



THE BROOKINGS PODCAST ON ECONOMIC ACTIVITY

“Why is the U.S. outpacing European countries in AI adoption?”

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Episode Summary:

The promise and peril of an AI-dominated future have dominated debates among economists, technologists, and policymakers in recent years. But even as the technology continues to evolve, considerable uncertainty remains about who is using AI and its impact on economies around the globe. In a new BPEA study, researchers conducted surveys in the U.S. and Europe to answer some of these questions and improve understanding of how and why different firms and workers are using AI. On this episode of the Brookings Podcast on Economic Activity,

Sanjay Patnaik, director of Brookings' Center on Regulation and Markets, speaks with two of the paper authors about their findings.

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EBERLY: I am Jan Eberly, the James R. and Helen D. Russell Professor of Finance at Northwestern University.

STEINSSON: And I'm Jón Steinsson, Marek Professor of Public Policy and Economics at the University of California Berkeley.

EBERLY: We are the co-editors of the *Brookings Papers on Economic Activity*, a semi-annual academic conference and journal that pairs rigorous research with real-time policy analysis to address the most urgent economic challenges of the day.

STEINSSON: And this is the *Brookings Podcast on Economic Activity*, where we share conversations with leading economists on the research they do and how it will affect economic policy.

The emergence of new artificial intelligence technologies has hit society like a ton of bricks seemingly overnight. It has caused a great deal of anxiety about job losses, but also hope for a new golden age of productivity growth.

Of course, we are still very early in the AI age, and we face a huge amount of uncertainty about how transformative AI actually will be, how it will be used, who will be able to use it productively, and who might be hurt by it. The new paper, "Mind the Gap: Diverging AI Adoption in Europe and the United States," seeks to shed light on these questions, and in particular, highlights differences between how AI is being used in the U.S. and Europe.

On today's episode, Sanjay Pattnaik, director of Brookings Center on Regulation and Markets, will lead an interview with Alexander Bick of the St. Louis Federal Reserve, and Adam Blandin of Vanderbilt University, co-authors of the paper, along with David J. Deming, Nicola Fuchs-Schündeln, and Jonas Jessen to learn more about their findings.

EBERLY: The authors examine AI adoption in the U.S. versus Europe. U.S. has been a leader in AI development, but the technology's available globally. Yet the U.S. is also a leader in AI adoption. This could be because of characteristics of the U.S. labor force, say, being younger or more concentrated in the tech industry.

These factors do explain part of the adoption gap, but importantly, U.S. firms and managers also make AI available to the workforce and actively encourage AI use and experimentation. Together, these two factors, the composition of the labor force and AI support at work, explain almost all of the adoption gap between the U.S. and Europe.

At this early stage, the higher adoption in the U.S. is associated with a small productivity advantage across industries, but there does not appear to be an employment differential.

STEINSSON: Now let's hear from Sanjay and the authors.

[3:00]

PATNAIK: Thanks, Jan and John, and thank you for the opportunity to discuss this fascinating paper.

I'm happy to welcome Alex and Adam to the podcast. Thanks for joining me, Alex.

BICK: Thanks for having me. It's a great pleasure.

PATNAIK: And Adam, thank you for being here.

BLANDON: Happy to be here.

PATNAIK: Adam, I wanna start with you. Before we even get into the data, I want to talk about some definitions and framing the motivation for your study.

Developments over the past five years or so have represented massive leaps forward in AI abilities, but various versions of AI have existed for some time. So when you were conducting this survey, how did you define AI? And broadly speaking, why is it important to know how quickly industries are adopting these new advanced AI technologies relative to older AI systems?

[3:43]

BLANDON: So as you say, AI is sort of a vague term and, it means different things to different people. So I think it's helpful to just take a quick step back and say, you know, what is AI, and how is it different from what came before? Before AI, computers and software were built around routines, and a routine is just a set of if-then commands.

So if I type zero, do this. If I type one, do this. And these routines can get very complex, and we've seen that machines that can execute routines can do amazing things. So they can do very complex calculations very quickly. They can organize and send a huge amount of data or information. But there's a lot of things that are hard to do with routines.

So think, for example, of driving a car. People, for a long time, tried to design routines to teach a machine how to drive a car, and it just turned out to be very hard because there's so many different cases that you have to try to program in that it just doesn't work. And AI tries to solve this problem very differently.

So instead of writing down the if-then rules, we give the machine a bunch of data, and we ask it to guess or predict what those rules seem to be. And it turns out this is just a much better way to teach a machine how to drive a car or to teach a machine how to code or, how to help you with writing.

