

## **EconoFact Chats: AI and National Debt**

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### **Michael Klein**

I'm Michael Klein, executive editor of EconoFact, a non-partisan 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](http://www.econofact.org).

### **Michael Klein**

Two prominent economic concerns facing the United States are the potential effects of Artificial Intelligence and the large and expanding federal debt. We don't really know how AI will affect economic outcomes. Jobs may be enhanced or lost. Or both. Workers could become more productive and thereby earn higher incomes, or they might be consigned to very menial tasks...one's that are not well paid. The investment for data centers could help sustain growth, and provide for construction jobs, but there may be few jobs associated with them once they're built. These changes could also have important consequences for the federal budget. Faster productivity growth could improve the fiscal outlook, but by how much depends on who receives the gains, how they're taxed, what happens to interest rates, and how government spending responds as the economy becomes richer. At the same time, AI could create new demands on fiscal policy if it increases inequality, displaces workers, or leads to a persistent shortage of jobs.

To discuss how AI might affect the federal fiscal outlook, and how fiscal policy might respond to the economic changes AI could bring, I am pleased to welcome to EconoFact Chats Louise Sheiner. Louise is the Robert S. Kerr Senior Fellow in Economic Studies at the Brookings Institution and the policy director for the Hutchins Center on Fiscal and Monetary Policy. She previously served as a senior economist at the Federal Reserve and as Deputy Assistant Secretary for economic policy at the US Treasury, and as a senior staff economist at the Council of Economic Advisers. Louise, welcome to EconoFact Chats.

### **Louise Sheiner**

Thank you so much. I'm so happy to be here.

### **Michael Klein**

So, Louise, as I mentioned, we don't really know how AI is going to play out for the economy. In a recent analysis that you published with Karen Dynan and Doug Elmendorf, you consider several possible scenarios. So, let's start with what you call the plain vanilla one: AI raises productivity, but otherwise the economy looks much the same. What does that scenario look like?

**Louise Sheiner**

So, in that scenario, we think about AI as boosting productivity in the way that productivity generally increases output in the economy, and so it goes equally to workers, to capital owners, and doesn't really change the distribution income. Now, we assume a pretty large increase in productivity...from what CBO now assumes 1.1% a year to 1.6% a year.

**Michael Klein**

So that's a half a percentage point in increase in productivity. That might not seem like a lot to people, but I think the way to think about that it's a, like a 50% higher rate, right? And it has important implications eventually.

**Louise Sheiner**

Exactly. You have to remember that this is a rate of growth, and so it compounds year after year after year. So if you have that rate of increase in GDP, then by 30 years after it starts, GDP, the amount of output in the economy, is about 16% higher, so that's quite substantial.

**Michael Klein**

That's what we teach our students about the miracle of compound interest, right?

**Louise Sheiner**

Exactly.

**Michael Klein**

So, if this happens, if AI does make the country substantially richer, would fiscal problems become much easier to solve?

**Louise Sheiner**

Well, I do think fiscal problems would become easier to solve, and there are a few channels through which this happens. The first is taxes. So we have a tax system that's a progressive tax system, which means the more money you make, the higher tax you pay. When AI increases productivity, it increases how much money people are going to have, and therefore pushes them into higher tax brackets, and that leads to higher revenue collections for the federal government.

**Michael Klein**

What are some of the other ways in which AI could affect the fiscal situation?

**Louise Sheiner**

So, a bigger way in our projections is through how much the government spends as a share of the economy. So, when you do these projections, and these are...again, what is the federal budget going to look like over 30 years...these are long-term projections, and you have to make

assumptions about what the federal government is going to do. And we follow the Congressional Budget Office approach of saying, what if the law doesn't change, and all that changes is you have higher productivity...what happens? So then you have to go through all the programs, and when you go through each program, it turns out that some programs are likely to rise as the economy gets bigger, spending is likely to get bigger. But some may not, and so what you can have is that the economy gets bigger, and spending doesn't quite keep up. So that means that your spending as a share of your income and a share of your tax revenues falls.

**Michael Klein**

And the spending doesn't keep up because people are better off, so they don't need as much government support, right?

**Louise Sheiner**

So there's a combination of factors. That's one. There's other factors, which is just the way the law works. Which is some things, the most important example is Social Security benefits, once you retire, your benefits do not change when GDP changes. You know, it's based on what you earn, not what other people are earning, and so spending doesn't keep up sometimes just because of current law. And then the really interesting one, and the one that's hard to think about, is spending that Congress decides on every year. So discretionary spending, appropriations controls it, when you have a government shutdown, it's because they didn't pass these kinds of spending...Congress decides on what to spend every year, so it's a little hard to know how that would change when GDP got bigger. And so, in our projections, we follow CBO's logic, which is that discretionary spending won't really keep up fully with GDP, and so you actually get quite a big benefit that for defense and non-defense discretionary spending follows a share of the economy.

