THE BROOKINGS INSTITUTION
SUPPLY-SIDE FACTORS AND INFLATION: WHAT HAVE WE LEARNED?
FEBRUARY 6, 2026
WASHINGTON, D.C.

WELCOME REMARKS

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PRESENTATION AND FIRESIDE CHAT

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PANEL: INFLATION AND SUPPLY CHAINS, SUPPLY CONSTRAINTS, TRADE SHOCKS, AND PRODUCTIVITY SHOCKS

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PANEL: HOUSING SUPPLY, SHELTER INFLATION, AND MONETARY POLICY

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KEYNOTE

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WENDY EDELBERG: So we're gonna get started. Good morning everyone, and welcome to Brookings. I am Wendy Berg, senior Fellow in Economic Studies. When we think about inflation, the instinct for economists and policymakers has long been to focus on demand. Too much spending, chasing too few goods, and the fed's tools are well calibrated for that world, but supply side disruptions can drive inflation in ways that challenge those traditional models.

Now, of course, this isn't entirely new territory. In the 1970s and the 1980s, we thought a great deal about energy shocks and their macroeconomic consequences. But the last several years has reminded us that sup, the supplies side extends far beyond oil prices, supply chain [00:01:00] bottlenecks, housing constraints, trade policy, productivity disruptions.

These create distinct dynamics that require distinct policy thinking, and that's what this initiative is all about. In November, we hosted a virtual event where I presented a taxonomy of supply shocks, drawing on roughly 100 pieces of research to identify eight shock types, the channels through which they transmit to prices, and the features of economies that amplify their effects.

Today, we turn from what are supply shocks to what have we learned and what do we do about it? We'll begin with Peter Oza, CEO of Lazar, and former director of the Office of Management and Budget, and the Congressional Budget Office. Then two panels will dig into the specifics. First on supply chains, [00:02:00] trade shocks and productivity, and then on housing supply and shelter inflation.

We will show concrete suggestions for policymakers through those two panels. We're also releasing three new papers today, which will be discussed by the authors and are available on the Brookings website. We'll close with keynote remarks from Federal Reserve, vice chair Philip Jefferson. Peter is joining us virtually this morning, and after his presentation, he and I will have a fireside chat.

We couldn't manage a fire here, but hopefully he has one on his side. And with that take away, Peter.

PETER ORSZAG: Thank you very much, Wendy. I'm delighted to be with all of you albeit virtually and particularly excited that this topic is getting the focus that I believe it deserves. I had a chance to skim through some of the papers that will be presented and maybe we'll make a couple [00:03:00] references to their points in this discussion.

But again, to Wendy's point, I think this has been a, an underappreciated part of the discussion around inflation. And what I wanted to do is do a little bit of a look forward on how it might affect inflation over the next 12 to 24 months. So if we could go to the next slide, please. I think it's, the conventional wisdom at this point is that we are moving down the inflation slope towards the fed's 2% target. You see here a variety of indicators consistent with that expectation from unnamed large bank one and two which by the way are not Lazar suggesting that inflation's expected to fall in 2026.

You can also see a series of different references of forecasts from the Philadelphia Fed, for example, their survey of professional forecasters. And I think the reasons that go behind this conventional wisdom, [00:04:00] which by the way, just because of the chase I'm gonna disagree with, so just to be clear about this, but I wanted to at least lay out the conventional wisdom, involve a variety of different factors, including that inflationary expectations seem to be relatively well anchored at modest levels in consumer surveys.

And backed out from the treasury curve curves that, there's relatively modest wage growth and that very importantly, shelter inflation is likely given the mechanics of how it is recorded in the price indices is likely to continue to decline throughout 2026. If we go to the next slide, however, adam Poin and I and act fact, actually Adam is presenting, I think a similar view across the street as we speak. But obviously this group is better. I have a different take on on the conventional wisdom and we see. Significant potential for inflation to rise rather than fall in [00:05:00] 2026. And I'm gonna go through this during the discussion, but just to lay it out a little bit on the demand side, I think it's plausible that the fiscal impulse is going to rise in 2026 relative to 2025, and that we'll see a fiscal deficit at the federal level above 7% of GDP.

That's for a whole variety of reasons, including the impact of reduced compliance at the IRS with some fairly, I think, rigorous evidence suggesting the impact on tax collection could be meaningful, the potential for Congress to enact additional either tax reductions or spending increases above and beyond the one big beautiful bill.

And the possibility for declining revenue from tariffs, either because the of the Supreme Court potential ruling in the IEEPA case, or just because as supply chains start to work around the, the imposition of tariffs [00:06:00] to, to some degree. There, there will be a decline in revenue as that optimization process occurs.

Second point on the demand side is that monetary policy may be more accommodating than we think, both because our star may be higher than commonly appreciated. And also because if you look at financing conditions, they are relatively accommodating with rel really tight credit spreads and a variety of other indicators suggesting basically some potential inflationary impact from very accommodating monetary conditions.

And then the third part is on the demand side, is that economic growth is potentially going to be quite strong in 2026 disproportionately from AI and high income consumers, but still a a relatively propitious growth outlook for the US economy on the supply side, which is where I'd like to spend a little bit more of the time.

We'll go through a little bit on why I believe that most of the impact, or at least the a, a very significant part of the [00:07:00] impact from the tariff pass through has not yet occurred. Talk a little bit about potential tightening of labor markets with the change in various immigration policies in particular, and then highlight some structural bottlenecks, especially in electricity.

But you're also seeing this now starting to show up in, in memory chips and in other parts of the economy. I think one of the papers that will be discussed talks about how what might be seen as relative price moves can that nonetheless have overall inflationary impact. And there are some very sensitive sectors that are seeing a lot of pressure on the supply side.

If we could go to the next page, if please. I think and this is the framing that Wendy started with, which is exactly right. I think one of the big lessons from COVID, and this is something that Robin Brooks and my colleague at Lazar, William Murdock and I have tried to highlight is the [00:08:00] absolute centrality of the supply side in, the inflationary dynamics that occurred during the pandemic. I know there will be other papers that discuss this also, and one can debate the share, whether it's as we thought the majority, and by majority 70 to 80% of the observed inflation or a or a more modest share, but still significant.

I think it's clear that the supply side played a very important role in the inflationary dynamics during the pandemic globally. And the most important part from the work that with Robin and William really has to do with the lags involved, which can be quite long. And we tried to point out that there were often six to 12 months, sometimes longer delays between when the supply chain seemed to normalize or seem to be impacted, and then the impact on margins.

So the pass through to margins [00:09:00] and to inflation can be relatively long. More so I think than conventional economic models have often hypothesized. And I think this is a very important lesson that feeds into the tariff part of the discussion that we're going to turn to in a moment. So with that, if we could go to the next slide, please.

On tariffs. Obviously we've seen it, it's almost the great missing inflation because there, there's obvious, there's clearly been a fairly substantial rise in average tariff rates. But at least to date the impact on inflation has been relatively modest. And I think the question is why there are some who have declared victory and said that those who suggested that terrorists would show up in prices and inflation, and I'll get to that distinction in a second have been proven wrong.

I think we're all well aware of the the person who you know, three floors down after jumping off, said off [00:10:00] of a high building said so far, so good. My impression is there's a a significant component of that phenomenon occurring here, which is we just have not yet fully seen the impact of tariffs passing through.

Why is that? I think it's for a few reasons. First firms had really accumulated inventories before the imposition of the tariffs. And that affected some of their pricing. I have a quote from Andy Ja Jassy, on the right, obviously who runs Amazon. That was just from a couple weeks ago in Davos suggesting that's what they had done.

