of the advanced service sector and apply the stereotype of the 1970s manufacturing strategy to today's service economy". That is not what is going to make a difference. What is going to make a difference is making sure that more of the productive capacity of the UK, particularly in terms of places and large second cities, can drive forward that broadly shared services strength.

I would focus on those cities specifically and their regions. That is the plausible route to materially stronger growth. It is about bringing more of the firepower of the UK economy to those modern strengths. Yes, within that you need particular strategies for different sectors, but that is secondary to our complete failure to understand the nature of our economy or what plausibly will drive its strength in the next 20 years.

Lord Deben: I would agree entirely with that. I would also warn against the easy words that say that all you have to do is to free up the economy to do things. The truth is that we are not overburdened, as an economy, with regulation and the like.

There was a brilliant speech for everyone to read by Lord Heseltine yesterday in the House of Lords. He pointed out that, when they were doing this before, he had written to every trade association to ask precisely which were the bits of, in this case, EU legislation that they were concerned about and what the alternative was. He did not get a single reply, because they could not detail it. All they could say was, "Generally, we want this".

There is a way you can add to that and I have always hoped that this Committee would press for it. Remember we used to have a thing called the deregulation committee and then it became the Better Regulation Commission. I would like to have a unit that had legal force to which anyone who found something that was in the way of development, growth or improvement could say to the Government directly, "If you change that regulation and stop those two things colliding, that will make this easier to do".

There is no mechanism for doing that and I constantly find people saying to us things that are absolutely clear. You make that alteration and you make a huge difference, but we have no mechanism. That is a mechanism that would improve things considerably. Then you are not talking generalities about less regulation. You are saying, "In this case, those two things coming together clash and make it difficult to do what we want to do and should be doing".

Q30 **Chair:** The bad news, Lord Deben, is that that is technically this Committee. We just do not have the time to do it. There used to be the Regulatory Reform Committee, but, about a year or so ago, it was collapsed and merged into this Committee. There are only so many Tuesdays, unfortunately. The answer on sector specific is place-based, horizontal interventions.

Torsten Bell: If the exam question is, "Materially what is going to matter to the UK's aggregate growth rates?", that is what matters. In practice, if you do that and you are clear about the nature of your economy, lots of people taking lots of decisions, week in, week out, whether they are

Ministers, local government or combined authorities, will take sectorally focused decisions that support people asking them individual questions.

A woman from a windfarm developer the other day told me about some elements. In terms of how we charge individuals, what counts as income if you are creating your own renewable electricity and selling it back into the grid is different versus your bill reduction. That matters. The tax treatment of something that looks the same is material to some elements of windfarm development, for example. There are little things like that.

Once you are clear about what you are overall trying to achieve, then you start. I watched it happen in the 2000s. Every Budget, the—whatever it was called then—pre-budget report basically was an industrial strategy for the financial services sector. They would be like, "This little tweak will help a bit over here". That kind of stuff will start happening, and on a broader basis ideally, once you are clear what you are doing overall. Do not pretend that one sector is going to suddenly turbo charge. That is what I am warning against. "It is all net zero. It is all advanced manufacturing". That is not how you are going to get this economy growing again.

Q31 **Andy McDonald:** We have talked about inequality and that it is neither good for us financially and nor should we tolerate it. Seemingly, the Chancellor agrees. He said a couple of weeks ago that overconcentration of wealth in the south-east was one of the factors that led to uneven and lower growth in the UK, and that, if our second cities were the productive powerhouses we see in other major countries, we would be nearly 5% higher, making us only second to the US and Germany.

The exam question for us is how we encourage investment and funding to—I would not say second cities—those agglomerated areas to improve economic growth and GDP. If we are going to address inequality, are we going to have to have an unequal redistribution of resources to free up that growth? I am thinking aloud around Barnett formulas for the English regions, such as is enjoyed by Scotland and Wales right now. Is that not a way to address these inequalities and stimulate that growth?

Torsten Bell: Wales does enjoy the Barnett formula. Scotland enjoys the Barnett formula, but we will not go into that.

Andy McDonald: Wales should, of course.

