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BvA: How can productivity not just benefit business and the economy but also ourselves? What does it take for a society to grow productivity and to raise wellbeing? And can digital technology make us more productive as well as happier? We are going to find out. Welcome to Productivity Puzzles.

[Music 00:00:19-00:00:34]

BvA: Hello and welcome to the 18th episode of Productivity Puzzles, your podcast series on productivity brought to you by The Productivity Institute and sponsored by Capita. I'm Bart van Ark and I'm a Professor of Productivity Studies at the University of Manchester and a Director of The Productivity Institute, which is a UK wide research body on all things productivity in the UK and beyond.

Today we're going to discuss how productivity relates to people's wellbeing. The two are not the obvious happy pair together. After all in layman's terms productivity relates to hard work, to more sweat, to stress and burnouts. So, how can productivity make us better off in terms of health and wellbeing, or even happiness? What investments do we need to make to, so to say, create more wellbeing in an efficient way? And is it just investment or do other social factors, such as trust, also play a role to create productivity and wellbeing? And then there is the digital economy, which in part enriches our life but in part also makes it much more stressful for all of us.

So, as you can hear, this is a vast topic and recently The Productivity Institute commissioned a number of papers on productivity and wellbeing, four of which will be published in the International Productivity Monitor, which is an online journal which The Productivity Institute publishes in conjunction with the Centre for the Study of Living Standards in Canada. You can find a link to the journal, which is freely accessible, and the papers on our website at [productivity.ac.uk](http://productivity.ac.uk).

Now in this podcast I have the pleasure of sitting down with three of the authors of the first batch of papers, which will be published very soon. And our first panellist today is Conal Smith, who is a Senior Economist at the Institute for Governance and Policy Studies at Victoria University of Wellington in New Zealand. Conal is an expert on the economics of wellbeing, social capital and social policy more generally. Previously at the OECD he led the development of the first international guidelines on the measurement of subjective wellbeing and trust, and he co-authored this paper with Jamie Legge on what he calls total wellbeing productivity.

Hello, Conal. Great to have you on this call.

CS: Thanks, Bart.

BvA: Our second panellist is Tim Hazledine, also from New Zealand. Tim recently retired as a Professor of Economics from the University of Auckland Business School. His interests include economic policy, trade and growth in New Zealand, but for this issue of the International Productivity Monitor he has written on trust and productivity, which we'll discuss in more detail later.

Now, Tim, welcome on the call. And I want to ask you and Conal actually is this just a coincidence that we have the two of you from New Zealand talking about productivity of wellbeing, or is this something of a much bigger debate in New Zealand and you're just representing a national debate on this?

TH: Yeah, I think it's because we're so poor, especially relative to Australia, which is 30 per cent higher GDP per capita than New Zealand. So, we have to find other ways of being happy, which is about being happy, wellbeing. So, it's in our budget, and everything. Our budgets are called Wellbeing Budgets, and thing, so it's quite a...it is quite a movement, I think, in New Zealand, yeah.

BvA: Interesting. Conal?

CS: Yeah, I'd agree. You can see that reflected at an organisational level. In Treasury their economic framework at the moment incorporates wellbeing as the outcome. I think it's about how the capital stocks or the resources, you know, you've got effect that. The Productivity Commission, New Zealand Productivity Commission, which is modelled off the Australian Productivity Commission, has currently, I think, got quite a strong interest in wellbeing and productivity.

BvA: Interesting. Also for Diane Coyle of the Bennett Institute for Public Policy at Cambridge University. Diane leads The Productivity Institute's

knowledge capital theme and is a regular participant in the podcast series. And today she will discuss her work with Leonard Nakamura on how our use of time has changed in a digital economy and whether that will make us better off or not.

So, Diane, welcome.

DC: Lovely to be here again, Bart, you know I can't stay away from these podcasts.

BvA: I know that, so we'll get you on every time, and every time on another topic, which is even better. Now I actually want to start with you because in the UK we currently have a big debate about levelling up, spreading the benefits of growth and development more widely across the country, but also a lot of emphasis there on improving people's happiness and wellbeing. And I suppose, however, in sort of...in the policy practice these two things, productivity and wellbeing, really live in somewhat different universe and sometimes are even being seen as trade-offs. Is that right?

