

EconoFact Chats: Artificial Intelligence and Jobs
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I'm Michael Klein, executive editor of EconoFact, a nonpartisan web-based publication of The Fletcher School at Tufts University. At EconoFact, we bring key facts and incisive analysis to the national debate on economic and social policies, publishing work from leading economists across the country. You can learn more about us and see our work at www.econofact.org.

Michael Klein

The Ballad of John Henry tells the story of a steel-driving man whose job is threatened by a steam-powered rock drill. In a contest between man and machine, the man wins but dies in the effort. The displacement of people's jobs is an ongoing concern, from the Luddites, who were replaced by weaving machines, to grocery clerks, replaced by self-checkout terminals. These concerns are now being raised about artificial intelligence – although in this case, the affected workers are computer coders, paralegals, and middle managers. At the same time, throughout history, technological changes have created new types of jobs, and made workers more productive, which can lead to higher living standards. The question at the moment is how AI will affect jobs. Will there be widespread layoffs and dislocations? Or will there arise new jobs that will offer yet unknown opportunities? To discuss these points, I'm pleased to welcome to EconoFact Chats Jed Kolko. Jed is a Senior Fellow at the Peterson Institute for International Economics and is also Head of Macro Data Strategy at Rokos Capital Management. He served as Under Secretary for Economic Affairs at the U.S. Department of Commerce from 2022 to 2024, where he oversaw the Census Bureau and the Bureau of Economic Analysis. He also launched the Regional Economic Research Initiative. Jed, welcome to EconoFact Chats.

Jed Kolko

Thanks very much, Michael. It's a treat to be here, I've been a big fan of EconoFact for a long time.

Michael Klein

Thanks for saying that. AI has gotten a lot of attention for a range of reasons, some of which have to do with its effects on the economy and workers. For the economy as a whole, well...in the early 1990s, the Nobel laureate Robert Solow said that you can see the effects of the internet everywhere except in economic statistics. Is that currently the case with AI as well?

Jed Kolko

Well there are some economic statistics where most of what we're seeing is AI. When we look at measures like capital expenditure, some trade measures, when we look at what's happening with equities and what that might mean for consumer spending, AI is clearly very, very present. But that's the investment in AI. Where we are not seeing AI in the economic statistics is in some of the macro labor market data. So far, there's been multiple attempts through fairly careful research to try to understand what the effect of AI has been on employment and unemployment changes. And typically, this research has tried to identify either the jobs or places or people who would be more affected by AI, and compare what's happening to them in the labor market with jobs or places or people we'd expect to be less affected by AI. For the most part, we're not seeing meaningful differences in labor market outcomes when we compare the AI affected and the non-AI affected. We are seeing big effects in many of the more micro studies looking at productivity, but not when we look broadly at the labor market.

Michael Klein

In an article that you published this past spring, you reviewed the research on the effects of AI on jobs. And this research is by very well-regarded economists, but it often comes up with really different

predictions of the effects of AI on jobs. Why is it so hard to figure out the effects of AI on the economy, and on jobs in particular?

Jed Kolko

It's hard to figure out the effect of AI in the economy for starters because of measurement. At this point, there have been many attempts to try to get at what it means for a task or a job to be exposed to AI. That is whether that activity is likely to be affected by AI for better or worse. It could mean for worse in the sense that AI could automate that task, or it could mean for the better, which means that the human doing that task could be augmented, or made more productive by AI. However, this is hard to measure and different attempts to measure which occupations are most exposed to AI have come up with somewhat different answers. Another big challenge of course is AI is changing rapidly. And any research that might be coming out now will have been done months ago, perhaps using an AI exposure measure that was calculated even before that. And with the technology that's rapidly changing, it means that we are always looking at what AI was a bit in the past, which may no longer be relevant to the effect AI is having today.

Michael Klein

So given the flaws in the data, can you interpret the data in a way that makes sense, or has that become really difficult, especially because of what you're saying about...the prospective for AI is different than retrospectively what we've seen with AI?