Torsten Bell: Given population dynamics, Wales is a big loser from the Barnett formula, as it would point out, compared to the north-east. Let us leave the Barnett formula, because that is going to get us into a world of pain for everybody concerned. You have to have a long-term view about the populations of the nations.

Broadly, to your question, yes. If you want to plausibly make a big difference to your underperforming city regions, small changes are not going to do it, because the scale of what it would take to make those places more productive is large, in terms of their population and making it bigger, the level of housebuilding that requires and the level of transport infrastructure change that is required.

We have a bad equilibrium where nobody is honest about the scale of change that would be required to raise that productivity. National politicians are not honest about that, partly because they do not want to provide the resources, as you are saying, because there are trade-offs, understandably, and they do not want to concentrate resources. They want to say, "I am going to give everybody a bit; that is the growth strategy", understandably. You experience that as constituency MPs, so it is understandable that they want to do that.

That is the national Government problem. The local government problem is that people do not have the powers or resources to make a success of change and therefore spend their time basically not planning it or opposing it, for example with housebuilding. I am being unfair, but I spend a lot of my time going round, doing things in our major cities, because that is what we think is a large part of what success looks like.

A lot of the discussion, including with the public, is about nostalgia: "If only we could reindustrialise Birmingham" or "If we do net zero, we can reindustrialise Birmingham", which is not true. Part of that, to be fair to those local politicians, leaders and the public there, is because they do not have the powers to control the change and make a success of it, so the response to it is, "It is not my responsibility".

You have a bad equilibrium. National politicians will not provide the resources to the places that are going to be needed to deliver a step change. It is a long game. This is decades of investment and change required. Local politicians do not have the resources, in terms of people, finances or powers, to feel like they really own it and, therefore, drive it forward and do it consistently.

If you do not have those things, this does not happen. Saying, "I have a levelling-up fund here", or, as I think the Labour plan is, "We are going to devolve Jobcentre Plus" is all nonsense. This is not what is going to make a difference. It is this big stuff that makes a difference.

Lord Deben: If you are running a business and you try to develop every bit of it, you fail. If you are running a business, you have to decide in which areas you really can make a difference. We do not do that. If we have a levelling-up fund, we spread it about, as you say. We do not say, "Frankly, we have to make a difference and the difference we are going to make is in Birmingham, Manchester and Liverpool", let us say, or whatever it is.

Secondly, we had better face up to the terrible London orientation. No one has complained about the cost of building the Elizabeth line, but they constantly go on about HS2, and yet HS2 is crucial for the needs of many parts of the country. That is because we are so concentrated on London.

It does not matter where you are talking about, because every journalist lives here, or almost.

The metropolitan effect of London is really serious. We managed to get ourselves into this double problem: concentration on London, where you can do all sorts of things, and then, when we try to spread it out, an inability to do anything else but pepper-potting it all round the country. I am afraid that Members of Parliament are, of course, inevitably involved in that.

Frankly, Mr McDonald, you are going to talk, as I used to, about the needs of the constituency. I remember talking about how poverty "comes thatched" in my constituency and it was true, but, in the end, you do not put the money into Suffolk Coastal, frankly. You put it into Birmingham and make Birmingham the kind of city that really can push forward Britain's economy. It needs bravery and at the moment I do not see that in the political structure altogether.

Q32 **Andy McDonald:** Is that not the danger? Those communities that are left behind will stay behind.

Torsten Bell: This is really important. You are asking us what the growth strategy is. The mistake people make is, first, thinking that the growth strategy is the economic strategy. It is not; it is one part of it. Secondly, they think that status—"good jobs"—comes only from high-value-added, high-productivity jobs. That is the mistake. When you say things like that—"If Birmingham does well, it is bad for the left behind in Suffolk"—that is not good thinking.

That is asserting that the only valuable jobs are the ones that will be done in the middle of Birmingham. The care jobs in Suffolk are really important, but they are not productive, and that is fine. The only thing in society is not, "Is it giving me productivity that, in a globalised world, helps me buy the imports I need to?" That is not all we are about. We are about good-quality jobs.