DC: It's really interesting because a lot of the interest in wellbeing in the UK is at local level, a lot of local authorities are very interested in it, and at the same time there's a very high level conversation which has some forceful advocates in Central Government about aggregate indicators of wellbeing, and these two aren't quite joined up it seems to me. So, it's a very interesting moment politically in terms of thinking about wellbeing policies. But there are lots of open questions also about the links between wellbeing and productivity. A lot of research has been done and there are some very robust correlations between certain indicators, certain levers of policy and wellbeing measures, such as life satisfaction, but I think still a lot of open questions for us researchers to dig into. And looking in particular there're different spatial scales, what's happening in the firm, what's happening in local communities, what's happening at the national level.

BvA: So, let's dive a little bit deeper into these concepts. And, Tim, you have a lot of interest in the work that's done for the NUL's World Happiness Report, that's an annual report that measures happiness around the world, and that includes several important metrics that are supposed to make people happier. Productivity is not one of them, I think, but what are those metrics and how do those metrics of happiness in your view relate to productivity?

TH: Well the main...they have six indicators, say five statistically significant very regularly, which the leading one actually is GDP per capita. So, some people would say that's what productivity is. So...and that comes through with a...in a log model with an elasticity of about 0.3, as you probably know, which is a sort of a well-known number in happiness studies. Other people find that you double people's incomes and their happiness score goes up

by about 30 per cent. So, it is a big factor in the World Happiness Report, as in other happiness studies, but it's not the only factor.

BvA: So, what other factors do you actually have in that happiness report that are important?

TH: Yeah, the...well sort of an order of importance for most countries, the next one after GDP per capita, after incomes, is the support variable, which is...I think it's phrased something like this, if you're in trouble do you have someone you can go to for help? And New Zealand is the world leader in having someone to go to for help I'm pleased to tell you. About 99 per cent of Kiwis think they've got someone who they can go to, but it's quite an important variable for everyone. And then there's generosity, did you give to a charity lately? There's corruptness, or the level of corruptness in both government and business. There's autonomy, how much control do you have over your lives? Then there's a national variable, which is healthy life expectancy. So, that's a suite of variables which John Helliwell and Richard Layard and Jeffrey Sachs and their colleagues consistently find are quite important for explaining why some countries are happier than others.

BvA: So, Conal, when I introduced you I mentioned that actually at the OECD you've done work on developing guidelines on how to measure wellbeing and how to measure trust. Did productivity ever come up when you went into this discussion, and how has this debate on productivity and wellbeing actually evolved over time?

CS: It didn't come up explicitly. It's implicitly in there. I mean I think the wellbeing debate is fundamentally about saying, look, the metric we ultimately care about is wellbeing. When you mention a trade-off between productivity and wellbeing partly that's because you're focusing quite narrowly on productivity in the sense of how much income or how many goods, market goods, can we produce for a given quantity of resources. So, implicitly in the sort of standard OECD model, like you said, that you look at one of the questions is actually what we should be thinking about is, how much wellbeing can you produce for a given quantity of input? So, there's a sort of implicit, how productive are we at producing wellbeing, question in there. But until very recently I haven't seen many papers specifically focusing on this issue, except there is a little literature on productivity and wellbeing, it goes two ways, which is basically happier people are more productive, although I don't think we quite know which way that causality goes.

DC: So, I think it's really interesting because it seems to me that one of the things that the wellbeing work is doing is trying to turn things that are not really about economics into the economic discussion. And so we want to try to link wellbeing to the sort of standard economic measures, like productivity or GDP per capita, and we know they're important because, as

Tim said, that's a really significant factor in all of the links to what determines people's wellbeing and makes intuitive sense because people don't like recessions, they vote against governments that take them into recession, and that's the state we're in at the moment. But we all know that these are not the only things that matter in life. There are all kinds of dimensions of things that you care about.

And so one of the things that I find very interesting about this whole debate about wellbeing is to what extent are we just trying to combine the many dimensions of life that matter to us, the social connections, the ability to have somebody to turn to if things are going wrong and you need help from somebody, the quality and the environment in which you live, the amenities in your neighbourhood, all of these things? To what extent is this debate really trying to turn all of those dimensions into a language that makes sense to treasuries? And we can link this to productivity and GDP per capita, but actually it's the kind of debate that wouldn't have made much sense in the 18th century. Adam Smith had no problem saying, there are separate dimensions to life and we might care separately about them.