Those inventories are basically now exhausted. And so you're seeing additional pass through to prices occurring as we speak. And then the second part is even if you had not done that pre-buying and not built up inventory, I think firms in the current environment are concerned about sticking their head above the parapet and being the [00:11:00] target of both media and political noise.

And so instead of doing a one-time step increase in the price to pass along the impact of the tariff that's being imposed, or the tariffs that's being imposed. Many firms, and I see this, I hear about this a lot in my interactions with CEOs and boards are instead bleeding the increases out slowly over time.

And we expect that the pass through will build throughout 2026 potentially adding as much as 50 basis points to headline inflation by midyear. Now there's a great question that has arisen about the degree to which this is a one-time price increase and it will the therefore fall out of the inflation numbers as we get into the back half of 2026.

I anticipate because this is built so slowly that will not be a pro prominent part of the 2026 dynamic. Perhaps as we get into 2027 a bit more, but precisely because most of this has not shown [00:12:00] up yet. It's not all gonna fall out of the base at least as of mid-year 2026. If we can go to the next slide, please.

There's also obviously the potential for additional wage pressure from changes in immigration frictions. This is something Wendy and others at Brookings have written a lot about and done a bunch of research on. The big question that we face is why has job growth slowed so much? And is that an indication of labor market weakness, which would obviously go in the opposite direction?

Or is it mostly coming from reduced labor supply? I think our interpretation is the latter. And what's interesting is you haven't really seen the impact yet of potential deportations in many of the sectors that you would think would be the most affected. So on the bottom left here, we show you growth rates in many of the sectors that one would imagine would be the most [00:13:00] exposed to deportation effects. And it hasn't really shown up yet. And that raises the question of whether you're gonna see more labor market tightness and therefore more wage pressure from those sectors as deportations build.

And a point that I think Wendy has highlighted is the effects of recent and potentially future deportations may be more significant than those in the past because they're occurring in different geographic areas. They're moving away from the border if you will. So we see the potential for wage pressure to be another factor that adds to inflation in 2026.

If we can go to the next slide, please.

And then as I mentioned, there are a whole variety of different structural factors on the supply chain that are that are not, maybe not quite a vertical supply curve, but very close to it. I would highlight what's happening in the electricity market in particular as an example where after [00:14:00] years and years of relatively flat demand for, for load for electricity we're seeing very rapid increases. Now, that's not entirely because of artificial intelligence, but it is driven in part by artificial intelligence. And maybe we can come back to that topic in a bit. But basically you've seen over the past few years roughly a 5 cent per kilowatt hour increase in electric retail electricity prices.

Retail is only about a third of total electricity demand, but still it has important effects on on households. To calibrate that 5 cent increase, 5 cent per kilowatt hour is about $500 per year for the average family. So it is a noticeable effect for many American families, and it's one of the things that I think in the

background is a structural factor that could continue to raise overall inflation for the next few years because perhaps as we'll talk later it's not clear where near term supply is going [00:15:00] to come from in order to match the rising demand for electricity.

Go to the next slide, please. So what I did not talk about, but obviously I think we'll go in the same direction as two other forces that are likely to also raise inflation. One is any continued threat to the independence of the Federal Reserve. The literature on this topic does suggest that Central Bank independence tends to reduce inflation at some, at a given level of activity in the economy.

The most important factors by the way are the separation of monetary policy, that lack of fiscal dominance and the separation of monetary policy, having to basically buy government bonds. And the second is making sure that the governor of the Central Bank cannot be dismissed by the executive branch.

The literature on independence is pretty specific about what actually drives the outcome that is associated [00:16:00] with better inflationary dynamics. The second thing that I hadn't talked about is the potential ongoing depreciation of the dollar which is obviously another inflationary force.

One of the things that was noteworthy during the discussion about Greenland over the last month or so, was that normally during periods of stress there is the effect of an appreciation of the dollar as the treasury market and the dollar is the safe haven asset. Instead, we saw depreciation of the dollar and the safe haven asset appeared to be gold to the extent that is perpetuated and there's a continued depreciation of the dollar from investors that are looking to diversify and that may have somewhat less confidence in the in treasuries in particular as the safe haven asset that would obviously add to add to inflationary pressure.

There are a whole bunch of other things to watch, but maybe Wendy, with that I will again just express [00:17:00] appreciation for the existence of this conference because I think it's really important to be focused on the supply side in addition to the demand side.

WENDY EDELBERG: Thank you, Peter. You gave us a ton to think about.

And, later we'll have at the end of this conference a rumble with the folks at the conference across the street and figure out who indeed is the better group. We'll collect a few questions in a minute, but first, let me start with my own. I am gonna start with where you ended with Fed independence.

So there's the debasement trade. We've seen the pressure on the dollar, we've seen what happened with gold and silver prices, but at the same time, at least medium term inflation expectations have remained like weirdly sanguine. Do you think markets are putting the right weight on all the risks that you described with the loss of fed independence?

Or where do you, like, [00:18:00] where do you see like how much weight do you put on that when you think about the inflation outlook?

PETER ORSZAG: Not that much. I think market-based inflationary expectations metrics can often be misleading. Not always, but often. And markets do tend to ignore or downplay, I should say, underlying structural things that may take a while to build.

So I wouldn't it doesn't necessarily mean that Adam Poon and I are gonna be right and that inflation will go up. But I wouldn't, I don't take too much comfort or I wouldn't take too much comfort from the fact that market based inflationary expectations are pointing to something different. I would also highlight on the consumer side of inflationary expectations that these can get really affected by prominent price increases.

That for the typical consumer, there are a few things that kind of loom larger than the overall price index or the, a average price impact and may be [00:19:00] more salient and therefore may affect inflationary expectations at the consumer level in a more prominent way. And there are lots of examples of price increases that I think would fit that category.

WENDY EDELBERG: All right, let's move on to the near term supply of electricity. Gave a very compelling argument for all of the reasons that electricity demand is projected to keep going up. Ai at the top of that list, and clearly our, the current state of the grid and electricity output is not up to the task.

But it seems like at the top of the list of things that the Trump administration is trying to do is deregulation and spurring along this kind of infrastructure investment, speeding up the permitting process. Do you see that as actually a a partly offsetting effect? And how big is it? How much is this deregulatory push actually [00:20:00] going to help us increase electricity supply?

PETER ORSZAG: Sure. The deregulatory push could help but I don't think it's re we are going to have challenges for the next couple years on jetting capacity additions. And let's talk about why that is. Basically the, there's been a shift as I

think everyone in the room appreciates, first in terms of trying to dramatically encourage renewables, wind and solar whose costs have come down dramatically over the past couple decades.

And then, a bit of, more than a bit of a reversal. That channel of adding capacity is much less attractive than it was a couple years ago. And there's a lot of ambiguity about what's gonna happen to that channel. Small nuclear, small modular reactors are years away from regulatory approval, under any plausible scenario, even with some acceleration.

So in the near term, that's not a vector that's going to add capacity. So then you wind up with [00:21:00] natural gas, which is entirely feasible. The problem is coming back to supply chains. There's a three to four year waiting time for turbines. And there's also a significant waiting time for transformers, but the turbines are often the are the binding constraint.

And so that vector also seems like it's gonna be difficult to add over the next few years. So you just have the. Obvious question of, okay, well where's it gonna come from? In addition to that, there's a lot of regulatory reform that would be fantastic on high voltage transmission lines, but that involve complex questions at the state and local level and eminent domain and other questions that are not really being addressed with regard to regulatory relief at the federal level.