**Michael Klein**

And in your paper, you have a third channel through debt. How does that work?

**Louise Sheiner**

Okay, so that you might think that we owe 100% of GDP in debt right now, at about 30 trillion plus dollars. And so that amount is fixed. And then as GDP gets bigger, that amount falls as a share of GDP. So economic growth for a given level of debt, can lower the debt to GDP ratio, which is the metric that we use to measure the fiscal trajectory. The thing is that when you have economic growth coming from higher productivity, most people think that interest rates will adjust and will also be higher. And in fact, we've had quite a rise in interest rates over the past year, six months, and some people think that's because we now think AI is going to really boost productivity. So, if interest rates rise, that if they rise sort of one for one with the greater productivity growth, that's enough to offset that, so that you're actually not getting a benefit from those debt dynamics.

**Michael Klein**

So, interest rates rise because investment becomes more attractive. So there is greater demand for savings, and so the interest rate is like the price of money, and so it rises for that reason, right?

**Louise Sheiner**

For that reason, you can also tell a story where people now you can see it...their stocks are worth a lot of money, and so they decide to save less. They want to consume because now they feel richer. And so, in some sense, what we're trying to do is bring forward some of that rich future wealth into today's consumption, and that's going to push interest rates up as well.

**Michael Klein**

So, how big a reduction, you know, given all these three things, do we see in the, as you mentioned, the important measure, the debt to GDP ratio?

**Louise Sheiner**

So the debt to GDP ratio in our calculations falls by 39% of GDP. So today it's about 100% of GDP. CBO projects that'll be about 175% of GDP in 30 years, and so instead we think it'll be 136% of GDP, so higher than today still, but much less of a rise than in a world where AI does not increase productivity.

**Michael Klein**

Yeah, it's still not great. So in your paper, you talk about why you know this sort of one scenario might be overly optimistic. What are the reasons for that?

**Louise Sheiner**

So the reason is that most of what is driving that decline is the reduction in spending as a share of GDP. And if you look historically, certainly over the last 30 years, this idea that spending won't keep pace with GDP doesn't appear to be true, we've kind of spent the same share of GDP as we have before. So it's not necessarily automatic that you get this benefit. Now you have to remember AI is going to make us, under this scenario, quite a bit richer, and so you might think, well, you know, we can be richer and pay more taxes and still be richer after tax. But politically, the question is whether or not is it going to be really easier to get there, or is Congress still going to have to make those tough decisions of raising taxes. And one thing that's interesting is you might say, hey, we're a lot richer than we were 30 years ago, so it should be easy to raise taxes. But people don't think that way. They're like, no, I'm really rich, and I don't want the government to take any more of it. And so, whether or not we're going to get these benefits of spending falling automatically or not is hard to know.

**Michael Klein**

Yeah, I'm old enough to remember when George H. W. Bush said that there'd be no new taxes, and he reversed himself and suffered very politically for that.

**Louise Sheiner**

Yeah.

**Michael Klein**

So this is this really optimistic scenario. All boats are lifted. Everybody's better off. But what happens in another scenario? You have one where productivity rises, but it goes to the richer people. What are the consequences of that for the fiscal situation?

**Louise Sheiner**

So we think of it in two ways. One is under current law, what are the consequences? So we model this as going to the top 20% of the income distribution, and when we model that, the fiscal situation is actually improved relative to our baseline case, for one reason, which is that higher income people, on average, pay higher taxes. So, if all the money goes to people who are in higher tax brackets, the federal government is going to get back a larger share, and so that will raise the amount of reduction in debt to GDP from 39% to 49%.

**Michael Klein**

And now I'm supposed to say, yeah, but inequality rises too, right?

**Louise Sheiner**

Exactly, so on the other side of it is that it's not great for everyone. The only people who are benefiting in this scenario from the rise in productivity are the top 20%. And then you might think that the government will face demands for more spending, for more redistribution, to make sure that the benefit of AI is shared more equally. And so, with that extra money that they're getting, you would think they might want to engage in some more redistribution, which could be more public services or lower tax rates for people who are not in the top percentile. There's many, many ways of doing redistribution.

**Michael Klein**

You have another scenario, your third scenario, and that adds another complication. Productivity still rises, and the gains are still concentrated at the top, but now AI displaces a significant number of workers. What are you assuming happens to those workers?