Now, there's different names for AI that specialize in different things. The version most people know is generative AI. so that's the kind that produces text or images or audio in response to prompts. So some common examples are ChatGPT, Claude, or Gemini.

But there's also a broader family of AI technologies that have been around for longer, like machine learning or image and speech recognition.

So in our paper, we measure AI adoption with two surveys. The first is a set of worker surveys that we ran in the U.S. and six European countries, and there we asked specifically about generative AI adoption. But the second surveys were some government surveys of firms, and there we asked about a broader range of technologies.

Now, why does it matter, how quickly workers and firms are adopting AI? Well, one example from the paper is that since the 1990s, productivity has grown much faster in the U.S. than Europe, and a lot of prior research links that divergence, to the fact that the U.S. Adopted ICT and computers and software more rapidly than Europe did.

And AI looks like it could be the next general purpose technology that drives future productivity gains. And so the question we're really after in this paper is, are we about to see a rerun of the ICT story where the U.S. pulls ahead of Europe because it adopts, the technology faster, or is this time different?

And the first step in answering that question is to measure where is adoption the U.S. and how does it compare to Europe.

PATNAIK: Well, thank you very much. That's actually really interesting. So basically, rather than spelling out, as you mentioned earlier, the different routines, these AI systems that you're looking at are really trained on existing data.

Is that correct?

BLANDON: Yeah, that's right.

PATNAIK: Perfect. So Alex, let me turn to you. when you jump into the actual data, what are some of the top-line takeaways from your study? Which countries seem to be adopting these technologies more quickly than others?

[6:56]

BICK: So happy to take that question. Before we get started, since I'm a employee at the Federal Reserve Bank of St. Louis, I need to mention that the views here are mine, and not those necessarily of the Federal Reserve Bank of St. Louis or the Federal Reserve system.

As Adam just explained, so we have these two type of surveys. So first, on the worker side, the headline number is that 43% of U.S. workers use gen AI for their job, and we measured that in, in early 2026, compared to only 32% across six European countries we looked at.

That was the UK, Germany, France, Italy, Sweden, and the Netherlands. So on top of that big gap between Europe and U.S., there's also quite some variation within Europe,

ranging from about twenty-five percent in Italy to about thirty-six percent in the UK. So this is just of whether you use AI or gen AI at work or not.

But then on top of that, we also have some measures on the intensive margin, like how many hours people are using gen AI in their work week, and that is also larger. So that gap between the U.S. and Europe becomes even bigger when you factor that in.

Now, on the firm side, we find a very similar pattern. We have one measure that's comparable across the U.S. and Europe, and again, as Adam said, this is like for broader AI technologies, and that question just focuses on the production of goods and services.

So in the U.S., again, this is among the top adopters in terms of countries. Like, on average, 7% of U.S. firms use it for producing goods and services, compared to about 4% on average in Europe.

Now, these numbers might seem surprisingly low to you, especially what we just compared to the worker adoption rates. One thing is that these adoption rates across countries on the worker and firm level are very highly correlated. So countries where we have high firm-level adoption, for producing goods and services are also countries where we see high adoption rates of workers, but there's a huge gap.

So the reason there's such a big gap between the worker and the firm-level data is that we are focusing here on a very narrow use case, just producing goods and services in the firm survey. When you take a broader view, AI adoption rates are much higher. Namely, the European survey asked for a larger set of, you know, technologies and business purposes, and there we find a difference, of 20% for the U.S., and we project that number for the U.S. to be 34% because that question, uh, was not asked in 2025 when the EU survey was conducted for the U.S..

Now, there's one caveat that I wanna briefly mention for those that are really interested in those data sets and different firm surveys. There're a lot of them that are out there, and they provide somewhat different numbers. For the podcast, you know, we don't wanna get into all these details, but if you're curious, we discuss them in the paper.

Now, there's one more pattern that I want to highlight. If you look at, the firm-level data, they allow us to look at a larger range of countries than our worker survey, and we cover countries that have a GDP per capita from just above \$20,000 per year to almost \$100,000. So it's a huge range.

We find that striking positive correlation. That is, rich countries are much more likely to adopt, than poorer countries, and that's something that we have seen for almost all previous technologies. And, so eventually those countries that are lagging behind will catch up, at least if we draw on that historical experience.

But what is really notable, at least for now, is that the adoption rate is growing fast everywhere, but it's faster in rich countries. So the gap, at least for now, is widening across these lower and higher income countries.