It is what I said earlier about the non-tradeable services in particular. It is really important that your economic strategy has a story, because those happen everywhere. Those have to be good jobs that can be done everywhere. Net zero may provide some of those in the retrofitting space. Construction obviously provides them. There are lots of jobs that will be done everywhere. Just because they are not high-productivity jobs in all cases, it does not mean they cannot be higher-status jobs. That is where we have choices.

Remember that those sectors are also the ones that are not really exposed to international competition in the same way. We actually have a lot more choice about the nature of those jobs. How much you want to pay care workers is just a straight tax and spend choice. How much you want hairdressers to be paid is, to some degree, a choice about how many haircuts. If you want them to be more highly paid, you are going to have fewer haircuts, because the price is going to be higher. You can make choices as a society. Different countries get their hair cut different amounts, or we can do it ourselves, or men can.

My point is that we have choices about the nature of non-tradeable jobs. We should definitely be making those choices. That is really important to equality of income and of status, but do not go to that as the reason not to do the growth strategy, because that is when we end up in a real mess.

Q33 **Charlotte Nichols:** I am interested in a lot of the discussion that we have had around regional disparities, where we go with net zero and particularly what has been said about green jobs. It is a slightly nebulous phrase. Politicians of all parties talk about a certain number of green jobs without specifying what a green job is. How are we measuring that? In terms of green jobs in the UK, what do those look like? How do we make sure that people have the right skills to do them?

Dr Valero: It is difficult to define green jobs. In the work that we have done, we set out that there are pros and cons to different approaches, depending on what your question is. If you are concerned about a sector in decline that would really impact on a particular place, you would want to count every single job in, say, the factory or the plant, even a janitor who could be a janitor in another company, because they would all be displaced.

If you are trying to understand what a green job is in some sense, you end up looking at occupations that could be in different sectors or firms. We have various constraints there. Really nice classifications have been done in the US on a more granular system. We have made various attempts to aggregate up to UK occupations and try to map this out across the economy.

We find that green jobs are quite spread around the country, but that is also because we are taking quite a broad view. We are taking pre-existing jobs that will have, because of the transition, new green tasks associated with them. Even a financial controller would be counted as green because they have various green tasks. They have to understand sustainability, risks and reporting et cetera.

We find that they are quite spread around the country, but there are definitely some interesting facts that come out of most analyses that I have seen of green jobs using different techniques. The even more granular technique is looking at job ads. You can actually look within engineers and say, "This is a wind turbine engineer versus an oil rig engineer".

What comes out is that green jobs seem to be quite highly skilled. There is a wage premium. When you get more granular, sometimes the wage premium disappears because you are comparing much more similar jobs. Based on the data where you can look at who is actually holding the green jobs, it seems to come out that they tend to be held more by men, higher educated, as I said, with a bit of evidence that they are perhaps white as well.

There are obviously issues that, in our experience to date, they have not been the most inclusive, in terms of who is actually working these green jobs. That gives you some pointers towards this new phase, where we need to massively accelerate green jobs throughout the economy, however you define them, but activities that are relevant for getting us to net zero, making sure that those opportunities are accessible to a broad pool, for diversity reasons and better matching of talent to opportunities as well.

Torsten Bell: I broadly agree with that, because we collaborate on a lot of work in this area, not just because I am not imaginative. To step back a bit, on the discussion of green jobs it is worth clarifying a few things. As you say, politicians definitely say, "If we do this, it will create this many jobs". That is a bad way to think about the net-zero transition, full stop. It is not, in and of itself, except on the margins maybe, if you have a very complicated economic model in your head, about creating jobs. It is going to be changing a lot of people's jobs. We want the marketeers to know how to do things in the green way, the green finance, whatever it is. The construction workers will be moving from other types of construction work to retrofitting.

It might change sizes of some sectors. Let us say we think that we might need some more retrofitters than the current size of the construction industry can stomach. I am not sure that is true, by the way, but let us say it is true, because it is definitely the Labour Party's policy position at the moment, so let us say that that is true. They will just come from another industry. You will just shrink something else.