**Louise Sheiner**

Yeah. So in this scenario...is one where we think of AI as changing the composition of jobs. There'll still be jobs, but you know many jobs have to be replaced, people will have to find new

jobs. So people like truck drivers or stenographers or travel agents might have to find other employment, and that can take time and be very difficult. And so in this scenario, we have a higher rate of unemployment on average over the next 30 years, and lower labor force participation as people decide just to leave the labor force. And so the question is, so these people become unemployed or leave the labor force, and, we know that that doesn't sound like a lot. Okay, your unemployment rate is 1% higher, but we know that losing a job is very, very costly for people. It's costly in terms of their earnings when they eventually find another job. It's costly in terms of their health because it's very difficult for people when they lose a job, and there's a lot of evidence that shows their health declines. And so this is really a downside of the scenario...that even though AI is lifting the economy. There are people who are basically left behind.

**Michael Klein**

So this is a little bit like the deaths of despair that Angus Deaton wrote about in the 2010s and these terrible effects of the displacement of workers, right?

**Louise Sheiner**

Exactly. So you can think of this...that that was kind of thinking about the China shock that hollowed out the manufacturing base, and it can be that kind of shock. This is a little different in that we don't think it will be as intense geographically, but still, there's plenty of evidence that shows losing your job is bad for you economically, and it's bad for you from a health and mental health perspective.

**Michael Klein**

So, what could fiscal policy do to ameliorate those problems?

**Louise Sheiner**

So you know we have already some programs to help, and the first one is some people say, oh, what we need to do is just fix the UI system. And so it is a natural first line of support because it is a system that exists. We wouldn't have to set it up anew. That provides people with income when they lose their job, but it isn't quite set up for this kind of structural change. I think UI is set up for when you temporarily lose your job because there's a downturn. It lasts only about half a year, and it doesn't necessarily replace a lot of the income for higher income people. And there are a lot of people who are just not eligible for it. So we think UI should be fixed to the extent it can and strengthened. But we also look to other programs, and we go back to this trade adjustment assistance. This idea that there was a program to help people who had lost their jobs because of trade, like the China Shock, get training and find new jobs. Now that's had mixed success, but there have been studies that show that you can do it well. And so the idea would be to try to think about how to restructure it so it might work better in an era where people are losing their jobs because of AI.

**Michael Klein**

I guess you know, as you're sort of alluding to, trade was a somewhat parallel thing, but there was an effort to trade adjustment assistance, and that didn't really work very well, did it?

**Louise Sheiner**

It didn't work that well. Again, there are some aspects of it that have been...people who got a lot of support, who got training and jobs that were available...high quality support, actually did better. One of the things is that take up was not very high; not a lot of people qualified. And this is a real question that policymakers have to think about is, you might say, oh well let's just make sure that we give it to people who lose their job because of AI, and then we create all these hoops that you have to go through to prove why you lost your job, and that tends to make huge administrative burdens, and it lowers take up. And so we think we should be a little bit less restrictive on who would qualify for this kind of assistance in order to actually increase take up.

**Michael Klein**

And then you have another scenario where AI is much more powerful. It boosts productivity even more, but it comes with a lot of permanent job loss, and all the additional income goes to owners of capital in the top fifth of the income distribution. So, what does that world look like?

**Louise Sheiner**

Yeah, so this is the world that we think people are, in some sense quite afraid of, which is that jobs just get taken over en masse by AI, that people who own the AI get all the rewards. And other people are completely left behind. They're made worse off, not better off, and so we model that world. And I'm going to go through our two types of approaches. One is just to say what happens to the federal debt. And one of the things is even though on average people in the high income quintile pay higher taxes, people who get their income from capital pay lower taxes, and it's a little hard to know exactly what rate would apply to the income from AI, but we do some rough calculations and assume an effective tax rate that's quite a bit lower than the average effective tax rate. And so, even though we're getting double the productivity growth in this scenario, and GDP is 35% higher in 30 years instead of 16% higher, the effect on the debt to GDP ratio is only the same as in our second scenario, which is it reduces the debt to GDP ratio by 49%. So it's big, but given the incredible growth in the GDP, it's quite modest. And at the same time, people are really losing their jobs. This might be a scenario where jobs kind of just don't exist, and they and you know we economists always think, well, of course there will always be jobs, but this is a scenario where maybe there wouldn't be.

**Michael Klein**

So I guess the real nightmare scenario is what a recent AI executive said that he thinks AI is going to kill everybody within 10 years. I guess if you don't have you know the federal debt is less of a problem then compared to some other things, but let's you know shift gears a little bit.

So, given the possibility of greater inequality from AI, are there things that the government can do to soften the blow, and what kinds of things could they do?