PATNAIK: Thank you. I wanna drill down a bit more deeply on these gaps that you identified in the paper.

Adam, you find a pretty distinct, difference in AI adoption between the U.S. and Europe, and even pretty significant gaps in adoption within Europe. Can you talk a bit more, about any key factors in why we see so much variation in these rates? Alex just mentioned one of them is income levels, but I'm curious if there are any other factors that can play a role.

[11:03]

BLANDON: Yeah. To me, this was one of the most interesting parts of the paper. So we, ended up focusing on two broad categories of explanations. So the first is composition, which just means, do countries differ in AI adoption simply because they have different types of workers and firms? So for example, AI use is higher among more educated workers, workers under age 50, workers in certain occupations industries, and workers in larger firms.

And so if a country has more of those workers, you might just expect mechanically that that country would have higher adoption rates. And we can account for somewhere between a third and a half of the U.S.-Europe adoption gap, just from these compositional differences.

But that still leaves at least half of the U.S.-Europe gap unexplained. And so we looked at a second factor, which was how firms manage their workers. So there's a long line of research showing that U.S. firms tend to score higher on various management quality indexes. and this appears to have helped those firms get more out of previous ICT investments, and we found the same pattern with AI.

So countries with higher management scores have higher adoption rates, and within countries, workers at firms that have higher management scores adopt at higher rates. And we drilled down a little bit further. Adoption doesn't just depend on the firm's overall management score. It also seems to depend on whether firms are actively encouraging their workers to use AI and whether they're providing them with AI tools.

And U.S. firms are doing this at higher rates than European firms. There's also a lot of variation within Europe, and that helps explain actually most of the remaining adoption gap across countries.

PATNAIK: That's actually really interesting, um, and really highlights kind of like how the different paths might converge in the, the future, as countries adopt these AI technologies differentially.

Back to you, Alex. A lot of the discussion about AI, especially among economists, has focused on two big issues: productivity and employment. And so I think the question on the mind of many people is, will AI make us actually more productive, and will it lead to mass waves of layoffs? I mean, what kind of evidence does this study hold that might

answer these questions? Because I think those are especially relevant as we are planning a future with AI and as AI is being deployed, throughout our economy.

[13:19]

BICK: I think so far, actually our study says the news are pretty good and encouraging. We look at both outcomes, productivity growth and employment in like a methodologically very similar way.

What we basically do is we examine how employment or productivity growth vary across industries and countries with different adoption rates, while taking into account that countries and industries differ in their growth rates for reasons that have nothing to do with AI. So just to give you an intuitive example, take the information sector, which tends to grow faster than, say, accommodation and food services, and that is independent of AI.

So we are not asking whether high adoption industries like the information sector grew faster, but what we are asking whether they grew faster than what you would expect given their typical trajectory and given countrywide trends. So unemployment, at least so far, we don't find any impact. Sectors with high adoption rates don't see more changes in employment than what we would have absent AI.

But that doesn't mean, of course, that there are not specific workers or groups that are affected. For example, early career workers in jobs with high exposure to AI might have a harder time finding a job now than a few years ago. So the aggregate picture can mask some of these compositional shifts.

When it comes to productivity, we do see meaningful effects, like a 10% point high adoption rate is associated with about 2-5 percentage points higher cumulative productivity growth since 2022, and that range depends a little bit on what kind of specification you use if you throw out some outliers. Okay? But overall, this is a pretty robust and, fairly high range.

Now, one thing that we wanna be careful about is that this cross-industry variation does not let us extrapolate cleanly to the aggregate. Because in the aggregate, many other things are happening at the same time. I mean, take, for example, the war in Ukraine or tax reforms. So it's really hard to disentangle them.

And I know there are a lot of skeptics out there who like to cite Solow's famous 1987 quote, "You can see the computer age everywhere but in the productivity statistics." So it's worth bringing in here independent pieces of evidence outside of these calculations that we did.

We also ask workers in our survey how much more time they'd have needed last week to get the same amount of work done without AI, and workers in all countries and in all industries report meaningful time savings. So on average, AI users spend a bit more than three hours using AI per work week, and that saves them almost two hours per

week. And reassuringly these self-reported numbers line up well with the productivity gains that we see in randomized control trials.

So these randomized control trials, they look at coders or consultants, customer service agents, and they give a certain set of workers, a random set of workers, an AI tool, and the other one they don't give that AI tool. And that difference in whether you have access to the tool or not allows them to back out, like these estimates.