And so that's not a perfect solution either. I do think, however that's what one, one interesting thing in the electricity sphere is there is a lot of planning and capacity that is being added over the medium to [00:22:00] long term. If you go out five or 10 years and look at the plans basically.

So what might ha might well happen is electricity prices go up significantly over the past couple years, the next couple years because of this constrained supply scenario that I'm mentioning. And then you might imagine, in fact there are some research analysts now highlighting this possibility that there's so much additional capacity that comes online and that the AI data centers may be, the chip designs may become more efficient.

There are a whole variety of other things that might happen. And so you may have you may go from undersupply situation to an oversupply situation out in a few years.

WENDY EDELBERG: That's interesting. All i'm gonna ask you one more question then, and then take a few from the audience. So we'll hear from one of

the authors of one of the papers that we commissioned that is now on the website that if you make trade policy more restrictive that [00:23:00] will, in aggregate make our country poorer.

And that recognition of, a lack of overall wealth actually puts downward pressure on demand right now and actually then can create this counterintuitive result that you get a dampening effect on inflation now because people feel poor, so they spend less money now does that resonate with you?

Do you think that effect is partly one of the reasons why maybe we haven't seen as much inflation as you would've expected from all of the trade policy?

PETER ORSZAG: I saw that in one of the papers and that the flip side of globalization being inflationary because it, it was a expected real income gain.

I it doesn't really conform to at least what we're seeing on the consumer spending side right now. But it's great that you're having this debate and that I think it, it's a new idea and it's it deserves to be evaluated in the rigor of with which [00:24:00] Brookings will do.

What I would say, and maybe this is a little consistent with it with with that perspective is what's happening on the consumer side of the economy is it is really getting disproportionately driven by high income consumers. And so I guess the piece of evidence that might be consistent with that perspective is to the extent that low and middle income consumers are disproportionately affected by by the change.

Maybe that part would conform. I'll leave it to you to critique that paper.

WENDY EDELBERG: Excellent. Well, we'll discuss it more later. All so we have a few minutes to take some audience questions. Since we don't have Peter for very long, I'm gonna, I'm gonna ask you to keep your questions really succinct.

I see one there and I see one here. We'll take a few at a time and then, and one here. And then let Peter answer them as a group.

PEDRO DECOSTA: Thank you. Perdo DeCosta for Market news. My question is about the immigration restriction aspect of the inflationary potential that has. What if we've already seen the [00:25:00] worst of the deportations and actually.

It's more of a sort of tool of political activism, if you will, than actually hitting the kinds of numbers that the administration has spoken about. So if we've seen the peak of deportations, is that potentially less of an inflationary aspect from that front?

WENDY EDELBERG: We have two more up here.

AUDIENCE MEMEBER: Oh, okay. Peter Paul used crime work. You've always been such a perceptive analyst of healthcare. Could you say more about healthcare spending and the a ACA subsidies?

LARRY SEIDMAN: Larry Seidman, the University of Delaware I wanna go back to what caused the US inflation rise in in 2021 and so forth.

And I wrote a paper at the end of 2023, which looked at the eurozone, looked abroad, [00:26:00] and the eurozone was it rose, its inflation rose exactly the same as ours from 1% up to 9% over the 2021 and mid 22. And yet they never had an overheated economy. Their unemployment rate was stayed above 6.5.

So that is likely to mean that all of their inflation was from the supply side. Okay. So looking abroad we were not any higher than them even though we were a little bit lower. I think looking abroad is important. And one more point. Oil prices went from world oil. Prices went from in May of 20, 20, 30 $3 a barrel.

And by the middle of [00:27:00] 2022, it was up to $113. Almost the quadruple just like it was in the seventies, and that I didn't think, didn't get real play that feeds into farms, et cetera, and so on.

WENDY EDELBERG: All right. So I'm gonna, I'm gonna, I, we only have Peter for a few more minutes, so I'm gonna let him, I'm gonna let him respond.

So you have immigration, healthcare, comparisons to Europe and oil.

PETER ORSZAG: Okay. On the immigration front, the only point I would make is even if there is no further increase in deportations, and Wendy, you should, you're the one who should talk about this. I do think this point about where they're occurring geographically may mean that the impact is different, at least on a sectoral basis than historically.

And then we come back to whether relative price and relative wage and sectoral effects can have an an aggregate impact. And I think, again, this is one of the

big, I really appreciated that one of the papers you're gonna discuss highlights that just saying, oh, [00:28:00] something is just a relative price impact.

Don't worry about it can be misleading. And so things that have important sectoral effects can affect the overall average too. In addition to relative prices on the Affordable Care Act. Look, there's gonna be a lot of pressure on various different parts of the healthcare system over the next 12 months.

You've already seen the debate over the Affordable Care Acts. Enhanced subsidies and the impact that will have on many beneficiaries, their disappearance, that is to say, and whether the Congress decides to backfill some of that, you'll see. I would also highlight the initial notice on Medicare Advantage that CMS released is also gonna have a very material impact on many beneficiaries.

That's the subject of public comment right now, so we'll see where it lands finally, but there's gonna be a whole variety of pressures on basically beneficiary costs in healthcare. [00:29:00] What I would say in healthcare is we are living at a moment when there is enormous opportunity to take underlying costs out of the system without harming outcomes.

In part because of the rise of artificial intelligence. I'd say the evidence over the past five to 10 years, in my opinion, has become completely compelling. I was already convinced of this, but the evidence has gone in, in favor of my view that there is a very substantial amount of variation across the United States and how healthcare is practiced.

The variation, and cost is not associated with variation in outcomes. It opens up the opportunity to try to narrow that variation in a way that takes underlying cost out of the system rather than just pushing the burdens around between insurers and beneficiaries and providers. And that's what we should really be focused on.

And as an aside, just before I go onto the final question there are a variety of proposals to try [00:30:00] to make the healthcare system more efficient by expanding high deductible healthcare plans. The thing I would say about that is there is evidence that more cost sharing for beneficiaries does reduce overall spending.

But the impact is very modest because those plans work best for relatively healthy beneficiaries. The vast majority of spending in healthcare is concentrated among the sickest patients. And over the last two weeks, there was

just a new JAMA at general of American Medical Association study that came out for cancer patients in high deductible plans showing that their survival rates were lower than other cancer patients.

So it highlights that. These plans are, they work well for healthy people, but that's the very small share of overall spending. They don't really work well. And in fact, they may be associated with lower survival rates, which is obviously not what we want for the really complex high cost patients, which is where all the money is.

And to get at that, there are a variety of things [00:31:00] that we need to do. But what the physician is suggesting in those cases is often what happens. And that's, I think, a really important piece of the equation. And then finally on the global experience. This is one reason why I believe that the vast majority you can debate, they're obviously the price indices in different countries can be difficult to to make exactly anal analogous, but to a first approximation.

My perspective on the evidence from COVID is that inflation went up approximately the same across the globe, agreeing with you. The degree of fiscal impulse varied substantially across the globe. It suggests there may be a whole variety of different things, and we can parse the different quantitative components.

But at its heart, this was a global supply shock that produced inflation across the entire developed world.

WENDY EDELBERG: Thank you, Peter. All right. Excellent. In a second, we're gonna turn to our first panel and I'd like to welcome our moderator, Elaine [00:32:00] Buckberg. She's the senior fellow at the Harvard Sata Institute for Climate and Sustainability.

So I'm gonna ask her to come up to the stage along with our other panelists, and while they come, please join me in thanking Peter for an excellent presentation and QA.

ELAINE BUCKBERG: Good morning. It is great to be here at Brookings this morning for this very important conversation. I have to say that one thing I always find when I'm at Brookings is they ask the right most important questions. And I think thinking about supply side causes of inflation is one that's really deserves this morning's attention.