But I'd like to go back to Tim and hear more about this point about social connection because as you said that, Tim, I was wondering do we know enough about the extent to which these attributes are complements or substitutes for each other? Does having money substitute for social connection, or actually do you have to have both of them to be...to have high...a high level of individual wellbeing? What's the data show you on that?

TH: The short answer is that we don't really know because the models that the World Happiness Report, people who are all economists, use are linear and they don't really allow for interactions. You know, so they have more income producing more happiness apparently, and more support does as well. There're two things we could do. One is focus more on whether they're complements or substitutes, as you say. But the other is...would be to pick up your point about why think of this in economic terms at all, why try to turn everything into a GDP equivalent? Instead of valuing housework in monetary terms to put it into GDP why not decommercialise the whole thing and just...and try and say, well people should all share in the housework and that'll be a good thing? So, I would wish to go in the opposite direction; rather than tying everything into GDP put less emphasis on GDP, but I can't really say that in this forum because this is a productivity forum and productivity is sacred.

BvA: We're pretty openminded in this institute, Tim, so don't worry about that. We're happy to discuss everything here. But let's move on a little bit. It's a really interesting discussion and I'm sure that we'll come back to it a little later, but I do want to get a little bit into each of your articles that you produced for the International Productivity Monitor.

And, Conal, you already sort of alluded a little bit to your work when you were mentioning that, you know, when you were developing these guidelines you had been thinking about the resources needed to produce wellbeing, and in effect your paper with Jamie Legge is about sort of what you may call the production function of wellbeing, if you like, right? So, you have an output and you have an input measure and you try to say, what does...what do we need to do, what resources do we need to do in order to create wellbeing? So, let's talk a little bit about the output and input measures. So, the output measure, your wellbeing measure, you proxy by life satisfaction, which is obtained from the European Social Survey. So, why is that a good measure in your view? What alternatives would you access? Why did you choose this one?

CS: That's a good question particularly because if you look at a lot of the policy frameworks around wellbeing they often back off choosing an overarching measure and use these sort of multidimensional dashboards. So, the OECD, the New Zealand Treasury, the UK Statistical Office they're all using these dashboards which have the sorts of things in them that Tim mentioned, so they will have income, they will have social support, but they're not a single measure. So, you need a single overarching measure of wellbeing to do the sort of analysis we wanted.

The standard measure in the literature, the best documented one, is life satisfaction, which is that the standard overarching measure of subjective wellbeing, so captures people's evaluative construct when economies are quite nice, considers...aligns quite well with chores. There are also a couple of other sort of constructs in there. I think Diane's paper, later on she talks a little bit about some of the experienced wellbeing measures, measures that feel how you're doing while you're undertaking a particular task at a point in time. And there's also some evidence that there is a sort of separate...sort of new nomic measures which capture things like meaning and purpose. But life satisfaction is basically the standard measure of subjective wellbeing we use.

TH: Well, yeah, Conal, you're quite right there that it's become pretty standard, and I think the psychologists, who are the experts in this area, not economists, they give it a bit of a tick, don't they? They say these measures across people within countries and across countries, and ask them of course in different languages, not all in English, do seem to have some validity from a psychological or psychology point of view. You can still...one can still wonder whether being satisfied with your life so far could just indicate that you're a bit of a vegetable, you know? I mean what about ambition or drive or seeking to make the world a better place or make your family a better place? If you're trying to do those things you might say, well I get up in the morning and I have, you know, a lot of fun every day trying to make my life better, but I'm not satisfied with it. So, it would be easy and

appropriate, I suppose, to be aware of limitations of any single metric but it does seem to be quite a useful metric, as Conal says.

BvA: Right. So on the output measure we haven't quite solved everything but on the input side of this, of the wellbeing equation, Conal, where you have even more debate, in your paper you talk about resources that you basically call capital. So, you have four types of capital, produced capital, human capital, which is essentially labour, social capital and natural capital. So, why did you pick those four capitals?

CS: So, you see the news quite a lot and in the policy context it's a discussion of inclusive wealth. So, basically the idea is that produced capital is stuff that people make, machines, roads, infrastructure, so standard capital in an economic sense. Human capital is obviously the productivity of people's...embodied in people. Social capital, the socially and economically productive norms and values I guess is how I define that conceptually. And natural capital is latently natural resources, and they go in there. But the capital measures are really quite difficult to measure.

