**THE BROOKINGS PODCAST ON ECONOMIC ACTIVITY**

**"What is the efficient rate of unemployment?"**

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*Episode Summary:*


The full-employment rate of unemployment may seem like a contradiction in terms. But in fact, economists have long understood that some unemployment is necessary. "Il you have a big hole in your bathtub, you always have a little bit of water sitting at the bottom," explains Pascal Michaillat of UC Santa Cruz in the latest episode of the *Brookings Podcast on Economic Activity*. Michaillat's new paper, coauthored with Emmanuel Saez of University of California, Berkeley, "u* = √uv: The full-employment rate of unemployment in the United States," presents a new formula for identifying the efficient rate of unemployment in the U.S. and finds that, based on their new measure, the labor market has been inefficiently slack for most of the last century. Michaillat discusses the paper and potential impacts on macroeconomic theory and policy with Brookings Senior Fellow Louise Sheiner.

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

**STEINSSON:** And I'm Jón Steinsson, Chancellor's Professor of Economics at the University of California, Berkeley.

**EBERLY:** We're 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.

**EBERLY:** Thank you for tuning in to this first episode of season 5 of the BPEA podcast. This edition of the *Brookings Papers* includes another exciting set of economic policy studies, and we're thrilled to hear the conversations this season of the podcast.

**STEINSSON:** Yes, we'll be covering a lot of ground this season, including papers on the full employment rate of unemployment, economic impacts of the clean power transition, dynamic budget scoring, fiscal rules to stabilize the federal debt, and the economics of sanctions.

**EBERLY:** Plus, at the end of this season we'll have a discussion on three papers that address the Federal Reserve's monetary policy framework. So, we have a lot to look forward to.

But now, let's jump into our first discussion on $u^* = \sqrt{uv}$, the full employment rate of unemployment in the United States," by Pascal Michaillat of the University of California, Santa Cruz, and Emmanuel Saez of the University of California, Berkeley. Pascal is interviewed by Louise Sheiner, the Robert S. Kerr Senior Fellow in Economic Studies and policy director for the Hutchins Center on Fiscal and Monetary Policy.

John, it's not often we have a paper with a formula in the title.

**STEINSSON:** No, but I really love this title. It's such a simple formula, almost like $e = mc^2$.

**EBERLY:** Oh, come on! Maybe not …

**STEINSSON:** Well, maybe that comparison is a little over the top.

**EBERLY:** Maybe so.

**STEINSSON:** But even so, it's an exciting paper because it proposes a new way to think about full employment. Most earlier work has equated full employment with the NAIRU. That is the rate of unemployment consistent with stable inflation. But this is a very inflation-focused view. Pascal and Emmanuel take a much more employment-

focused view that takes the maximum employment mandate of the Fed more seriously. And they argue for a really simple metric based on this outlook, which is very interesting.

**EBERLY:** And particularly because it gives a very different view of how tight labor markets have historically been. They think there is more room to grow employment. So, with that, let's hand it over to Louise.

**SHEINER:** Thanks, Jan and Jón. I'm really excited to be here today to discuss with Pascal. His new paper, "u* = √uv," or "The full-employment rate of unemployment in the United States." Really nice to see you, Pascal, and to have this chance to chat with you.

**MICHAILLAT:** Hello. Nice to see you. And thanks for having me.

**SHEINER:** Okay, so your paper gets right to the heart of a really important question in modern monetary policy. But even as I try to make my way through the title, you can say the title might look like a cryptogram to non-economists. So, let's start with decoding it. Let's start with the left side of the equation. What is u* and why is it important to the Federal Reserve?

[3:47]

**MICHAILLAT:** Yes. So, u* it's the full employment rate of unemployment. So, the acronym for that is FERU. So, it's the unemployment rate that prevails when the economy is at full employment.

So, now why do we care about that unemployment rate and why does the Fed especially care about it? It's because the Fed has two mandates. One is to keep prices stable, but the other mandate is to keep the economy at full employment. And to be able to keep the economy at full employment the Fed needs to know, well, what is full employment? Whether they are at it or far from it. And so that's why this u* is going to be important for them because it will allow them to respond to shocks and turbulences that hit the economy and try to get as close as possible to full employment.