We've got a fantastic panel to discuss inflation, supply chain supply constraints, trade shocks and productivity shocks, and they span academia, think tanks and experience in business. Starting to my immediate list Saroj [00:33:00] Bhattarai is associate professor of economics at the University of Texas at Austin, and with Hassan Afrouzi. Saroj, co-authored relative price shocks and inflation dynamics commissioned by Brookings for this conference.

Next is Ellen Hughes Cromwell, who's senior visiting fellow for climate and energy, a think tank third way, but she also deeply knows the real world frictions that happen in the economy as former chief economist of Ford Motor Company, as well as Chief economist of the US Department of Commerce. Next we have Robert Johnson, the Brian and Janelle Bradley, associate Professor of Economics at the University of Notre Dame.

And with Diego Coman. He co-authored a paper for this conference, perspectives on Supply Chains and Inflation. And last we have Mary Lovely, the Anthony M. Solomon Senior Fellow at the Peterson Institute for International [00:34:00] Economics. And before being at Peterson she was Carnegie chair in US China relations at the Library of Congress and is an emeritus professor of economics at Syracuse University.

Why are we here? We're in a more shock prone world. We see that if we look back over the last five years, we look at what we're looking ahead at this year and the years ahead that we simply there's no question we have more shock. And COVID, let's just review briefly, right? COVID brought us in a sudden stop of the world economy.

And when we restarted in fits and starts. So we had the preference shifts from services to goods and then when people started consuming again, we had supply chain bottlenecks. And then when they won, went back to services. We had trouble getting enough labor to provide those services, which drew up, drove up prices, and then we had all these knots in our supply chain.

So when you had all this high demand for goods, [00:35:00] we had shipping prices shooted up to about five, six times what they had been previously. We had ships waiting a month offshore major ports to deliver their goods. And then as a result of these and repeated COVID shutdowns in different places around world, we got other snarls and one of the most, the biggest of those related to the chip shortage of 2021 to 2022, which resulted in closing auto plants, creating effectively a vertical supply curve for autos making.

We're introducing delays up to a year for deliveries of things like home appliances. And this is something Ellen will also understand, like these supply constraints are real constraints. You can't make a vehicle to an extent with fewer chips or swap them out. Like things are not continuous. Jump to 2026 and 2025.

We're [00:36:00] in this. Environment of a lot of policy driven volatility and supply shocks. We have new tariffs that are constantly evolving shocks with changing deadlines and changing rates. We have external policy driven supply shocks like China imposing export restrictions on rare Earth and the export of automotive chips.

And that's not all. We've got longer term disruptions from climate, from energy supply extreme temperatures and natural disasters which disrupt production and service delivery. And then perhaps on the positive note, AI promises disruption that we don't understand well yet, but could, brings this tantalizing promise of a positive, a favorable supply shock from rapid productivity growth.

So bottom line, we've got a really important conversation. So I wanna start, with how the [00:37:00] economy responds to these shocks. And I wanna start with you, Saroj and your new paper strives for more realistic modeling of how surprise shocks propagate through the economy and you develop this multi-sector model of the US economy that explicitly incorporates these cost push shocks.

So what is moving from a one, tell us a bit about your paper and how moving from a one sector model to a multi-sector model affects the outlook for the US economy's resiliency to shocks and how policy should respond.

SAROJ BHATTARAI: Okay. Thank you so much. Yeah, as you mentioned, we kinda work with a framework where there are multisectors and these sectors are interconnected through input output linkages, and they're also heterogeneous, not just in terms of their role in the production network, but also in terms of their price stickiness.

So this kind of setup, even a very simple two sector model with these features leads to several new insights in terms of first effects of [00:38:00] sectoral shocks what you asked about resilience of the economy as well as implications for policy. So our model kind of puts that center stays sectoral, supply shocks, and they could be sectoral productivity shocks, like what we would typically call like an efficient shock.

Usually we might think that these sectoral shocks, all they do at best is affect sectoral inflation and maybe cause reallocation across sectors in terms of employment or cause differential sectoral, GDP dynamics. But the main point of our paper is that these shocks are also important for aggregate dynamics, in particular aggregate inflation.

It's not just about relative sectoral adjustment. So to use a macro language, the best way to think about this framework as affecting aggregate inflation is of course to rely on the Phillips curve. But the aggregate Philip curve in this kind of economy doesn't just reduce to two variables. It doesn't only link aggregate inflation to aggregate slack or aggregate GDP gap, but [00:39:00] also related price gaps have independent effect on aggregate inflation.

Okay? And the reason is that relative prices in such an economy adjust slowly to their natural levels as sectoral productivity shocks hit because these sectors have sticky prices and their linkages through the input output structure. So relative price gap in our framework is similar to an output gap in that they affect aggregate inflation.

So at a minimum, already with this framework, now we'll need like sectoral data to think about our, think about policy. We need to track not just the kind of garden variety GDP share of an, of a sector to think how big is that? Is that sector, but also how sticky is that sector? What's its role in the production network?

So a lot of different features related to the heterogeneity of sectors matter. Now, in terms of policy implications, I just want to highlight like a few important ones. First is this framework now suggests to policy that there is this [00:40:00] independent component to aggregate inflation dynamics that might have been ignored previously.

The relative price gap, that term is endogenous to policy. So we cannot think of this difference coming from the one sector versus multi-sector as just adding some exogenous term to the aggregate Phillips curve that's endogenous to policy. In the same way as output gap is how monetary policy responds to the shock is gonna affect the dynamics of relative price gaps, for instance.

Then in terms of what might be truly optimal policy, depending on the model, that kind of optimal policy might be a little bit complicated to characterize. And it's a bit subtle, but some lessons do emerge from this framework. Especially when we think about relatively simple class of policies, what might come close to the best policy.

Often it turns out that in this class of models targeting the GDP gap, targeting the real side of the economy actually comes close to fully optimal policy. And the reason is that such GDP gap [00:41:00] targeting policy automatically puts more weight on sectors. That deserve more weight from the perspective of the model.

So when we think about what's the optimal price index, it might be a bit complicated, but GDP gap targeting comes close to that. For instance, it'll automatically put more weight on more sticky sectors. It'll automatically put more weight on more upstream sectors. In contrast, if policy wants to stabilize aggregate inflation in this class of models, that's gonna be turn out to be very bad policy.

It's gonna lead to an unnecessary recession, an unnecessary contraction in the aggregate economy. Okay? While if you can stabilize the output gap, relative prices will slowly on their own start adjusting to their natural levels. And along that transition, there might be an elevated inflation, right? But that still is close to optimal policy.

And the third thing I want to mention is that our framework suggests that it [00:42:00] could be very difficult both for empirical work as well as policy oriented work to think about has there been some structural scenes in the economy in terms of the Phillips curve steepening, or is just this relative price shocks and relative prices are slowly adjusting to their natural level.

For instance, think about policy that keeps GDP gap at zero. There are these sectoral productivity shocks, and because relative prices are slowly adjusting to their natural level, there is some inflation along the transition. Then what we'll see in the aggregate data is that GDP gap or unemployment gap is not moving at all.

While there is some inflation, one might think that, oh, this means the Phillips curve has steepened. But in our model, there is no change necessarily in the slope of the Phillips curve. You can get the same reduced form correlation between aggregate inflation and aggregate slack because policy kept aggregate slack at zero.

And there are these sectoral [00:43:00] shocks that are leading to this aggregate inflation dynamics so that not only the interpretation different, the policy implications are gonna be substantially different. From a one sector perspective, you'll want to tighten policy because, hey, there is no more trade off. The Phillips curve is fully vertical.