Jed Kolko

I think there've been two challenges in interpreting some of the early AI in the labor market research that we've seen. The first is the timing. So some of this research takes the approach of identifying effects of AI in the labor market around the time that AI became more widespread in workplace settings. The tricky thing though is it's not like AI turned on one day after having been off before that. There have been AI tools in use – sometimes under different names – for many years. A lot of the recent effects we've seen actually predate the widespread commercial introduction of ChatGPT in late 2022, which is one moment that people often point to as where we might start seeing AI effects. I think the other interpretation challenge is, some of this research tries to compare occupations that are more exposed to AI with those that are believed to be less exposed to AI. But occupations that are more versus less exposed to AI might differ in other ways too. They might cluster in different places. They might have behaved differently in the pandemic. They might be more or less open to remote work. And so there are all these other differences between occupations that are more exposed to AI versus those less exposed to AI that make it really hard to tease out the effect of AI specifically when comparing occupations.

Michael Klein

So I think this point about the difference between innovation and adoption is really important, as you're discussing. For example, I know with the introduction of electricity, it took decades for it to be widely used in manufacturing. And I imagine with AI, it's a very similar thing. There's a reticence to move into something that is both rapidly changing and kind of unknown, and also there's not necessarily a first mover advantage. You can learn from others. So do you see a slow adoption of AI in businesses, and that's in a way not really letting us know what the ultimate effects of AI will be?

Jed Kolko

Individual workers are adopting AI in lots of businesses, but it may be that we see the big economic effects of AI only when those individual decisions to adopt AI, do things differently, aggregate up to new business processes and operations. And that can take time, that can take years. For some technologies that can take decades before businesses really update their processes and operations to take advantage of a new technology. And it's complicated to do so. It may mean difficult decision making among people whose own jobs may be threatened in some way. It might mean changing how a business works with its suppliers or its customers. It may mean overhauling lots of infrastructure that already commanded large investments in the past. So changing those business processes and operations that really helps an

organization and then an economy take advantage of new technology can happen years after that technology is capable of doing what people want it to do.

Michael Klein

We hear about exposure to AI. What does that actually mean, and is that a relevant way to approach this issue?

Jed Kolko

So a lot of the research has begun with a measure of AI exposure, basically which tasks or which jobs are more exposed to AI. Now, it's a theoretical concept. It's different from who is actually using AI today...because there might be certain kinds of jobs that are exposed to AI in that they could be affected by them, even if the people working in those jobs aren't using AI at the moment. AI exposure though can mean either...it can be a good thing or a bad thing for someone in that occupation. It could be a good thing if the exposure means that AI makes the person more productive in the tasks that make up their job. It could be a threatening thing if AI could automate that job. And as I mentioned before, there have been multiple attempts by different researchers and organizations to measure how exposed different occupations are to AI, and they don't always agree, which means you can sometimes get a different answer to the same research question depending on which measure of AI exposure you use. But exposure is not the whole story. Whether AI ends up helping or hurting a particular person is partly about whether what they do is exposed to AI and how. But also really importantly, it depends on how well that person can adapt to that exposure. And adaptability can depend on very different things than exposure. Someone might be more able to adapt because they have resources to go back to school. They have a working spouse that can support them while they get retraining. They may be in a labor market where there are lots of other job options in fields that are less threatened by AI. Some of it may even be individual temperament. There was a very nice piece recently in *The Atlantic* that described the personality characteristics that could indicate whether someone's more likely to embrace AI and make themselves more productive, or not. So this question of adaptability might be even as important as the question of exposure in understanding how someone will be affected by AI in the labor market.

Michael Klein

So I guess if John Henry decided to drive a steam drill, he would have been at least as productive as he would have been with the hammer in his hand, and he probably would have had a much longer career as well. So there's a lot of speculation, as you're alluding to, and a lot of unknown, but do you have any idea of the jobs that might be particularly exposed or threatened by AI, and those that might be particularly likely to be enhanced by AI, given all of the provisos that you said about, we really don't know a lot about where AI is going, and there are a lot of unknowns and a lot of other things. I guess I'll press you a little bit and just see if I can get any jobs or occupations or skills that really are at one end of the spectrum or the other.