It is not about more jobs. It is about people doing different jobs. I will give you a concrete example. In lots of ways, the net-zero transition is just a big invest-to-save exercise. We put loads of capital in upfront and then we save some money in the long term. Almost all of the savings in the long term really are coming from cars. It is cheaper to run electric cars than it is to run the old-fashioned ones. Nobody likes to say this. A large proportion of why it is cheaper is because you do not need as many mechanics. You are going to shrink the number of people working. That is one of the only big bits I would highlight.

Everyone focuses on the big industrial plants, because that is the thing that you can take a photo of and put on the front page of a newspaper. Car mechanics is where the actual rubber hits the road. You need far fewer of them. That is why it is cheaper. That is why all the numbers are adding up for the net-zero transition. We are going to have fewer people doing car mechanics and a few more people doing retrofitting and some other stuff over here.

Do not think about it as job creation for everybody else. Think about it as job change. I run an economic research institute. We used to just work on what was happening to the shipbuilding industry, if the Resolution Foundation had existed in the 1980s, and in 10 years' time we will be working on car mechanics. Has my job changed? I am doing more stuff about the net-zero transition, but it is not core.

We overdo the change, partly because we are really worried about the net-zero transition being a rerun of the 1980s. We think, "When did the last structural change happen? The 1980s. There was deindustrialisation, loads of people were out of work and it was very geographically concentrated. That is going to happen again". That is the pop story people have in their heads. I do not think that the evidence shows that that is going to happen, not least because the 1980s already happened.

If I was Germany, I would be much more worried about that. They are going to have to decide what to do about some very geographically distributed, highly carbon-intensive industries. Ours have basically gone, with a few exceptions. Margaret Thatcher did that bit of the net-zero transition. To what you are saying, a Labour Government in 1970 may have done as well, but let us not go into that again because it caused a row last time.

Bits of that have been done, so that is less likely. Instead, it is job change of people in jobs that probably have the same job title and are just changing what they actually do day-to-day. It does not mean that there are not challenges. It does not mean that, on the margins, even if the aggregates for the economy as a whole are not big, we should not worry about some specific geographies.

That is what we are worrying about with steel. We are worrying about three or four specific geographies with a very large plant. There is no plausible story to say to Port Talbot, "If that steel plant goes, we will be able to replace it with as many high-paying tradeable jobs". We will not. There are specific challenges, but the UK as a whole does not have that as its challenge.

Lord Deben: I always look at it the other way round, in the sense of saying, "Not doing net zero means you lose a lot of jobs because you do not make the changes you have to make". That is the right way to look at that.

I want to suggest to the Committee that one of the troubles of using the words "green jobs" is that it makes them sound as if those are superior jobs and the other jobs are, somehow or other, inferior. One answer that Torsten gave to Mr McDonald was about caring. We are going to need a lot more carers in our society because people live longer—he says, being one of those. We live longer and the fact of the matter is that we will need those jobs. I cannot see why caring is not a green job. It seems to me manifestly a green job.

Torsten Bell: Once you have an electric car to get between the appointments.

Lord Deben: The point I really make is that you do not count it because it does not arise from the move towards net zero. It is, in fact, the sort of job that is hugely important to the economy as a whole. Perhaps we have to think about the definition more effectively than we do at the moment and be concerned about the speed with which we move to net zero. We need to move as quickly as possible because the cost gets greater the longer you leave it, but we also need to move in a way in which we recognise the social effects.

As a last word, if I may say so, we have not so far talked about the absolute essential nature of a just transition. We have to make it fair because, if it is not fair, we will not do it. The Brits have one thing in common, I think, which is that we all believe in fairness. If you say that it is unfair, you have destroyed whatever it is. We have to concentrate on making sure that what we are talking about is fair. That means recognising the disruption made by the changes we are in and not doing what we all did in closing the mines, which was not to work it in a way where you recognised the destruction of those mining communities.

Q34 **Charlotte Nichols:** I will drill down into this point, because I completely agree. Mike, I am going to ask for your views on this from the ONS point of view. One thing that is interesting is the way that we currently count the number of green jobs, to Torsten's point that we look at it as power stations and things like that, as opposed to some of these job roles. At a time when, over the last 10 to 15 years, the amount of renewables in our energy mix has gone up dramatically, which is obviously a good thing on our way to net zero, the number of green jobs, according to ONS figures since 2008, has actually gone down.