So these estimates kind of all point in the same direction. Industry-level data, worker self-report, experimental studies. There's also some firm-level work that, has all the suggestive evidence that, AI is increasing productivity. Now, again, this is important to say, particular with our, industry variation, these are correlations, not cause estimates.

So because we can't randomly assign AI adoption to entire industry, and the time horizon since the AI boom is pretty short, but the consistency across the methods among some of them, which can speak to causality, is very encouraging, and we will keep watching the data as, more of them come in.

PATNAIK: I'm glad to hear kind of like this positive message because a lot of the, debate, I think, has been dominated by fears and by potential risks of AI. But this really seems to show that it can really improve the working lives of a lot of people, saving them time, and at least as you have stated in your study, you haven't seen any employment effect yet.

Adam, I wanna, wrap up with you with a couple of, questions that look to the future that are a bit more speculative. As you know, AI is evolving really rapidly with generative AI models today already much more sophisticated than just a few years ago. When you think about adoption rates, how hard do you think it would be for companies actually to keep up, I mean, especially small and medium-sized enterprises?

And, for any policymakers listening, do you have any thoughts about how policy can keep up with these advances as the market and the technology moves so rapidly and leaves a lot of regulators and policymakers, sometimes even years behind in terms of the policy approaches?

[18:02]

BLANDON: So I think it's a challenge for everyone to keep up.

Uh, I know, you know, myself, I feel pressure to, think about whether I'm using this new tool in the most effective way, or using the latest version. And from a firm's perspective, you know, you wanna make sure you're providing workers with the latest tools and giving them some information about how they could use it.

And as you say, because they're evolving so rapidly, that, can be difficult. But a second challenge for firms, and I think this is key, is that past technologies have taught us that getting the most from a new technology usually requires changing how work is organized.

So a famous example's from electricity. The economic historian Paul David showed that even though electric motors were pretty widely available in the 1880s, productivity gains really didn't start showing up until the 1920s, about 40 years later. So why did it take so long? The answer is that factories had been built around steam power.

So a steam engine sat in the basement and drove a giant central shaft that went upwards, and there were belts and pulleys running off that central shaft to power all the different individual machines. And when factories first electrified, they basically just swapped out the steam engine for a big electric motor and kept everything else the same.

And that, might have increased productivity a little bit, but it just didn't do that much on its own. And the real breakthrough came when people realized that electricity allowed firms to do something that steam didn't, which is that every individual machine could have its own small motor. And once they understood that, they realized you could reorganize factories in a way that made more logical sense, that kind of progressed in a natural way.

And the result of that was what we call the assembly line. And that reorganization is what unlocked the really big productivity gains from electricity, not just the electric motor on its own. So as Alex was mentioning, it seems that there could be, some productivity gains already from AI, but a lot of that is probably coming within an existing workflow.

And so a challenge for companies is thinking about not just how do I get my workers to use this, but thinking about whether it makes sense given this new technology to reorganize the way that work is done. On the policy side, you know, I think it's difficult to be too prescriptive because there's still so much we don't know, but I think there's probably a few basic principles that are helpful.

So first is technological change usually involves a lot of creative destruction, so there's, typically a lot of winners, but there's also typically some losers, and so a healthy safety net is important for cushioning the blow if some people face disruptions.

Second, as we saw with ICT, the widespread diffusion of new technologies is really important for generating productivity growth, which is what drives increases in living standards.

And so minimizing policy uncertainty around AI, minimizing frictions that firms face when they reorganize or evolve in response to this new technology, designing policy in a way that accommodates adoption instead of getting in its way. Those are the kind of things that can increase growth, over the medium to long-term.

PATNAIK: I think these are really important points and, I like your suggestion that we have to maintain flexibility, because if we see how fast these, market trends are evolving, we need to have some, way to respond a bit more effectively and a, a bit faster than we have, I think, in the, policy space before.

For our listeners, I also wanna point out that, we launched a Brookings AI policy idea incubator a few years ago where we are trying to bridge the divide between policymakers and the tech industry, to really, see how we can, facilitate information exchange that can help us come up with better policies to govern these technologies.

With this, I want to thank you, Adam and Alex, for joining me today to discuss this fascinating paper, which I strongly encourage our readers to read in full on the Brookings website.

[music]

STEINSSON: Once again, I'm Jón Steinsson

EBERLY: And I'm Jan Eberly.

STEINSSON: And this has been the *Brookings Podcast on Economic Activity*. Thanks to our guests for this great conversation and be sure to subscribe to get notifications about new releases of this podcast.

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