**SHEINER:** So, I think for non-economists, they might say, well, why isn't the best unemployment rate zero?

[4:42]

**MICHAILLAT:** Yes, that's a very good question indeed. So, the simple answer is that it's just not possible to have zero unemployment. The reason is that on the labor market, there is a thing called Beveridge curve. And that Beveridge curve is something we've discovered a long time ago, like, it was discovered in the UK and then it turned out that it also existed in the U.S. So, that Beveridge Curve is a relationship between unemployment and vacancies. And it's telling us that as you reduce the amount of unemployment in your economy, you're going to increase the number of vacancies in your economy, these two things move together.

So, essentially what this is saying is that if you want to reduce unemployment, you need more and more recruiting to occur in your economy so you can absorb people who always flow into the pool of unemployment.

But it turns out that even if everybody in the economy was only doing recruiting—you know, we only recruit other the people all the time—even in these conditions, actually, the Beveridge curve tells us that you wouldn't be able to constantly have everybody employed. So, if you want the technological limitation, the fact that you constantly have people who flow into the pool of unemployed means that you won't be able to have zero unemployment.

So, it's very much like if you have a bathtub and you constantly have water dripping into the bathtub, even if you have a big hole in your bathtub, you always have a little bit of water sitting at the bottom. So, that's the logic.

And in fact, if you go back to the ‘40s when people started thinking about full employment, so especially in the UK, Beveridge also joined Robinson after the war, they had realized already at that time—so, in the mid-‘40s—they had realized that full employment couldn't mean zero unemployment because you constantly have these flows of people who come in to unemployment either because they lose their jobs, they have quit their jobs, they are moving to a new city and they have to find a new job or, you know, they are graduating from school and are moving into the labor force. These constant flows just make it impossible to eliminate unemployment. And that's why you need a target that's not going to be zero.

**SHEINER:** Great. So, you already talked about the Beveridge curve. It's the relationship between the two other variables that are on the right side of your equation in your title, “u,” the unemployment rate, and "v," vacancies. Now your title says, here's what the best unemployment rate is—it's the square root of the product of the unemployment rate and the vacancy rate. How did you come up with that? What's the intuition for why that's the optimal unemployment rate that the Fed should be targeting?

[7:12]

**MICHAILLAT:** Okay. So, let me first tell you a little bit like what that $\sqrt{uv}$ really means. So, it's true, it looks a bit cryptic, but really, if you remember math classes, you know that $\sqrt{uv}$ what this says is it’s just a geometric average of “u” and “v.” So, really what this is saying is that it's going to be the midpoint of “u” and “v.” And, you know, there are many ways to find midpoint. So, here it's not going to be the typical “u” plus “v” divided by 2. It's not going to be an arithmetic average, but it's going to be a geometric effort. But essentially, it's a mid-point between “u” and “v.”

So, now why is it that we want to be in between “u” and “v”? It's because at some level, unemployment has a cost, right? So, when people are unemployed, they are staying at home, they are not producing anything. Vacancies, and I have hinted at that already, also have a cost, because if firms are trying to fill the vacancy, they need to devote labor to recruiting new workers. And it turns out that these costs are actually comparable. So, you know, that's something we find in the data.

And the Beveridge curve, as it also turns out, is very symmetric. So, the unemployment rate and the vacancy rate, they play the same role in the Beveridge curve. So, technically the Beveridge curve turns out to be a rectangular hyperbola in the U.S. But it's just saying unemployment/vacancy play the same role.

And so, you can see at the end of the day, unemployment and vacancies just show up in exactly the same ways, at the same cost, they enter in the same way as the Beveridge curve. And so, because of that symmetry, the best place you can be is just in the middle of the unemployment and vacancy rate. So, that's what this formula says.

So, now, how did we come up with that? Actually, we didn't come up with that immediately. We've been working on these topics with Emmanuel for a while now, for 15 years basically since I graduated from grad school. And what we realize is that what's very important for a lot of policy is this efficient rate of unemployment. What you mentioned, you know, the desirable rate of unemployment. But we had no idea what that was. And so, we started working on that. And we have a previous paper in which we develop a much more complex formula for that efficient unemployment rate. But then what we realized is actually, in the U.S., given the value of all the statistics in the formula, you could actually simplify greatly and get that maybe cryptic but for macroeconomics, quite simple formula that gives you that u*. But it's kind of the second step in the research project. Initially we had something much more complicated that then we were able to simplify.