Jed Kolko

Well I think we should start thinking about this as tasks rather than jobs. There's been very thoughtful research suggesting that we think of jobs as a bundle of tasks. And if you're in a job where all of your tasks are threatened by AI, that is very different than if you're in a job that mixes tasks, some of which are exposed to AI and others are not. So let's start by thinking about tasks. I think some of the tasks that are more likely to be exposed to AI are those that pretty directly involve a lot of text work, pattern recognition, coding, summarizing big documents and other kinds of classification routine analysis. Now, there are some jobs where that describes the entirety of the job, but in lots of jobs, what I just described is only one part of the job, and it's combined with lots of other tasks that are much harder to automate or routinize, and involve lots of kinds of judgment and creativity and curiosity, that are functions that are less exposed to AI. So again, we should really think about tasks and how those aggregate up to jobs rather than thinking about a job as exposed or not exposed.

Michael Klein

I think that's a really important distinction and one that people don't make often enough – the difference between a job and then all the things that are involved in a job. But also, Jed, the issue is that at this point, it seems like AI isn't necessarily doing the best job of some of the things you were saying. For example, we know about these cases where AI was asked to write a brief, a legal brief, and it hallucinated cases and cited cases that didn't exist. Do you think that's something – again, this is very prospective – where AI is going to get much better at it? Or is there a flaw in AI that you see that's going to be persistent for some time?

Jed Kolko

I think we will see AI improve on most if not all fronts. And at the same time, there are forms of judgment and creativity that humans may forever continue to be better at than AI is. It is, of course, incredibly hard to predict what AI's capabilities are going to be even six or twelve months from now, let alone years from now. And when we think about the ultimate impacts of AI on the labor market or the economy, that's going to depend on AI's capabilities years into the future, not just months into the future. So even if it were possible to measure well, what is going on today and there were no econometric issues and we had perfect data, it is still a game of making predictions about a technology that we don't know it'll be capable of even in the near future.

Michael Klein

Jed, do you think that a lot of the current attention on AI and jobs is because this technical change is affecting people with middle income or higher income jobs like computer programmers or paralegals, rather than people who are at the lower level of the income distribution who have been replaced by automation, for example, like grocery checkout clerks who have been replaced by self-checkout kiosks in grocery stores?

Jed Kolko

I think the debate about AI and the research on AI is very different than what we saw about a decade ago when there was a parallel series of research articles everywhere about the effect of automation on the labor market. Both were new technologies, both were imagined to potentially have significant effects, but I think a key difference was that automation a decade ago was assumed to affect mostly jobs that were less well paid, required lower levels of education, were more routine jobs, including more blue-collar jobs. Whereas today AI is expected or imagined at least, to have big effects on the jobs that the people who do the research and tell the stories have – economists, journalists, filmmakers, other pundits, politicians, all perceive themselves to be potentially more threatened by AI than they did a decade ago, to be affected by automation, and that raises the stakes. When you've got people doing research and trying to make sense of a phenomenon that they are anxious about for themselves, the tone is very different, and can create and let in different cognitive biases. I think there's a whole range of cognitive biases that we're seeing right now. Some of this is what people refer to as 'pundit projection,' when the people who are perceived themselves to be very affected by something are essentially telling the story about it. I think there's also a bias toward over attribution of things to AI, just because there is so much awareness and anxiety and prevalence. It seems that there have been trends in the labor market, other trends in society that have been attributed to AI, even though subsequent research has suggested, actually this phenomenon had to do more with remote work than with AI, for instance.

Michael Klein

A couple of things, one is that there's an old joke – a recession is when you lose your job, and a depression is when I lose my job. And then the parallel to the things being attributed to AI, as an international economist, I always thought that there was a lot attributed to trade, that could have been automation or a range of other things as well, so it's not exclusive to AI that either of these things happen. And up to this point, Jed, we've really been discussing the demand for labor. Of course, there are

technologies that have replaced jobs in the past, and some jeremiads have predicted high and persistent unemployment as a result, but we didn't see that. But the other part of this is labor supply: who is willing to work, for how, long and at what pay. How could AI affect this?