Well, our model will suggest that if you stabilize inflation like this, thinking the Phillips curve is vertical, you're gonna cause an undue recession. So the kind of model we propose not only leads to a different interpretation of how you think about the data or these issues, whether the Philip Steepen or are these in ous responses of monetary policy to output cap.

It also predicts quite different optimal policy.

ELAINE BUCKBERG: Okay, great. This is fascinating and I do wanna come back to this, but I wanna hear from other perspectives, so too, and Rob, I really wanna talk about your paper. So you analyze how shocks and supply chain constraints affect inflation and macro outcomes, and you model [00:44:00] globalization as a big aggregate supply shop.

And now we're arguably moving away from globalization and at least on a continuum deglobalization. So tell us what your paper finds.

ROBERT JOHNSON: Okay, so the paper does a couple of different things. And so there's kind of two broad points and I'll set them up through two broad questions. The first is related to what you just asked, which is what role do play trade shocks and in particular, we think mostly about changes to access to imported inputs.

What role do they play in the economy? And we focus on trying to interpret whether they're supply shocks as you've mentioned, or whether they actually have a demand component as well. So it's very traditional to think about trade shocks as supply shocks. So for example, Alan Greenspan used to talk about how adding the large emerging markets to the global economy looked like a beneficial global aggregate supply shock.

And that would potentially have disinflationary consequences. That's basically true at one level, but it's only part of the story. So [00:45:00] the underappreciated point, which is what we have focused on, is that some things that look like apparent supply shocks are actually. Demand shocks in a sense, in a macro sense.

So to understand the point, it's actually useful first not to think about trade. So let's think about productivity, which is slightly less controversial. So many innovations will have forecastable effects on future productivity. Like the AI revolution is top of mind for everybody. AI is doing nothing for my productivity now, but I forecast that it's going to, eventually, I'm gonna figure out how to use it in my work stream and it's gonna improve my productivity in the future.

Hope obviously springs eternal but but it's essentially we've learned something that's about what our future productivity looks like as a result of the AI revolution. And so our point is that, and this is a very standard concept within the macro area. When you expect productivity to be higher in the future, and therefore you expect incomes to be higher in the future, that's gonna tend to raise demand today due to those that improvement in expectations.

And [00:46:00] so good productivity news may actually raise inflation today. So then you're set up to think about the trade context, the point we wanna make about supply, shocks and trade. So many shocks operate like productivity shocks in the sense that there are policy announcements, there are geopolitical shocks, et cetera happen.

And that one of the big effects of those shocks is not actually what they do to trade today, but what they do about our expectations about what the future trading environment's gonna look like. And as a concrete example. So it won't be controversial 'cause it's not our country. So think about the UK and the Brexit vote.

The Brexit vote was basically in a shock to expected future policy, right? So that's like a prototypical kind of news shock and bad news, like the Brexit vote about lower future trade and lower future real income as a result will tend to lower demand today and virtually every standard model you, you would write down and therefore it's gonna typically [00:47:00] lower inflation today.

So that's the first big message of the paper is that we need to pay attention to the dynamics of supply, whether supply is expected to be rising or falling over time because those expectations are gonna matter for demand today and therefore inflation outcomes today. As a follow up, Peter threw a little bit of shade at our idea, but but as a follow up we can talk about how there, there are various data context in which you can look for these types of effects.

For example, over time we've signed free trade agreements. Those typically don't change trade immediately, but they change trade slowly over time. It turns out around the entry of countries into their free trade agreements, inflation tends to be higher than normal. Rather than lower than normal, which supports the basic mechanisms.

There's also similar evidence coming from the UK where Brexit events that raise the probability that there was gonna be a hard Brexit actually looked like they depressed inflation. In the UK in the short run. So we think these

expectational dynamics do matter contrary to whether Peter is seeing them in the data [00:48:00] currently or not.

And then the second broad thing we do in the paper just to set up the question, is we look at how supply chain constraints matter for inflation and how important those constraints might have been in the post COVID recovery. And just to fix ideas about what we do there. So the word constraints mean different things to different people.

The thing we have focused on in particular are capacity constraints. And so the idea is firms are basically able to expand output by hiring labor and inputs up to some point as long as they have spare capacity. And then when they hit their capacity constraint, they can't supply any more output.

And we take a broad view of what those constraints are. Often predetermined input decisions, hiring customized labor, customized inputs may be a source of constraints that prevent firms from raising output. It's also the case disruptions to critical inputs. Often coming from international sources could serve to provide a constraint to firms as well.

And the point of the model is, or the point [00:49:00] of the way we think about this is when firms hit their constraints, it's no longer what's happening to their costs that matters for their pricing decisions. It's the fact that they're on their constraints and that they can't. On the margin increase output, even if they wanted to do and so when constraints bind, they're gonna price in different ways. In particular, they're gonna price to demand and that's gonna have consequences for inflation. There's gonna be a rise in price cost markups that end up raising inflation. And so we've built some models that have this flavor to them and applied them in the COVID recovery to try to think about how important these types of capacity constraints might have been in the COVID recovery.

And as we discussed in the paper, we found they play a large role. It's as if there were shocks that seemed to have tightened capacity during the pandemic. Those shocks alone wouldn't have led firms to be on their constraints. Rather the significant rise in demand that the that we experienced during the recovery basically exhausted the tighter capacity.

And it [00:50:00] turns out that, had a very big effect on inflation in our models.

ELAINE BUCKBERG: So Rob, this is a perfect place to transition over to Ellen. And one thing I really appreciate in your paper is that you do illustrate

this vertical supply curve. Yeah. And a lot of economic theory has sort of continuous substitute ability on inputs.

But Ellen, you were chief economist of Ford, the real world of manufacturing production isn't like that, especially when you have safety testing and engineering. You can't continuously substitute stuff. And, at third way you've been looking at supply chains for a variety of industries.

Where do you finding about the ability to substitute or adjust to these policy and supply shocks?

ELLEN HUGHES-CROMWICK: Yeah. Thank you for that question and great to be here with this audience. I think that at the ground level, and I reminded of David Wessel's comment many years ago that as a business economist, our plumbers, so I'm giving you a plumber answer here.

The supply chain impacts to an automa automotive [00:51:00] sector are substantial. They are changing the deck chairs on the Titanic right now. And when you say continuous changes, well, in the auto sector, think about a part of the company that is securing commodities or parts for an existing product that took two, four, sometimes longer years to, to set up for a particular plant.

So when we have these shocks. Such as we've seen with policy changes, they're very substantial as this. By the way. This sector is transitioning to a different and new and more efficient technology in the name of electric vehicles. It means that they immediately have to take a charge. For example, you may have seen in the news [00:52:00] recently, GM has announced that they've already hit three to 4 billion in tariff costs this year.

That's an estimate. So you're taking three to 4 billion out of the pocket of GM that they could have provided or used for the production and sales of their vehicles. They did take already a $3.1 billion charge in 25. And now they're saying, oh, by the way, not only that supply shock from the tariff hit, they are also taking a $7 billion charge for their EV production.

So if you've probably seen in the news they're rolling back their plans for EVs, they've talked about the bolt. They're not going forward with their GM zero plants that they identified up to four plants [00:53:00] converting. To EVs Ford on the other side has taken a 19 and a half billion dollar charge.

Not all cash but that is they attribute to the EV policy change, and they're taking 2 billion for the impact from the tariffs so far. So I guess I just wanna point out

that, this is not like a marginal change. This is a substantial hit to an industry that has 4 million jobs attached to it, direct and indirect, and can have severe consequences for the employment landscape as we go out into the next several years.