So, produced capital has a common metric in dollars because most of it's traded in the market, although even that, you know, a milking shed and a factory that produce cars are very, very different things.

Human capital, skills. Again we can kind of count up how long you've been at school but it's not clear to me that I've been...you know, I'm an academic, or quasi-academic, I've studied economics, it's not clear that those years of training would easily transfer to the equivalent use of training for a brain surgeon.

Ironically social capital I think is one of the easiest ones to measure. Trust, which I think goes to Tim's paper, actually serves as quite a good proxy for what we seem to be interested in there from a point of view of how good we are at producing either GDP or wellbeing.

But natural capital is really, really difficult. It's not a single thing. I mean it encompasses both oil wells and endangered birds, right, biodiversity, and these two things are very, very poor substitutes for each other, if it substitutes at all.

So, there is a real challenge, and it came to you very strongly in our paper, you can kind of see it, in trying to get metrics which actually describe the capital stocks.

BvA: So, I guess here comes the linear point a little bit that we...that Tim mentioned earlier, right? So, when I do sort of simple productivity in the narrow sense I can see that all these capitals produce an output. But when I think about wellbeing I think, well these inputs are actually outputs to a

large extent, right? I mean just my access to human capital which makes me more educated makes me happier. And having access to more natural capital makes me in itself happier. So, it's not just the matter of the investment that gives a return, it's simply the access to that input which already has an element of increased happiness. So, how do you deal with that? I mean that flies in the face of the linear thinking of a production function, right?

CS: Yeah, it does, and it's a...it's one of the challenges we're dealing with here and what our paper does, two things, I mean we look at the relationship on capital stocks and subjective wellbeing, and then we decompose that into the effect that runs through the impact of the capital stocks on GDP, on income, and the residual that goes from the capital stocks to subjective wellbeing. And there is potentially a little bit of unpacking there because you can imagine that second one is going to go through two routes. One, a lot of the things that we know from, for example, the World Happiness Report directly contribute to people's wellbeing, health, social contacts, corruption, levels of corruption, some environmental outcomes are actually produced if things that are made, right? So, I mean the reverse, Kuznets Curve, the environment, suggests that, you know, as you get wealthier you actually do produce environmental outcomes. At the same time there is also going to be some correlation on there, which goes from a fact that the level of environment, quality of natural environment I will appreciate, or I may appreciate, just directly.

So, I mean I don't think our paper gets the point of completely teasing this apart. Looking at it at a very aggregate level what can we say about how effectively we use...we're able to use resources to produce wellbeing and how different this is between the market sector and the non-market sector standard production, like the simplified economic model we have?

BvA: So, you use these two productivity concepts, right? You have this total wellbeing productivity that we talked about, and then you compare that with sort of the traditional narrow productivity measures, and you find strikingly large differences between countries. So, some countries are really scoring well on total...narrow total effective productivity but not on wellbeing productivity, any other way around. What explains that?

CS: I would...I mean I'd suggest there're two potential stories in there and I suspect it's a bit of both. One, part of that variance is likely to be measurement error, to be really clear about what we're doing, so this is a residual based estimate of productivity, and that's means any measurement error is going to go into that measure of wellbeing productivity. So, I wouldn't oversell what's in there. The second thing is the same sort of reason, you get variance in total effective productivity across countries, right? Some countries have got a better set of institutions perhaps, or a better set of technologies producing wellbeing. Tim, you know, mentioned

that New Zealand does very, very well on social support. So, part of that, there's always a risk that maybe we're just a bit more optimistic talking about that and that's the noise. But if it's not there's a question in there in saying, what is it about New Zealand's society which means we achieve those results in the non-market sector?

DC: But I think what this is revealing is just how interesting a frontier this kind of territory is because what we're really talking about is the conception of what's making societies better, are we progressing or not? And in many countries there's a suspicion that actually not at the moment. We've got social fracture; we're concerned about climate change and the impacts of loss of biodiversity. And so the questions that we're asking in this whole cluster of papers that you've got on the IPM is really about different ways of conceptualising what is progress, is it productivity or is it something broader, and what are the drivers? And I think what the conversation so far is revealing is that we know a little bit about it but there's an awful lot we don't know and the measures are very difficult.