One would think that it would follow that, if we are greening our economy and energy mix, the number of green jobs would go up at the same time. Why is it that that is not happening? Is it just because of the question, as people have said, "What is a green job?" Is it because, in having perhaps more renewables and less gas, they are less labour-intensive industries? If our economy is getting greener and getting to net zero, I suppose that goes back to John's point about what a just transition looks like. If we are getting closer to that, why do we have fewer green jobs?

Mike Keoghan: I do not think that we do. We recognise that we are probably not measuring that structural change correctly. The principal survey in this space is the low carbon and energy survey—LCREE. I think that it has been operational in its current form since 2014. It basically says that about 200,000 people are engaged in low-carbon activity. I do not think that we use the term "green jobs", but it is what everyone talks about when they are talking about green jobs and it has not changed since 2014.

Given that we know what else has happened in the economy, we are not convinced that that is necessarily giving a good estimate of what the size of it is, so we have two things ongoing. First, we have some work with King's College London. This is a perennial problem for the ONS, in that the economy tends to move more quickly than the statisticians, which is fine. As long as we recognise it, we can try to catch up. We have an institute at King's College London called ESCoE—Economic Statistics Centre of Excellence. One of the work programmes that they are working on it measuring the transition. We are convinced that we are not capturing the whole thing.

The second area is at international level. To move away from jobs, if you think about output and national accounts, we are expecting to be seeing, essentially, a greening of GDP. Again, the national accounts are not great. They get better, but they are not great at capturing that. There is a large amount of work that the UK is leading on better measurement of the green economy, but also moving beyond GDP and thinking of issues around welfare, happiness and longevity. We are trying to capture the lived experience, rather than just how much our factories can produce.

Later this week, on Friday, we have the next GDP release. That will be accompanied by a wellbeing release and further on carbon. The idea is that users can see, "If GDP is going up, what is the environmental consequence?" If the environment is getting better and GDP is not, they can see the trade-offs.

I will cycle back on place to pick up some of the points around resources. One thing there that we probably have not been as good at as a country is giving local decision-makers the right information to make decisions. If you are Steve Rotheram 10 years ago, trying to work out what is happening in Liverpool, we probably produce a regional GDP figure at quite a high level that does not really tell you what is happening. Last week, we produced GVA, so essentially profit and wages, at lower layer super output level, which is basically the level of 400 houses.

I know that this is really wonky and quite technical, but, in terms of your ability as a local decision-maker to see what is happening in your area, to build geographies that reflect your economy rather than what statisticians 50 years ago thought was important for nuclear resilience, you can start to do that. You can also use it on things like evaluations, so knowing which of your policies work. At the level of regional GDP, there is so much else going on.

If you can do, for example, Bristol to Newport, you can start to see the effect of removing tolls. That is really powerful. Given the direction of travel on devolution, giving local decision-makers the ability to see what is actually happening in their economy and what works and what does not is quite a hopeful, if technocratic, way of getting growth up.

Q35 **Charlotte Nichols:** I have one very quick question for clarity. As a trade union researcher for a decade before I came into Parliament, I love all the things that the ONS captures, right down to prevalence of smoking in bisexual women and things. You have all sorts of stats on all sorts of things. Does the ONS actually measure happiness? You mentioned that.

Mike Keoghan: Yes.

Charlotte Nichols: How do you measure happiness?

Mike Keoghan: We ask people how they feel.

Charlotte Nichols: How do you measure it?

Mike Keoghan: Basically, it is a survey. It is a measurement of how people feel: "How did you feel yesterday? Do you feel happy?" We can send you the recent findings.

Torsten Bell: There is now a massive literature. You will be very excited.

Q36 **Charlotte Nichols:** I am all for moving beyond measurements of GDP and what have you. I love the idea that the ONS is measuring happiness.

Mike Keoghan: We are a surprisingly happy organisation.