So these are not, a one-off, it's a substantial restructuring of their strategy and of their business plan, which then impacts how they allocate capital.

ELAINE BUCKBERG: So the combination of [00:54:00] tariff policy, EV policy. Environmental policy for vehicles all been super disruptive to auto and showing major disruption.

So Mary, I wanna turn to you. So you do all this amazing data intensive work about US China trade. So how realistic is it that, we have this deglobalization shock of decoupling from China, and how feasible is it to replace China with other production locations like Mexico or Vietnam that may also face tariffs, but lower tariffs or just because we're happen doing this because it's a geopolitical call by businesses.

MARY LOVELY: Okay, thanks Elaine. And I really appreciate the modeling that these gentlemen have done because, we're asked all the time, why aren't we seeing the pass through of terrorist of prices? And of course, we're seeing so many things at once that the value of modeling is that you can actually hold other things constant.

I think it's something that many people don't understand about how economists work. So I do appreciate the, these [00:55:00] very interesting and complicated papers. And the complications are necessary because the economy is more complex than people knew. We are seeing decoupling from China directly.

So us the share of US imports coming from China as recently as 2017 was over 20% of our import bundle. Now it's about 12. And many people say, oh, well that's great. Actually we're seeing a lot of China's trade building up with middle income countries. We're seeing a lot of Chinese outward FDI into these countries.

At the same time Chinese companies are particularly eager to leave or at least to expand globally because their home domestic market is, many people realize is very weak and it hasn't been growing at the rate that they need to survive. Intense competition in new sectors in China, very eager to go abroad.

And we're seeing that in the increase in imports that are coming from these middle income countries, which contain a lot of Chinese value added. And that has [00:56:00] led the administration and others to say, well, we gotta play whack-a-mole and whack that Chinese value added down. At the same time that we're doing that, we're putting very high tariffs, 18, 19, 20% on what I call China alternative countries.

Under the Biden administration, there was an attempt for French waring, which was an implicit. Recognition that the US cannot do everything. We don't have the labor to do everything. And we certainly do not have the comparative advantage or productivity advantage and say sewing clothes.

We need to do what we do best, which is actually high productivity services and advanced manufacturing as well as agriculture, which is an important part of our export bundle. So we are actually actively complicating the search of corporations and suppliers to find alternatives to China. At the same time that we're I think comforting ourselves that we actually are doing the decoupling, we're making supply chains longer.

'cause now they go through these third or fourth [00:57:00] countries and less opaque because it's very hard to keep track of what's happening as Chinese companies move outward and US companies search. And if I could just add one final note, I think these are very particularly destructive for small and medium companies.

And we're seeing, we've seen consistent job losses among small businesses. Importing is exporting. Importing is manufacturing for domestic consumers. This is something that I think is not widely appreciated. And what that means is that small businesses who may reply rely on importers for small motor, for fabric for their homemade purses, all kinds of things.

We see these anecdotes a lot in the press. Journalists have been very intrepid at getting these stories, but we're seeing it in the aggregate statistics as well. They don't have the ability to source large corporations are more nimble. We've seen Apple, for example, move to India and continue to have their products exempt from [00:58:00] tariffs.

So there are huge issues about fairness, yes, on the consumer side and who's bearing the burden of the tariffs, which are being 100% passed through to American importers. But there's also on the business side, which businesses are being forced to really deal with these tariffs, many of which are just not able to continue in business.

ELAINE BUCKBERG: So that, so we have some fantastic pre-submitted questions. So before we turn to the audience question, I'm gonna touch on some of these. And were these, I'm gonna let one or two of the panelists answered them briefly because we wanna cover a lot of ground. But one great question came in advance is inflation from.

Tariffs delayed because companies are waiting to see what are, is the impact or what is the outcome of the Supreme Court decision on the I EPA tariffs? And are companies absorbing costs to the point that this is causing them to cut back on [00:59:00] labor, either cut back on hiring or cut back actually on their labor force to manage the costs from tariffs?

So who wants to take that? I'm thinking this might be a little more Ellen and Mary, but,

ELLEN HUGHES-CROMWICK: well, as I mentioned the stats about the charges that these companies have already taken, and by the way, stellantis this morning announced that they are going to just completely get out of the EV industry.

They're taking charges, they're selling their Ontario Canada battery plant to LG Energy Solutions. So they're charging the company, the shareholder, and there's a bargain here because at some point they're going to have to try to recoup and regain, and that means we have upward pressure.

In essence, the combination of the tariffs and the rollback of EV policies, it's like a double whammy because it's ripped up their business plan. [01:00:00] And it's reduced competition in our market. So think about if you're moving more toward ice vehicle, internal combustion engine vehicle production, you're using a very large depreciated engineering base, and you're getting rid of this high cost new capital that you started to install in your EV factories.

So park that and you're shrinking competition because now you are restricting and we're restricting imports from China. This is going to give them more ability to price in the marketplace. So there will be economic rent that these companies will be able to learn, I think because of how these policies are now restricting their their marketplace.

ELAINE BUCKBERG: So Mary, does your work imply that [01:01:00] some sectors are gonna have more sticky inflation than others?

MARY LOVELY: Well, my work doesn't directly because I don't do that clearly. In my work for the Peterson Institute, we talk with firms all the time and as Peter mentioned in his excellent speech we are seeing firms employ a variety of.

Responses. I think, given that Washington's in the middle of this historic freeze and we all have to deal with the ice, it's like the firms are on ice and you're thinking, oh my God, is that person gonna end up landing on the sidewalk or in the middle of the street? And frankly, they don't know because the policies have been designed for maximum uncertainty.

You mentioned IEPA ruling, which could come down and we'll have to see refunds, or the presidentials presidential powers in economic affairs will be vastly expanded. Huge decision, right? We don't know which country we had 50% on India. Now we have 18, right? We are getting exemptions here. Oh, nope.

[01:02:00] Bananas are exempted. So countries rates exemptions, all uncertain firms are trying to not alienate their customers, spreading it out over time. This is why we, I believe, firmly with what Peter's saying, which is that the impact of the tariff is going to look a lot like inflation. Even if people say, well, in a nice model, it's just a relative price increase, it's going to seep in.

And those of us who shop every week at the grocery store or at target are going to see these continual price rises. So we don't know where, the poor person on the ice is gonna land. It will land at some point because firms will not be able to continue eating as much as they have of the tariff.

ELAINE BUCKBERG: So one of the audience questions is about, should the Fed respond differently to, temporary or persistent supply shocks and or temporary permit shocks. And so is your paper, if I read it right, and I got the opportunity to read a preview copy says that if a shock is a supply shock, that's just taking [01:03:00] some time to propagate through the economy.

It's still effectively transitory and you don't want to the fed shouldn't tighten and restrict economic activity. But did I read that right? Tell us what you think briefly.

SAROJ BHATTARAI: Yeah, that's one interpretation of our framework. But the transitory one will be a little bit endogenously transitory.

So if this kinda sectoral productivity shock happens in a sector that's very flexible, then that you know it, and it might be upstream like oil. So there might be some effect downstream later on. So for instance, from headline shocks that affect headline inflation, first, they will go into core.

So it's not exactly correct, but yeah, our framework will suggest that if these shocks happen in more price, flexible price flexible sectors, then what Monte Palsy can do is it can rely on the flexibility of prices in that upstream sector like energy and oil. Such that reality prices will adjust on their own.