BvA: But that creates the big question about well you can do this from a policy perspective, right? We're still scratching the surface in understanding this relationship. Then when...I mean I referred earlier, Diane, to the Levelling Up White Paper. The Levelling Up White Paper in the UK was looking at sort of levelling up the regions in the UK. It also talks about capitals. Okay, you have six capitals instead of four. I think they add institutional capital to it and financial capital. And I was in a conversation with a policy...a local policy leader in Manchester who said to me, well this is all great and well but how am I going to sort of...how can I make this empirical and what do I do policy wise if this is in Rochdale? This was Rochdale, it's in a part of Manchester. I didn't have a good answer.

CS: If you look...we measure GDP very well but if you look at what most...certainly most developed country governments do most of their expenditure isn't actually targeted towards GDP, right? Most of the decisions are actually about purchasing in effect that...these outcomes that Tim mentioned. So, any developed country's government budget, the big spends are going to be education, health, they're going to be on the social side. So, this problem is actually very, very real. The main policy challenge that a treasury or a finance minister is basing on a day to day basis is, how do I spin to achieve these wellbeing outcomes, whether they frame it that way or not. So, it's a very real sort of policy issue there that we can't get around by standing back and saying, look, we can measure GDP. Most policy is not about increasing GDP.

BvA: Okay. So, let's first take a break before we will discuss the other two papers on productivity and wellbeing from Diane and Tim. During the break we will hear what else is going on at The Productivity Institute.

[Podcast ad break 00:24:43-00:26:11]

BvA: Welcome back to my discussion with Diane Coyle, Tim Hazledine and Conal Smith on productivity and wellbeing discussing the articles that have been published in a special symposium in the International Productivity Monitor, which you can access through our website at The Productivity Institute at [productivity.ac.uk](http://productivity.ac.uk).

Now, Tim, before the break we talked about sort of the resources to create wellbeing and we already mentioned this one specific source, social capital, but you are a bit more specific about what that means, or an important element of that, which is trust. And maybe we have to start here at a somewhat basic level, and that is why does trust matter for productivity and why does it matter for wellbeing, what are the mechanisms for which trust, you know, works out in this equation?

TH: Yeah, that's the big question and I think it's an important one. Just one clarifier, the word 'trust' is short for generalised trust or social trust, it's trusting strangers, that's key. It's not...in fact it's not about trust in your family or your friends, and in fact almost it's the opposite of that, it's being able to trust people who you don't know. And it's just really striking to the extent to which modern researchers finding out about the importance of trusting strangers.

But it goes back to the first and greatest economist, Adam Smith. He's well known for highlighting the importance for productivity of the division of labour, right? His famous example of the pin factory, which he stole from the French philosopher, Diderot's Encyclopaedia, and all the 19 steps in making pins. Okay, he stole that but he didn't...he took it further because he wasn't just interested in the...what you might say the production engineering part of the division of labour, he was interested in the social requirements of doing...of going ahead with dividing labour. And he soon...and soon after his little exposition on the pin factory he comments on how the division of labour requires people to deal with thousands of people in their lifetime whom they don't know, in other words to trust strangers. And I think you can read his great book, *The Wealth of Nations*, as sort of a how to do it tract, training the people of Britain, of England and Scotland, on how to behave in the commercial economy, the bourgeois virtues of prudence and reliability and forbearance, in order to make this great leap forward into modern productive society. So, it's all on Adam Smith just like it may all be in the Bible or Shakespeare.

But if you...and for a long time this has been neglected but now people, and I'm one of them, are saying, well let's see if we can see this in the data? For the first time ever, in the last 30 years, we have survey data on trust, how much do you trust strangers? And what I find, and others find, is that it's very important to achieving a productive society as well as a happy

society that people be able to trust strangers, people they don't know, and that they understand what Conal referred to as the norms and values of modern life.

So, yeah, it's a big capital. I don't call it social capital by the way because that word is often used for things like, how many friends have you got, which of course is not what I'm talking about. I call it trust capital, and I think it's becoming very important.

BvA: Yeah. So, I wanted to go back to Conal for a moment because you talk about social capital and I was just wondering is it the same or is it not quite the same, is social capital broader than trust and...?

CS: Tim's got a really good point there. The word 'social capital' is used to describe a whole...and has its origins in sociology, but even from sociology it's used to describe a bunch of fundamentally quite different things. I mean if you take at one end you've got, you know, Robert Putnam and his work on Italy who was talking about socially useful norms and values, what we're talking about here. At the other end you've got some sociologists who talk about it as the way in which elites ensure that they're able to transfer...that their children inherit the...or pick up the good positions in society by using personal networks. These things are almost the opposite of each other socially.