Jed Kolko

I think labor supply is the most important overlooked question in this early wave of AI research. By labor supply, we mean how AI might affect how much people want to work, and that could come out of either AI making job search easier, which could increase labor supply. If AI reduces the time people need to spend on chores, or improves their health or makes work or commuting less unpleasant...these are all ways in which AI could expand labor supply. Alternatively, AI could end up reducing the labor supply, making people, in other words, less interested in working as much as they do today, if AI makes different kinds of entertainment and leisure more attractive, or if AI makes work more stressful or unpleasant, or if it makes the application and hiring process more exhausting. So there are all kinds of ways in which AI could affect labor supply in either direction. Historically, of course, some of the biggest effects on the labor market of a new technology have actually worked through the supply side such as the pill, which dramatically changed women's decisions in investing in education, and staying in the formal workforce, and dramatically increased women's labor supply. But we tend to think first about technology and labor demand, even though technology can have a huge effect on the labor market through the supply side.

Michael Klein

I interviewed Claudia Goldin for an EconoFact Chats, and she made that point about the effect of women having more control over their fertility, and how that was really a huge change in women's labor supply.

Jed Kolko

Yes. For sure Claudia made that point more clearly and compellingly than I ever could.

Michael Klein

Just to go back to one point, the story about John Henry, when people look at that old folk song, they think it's something that happened in the 1870s. John Henry was perceived as a freed slave. The steam engine was patented by the Scottish inventor James Watt in 1769. So it's almost a century later that we're hearing about John Henry. Do you think it's going to be that kind of a long period before we fully see the effects of AI? And then I guess that goes back to your earlier point; we really are in such early stages there is very little that we know at this point.

Jed Kolko

So I don't think it will take 100 years before we see the effect of AI on the economy more broadly. AI as a technology is advancing very rapidly, and AI can be adopted by individuals and firms relatively easily. So we, of course, as we talked about earlier, won't see the ultimate effect of AI on the economy, until business processes and operations catch up with these technological changes, but that evolution of business processes and operations are likely not to take anywhere near 100 years. That said, what we have seen today in terms of the individuals and firms who are the most enthusiastic adopters of AI might not be a clear signal to what we'll see in the broader economy. Early adopters often use technology and benefit from technology in different ways than later adopters. And to understand the overall effect of AI in the labor market in the economy will take not only changes in business processes and operations from the early adopters, but also time to see how the effect on later adopters affects the labor market as well.

Michael Klein

So my final question for you, Jed, is we've been discussing mostly the labor market implications of AI, although you also mentioned, in the short run, the capital investment and so on. And there are other ways in which it will affect our lives as well. But just in terms of economics, what do you think of as the

biggest effect of AI on the economy, outside of its direct positive and negative effects on jobs in the labor market?

Jed Kolko

So I'm not sure I would say it's the very biggest, but I think incredibly important will be what AI means for healthcare and the aging population. In terms of the kinds of jobs that developed to take care of the aging population, if AI changes what older adults are able to do, or want to do with their time, if it changes what they consume, those would be ways in which AI could end up having an important effect on the economy just because the economy is going to be increasingly driven by the healthcare industry, and the economic choices of older adults. So really anything, any way in which AI touches the leisure activities, financial decisions, healthcare needs, living arrangements of older adults could have a profound effect on the economy.

Michael Klein

So I'd like to close by just stating that I did not use AI to come up with any of these questions. And I know that you didn't use it to come up with any of the answers, and the answers are really good so maybe we don't need AI for everything. Thanks very much for joining me today, Jed, for a really interesting discussion on this evolving technology and the important implications that it could or maybe could not have for workers, for the economy, and overall, for people's well-being.

Jed Kolko

Thanks very much. Thanks for having me.

Michael Klein

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