Goldman Sachs Exchanges

AI Exchanges: AI's Impact on Employment

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Allison Nathan: Welcome to Goldman Sachs Exchanges. I'm Allison Nathan and I'm here with George Lee, co-head of the Goldman Sachs Global Institute. Together, we're co-hosting a series of episodes exploring the rise of AI and everything it could mean for companies, investors, and economies.

George, great to see you again.

George Lee: You too, Allison. Thank you.

Allison Nathan: So George, today we're discussing one of the biggest anxieties, I would say, about the rise of AI, which is the impact on jobs. I would say even prior to the

amazing advances in the technology that we've seen over the last few years and that you and I have discussed a lot on this podcast, there have been a lot of questions about the extent to which AI will ultimately replace workers and, if that happens to a large extent, what industries, what roles will be most impacted? It's now been almost three years, though, since we've seen the launch of ChatGPT, which is very hard to believe. I think you'd agree with me.

George Lee: Fascinating. Time flies when you're having fun.

Allison Nathan: But that means that we're actually beginning to see some hard data that I think could finally reveal some questions or at least start to reveal some answers to these questions. So to that end, I'm excited to welcome my colleague from Goldman Investment Research, Joseph Briggs, who leads our global economics research. He's done some really truly informative and formative work, I would say, on the economic implications of AI more broadly and certainly on this topic. Joseph, thanks for joining us.

Joseph Briggs: Great to be here, Allison. Great to

be here, George.

Allison Nathan: And so, Joseph, before we just dive into all the details, as I just said, we've talked a lot about the advances of the technology. It's come a long way in the last few years. But I think we'd all agree that the adoption is still pretty early. So is it too early to see tangible signs on the labor market?

Joseph Briggs: Yeah, so when we look at adoption, we're currently tracking about 9% of companies in the US using AI for regular production. Now, this number is probably a little bit lower than some of the more eye-popping adoption rates that get picked up in the media, but the definition that we're using when we say 9% is regular production for goods and services over the last two weeks. And I think this is the right definition to keep in mind because it's really what is going to be necessary. Companies using AI in regular production to drive significant productivity impact.

Now, given that adoption rates are only at 9%, it's not too surprising that we haven't seen a large impact or really any sort of meaningful impact in the overall labor market data

yet. We have seen adoption pick up in sectors that are more exposed to AI. There's actually a very positive correlation between the exposure scores we constructed over two years ago and who's using AI today. But if we relate those to labor market slack indicators, things like unemployment rates, job finding rates, layoff rates, average hourly earnings, hours worked per week, there's really no sort of meaningful correlation. And so when I look at the impact that AI has had on the overall labor market data so far, it looks pretty small to me.

George Lee: Fascinating. I was struck by the 9% number. It feels lower than my intuition. I believe actually that number, though, if you weight it by employment, it's slightly higher. Is that right?

Joseph Briggs: Yes, absolutely. If we look at large companies, you know, those with more than 250 workers, these are those that have the in-house technological expertise that can really develop the AI tools on their own. Adoption rates there have gotten up into the mid to high teens. It's the small companies sort of really waiting for the plug-and-play solutions that we haven't seen adoption pick up in any meaningful way yet.

George Lee: That's great. And if you think about industries, what industries have been most affected thus far?

Joseph Briggs: Definitely the tech sector. You know, one of the things that we flagged in our most recent report is that, if you look at the tech sector's employment trends, they've been basically growing as a share of overall employment in a remarkably linear manner for the last 20 years. Over the last three years, we've actually seen a pullback in tech hiring that has led it to undershoot its trend. And so this is telling us that in the tech sector, which I think is the one that has gotten the most attention in terms of leading the way for AI adoption, there has been some meaningful headwinds to hiring and job growth.

There's other sectors as well. Finance is an area that is showing pickup in adoption rates. Education is showing pickup in adoption rates. Business services more broadly. You know, anything exposed to content generation. But even within these sectors, the adoption rates are still relatively low.

Allison Nathan: On the tech side in particular, while

you're seeing some impact in terms of efficiency gains, are you not hiring a lot of AI engineers? I mean, does that show up at all in the numbers?

Joseph Briggs: Yeah, so we've definitely seen a pickup in job postings that are mentioning AI. I think they've increased by 25-50% in our latest AI adoption tracker. This is relative to other job postings. And so companies are trying to hire workers that have the expertise to build out the capabilities and the tools to unlock the productivity gains that we think are possible. You know, it's just that this is a very small share of the overall economy, a very small share of the overall labor market. We're still in the very early days in seeing it being distributed and the productivity and employment benefits of AI being distributed more broadly.