When I talk about it in the paper, and I think when it's used in the context of the four capitals, it only makes sense, it means social capital as socially productive norms and values, and hence the...you know, in the paper we did we say basically, look, trust is the best measure of this concept of social capital there is, and for empirical reasons we proxy that by perceived corruption rather than trust just because we've got life satisfaction on the left hand side and we don't want to regress one subjective variable on another.

BvA: Now, Tim, you make a distinction between two measures of trust, social trust and deep trust. So, explain to us what the difference is and why it's important to make that distinction.

TH: A number of economists, and Bjornskov was the leading one I think, have delved into the reasons why some countries report on average higher levels of social trust than others, and the most extraordinary findings come out of this. It turns out to be important if the language of the country retains a personal pronoun or not, whether people address each other as 'you' and 'me' and 'I', or as in, say, Latin and some other romanced languages the personal pronoun is obliterated. And this is believed that languages which...like ours, like English, which retain a personal pronoun indicate a respect for individuals which seems to be connected to trust whether your society is a monarchy or not, which is a very deep variable. That seems to

have come through into trust measures as well. There're, you know, a number of these variables, and a small number, which are strikingly well able to predict whether a country now when it's asked the trust question whether people in a country now tend to say, yes, I can trust strangers.

So, that's...and so that's why I call it deep trust because it's rather gloomily from a policy perspective a lot of high trust societies appear to build up their trust over centuries of institutional change and reform. So, that's why I call it deep trust. And I find that in explaining productivity, or market productivity, and wellbeing, or non-market productivity, usually deep trust performs a bit better econometrically than actual trust, but it's not so clear when we're explaining happiness or wellbeing.

DC: There's quite a lot of work showing how long the shadow of history is, and I find this completely fascinating. You know, so as Tim says the roots of what kind of society we live in and how that feeds into productivity, and ultimately wellbeing, depend on all the centuries of history that have gone beforehand. What I kind of push against is the fatalism that that might imply and hope that it can be the case that, you know, we all start from where we start but we are, to some extent, masters of our own destiny and we can change those things.

But one of the things that interests me about trust, thinking as I do about the digital economy and the way that digital has set up these vast global networks of production chains, is that we're in a situation where, by definition, there's very high trust. We buy stuff from people across the world that we know nothing about with these extended supply chains. So, it's a very high trust economy that we have in some ways. And I just wonder how fragile that is, or how that will play out in different countries given the kind of research that Tim's talking about, about the extent to which the shadow of your own past has an influence on economic outcomes today.

TH: Yeah, that's a good point. None of us probably...well I certainly wouldn't have predicted how successful the internet based transaction economy has been. It is because somebody invented the rating system where if you've been in a transaction on Amazon, or whatever, you...well with another person, say, buying and selling a second-hand good you rate each other after the transaction and people...and those ratings have real value and real predictive power. So, maybe it's fragile but it seems to work extremely well.

But I...perhaps I can just...on this business of fatalism and, even worse, pessimism there is a certain about decline in trust around the world but in fact it's almost all happening in one country, the United States of America. Trust is declining in the United States of America but it's not declining anywhere else. And in fact there're almost as many countries that have a decline in trust, and it's a small decline, than showing an increase in it. So,

through all these unhappy days or times that we're living now the trust variable does seem to be holding up, except in America.

BvA: So, one thing I want to ask you is that, you know, social trust, or trust, is important for GDP and productivity, what is the return for producing social trust?

TH: That I think is a question which has literally not been asked at all. But if you've got these four capitals well we know that, okay, the labour people get their wage, and the capitalists get their profits, and the landowners get their rents, but what about the people who produce the trust, what do they get? The trust is produced by all people behaving fairly well with each other, strangers. So, we all produce the trust. And we produce the trust as consumers when we don't shoplift, we produce the trust especially as parents when we bring up our children to be honest and respectful of other people. And so shouldn't we all well behaved members of society get monetary return from that just like the capitalist and the worker and the landowner gets? And I think we should and I think it's the moral justification for the idea of a Universal Basic Income, which is thrown around a lot these days but it's always treated as a sort of a welfare payment or a transfer payment, you know, not as something in fact we earn. And I call this...I'm trying to rename the UBI as the trust dividend, that the reward to a society's...all of society's members in money terms for being good citizens.