**Louise Sheiner**

So, first of all, let's think about how the government could get more revenues from the growth of GDP if it all goes to capital, because that is kind of what they would need to be able to soften the blow. And so the first thing to do is to think about how you can tax capital at a higher rate. And we thought about doing that in two ways. So one, you could just sort of keep our existing tax system and change the rates, raise the rate on capital, get rid of some deductions. The problem with that is, when you think about what happens if all the income goes to people who own the technology, you think that all the political power is going to be going along with it. And so the idea that when the political power is concentrated in the hands of AI owners, that we're going to raise the tax on AI seems, you know, maybe, but maybe it'd be harder. And so we were trying to think of ways where the government could get the returns from AI without having that political risk. And one thing that we thought about is something like a sovereign wealth fund where the government would own the AI. So if all the returns go to the owners of AI, well, the government would just be one, and you wouldn't have to have taxes, and it would sort of be harder to undo.

**Michael Klein**

But doesn't that face the same political problem that they wouldn't necessarily give up their property rights to AI, just as they wouldn't want to be taxed more heavily?

**Louise Sheiner**

Well, there's a question on how do you accomplish that. You could decide to borrow to do it, so you could say, I'm going to increase the debt. I'm going to just buy, you know, like any private citizen can...i'm going to buy AI companies. And you might say, well, that's like, that's risky because you're borrowing to buy. But you might think of it as insurance. Like, there's some likelihood that AI companies are going to earn a lot, and the government's going to have a little risk on that. So that if it turns out that the world looks like one where all the returns go to AI, they would benefit.

**Michael Klein**

Would it be kind of eminent domain? They'd force them to sell.

**Louise Sheiner**

I mean, you could do various things. So, forcing to sell...you could tax AI companies. That's kind of the same thing, and use the proceeds to buy stuff. I think the harder question is, when we think about the government investing in equities, the easiest way is for them to invest in something like a basket of public equities, and there you don't worry about undue influence or political influence or picking and choosing. You take an index fund, but if you think that the

gains to AI are coming way before these companies go public...that what you need to be doing is investing in startups...then you get into some very murky territory about do we really want the government to be picking and choosing winners? And you might want to have some setup where you have a technocratic entity that would be immune from political influence that would make these decisions, but that appears to be very difficult to do, especially given the recent Supreme Court decision that basically said, apart from the Fed, you can't really have independent agencies.

**Michael Klein**

Yeah, from your mouth to God's ear, as people say.

**Louise Sheiner**

Yeah.

**Michael Klein**

Yeah. So, given all of this, Louise, what do you think the government could be doing now at this time of great uncertainty? But, like you say, it's a little bit like insurance trying to buffer any problems that could arise. Are there clear policies available now, or is it just so murky now that we really don't know how to proceed?

**Louise Sheiner**

So, I would say two things. One, I think it's important that you just don't wait until everything's unfolded to act. I think that that cuts off a lot of possibilities. A lot of people would get hurt in the process before you get your act together. It may become impossible to collect the taxes from AI owners if they get too politically powerful. So I think we should start taking measures now that provide some insurance. Personally, I think we should have higher taxes on capital anyhow, and so I personally would be in favor of raising the tax on capital now, which would both be good for the budget and would...say if it turns out that a lot of the money goes to capital, we will be better able to capture some of that for the federal government. I think strengthening UI is something that we should be doing anyhow, and thinking about trade adjustment as well. Now, some of these things need more development. They need to think via a sovereign wealth fund, or one thing we didn't mention is you could have something like individual accounts where people own stocks. These are things that I don't think we should wait until it unfolds to do. But I think right now they should be on people's radar so that the ideas get developed more than their current state of development, so that maybe we could start implementing them in three, four years and ratchet them up, if it turns out, guess what...it is going in that direction, and we should do more and more of it.

**Michael Klein**

So right now there seems to be a lot of popular discontent with data centers and sort of a backlash against AI. Do you think politically now this is a time where it's actually possible to do some of these things as compared to I don't know a couple years ago where people thought of AI as maybe more benign.

**Louise Sheiner**

I mean, maybe. It's true that there's a backlash against AI, and I think it is this fear, even though it's against data centers, I think it is a fear that it's going to take all of our jobs. But at the same time, our political system is not really in a position to do anything constructive right now. I think it's quite scary that our political system is in such a mess at a time where we really do need strong, smart leadership, so maybe. But I don't really sense that in the next couple of years there's going to be consensus that we should tax these companies. I wish there were, but again, I'm an economist, not a politician, so what do I know? But you know, I would maybe...but I don't see a lot of action. I don't see a lot of bipartisan anything happening in the next few years.

**Michael Klein**

Well, nevertheless, I think analyzes like that which you did with Doug and Karen help set the stage for these kinds of things. So even if you're not optimistic, you're helping people to better understand what the consequences could be, and that's the first step towards it. So, Louise, thank you very much for speaking to me today on these very timely and very important issues. I really appreciate the time you've spent.

**Louise Sheiner**

My pleasure.

**Michael Klein**

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