Allison Nathan: And there's also been a lot of discussion about the actual type of role that's being impacted here. So, are you seeing some evidence in the data, the more junior roles, I would imagine, being impacted? What are you seeing?

Joseph Briggs: Yeah, there's been a lot of questions

around the lagged hiring rates or the difficulties facing recent college graduates. I'm sure that we all know people who have had trouble finding jobs or a harder time than they would have normally following the recent graduations. This is validated in the data. We're definitely seeing these lower hiring rates for recent college grads.

A lot of this is just related to the fact that the labor market has shifted back to a low-hiring, low-firing labor market. We're seeing this very broadly across sectors, across different industries, and so I think that the anecdotes and the relationship that the anecdotes have to AI is often a little bit overstated. That being said, if we do look at unemployment rates in the tech sector for young workers -- and so those between ages 20 and 30 -- they have increased by about 3 percentage points, and this is since the start of the year. And this is a much larger increase than we've seen the tech sector more broadly or a larger increase than we've seen for other young workers.

And so again, the story is one where the overall impacts on young workers in the labor market, speaking from an aggregate perspective, is small. But if we start zeroing in and zooming in on these specific industries where we are

seeing AI be used to drive efficiency gains, there are signs that headwinds are emerging there.

George Lee: Yeah, Allison, I would say I think it's a real reflection of CEO uncertainty around this entire phenomenon, which is to say the intuition is that these tools ought to create enormous productivity and efficiency in the enterprise. Yet as Joseph's statistics suggest, the macro effects aren't fully being seen, and so what can you control as a CEO that seems lower risk? You can lower your intake hiring and kind of adopt a little bit of a "flat is the new up" perspective as it relates to your headcount. That feels like a more prudent move than beginning to aggressively harvest more senior professionals, etc.

And so I think, again, it's a little bit of a temporal phenomenon, which is to say I think this is going to be really meaningful. How do I begin to streamline my enterprise so I can be more flexible and more adaptive and do it yet without harming our competitive edge? And unfortunately, I think young employees for this period of time are a little bit the casualty of that.

Allison Nathan: And George, more broadly, you speak to

a lot of companies, and does what Joseph is basically observing in the data really reflect in practice in the conversations you're having?

George Lee: Very much so. And you know, I think I would echo one thing that Joseph said, which is technology industry is I think the most profoundly affected in the early days. And there are sort of two theories of the case there. One would be, "Well, that's natural," because the place where the models have the most capability and utility are in software development and that's a huge part of what technology companies do every day. So no wonder displacement's beginning to hit there first.

The other theory of the case is that, because these companies are on the leading edge of developing and deploying these tools, they're the canary in the coal mine for what's going to occur in other industries. And I think the evidence says -- Joseph is so great about presenting evidence, data, and being balanced about these things. I don't know that there's a determinative answer to that question, but I do think those are the two forks in the road.

Allison Nathan: And I think the biggest question that we

have is ultimately will this lead to a net decline in employment, in job availability? And Joseph, one of the striking stats that you came up with was that we will see -- you call it transitional displacement on the order of 6-7% off that, which is I think a big number, but I hear you're getting pushback that it's too small.

Joseph Briggs: Yeah, it's interesting. Our AI productivity growth forecasts have always assumed a 6-7% displacement rate. And after having gone through the exercise over the last couple weeks of revisiting that and cranking all the numbers to try to see is that still the right estimate, that's broadly in the ballpark of where we came out in terms of the overall displacement rate that will happen following full adoption of AI.

When thinking about how much AI is going to translate to an increase in unemployment, which is kind of the flip side of a decline in employment, it's useful to break it into two types of unemployment. The first is the more concerning long-run technological persistent unemployment. I'm much less concerned about this. If we look back historically, technology has always added new positions. You know, 85% of job growth over the last 85 years has been driven by

technology. I think this is a trend that will reassert itself once we've seen the rise in aggregate incomes and all the new opportunities that AI creates.

What I think is more realistic is that we are going to see a period of frictional or transitional unemployment, where it does take time for these 6-7% of workers that do lose their jobs because of automation have to find new positions in potentially new occupations. And this is a dynamic that we've seen play out historically. That any time we've seen, you know, say, a one percentage point boost in labor productivity due to technology, the unemployment rate tends to rise by around 30 basis points, three tenths, over the next year. After two years, there's no effect.

