

Leeds University Business School – Research and Innovation Podcast

Episode 2: Education, skills and wage inequality

Speakers: Dr Arpita Bhattacharjee and Dr J Juliane Scheffel

Arpita: Hi, I'm Arpita Bhattacharjee.

Juliane: And I'm Juliane Scheffel, and we're both are economists from Leeds University Business School.

Arpita: And we're going to be talking about wage inequality. Julie, you know what? I was reading this article from the OECD, which was talking about wage inequality being highest in the past couple of decades across OECD countries. Now, I remember from my labour economics module, wage inequality was kind of the overarching topic of that module, and we were... we studied about different drivers of wage inequality and one that rolls of the top of my head, correct me if I'm wrong, is different types of people, because we are all different types of people, right? Different types of people select into different levels of education and that consequently results in wage differences. What do you think about that?

Juliane: Yes, that a good starting point. So, basically, we assume, in labour economics, we assume that people have different levels of ability. Right? So, we say, if people have different levels of ability, and based on their levels of ability, the ones with high levels of ability tend to be paid more, right? So, independent of how well educated they are, they tend to be doing better at interviews and whatever, so by doing that they will always be paid more, right?

So, that's one thing, but the other problem here is, which is potentially why it could... or how it could explain income inequality is that people who are better at doing things also are better at studying and of course that's why they also will be selecting themselves into higher levels of education, right? And in that respect they basically have a double advantage, so they are being paid more and they also have

higher levels of education and that, to some extent, could explain, based on this really simple theoretical approach, right, that could explain the shape of the wage distribution.

Arpita: Okay. So, you say this is a theoretical hypothesis, right?

Juliane: Yes.

Arpita: But one thing that's concerning is where it's pointing at, because this seems to be pointing out that education might be what is driving these differences, and then in that case, should then governments not focus on investing in education so much?

Juliane: Yes.

Arpita: Would that be an implication of this, then?

Juliane: If we believed that theory to be true, which is what it really isn't, then that would be the implication, right? So, in this case we would say, "Well, education is making it worse, so we shouldn't invest in people getting any university degree, because then that would drive income inequality." But then, the question is: is empirical evidence supporting that? And we find that it's actually not.

So, if there are studies... yes, there are studies by Ashenfelter and Rouse in the US, who actually looked at different people with different IQ scores, and they found that within any of these IQ score groups, percentiles or whatever, they found that there is not really that much evidence supporting this hypothesis. So, people with better levels of education aren't paid better which means this is a good thing. So, human capital theory, the one that we just talked about, is not able to explain that, which is a good thing. So, people get education is important.

Arpita: So, basically, I think I recall this, the evidence you talked about, it was that the extra year of schooling is equally beneficial irrespective of where people lie on the ability spectrum.

Juliane: Basically, yes. That's what it says. So, in simple terms, it doesn't matter what kind of ability level, underlying IQ you have, an extra year of schooling is always paid basically the same way, that's what this says.

Arpita: Okay, that's good to know because basically... so then, even if the theoretical predication says otherwise, the empirical evidence doesn't support this hypothesis. You know, that brings me to a very popular topic in this area, in wage inequality, which is skill bias technological change. And it's been talked about a lot, and this was that recent technological change has been biased towards people, or labour, with higher skills, because they're more complementary to high skill labour and this has made... this has driven this wedge between the top, like, very high skilled and low skilled people. Is that... am I right about this particular hypothesis?

Juliane: Yes, so if we think about that, so again, if we're thinking about the theoretical assumptions here, right? So, that would say... that would basically suggest if people are complementary to machines, which means they work better with machines. So, for example think about a computer, right? A computer is making all work easier, right? So, we can do more in the same amount of time, but then if we're more productive, the theory predicts that we should also be paid higher wages, according to that, right?

So, the skill bias technological change theory would then say, if that was the only reason explaining that, that because people are being made more productive, that's... by using these machines, that's why their wages increase further and more than what they would have in any other case. But the problem of this approach is also that it would assume that people at the lower end of the skill distribution would be substituted by machines right? So that, basically means that people who don't have enough skills... so, their skills should be taken over by computers, and then there's all this fear about computers taking over our jobs starts.