Q37 **Andy McDonald:** I think that we should have a visit to Bhutan for the gross national happiness convention. Can I ask about the capabilities and capacity for our net-zero opportunities to address regional inequalities? We have already established in the evidence that perhaps it is not the panacea that we thought it was in terms of job creation per se.

By way of an example, we see on Teesside the opportunities being taken to replace legacy industries of steel with new renewables. These are massive capex projects that create jobs in the short term in construction, but in terms of future employability they are quite small in terms of impact.

If we are going to address these regional inequalities, do we not have to start thinking about things like sovereign wealth funds around these projects? About £400 million of taxpayers' money from BEIS, Treasury and elsewhere has gone into that. There was a joint venture there, a 50/50. It is now 90/10. It has gone away from us. Is that the sort of thing that we could really max out on the net-zero capabilities if we used it in those localities to assist?

To be honest, those shareholders taking money out of the system and the jobs that it creates are not going to make one jot of difference to longevity, public health outcomes, employment opportunities, educational attainment. It is not going to change it. Is there another mechanism we can use to max out on these opportunities?

Torsten Bell: I will say a little bit and then I will tee up Anna, because she was one of the co-authors of the work we have done in this area. On the big picture of regional disparities, I am broadly agreeing with what you are saying. If you look over the course of the last few decades, the growth in the non-labour income gap is what is pushing up income gaps.

Employment gaps have come down, north-east versus the rest. The north-east has caught up a bit, not as much as we would like. South Yorkshire has definitely caught up. Merseyside has caught up. Large, urban, low-employment areas have caught up on employment. Wages are a bit more mixed, but, because of the minimum wage and for other reasons, we have not seen massively stretched wage gaps going up.

We have non-labour income gaps rising. The phenomenon you are mentioning is one subset of why that might be. We need to think hard about that, because where the non-labour income goes matters if what we care about is the happiness, the wellbeing, the local consumption, the longevity impacts. That is the pessimist answer, which is that the ability to finance capital is increasingly south-east-focused. Even if the activity happens somewhere else, the returns to that from the capital side will not be.

There are things that you can do about that. We have a British Business Bank. We have regional offices. There are arguments for more along those lines. Those are reasonable arguments. Less pessimistic is that, broadly, lots of the green patenting and the rest is concentrated in the areas where most of it is concentrated generally, but, compared to most other innovation, it is definitely more levelling up friendly, so it should be a clear part of that.

All I would say is that that will be true in some geographies and not others. You have given one, the Humber. You can imagine bits of the south coast where you are also going to have a lot of offshore wind power going on. For those places, it is really important, but Anna did all the work.

Dr Valero: We look at this issue in different ways with different datasets. Generally, because of the features required for renewable energy, such as carbon capture, usage and storage, lots of the types of activities we need for net zero are outside London and the south-east. There are other activities for net zero that are basically everywhere, such as building efficiency. There are other things for net zero that are more service-based, perhaps finance-based, which are more likely to be around London and the south-east.

In the analyses we have done, as Torsten said, we found that, if you take green patents, so patenting that is relevant for net zero according to international classifications, while they are, again, more within London and the golden triangle, they are more spread out than the total innovation picture is. That suggests that, when you take a measure of regional specialisation within their patents, so what share are green, that tends to be higher in less productive areas.

You might say, "Patenting is only part of the story. Where are the benefits of that patenting?" We have a methodology where we estimate the returns on investment in innovation. It is an economic methodology. There are various assumptions there, but it shows a very interesting pattern from a levelling-up perspective. If you invest in clean technologies outside the golden triangle, that generates good benefit for those same areas and little leakage into the golden triangle.

When you invest in clean technologies in the golden triangle, it offers quite a big spill-over to the rest of the country and some return within the golden triangle. It shows that there are direct and indirect benefits for the UK investing in clean technologies based on where the specialisms are.

You might say that patents are one part of the picture. We look at other datasets, such as data on firms based on a quite granular classification of what they are doing. If you take traditional datasets with SIC codes, with industry codes, it is very hard to see what they are doing as it is relevant for the net-zero economy. Working with the Data City, which has classified firms based on their descriptions, again we find the same pattern. The net-zero firms as a proportion of total firms in local areas—that intensity—is higher in less productive areas. We highlighted a few areas there in our reports.