If we try to translate that 6-7% number to an increase in the unemployment rate in any given year, I go back to the adoption speed as a key variable to watch. And the reason that I say that is that, if we're wrong and that AI adoption and all the displacement takes place of a 1- to 3-year period, then all of a sudden that 7% displacement rate translates to a 2-2.5% boost to the unemployment rate. That's a pretty big macroeconomic shock. It has significant impacts on spending, on GDP.

On the other hand, if we're right and the AI transition takes 10-15 years, then that 7% displacement rate translates to something like a half point, maybe a little bit less, boost to the unemployment rate. That seems very manageable and less disruptive from a labor market perspective.

George Lee: Yeah, I think at the heart of that question is your belief as to whether this is going to be a continuous function of adoption of technology and will take that longer period of time or it has the dynamic of a tipping point where we'll reach some salient interval where these tools are mature enough and we have a very sharp increase. Any reflections on that question?

Joseph Briggs: I agree that if we see the application build-out happen very quickly -- and again, you know, the application build-out for a lot of companies is a necessary step to start using the technology -- then we could be wrong and the unemployment rate increases could be larger.

The other thing that I'd flag looking at historical data which I thought was interesting, if we look at the automation of

routine occupations, you're right that it hasn't happened in a very smooth manner. What we've actually seen is that during economic slowdowns or recessions, companies that are forward looking in nature and they're looking to trim labor costs, they often target those routine occupations that they're expecting to automate over the next several years anyway. And these are the areas where you see employment reductions And so one of the big concerns that I have in my mind when thinking about whether or not AI could have a more disruptive impact on the labor market is that, if we do see an economic slowdown in the next one, two, three, four years, then at that point a lot of the automation and labor displacement that could eventually occur and that we are expecting will occur in a relatively smooth manner, it could happen in a more narrowly concentrated period.

George Lee: So Joseph, you do some great work in terms of identifying jobs that may be more vulnerable to displacement. What about those jobs that are more resilient, less exposed? What are some of those job functions?

Joseph Briggs: Yeah. Given that we're in the very

early days of the AI transition, it's hard to have a lot of confidence when we're looking across different types of jobs where are we going to see more displacement and replacement and where we're going to see just AI unlocking productivity gains that makes people more efficient. You know, I do think there's a couple of proxies that we looked at that provide a signal or provide an indication that the risk of displacement is lower. So, things like occupations that are more exposed to human interaction. A lot of the commentary that we've heard from corporates, flags that back-office work is more likely to be automated in the near term whereas front office work is more likely to sustain.

Also jobs that have higher stakes of decisions. And so where making a mistake could expose a company to more reputational risk or monetary risk. And then occupations where the type of tasks that people do are less repetitive, more diverse, and the potentially automatable tasks are lower value add than a worker's core function.

And so we constructed risk measures for all of these. When we run 800-plus occupations through the different risk filters, things that stood out as being potentially less exposed to automation were medical care providers,

pharmacists, door-to-door salespeople, teachers, clergy members, CEOs. There's a lot of different drivers for each of these that leads them to be less exposed, but the key things to bear in mind are those jobs that are less repetitive, where decision consequences and stakes are higher, I think are less likely to be replaced in the near term.

Allison Nathan: And it's striking, the variability you just gave there. You know, teachers and clergy and CEOs. I mean, there's a wide spectrum that should be more resilient.

Joseph Briggs: It's hard for AI to go door to door and sell products, just like it's hard for AI to run a company, you know?

George Lee: I also think one of the interesting things about this discussion is the differential between micro and macro. When you talk to CEOs, when you're out in the field, this is sort of an obsessively focused on topic. And yet, as Joseph's work suggests, it's not finding its way into the macro statistics yet, and perhaps that's always the case where there's some fundamental shift. But I'm struck by

that. If you weighted the percentage of time CEOs spend thinking and talking about this issue relative to the discernable effects in the macro, it's a very strong disconnect.

Allison Nathan: So interesting. I have a broader question for you, Joseph, that you touched on, which is you're looking at history when you make a lot of your forecasts and assessments of what lies ahead. But if we think about just how potentially transformative AI is relative to even past technological innovations, is history likely to be a guide? How confident can you be in that?

Joseph Briggs: The biggest caveat -- and I should always add this when we talk about AI -- is that our analysis doesn't factor in the potential for the emergence of AGI. You know, if we do see AI not only driving automation but leading to an acceleration in the pace of innovation and an expansion in the frontier of human capabilities then in that world the boost of productivity would be much larger. It's hard to even start thinking about the impact on the labor market, but I would guess there probably and undoubtedly is more room for labor substitution and a more disruptive impact in that world.