**SHEINER:** But the intuition is that both unemployment and recruiting is by itself costly for society because it's not directly producing anything. You might need to go through it in order to get a job, but it in itself isn't producing anything. Similarly with a recruiter at a firm who's spending their time to find someone. And so, they're equally costly and so you want to have them set the same.

But how do I think about changes in technology over time about recruiting? I mean, recruiting before we had email, before we had those big job listings, now we have AI—how do you see that, that this is a concept that would be kind of constant over time?

[10:09]

**MICHAILLAT:** Yeah, that's a great question. So, actually one issue is that we don't have as much evidence on recruiting cost as on other things. And what we hope is that if our research becomes used more widely, hopefully, you know, we'll collect better data on recruiting. So, I have to say, we don't have that much evidence on it. And so, especially knowing how these recruiting costs change over time, you know what I'm going to say. We are not 100% sure but what I can tell you is that we have two good pieces of evidence. One comes from the late '90s and one comes from the 2011, 2012, so, about 15, 20 years apart. But it turns out actually that from these two surveys, the recruiting cost doesn't seem to have changed in the U.S. Also, between the late '90s and 2010 internet appeared and the recruiting technology change quite a lot. But we don't find evidence that these recruiting costs have shrunk a lot.

And now if we think a bit about the whole experience, you know, recruiting in the academic world, what has changed? Like when I was on the job market, I had to mail

these hundreds of applications to places all over the world, you had to fly to be interviewed by your university. So that all has disappeared. You apply online, you do your interviews on Zoom. But for the recruiting departments, a lot of the costs are still there. You know, what's very costly? You have to read 200 or 500 applications from job market candidates, that still takes the same time. You have to spend three days interviewing everybody, that takes the same time. You have to spend a month flying out people, attending job talks, attending job market dinners. That takes the same time. But then you have to debate with your colleagues about who you're going to hire. That takes the same time.

And so, it's true there are marginal improvements, but a big chunk of labor that you spend doing the recruiting that's still there. And I think inevitably, you know, it's going to be there just because it takes time to find the right colleague for your department. And in firms, it just takes time to find the right colleague to work with you and to fit the needs of the firm.

**SHEINER:** Great. That's interesting, and that makes sense. So, based on your measure, you use historical data over a very long time period. You find that typically the U.S. labor market has been too slack, in other words this unemployment rate is too high over much of the past 90 years or so. Why do you think that is?

[12:26]

**MICHAILLAT:** Yeah, that's a great question. So, we devote a section in the paper trying to think about that. And we can look a little bit over time to try to understand why there was so much slack. So, obviously the first time that the government in the U.S. had the full employment mandate was actually only after World War II. So, that was the Employment Act of 1946. Before that, there was no employment mandate. There was no mandate of full employment or concept of full employment. So, it's not something that the government had to do.

But nevertheless, it's well understood that during the Great Depression, you know, the Fed, you know, and if you go back to Friedman and Schwartz, and also Ben Bernanke's new book, it really shows that the Fed made some mistake during that time in the '30s. So, this clearly could explain why maybe the unemployment rate was so high compared to where it should have been.

Now, after World War II, this full employment mandate was introduced. If you look at the '50s and '60s, unemployment was sometimes too high, but it was also sometimes too low during the Korean War, during the Vietnam War. So, we were kind of moving around the full employment level. And in fact, if you go back to discussions of policy at that time, policymakers they were often talking 3% or 4% as their full employment target. And it turns out that that's also what we find. So, it turns out they had a good idea of what full employment was. And the policies were such that the labor market was kind of hovering around these levels.

Where things started to go off a little bit is after the '70s. And in fact, it's quite extraordinary. From 1970 to 2019, the labor market in the U.S. was always inefficiently slack. We touched full employment, you know, in 2000, just before the end of the dot com bubble. But we were always too slack. And so, it's quite interesting why that happened. And so, we looked a bit at people who studied the

Federal Reserve. And there, a lot of people have found that since the ‘70s, the Federal Reserve seems to have exhibited anti-inflation bias, so they’ve paid much more attention to inflation than to unemployment.

And people have done that systematically. You know, they looked at communication from the FOMC. And what you find is that inflation is mentioned very, very often. Unemployment of full employment were absolutely never mentioned during that time. So, there seems to have been on the policy front a little bit of a bias and a lot of focus maybe because of the ‘70s, you know, a lot of focus on inflation, very little focus on unemployment. So, that's a policy.