Another measure is that you could ask, "What about the high-tech start-up economy within clean technologies?" We use another dataset called Beauhurst there. We know high-tech start-ups are quite concentrated in London and the south-east. When you take the intensity of start-ups, again the less productive areas have a higher share of their start-ups in clean tech.

We put all these pieces of evidence together, together with the natural endowments of different places, which means that some activities will be in certain places. Therefore, we think that this innovation story to do with net zero is a story that, if it is done right so that the benefits actually stay in local areas, could be very consistent with a levelling-up agenda. We have the British Business Bank and the UK Infrastructure Bank. There are now mechanisms to try to think about sustainable investments and regional development. It is strengthening those types of investments to make sure that the finance goes to those places.

Q38 **Chair:** This is probably a big question to finish on, but can we have short comments to close this off? It is about the subsidy race in the US and the EU response. Do we have a level of sophistication or enough data in the UK, as I think Tony Danker said, to outsmart rather than outspend? Do we know where we should be putting any money that the Treasury might give us in order to respond to the subsidy races on either side of us?

Torsten Bell: The simple answer is no currently. There are two aspects to the unhelpful no. There is whether Government have a view about where within the net-zero transition our actual priorities are. The answer is no. We want to pretend that it is a bit of everything.

Within that, Britishvolt is the one that everybody has focused on recently, but it is not just about knowing in which sectors could be plausible stories, given natural endowments or innovation endowments. There is also how we are going to decide which companies. Britishvolt is a good example where the debate was at the level of, "There is one company; are you going to give this one lots of money or are you going to let it go to the wall?", broadly, with no framework for thinking that through.

That is going to be a problem, to be blunt. That is going to be a problem. We do not have the levers either that we are happy to use and we have not got to a decision because we want to pretend that we can have a bit of everything.

Chair: We have to try to fix that.

Torsten Bell: That would be a good idea.

Q39 **Chair:** What do we need to do?

Dr Valero: We need to fix it, because the alternative is to say that we just do nothing and, therefore, waste our opportunities that the evidence suggests are there. We have these strengths that we should build on. In a sense, we have been smaller and smart for some time in a number of areas.

As I said and as we discussed before, we have had benefits as a location for investment that, some of which are now being threatened, in terms of our access to European markets and co-ordination on standards. Standards and regulation on a lot of these technologies will be so important to be aligned on, to ensure that we can easily be selling into broader markets.

It is about maintaining and building on the things that make us a good place to invest. Maybe it is our location and some of our natural endowments, which mean that we have legacy infrastructure we can build on. That is the case in carbon capture, usage and storage, for example. We are doing a new project now starting to look at tidal again. When we look at the innovation, it seems that we do very well. There is a lot of activity on tidal patenting, but we are not investing in it at scale, despite many people making the argument that we have natural reasons to be looking into that.

It is about better data. We are trying to build that in academia. The ONS is trying to build it. The alternative would be doing nothing, so we definitely need to do something, recognising that there is a lot of uncertainty, because we are looking at the future. There is also uncertainty in terms of where our strengths are now. How do we classify the firms? There are barriers in the data, but we can do the best we can with that data.

Q40 **Chair:** Mike, is there an investment need to help you at the ONS to give us the data we need to make better decisions on industrial policy?

Mike Keoghan: I joined ONS a year ago from BEIS. I was chief economist in BEIS and I wish I knew in BEIS what the ONS knows. The ONS has an enormous quantity of information.

Q41 **Chair:** Why did you not tell BEIS?

Mike Keoghan: I have told BEIS.

Chair: You have now.

Mike Keoghan: The point is more that the ONS has an enormous quantity of data across the economy and society, is getting better and is exploiting digital technologies, vacancies and other things. With the investments we are making at ESCoE and the Alan Turing Institute, it is a really rich time. There is a huge amount of data. The modern economy just throws off data as a kind of by-product. The data is there. It is the questions that need to be formulated, but we stand ready to answer whatever questions come forward.

Chair: There is a challenge—very good. We will finish there. Thank you to all three of you for coming. We are very grateful.