And then instead, if it just focuses on the real side and keeps [01:04:00] output gap close to zero, that will be close to fully optimal policy. So in some ways I don't wanna push it too much 'cause we haven't done a fully quantitative kind of rigorous analysis, but it just raises this possibility that the actual dynamics we saw with us data in terms of headline inflation, core inflation output gap they could be consistent with this kind of optimal policy where you didn't react very strongly to an even though it's an upstream sector that can have downstream effects because it happened in a very price flexible sector.

So in some ways that's transitory in the context of our,

ELAINE BUCKBERG: so we may have to accept more inflation to keep steady output and we don't wanna tighten too much. Rob, exactly. You touched on ai, AI is we're mostly looking at negative adverse productivity shocks, including possibly from data center build out and electricity.

But AI is the pot, the potential pro positive productivity shock that we don't understand well. So just tell us a little more about how we should think about that as a long [01:05:00] term and continuous shock that we're looking at.

ROBERT JOHNSON: So we don't say anything about ai, just be clear. But I think that as I alluded to when, as I started talking about our paper, I do think the dynamics of the AI boom are very interesting and they are suggestive the way that there's just been so much current build out of the AI infrastructure suggests that people believe that there must be these productivity benefits coming in the future.

Otherwise why are we building the infrastructure, right? So that idea that, there's these technology shocks that maybe have not manifested yet but may manifest in the future. It goes to the core thing that I think we're worried about is that the supply dynamics matter. And so you need to worry about is the AI revolution gonna raise productivity in the future?

You need to think about the consequences of that today, which is through an investment boom, maybe pushing up inflation. I think that's consistent with most people's views. And then the question is, when the productivity improvements come online, what exactly happens to inflation? We may get less inflation in the future as the productivity improvements come online, [01:06:00] and more of it may be front loaded today.

That would be the standard dynamics of these sorts of developments. And again, going back to the trade side, I think of this as the same way and on the trade side, right? So we have these tariff changes and the real question is, are they having bigger effects today or are they gonna have bigger effects in the future?

And to the extent that we have delayed pass through, to the extent that uncertainty is gonna be a long-term tax on us engagement with the rest of the world. All of those things have effects that are mainly gonna be arriving in the future. And these, the expectations of those things matter quite a bit for today's outcomes.

ELAINE BUCKBERG: Terrific. So I wanna take a couple live audience questions in addition to the ones we've taken from the the online audience. And so I'm gonna go first all the way back there on the Thank you very much. And we're gonna take two short questions and then answer them jointly.

ROGER COCHETTI: My name is Roger Cochetti.

I'm an author and a commentator on tech policy former executive with IBM Verisign Comp. My question has to do with [01:07:00] artificial intelligence and the jobs impact of it. And I wanted to drill down on a specific aspect of it, which is that it's widely presumed that the greatest impact of artificial intelligence will be on entry level white collar jobs.

Junior associates at law firms researchers at Brookings Institution junior reporters, that segment, which is a high spending segment. So what's the inflation? So I wonder if anyone has comments on that segment of job impact of artificial intelligence. Thank you.

ELAINE BUCKBERG: And the inflationary impact. So this gentleman here.

JARED BERSTEIN: I think there's Jared Bernstein. I think this is a question for maybe Ellen and Mary. I'd love to hear your comments as well. Conditional on the realization that probably no administration of either side would do this, I

was struck by the Canada's recent proposal or agreement with China to bring in 50,000 Chinese EVs under a quota conditional on some [01:08:00] sort of engineering or tech transfer.

I actually think that's a good idea and scratches some ites that came up in Ellen's conversation. But Mary, you might have caveats about that, but I'd be interested in if you agree that might be something we should think about. Putting aside the very tough political barriers.

ELAINE BUCKBERG: So we have questions about a labor demand shock from a AI reducing demand for early career workers and a possibly be a favorable supply shock from Canada importing Chinese EVs.

So I opened into the panel and so at least a couple people can weigh in. Please be brief.

MARY LOVELY: Yeah. On the AI shock, I'll just say that there is a trade angle here, which is the US is the largest service exporter in the world. Most of our labor forces in services not having us trusted ally and.

Providing services to all of our allies is going to hurt because the productivity shock is potentially huge in the services sector, right? How are all these [01:09:00] incredibly productive Brookings researchers going to work if we don't export the services on the Chinese EVs? I think you're raising a very interesting point, Jared.

We have now our domestic automakers and I very much wanna hear what Ellen has to say on this saying, we need to protect our home market. It's the same thing we're hearing in Europe. We're protecting our home market in the US is gonna be focused on ICE vehicles. Let's play that out 10 years. We have zero export market and we have a US economy where the consumers are consuming potentially either less variety or lower quality vehicles than the rest of the world.

Is that sustainable? And can some agreement, some adaptation to China's technological prowess, get us to a better place?

ELLEN HUGHES-CROMWICK: Jared, you're raising a great point because even Prime Minister Kearney followed that up with more announcements. They want to be a leader in EV production. [01:10:00] They've got the workers, they have a great union in Canada.

They've done a tremendous amount of progress in terms of locating and creating, for example, the battery plant in collaboration with LG Chem. So I think that this is gonna add a dimension to what is then the response of the Detroit three to what Canada now could potentially grow up. Now they've got a lot of wood to chop to get to that point of being productive and competitive, but it's an important part of what the landscape is going to look like for this ev glide path.

Bear in mind we have a study at Third Way With, we look at nine supply chain segments for EVs, and we have such a gap here in processing of critical minerals for the batteries that for Prime Minister Kearney [01:11:00] to now go into that they could potentially be a competitive leader and hopefully the D three, the Detroit three will enhance their production capacity in Canada.

So walk a bit away from your home market. They're making, huge profits on SUVs and pickup trucks here. They can cross subsidize to create an EV business in Canada.

ELAINE BUCKBERG: Okay, great. I'm gonna just throw out quickly one more audience question. From 2003 to six, there was a dramatic part of the commodity Supercycle run up in commodity prices globally.

But there was no apparent effect on US inflation. So why was that a muted shock?

ROBERT JOHNSON: No one wants to touch that.

ELAINE BUCKBERG: Well, '

ELLEN HUGHES-CROMWICK: cause the Fed did such a great job managing inflation expectations. I remember that period because at Ford we had a huge [01:12:00] run up in palladium prices and palladium was such a key ingredient to catalytic converters. The price ended up peaking at a thousand dollars an ounce.

Unbeknownst to many executives at Ford, the engineers were engineering out palladium from the catalytic converter. And we ended up with a huge stockpile of palladium. But I think the Fed did a great job in that period. Let's face it, we didn't see the persistence of that commodity shock come through in the form of higher aggregate prices.

ELAINE BUCKBERG: So I think we can keep going for a long time, but we do not have that. But I will say those really points out how hard those questions are and like, this is a fantastic panel, but get difference. So Saroj your research says the Fed, should not over tighten in for temporary shocks, but that Ricks more volatile inflation.

And Ellen saying the reason we survived a huge [01:13:00] commodity price shock was because of credibility. So there's hard questions. A lot more discussion that we have. We have a 10 minute break where you can discuss that with other members of the audience. Thank you.

WENDY EDELBERG: All right. Welcome back everybody. We are going to now turn to housing supply, shelter, inflation and monetary policy. I am joined by Neil Mehrotra of the Minneapolis Fed and Gabe Chodorow-Reich from Harvard, who wrote one of the three papers that we just published today and is available on our website. Of course much of our conversation is gonna be centered around that recent work, which is excellent, and I encourage you all to look at it.

Neil, let's start with you. Your paper argues that monetary policy maybe more effective if it places less weight on shelter inflation. And obviously shelter inflation was a big [01:14:00] part of the runup in overall inflation in the last few years. So this is not a trivial point. This is not, just like under the hood, this is a big deal in the way monetary policy would operate.