But it turns out that in academia there was a same bias as well. So, if you want to study monetary policy these days, you have to learn what's called the New Keynesian Model. Now, there are two main textbook[s] to study the New Keynesian Model, one by Jordi Galí that was published in 2008, and one by Mike Woodford that was published in 2003. You look at the index of these books, unemployment doesn't show up. Well, it shows up once at the end of the Galí book. But you have a thousand page of textbook on monetary policy—the word “unemployment” is not in this textbook.

Now, you go back to the general theory of Keynes, you look at the index and there you have about as many times unemployment as inflation. So, the New Keynesians in that way they were not very Keynesian because they lost that balance between unemployment and inflation, and they really focused only on inflation.

And so, these two things, you know, there was no academic work on unemployment in the monetary field and maybe there was a bias on the policy side that paid more attention to inflation than unemployment. And as a result, what you get is a lot of slack on the labor market for about 50 years.

**SHEINER:** That's really interesting. And I hear what you're saying about the ‘70s because I know people who've lived through the high inflation of the ‘70s were kind of scarred by it, right? And it’s like, oh, we can’t do that again.

So, let's talk about what happened during the pandemic. So, you said until 2018, it was just maybe right before the pandemic that the labor market got tighter that u*. What happened in the pandemic to the labor market according to your measure.

[16:20]

**MICHAILLAT:** Yes. So, pandemic was very interesting. So, first, of course, at the beginning there was a huge spike of unemployment. The labor market was too slack, but the labor market recovered quite quickly. And by the middle of 2021, we were back at full employment. But then the labor market didn't stop, so then it kept on heating up, and it became a quite, according to our measure, it became quite hot. So, by the middle of 2022, this merger of labor market tightness reached a value of 2. So, basically, we became as hot as we were in 1945 coming out of World War II. So, we had never been so hot in the entire postwar period. So, it's quite exceptional how hot it became.

And then after that, of course, the Fed started tightening monetary policy and the labor market started cooling. And we've been cooling since so middle of 2022. And I imagine that in the fall—so, this year, 2024—we will probably be back exactly at full employment. We're very close to full employment right now as we speak in September of 2024.

And so, the question is, you know, why did that happen? And I think there are two sides. One is aggregate demand. There was a huge fiscal stimulus after the pandemic. Monetary policy remained also quite accommodative for about two years. So that, of course, tends to make the market tight. There was also a very low aggregate supply, very low labor supply, because many people dropped out of the labor force during the pandemic because they didn't want to get sick. They had to look after maybe a family member who was sick, schools were closed, they had to look after their children. So, you have a low-labor supply, very high-labor demand, and of course, that's a recipe to have a very tight market.

**SHEINER:** So, as you said, we're sitting here in September. We don't know what the Fed's going to do at the next meeting. But let's look a little beyond this episode. Do you have any sense of whether or not we should be thinking that, well, nothing much has changed, so since the unemployment rate was typically too high for most of the past 20 years or 30 years, that's what we expect it to happen again. Or do you think it's going to end up going back to what you think the equilibrium should be?

[18:26]

**MICHAILLAT:** Yes, that's a tough question. Forecasting is not easy. The only thing I can tell you is that so, you know, in this paper we use these unemployment and vacancies to try to figure out what the Fed should do, what the Fed should target. We have some other work that's trying to use the same data on unemployment and vacancy to identify recession early on. And actually, what we find using that is that it's quite likely that the U.S. is in recession right now. We put the odds around 50% using our model. And the U.S. might have endured a recession as early as March 2024.

So, if that other work is correct and we've entered a recession, then what you would expect is that, of course once you are in a recession, usually the labor market cools quite a lot. And so, if that happens, we'll probably keep cooling for a little while and as a result will end up being inefficiently slack again and below full employment. It's a bit hard to say, of course, who knows what will happen. But at least using this unemployment and vacancy data to make a bit of forecasting suggest that, yes, the labor market has been cooling quite a lot. And it's quite likely that it will continue cooling in the fall.

**SHEINER:** And so, if that measure is correct, then the Fed was just behind the curve again in terms of when they started to cut rates. Is that the implication?