There's been a lot of attention on that recently. I don't personally have a strong view on how close we are to AGI. George, you might actually be more connected into those discussions than I am. But I think that is the one potential tail scenario. How realistic of a tail scenario it is, I don't know. That could lead to much more significant impacts on the labor market than we're factoring in.

George Lee: It's a great point. And, look, this question -- first of all, AGI is a very complex definitional matter. Everyone I think sees it a little bit differently. In some ways, I think it's a bit of a canard in the sense that it is being positioned as this momentary shift in the world. I'm a believer this is much more of a continuous function, and that by the time we get to whatever represents AGI or ASI or whatever, it will have seemed as, again, a continuous process rather than a moment in time. But only time will tell. And as Joseph said, there are people smarter than he and I in the world musing on these topics.

To the point of history, I've gone back and done a little bit of work on things like very fundamental -- emergence of very fundamental technologies like telephony and

electricity. And those may be, in the most bullish scenario, might be a more interesting analog than, for instance, the emergence of the Internet or cloud computing. The impact of those was extremely vast and yet, to Joseph's work, took a fair amount of time to really make themselves felt in the macroeconomic picture.

Allison Nathan: So, you do think history can serve as a guide but maybe not the history that's really front and center on most people's mind right now.

George Lee: Certainly not in our recent memory perhaps. I don't know, Joseph, any reflections on that? Those kinds of fundamental very deeply historical shifts?

Joseph Briggs: Yeah, I think that the way that I would frame this is the emergence of general-purpose technologies. And, you know, we haven't seen a lot of general-purpose technologies emerge, and I think that electricity and the electrification of manufacturing the US in the early 1900s is probably the best analog. The IT revolution and adoption of software, the Internet, that's the other one that we often benchmark, too.

But I'm very sympathetic to the idea that, given that we only have a few data points of these types of technological shifts historically, we do have to be fairly humble in our ability to use this evidence to extrapolate forward.

George Lee: I think that is very wise counsel. And you mentioned a thing that I think is also really important to have in this dialogue, which is the general-purpose nature of this technology. And that's both a feature and a bug.

The feature is the breadth of applications are limited really only by human imagination. The bug is that there's no user manual. There's no trodden path to follow, and it will take time for all of us to come up with the best ways to leverage this fundamental new capability to drive value. And that's one of the things that extends timelines and makes Joseph's perspective on this thing so valuable.

Allison Nathan: As always, lots of food for thought. Thank you so much for joining us, Joseph.

Joseph Briggs: Thank you for having me, Allison and George.

George Lee: Great.

Allison Nathan: George, as we sit here and discuss this with Joseph, I am reminded of our recent conversation with Marco Argenti, who was really bullish on the prospect of even a hybrid workplace at some point in the near future. In light of the comments we just got from Joseph, do you have any additional thoughts on that?

George Lee: Yeah, well, I think Marco's perspective -- first of all, you know, he's a very keen observer of all this and a very broad thinker about it, and so I thought it was a provocative and interesting perspective, anchoring to a lot of the commentary we've had here. You know, the rise of agents, their utility in the enterprise. We have to climb a hill of maturity there before we see those really emerge as being effective. In a way, that's a trailing phenomenon to the rise of generative AI broadly.

The impact of that as it matures could very much be in the model that Marco envisioned, which is to say managers have human employees. They're also responsible for a set of agents that are performing work and tasks that humans

might have otherwise done. And that hybrid management challenge is going to be new, different, interesting, and possibly an enormous productivity driver in its own right.

Allison Nathan: And I think that a new wrinkle that Joseph's research revealed that we discussed was if more junior roles are being taken in the AI space, as you said, the striking disparity in the rise in unemployment in junior roles in the tech sector relative to the rest of the economy, what does that mean for managers? You need to have people in junior roles to become senior. What's that going to mean for management ahead?

George Lee: A fundamental challenge. How will the apprenticeship that creates the next generations of Allison Nathans and Joseph Briggs, how will that emerge in a world where there are potentially fewer junior employees and enterprises? Again, I don't think we should say that that's the certain outcome, but I think it's really a fundamental question.

And on the other hand, if there are fewer junior people in enterprises, there's the potential that their experiences in those enterprises are more high value, less weighted down

by low-value tasks, more deeply connected to senior managers, and that the quality of the apprenticeship rather than the quantity may lead us to breed even better senior leaders. Hopeful lens.

Allison Nathan: Interesting point. Thanks very much, George. I always enjoy these conversations.

George Lee: Same. And thank you again, Joseph.

Allison Nathan: This episode of Exchanges was recorded on July 31st, 2025. I'm Allison Nathan.

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