DC: Well I very much disagree with you about that actually, Tim. So, Universal Basic Income seems to me a very individualist Silicon Valley kind of solution to worries about whether there will be enough decent jobs around because you can't buy social goods with an individual income, you can't buy a transport network or a good school system. And I think the payoff to trust is reduced transactions costs, is that exchanges are possible that otherwise would not be and the scope of the market is extended in exactly the way that Adam Smith described.

TH: Yeah, well indeed, it's...as Adam Smith said, we can't have transactions if we don't have trust.

BvA: We're going to switch gears one more time. This is a fascinating podcast, one of the most fascinating I've done, because we've touched on so many things. And I want to go one other topic that, Diane, you already alluded to earlier, and that's the role of digital because the digital economy plays very interestingly in this whole wellbeing discussion, right? I think we experience every day the pearls and perils of digital in both productivity and wellbeing. You know, we all enjoy the benefits of digital technologies, it's easier access to information, the ability to compare prices, make our own choices, but whilst also sacrifice all of our time on our devices basically to do the work that was previously done by providers and professionals and shop salespersons and travel agents. So, you argue that actually that digital

economy has big implications for the way that we're allocating our time and the benefits we're getting from it. So, it's the heart of this productivity and wellbeing story. So, explain a little bit more what you found in your work with Leonard Nakamura on this that we need to think about in this discussion.

DC: Well...so I've been looking at the digital economy for a very long time and it's hard to track what's happening because we don't have the statistics that we would like to understand it well. But clearly since...certainly since 2007 with smartphones and 3G access and apps we've come to spend an awful lot of time online as consumers, and it's changed business models in production as well. So, it's transformed the economy in the space of a little over ten years.

And so the question that Leonard and I looked at was, well let's take that seriously; you know, we talk about the budget constraint as economists, how much money do you have to spend on the goods and services that you want? But the real constraint on everybody is that we've got 24 hours a day, and we sleep for some of that, and what would happen if we think about the economy in terms of the time spent, the time spent as consumers on the different activities that we do? Might wellbeing for the different activities be a good way of thinking about economic progress, are we getting better off or not, and how does that relate to productivity measures?

And then on the productivity side time is really obviously an important factor in thinking about business productivity. A lot of the metrics or the innovations have come about through speeding up processes, Just-In-Time innovation, and the logistic supply chains that have driven so much of productivity gains since the 1990s are one example of that. But on the other hand there are activities where you would want people to spend more time. If you go to fancy hairdresser it's the experience of being there for an hour, you don't want to make that shorter, you want to have a better experience. Or if you're in hospital you want a really qualified medical staff taking care of you and you want all of their time and attention. So, could we think about both wellbeing and progress in some sense, and on the production side productivity using this time lens?

And actually retail is a really good example of how technology has changed things because a while back in the, I don't know, '70s and '80s we had the conveyor belts, we bought our groceries in store, put them on a conveyer belt and the checkout assistant would scan them. So, there's some physical capital and some paid labour. And then we have moved to automatic checkouts where the paid labour has been reduced, there's more investment in physical capital and software to make sure that we're not stealing stuff, and some free labour, so we're doing some of that ourselves. And then if you think about the Amazon stores there's incredibly

sophisticated software and a bit of physical capital, and it's all free labour and there's almost no paid labour.

So, this substitution between factors of production and how that plays into the productivity metric I think is really interesting because the supermarkets are going to show productivity gains as measured from the fact that our unpaid labour is substituted for the paid labour on the checkouts. And how do you cast that forward to the time when all of the stores are like Amazon and we just pick up what we want and software tracks and charges us for it?

BvA: So, you make a distinction in your article between time to consume and time to produce. If you look at time to produce you could basically say, you know, companies, firms, that produce by using more digital are better off in terms of higher productivity, if you're more digital as a company you're more productive. Can we say the same on the consumer side? If you're more digital savvy, if you know how to use these technologies well as a consumer and dedicate time, will you be better off in terms of wellbeing, or why does that relationship then fall apart?

DC: Well I don't think we know. I don't think we know what the right wellbeing measures are. And as we all know from our own personal experiences there are good things and bad things about this. We can all do our own work much faster and more effectively, we don't need to be bored, we've got the whole wealth of creativity...human creativity that we can tap into from being online on the one hand. And on the other there's online trolling and bullying and disinformation. And how do you weigh those things up against each other? And actually I think we're only at the beginning of understanding.