Arpita:

Yes, so this is something that policy is so focussed on right now, that automation is going to come and wipe away so many of the jobs and keeping just like a big chunk of the [barrier 00:05:24], essentially and then removing all other jobs. But, again, theoretically this is one of those... I feel like this is, again, one of those things where there is a theoretical hypothesis and I can recall this paper by Card and DiNardo which said even though skill bias technological change seems like a very intuitive explanation, it doesn't really support what's been happening actually, in reality.

Juliane:

It's a really compelling story, right? Because it would explain why people at the upper end of the spectrum would actually run away, or their wages would increase more. Exactly, so the problem here is we have to actually think a little bit more deeply into what kind of tasks people are taking over.

So, when we are thinking about what kind of tasks have been taken away by computer over the last, let's say centuries, these... not centuries, decades, then we probably think about tasks like, you know bank tellers, people at the conveyer belt, those types of jobs which are... we call them routine jobs, jobs that can be easily computerised, or easily coded by machines, and then people make... or because people make mistakes, those machines are more productive or more efficient in order to avoid mistakes, right?

So, that's one thing, so these jobs, however, tend to be in the middle of the distribution, so these tend to be taken away by machines, but then if we are thinking about what types of jobs are people doing at the lower end, right? So, at... low skilled distribution, so think about, like, baristas or people in agriculture or, I don't know, cleaners, drivers, those types of jobs, right, who have low skills, anybody can do these types of jobs. And then you think about those jobs and their relationship with machines, so these are jobs that either are... need a machine, so like a barista needs a coffee maker, coffee machine etcetera, so also there, there seems to be some kind of complementarity going on, so it's not so easy to say that machines are

replacing all of our work and especially are not substituting jobs at the lower end of the spectrum.

Arpita:

Absolutely. You know, this reminds me of... I've been working on this project with the engineering sciences here and it covers this area of robotics and robotics and infrastructure maintenance, and one of the things that I've learned is that robots are not at a place where they can replace manual labour yet, and when we think of the really low end of the skill distribution, this is manual labour, which means even though we might feel threatened with automation, it's not right now at a place where it can do that.

Juliane:

Yes, but then if you think about... that's completely true, right? So, in this case the question is really more a question of is it... how easy is it to really substitute workers and machines? So, the problem is we have thought that machines cannot take over these service jobs, right? Like cleaning etcetera, but then... or let's say driving, and then we think about driverless cars, and then we think about robot waiters and all of these things, and then we wonder, so what's going to happen in the future, so yes, we thought that these kinds of jobs are safe, but that's actually not really true, right?

So, we need to think a little bit, or we need to be aware of what happens in the future. But you know, one major thing that we have to also bear in mind and consider is: although jobs have been taken away in the middle of the distribution, right? So, let's say these bank tellers etcetera, but these jobs haven't really disappeared, it's mainly that the tasks that people in these jobs are doing have changed, so if you think about a secretary, for example, right? So, let's think about them, like, 30 years ago, they typically were typing up things that their bosses told them, right? So, writing letters etcetera, and that's not what they do anymore, because now bosses can do that stuff themselves, right? So, now the type of work that these secretaries do has changed entirely, so there has been a complete change in the tasks they do, like upskilling basically in these occupations, right?

So, what we observe is, although the types of... although machines have an impact on jobs and might take some of the jobs away, the types of jobs that we observe change as well. So, the question is...

Arpita: So, basically something like human ingenuity is bigger than this and we come up with new tasks and new jobs every time we are threatened with technological advancement.

Juliane: Yes.

Arpita: But coming back to what I started with, wage inequality, and what this era of automation, if I can call it that, implies for wage inequality, I guess what we can conclude... it's actually still an open platform, like we don't know what is going to happen, and then I guess this gets me...

Juliane: Isn't it exciting?

Arpita: It is, that's what I was going to say, it is so exciting to be a labour economist at this point, because the way we do things, we reach theoretical hypotheses and then we are like, but wait, let me see if the data supports it and then we have all this empirical evidence, and I guess it's the same here, before reaching very broad policy conclusions.

Juliane: Yes, but you know students find it really hard because typically for them it's difficult because they want one type of... what do you say? One type of, like, argument, right? And then say, "Well this is the argument, this is the model, it fits everything," but it's not really that easy, which makes it exciting but also... I don't know.

Arpita: Very exciting times to be an economist, I guess.

Juliane: Labour economist.

Arpita: Labour economist, I stand corrected.

Juliane: Thank you.

Arpita: Thank you, Julie.