[19:39]

**MICHAILLAT:** Possibly. But, you know, I mean, obviously what we propose is just one measure. We finished writing this paper, you know, a month ago. It's very hard for the Fed to know. Some other indicators of recession that are out there, they are a

bit slower than this measure we developed. So, they haven't really picked up on that. And we are not yet at full employment. So, the, you know, inflation is still a little bit above 2%. The labor market is still a little bit too hot. You know, I think the Fed is doing … if they cut in their September meeting that for us is in the future, I think, you know, that would be a pretty good job. Of course, the issue is that then monetary policy take a bit of time to bite completely, to become active. And so, they may end up being behind the curve because of that, because of the delay that monetary policy has in taking full effect on the economy.

**SHEINER:** So, the point of your paper, is that the Fed should be focusing on your measure of u* as their target for what full employment looks like. And, you might say that one of the things that the Fed has done is maybe focus on a measure that they think unemployment rate should be higher than what you think. Maybe that's one interpretation for why they have actually been higher. So, you talked about the beginning about how the Fed has the dual mandate, the inflation side and the employment side. So, what would happen to the inflation side of their mandate if they're like, oh, your measure is better, we're going to start focusing on that as our measure of unemployment? What happens to that tradeoff?

[21:02]

**MICHAILLAT:** I mean, the tradeoff is always there. There is a tradeoff, it may not be possible to both achieve full employment and inflation target. You know, the Fed may have to decide how much to deviate from both and decide how much weight you're going to put on one versus the other. So, that's always there. But we are just saying, yes, what you should target for employment is lower than what you sought.

And in fact, you know, one of the measures that the Fed often uses, what's called the natural rate of unemployment, that's produced by the Congressional Budget Office. If you look historically at the value of that natural rate, it's been between 1 and 2 percentage points higher than what we propose. And so, this could, in fact, explain what we see in the data. You know, if the Fed saw that this natural rate produced by the CBO is the true measure of full employment, then they've been on average kind of right.

Our issue, of course, is that there is no real foundation for that natural rate. And in fact, if you look at the appendix about how it's constructed, what it does is that it assumes that at some point in time we are at employment and then it projects forward where the labor market should be to replicate this condition.

So, currently it assumes that in 2005 we had full employment and then project forward where we should be to replicate the 2005 condition. But of course, we don't know if at 2005 we were at full employment or not if we don't have a theory of full employment. So, it really start from a totally arbitrary assumption and then it computes the labor market that's consistent with that. So, we're trying to improve on that and have a theory of what it means to be at full employment.

**SHEINER:** And of course, your methods are applicable not just to the United States but to central banks across the world. And you've talked about how the new measure has the potential to be quite important just in general. What do you see as the barriers for people to adopt this measure for in general?

[22:45]

**MICHAILLAT:** Yeah. Well, that's very interesting. I think there are a bit a little bit two ways to think about it. So, one is that an issue we've been facing and that's not just this paper, but other work I've done with Emmanuel over the past 15 years, we've developed a whole theory of business cycles and how to deal with business cycle. We thought about fiscal policy, monetary policy, unemployment insurance, but we haven't had, you know, much impact. And we are very grateful. I'm so happy that Brookings decided to invite the paper and I get to talk to you here and try to publicize a bit this work.

But so, why is that? So, I think there are two things. So, one is that in terms of if you just look at the type of work we do, we borrow a lot of tools from what's called micro-labor. So, it's a field of microeconomics that study unemployment. And we try to apply these tools in this case to say monetary economics. So, the field of macro that looks at what the Fed does. And the problem is that people in monetary, I mean we talked about it, are really not used to these models, these data. You know, they don't know about vacancies. They don't think about these models of unemployment. So, for them, these tools are completely new. And, you know, it's always hard to learn new tools.

And at the micro level the people whose tools we use, they are not interested in monetary policy or in fact very much in stabilization policy. So, they don't think the questions we are looking at are interesting. So, we're a little bit in a vacuum here using tools to study questions, but they're from different fields.

So, who knows whether this will take off or not. And, you know, macro people are always a little bit conservative. I mean, we all are, I think. People are used to their methods; they are used to their tools. And it's kind of hard to convince people to switch to new tools. And, in fact, I've done some work on that with George Akerlof trying to think about how new ideas emerge in science. And it's always very hard. So, it's hard to tell whether they'll this will become something or not.

[music]

**SHEINER:** All right. Well, it was a really interesting paper to read, and I sure am sure that people at the Fed will pay close attention to it. And so, I really thank you for writing the paper and for being on with me today.

**MICHAILLAT:** Thank you, Louise. It was nice to talk to you.

**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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