BvA: So, a lot of your paper is about measurement, right, and we can spend a whole podcast on that, but briefly what are the most important measurement implications this would have for wellbeing measurement and productivity measurement?

DC: So, for wellbeing measurement it would be understanding in more detail how people are allocating their time to different activities online. And there have been improvements in the data collection but I think not quite enough because there's a big difference between things that you get wellbeing out of online and things that are timed hacks. You have to apply for your passport or you've got to pay your council tax online and the websites don't work, so you've got no choice and it takes too much time. So, how do we separate those things out?

And then on the productivity side, the output side, it's understanding what's routine and can and should be done quickly, and where is quality and time spent more important to the outcomes?

BvA: And I think, you know, linking it back to the earlier discussion on the capitals if you think about digital, these other capitals, right, that become more important intangible capital component in the economy because more important, that's the economy because more digitised. Conal, Tim, any thought from your work when you bring in that digital component explicitly in the work that you've been discussing here? What is striking you there?

TH: I find the work that Diane and her colleagues are doing on this very interesting and the distinction why...you know, why do supermarkets currently make their best customers with a, you know, big basket full of stuff queue and their worst customers, the less than 12 items customers, go straight through? I mean there're all sorts of things there which are very interesting but as a...on the large scale of events. So, I don't...I go back to Bob Solow in the '60s when he said, you can see computers everywhere in the economy except in the GDP stats, you know? And I actually don't think there's anything fundamental happening here at all. I think the big inventions were the penny post and Sears Roebuck catalogue, and, you know, Amazon and the internet are just slightly quicker, or substantially but not strikingly quicker methods of communicating and conducting transactions. So, I don't think the world has changed at all really.

CS: So, I have two very quick thoughts on this.

One, simply the amount of time we spend dealing with software updates, the rate of innovation in the digital sector, I sometimes wonder if it's so high that it eats into productivity because we have to keep disregarding...throwing out old human capital in terms of knowing how to work a particular computer programme and learn a new one. And when you think about it it wouldn't take very much, only an aggregate of a day or two days a year, and you start actually having a real effect on productivity. So, I wonder if the analogy for innovation must mean productivity is actually a bit of a red herring there. If the rate of innovation is so high you never get use out of any new thing that you have to invest time into to learn to master it's actually going to have a negative effect on productivity.

The second thing, just going back to deep history and deep trust. So, if you think about digital media as...and the digital revolution as a huge change in our communications media the last comparable change I can think of is the printing press, right? When we got the printing press we had two centuries...the social trust collects basically, we had two centuries dominated by religious wars ending in the 30 Years War before we managed to find a new way to organise society that dealt with the implications of the printing press. I sometimes do worry a little bit about the impact of social media, that we don't know how it's going to feed through, and, you know, without being doom and gloom I worry that it could very easily go either way.

DC: And, Conal, I think this is a big deal. I think it's more like the printing press. It's not business as usual.

BvA: Okay, well there's more to discuss and there are new topics that we can do in follow up podcasts but we have to stop here. Really I'd like to thank Diane Coyle and Tim Hazledine and Conal Smith. You can read the articles that we have discussed in this podcast in the International Productivity Monitor, which is a journal co-produced by The Productivity Institute and the Centre of Study of Living Standards, and the new edition with these papers is now available at [productivity.ac.uk](http://productivity.ac.uk), or go just to the show notes of the podcast and you can get the links there. Conal, Tim, Diane, thank you very much.

DC: Thank you.

CS: Thanks, Bart.

TH: Thank you.

[Music 00:48:20-00:48:26]

BvA: Our next episode of Productivity Puzzles will be on Productivity in the Public Sector of the Economy. Building on an earlier podcast on Practical Productivity in the Private Sector The Productivity Institute has undertaken a symphysis study of what we know about managing productivity in Government, in education, in the healthcare sector. And on the basis of this recent work I'll have a conversation with Paul Abraham of Capita, which has financially supported this work, Stephen Aldridge, Chief Economist at the Department for Levelling Up, Housing and Communities and the lead on the Government's Public Sector Efficiency Group, and with Anna Smart, who's Systems Thinking and Organisational Design Lead at the London Borough of Camden.

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