You focus on the rental market. So walk us through your core insight and why might the Fed want to look through rent increases?

NEIL MEHROTRA: Sure. So thank you, Wendy. Thank you for having having us here. And I just do need to preface that this is my own views, not the views of the of the Minneapolis Fed or the Federal Reserve system.

So as you said coming into especially after the peak of inflation in 20 23, 20 24 outside of housing inflation was normalizing, but we still had very high rates of inflation in shelter. And as a, shelter is about a th more than a third of close to 40% of course, CPI.

And it's a significant weight also in, in core PCE. So that was exerting upward pressure on inflation, keeping inflation closer, closer to 3%. So [01:15:00] policymakers faced a real question of like, do we keep do we keep monetary policy tight in this environment? Or do we ignore shelter inflation and and focus

on stabilizing inflation in the rest of the economy and perhaps adopting a more expansion area or less restrictive policy.

So what what our point this is the paper sort of builds off of of an academic paper that I have with a couple of colleagues at the Minneapolis Fed. And our argument is that when you have, when you have price stickiness, when you have rent stickiness in the housing market. But search is an important mechanism through which excess demand or excess supply is rationed in the housing market.

So you have a situation where perhaps there's a lot of demand for housing. Rents are going up. A lot of people are searching for searching for apartments. What is the cost of that in terms of, well, what is the welfare cost of that excess [01:16:00] search? And our argument in the paper is that search does involve some degree of misallocation.

You can have excessive amounts of search, but that excessive search in the housing market is is likely to function a shadow price. And and that's helping to ration the excess demand. So instead of prices adjusting freely, people are searching too much. The searching too much is costly, but it's functioning.

There's too much congestion in the housing in the rental market. And that's and that's what's clearing, clearing the market. And so you have to balance that against. Well, if we try and bring down the search, if we try to bring down activity by adopting more restrictive monetary policy that can open up an output gap or raise unemployment in the non housing side of the economy.

And as a quantitative matter that we argue that optimal policy should look through shelter inflation. That those search costs and the cost of excess [01:17:00] search is second order relative to the first order potential employment losses on the non housing side of the economy by having a restrictive policy.

WENDY EDELBERG: And if you and the audience are like me thinking rents are sticky, what the heck I lived through the last few years. So you make a very compelling case that rents are sticky in the sense that like, they don't really change for current renters. If you are, if you're a current renter and there's a lot of increase in demand for rental housing, you may well not see your own rent costs increase.

And even when you renew your lease, they may not increase very much. They increased the most for new renters. And if I, as an existing renter, saw that big

increase in rental prices, I may well say, Hey, I'd actually like to consume a little bit less housing, and I would respond to that higher price.

So anyway, just in case. You all have in your mind what I had of like, wait, sticky, I don't remember it being sticky. It is sticky if you think [01:18:00] about it in this context. Okay. Gabe? I want you to talk about how you guys grapple with measurement issues. These are hard particularly in the context of how we measure shelter inflation for homeowners owner occupied rents.

And so what we do now and then what you think we should be doing instead.

GABE CHODOROW-REICH: Yeah. So let me first say, this is a really great event. I'm really happy to be here and and get to that question. A real theme of the paper is measurement is difficult. So Neil just talked about one reason that even rents, which we can go out and ask people, how much are they paying to rent their unit this month?

Don't fully capture the costs of facing the rental market, especially if you're searching, it's much harder for owner occupied housing. You have a purchase when you buy the house, you have a monthly mortgage payment That's typically fixed in nominal terms in the US because we have fixed rate mortgages.

So [01:19:00] what is the price of housing to somebody who currently owns their residence? And one of the reasons we know this is difficult is the way that the US measures this is very different from the way that Canada measures it. The way the Euro area measures. The Euro area actually doesn't measure the cost of owner occupied housing at all in their CPI.

So what does the US do? The US does something called owner's equivalent rent. Owner's equivalent rent means we think of somebody who owns their house as being their own landlord. So they own the house and they pay rent to themselves, and how much rent do they pay to themselves. While we measure that by asking what do similar looking houses rent for?

And that's how much we assume rent people pay to themselves. So it's a little bit of a weird concept when you peer it that way. And it's a weird concept in the data because there's lots of reasons that the cost of owning and the cost of renting move differently from each other. So one would be when mortgage rates go up, mortgage rates go up, that doesn't directly affect the cost of renting a [01:20:00] unit.

But if you are buying a house and getting a mortgage, it's definitely gonna affect your cost of living. And so give you a a calculation that we have in the paper just to put some numbers on that. In 2019, the median house at the typical mortgage, 30 year mortgage rate in 2019 would give you a monthly mortgage payment for a 30 year mortgage, about $900 per month in 20 24, 20 25.

Mortgage rates have more than doubled from where they were in 2019. House prices have gone up substantially, even in real terms relative to the rest of inflation. And so that monthly mortgage payment in real terms, has gone to $1,600. So that's an 80% increase. And by real terms, I mean it has gone up 80% more than total inflation has gone up between 2019 and 2025.

And we know that inflation went up a lot elsewhere as well. So that matters a lot to people who are looking to buy houses. And for a [01:21:00] price index, a cost of living index, it should be in there. And one way to think about why we're missing something when we don't have it in there is to ask why were many young people reporting that they were less satisfied with the macro economy in 2023 and 2024 than you might've thought given where inflation was and given where wages were.

And one reason was if you were at the stage where you were looking to buy a house, costs had gone up a lot for you. In the paper we have some discussion of ways to resolve this and capture all of the costs that homeowners face. I'm not gonna go into the details of that now, but I'm happy to in, in the q and a.

Let me preempt one concern that comes specifically from thinking about mortgage rates as part of the cost of. Of housing. And that concern is when the Fed is raising interest rates and trying to reduce inflation, mortgage rates go up with the federal funds rate. And so there's gonna [01:22:00] be a direct feedback from raising interest rates into higher housing inflation in the way I'm describing it.

And in fact, that was a very live concern in the early 1980s when the US switched to the current system. And that was exactly the period when Volcker was raising interest rates a lot. And that would be pushing up the cost of housing. And one of the things we talked about in the paper is we might want to divorce how we measure inflation from what the Fed should target.

And you'll just talked about it as well in the context of renter's rent. And in this case we can be honest about costs going up to prospective homeowners and not require the Fed to do anything about it. And in fact, if you think about those mortgage rate increases as cost push shocks, and there was a discussion of that

this morning these are the sorts of shocks that the Fed might actually want to look through.

And that's essentially what they do right now.

WENDY EDELBERG: So much so much there. So one of the, one of the things that you guys grapple with [01:23:00] is the complicated way that the supply of housing and, the sort of general understanding of. The supply of housing is that it's, there are a lot of constraints in the supply of housing and supply doesn't respond very quickly to to higher prices for a bunch of different reasons that making the supply of housing more elastic can have some complicated interactions with inflation and how the Fed might wanna think about inflation, shelter inflation and inflation more broadly.

Hopefully I've teed that up in a reasonable way. Neil, why don't you take the first stab?

NEIL MEHROTRA: You're exactly right. That, that one of the important ingredients in our finding is that because housing is relatively inelastic and because demand is rationed by search, then these losses from rents not adjusting freely are lower than the losses from inducing recession [01:24:00] on the non housing side of the economy.

WENDY EDELBERG: So if, wait, wait. I'm gonna interject because again, I found this paper hard, so I'm gonna, I'm gonna slow down and try to say that in, in different words, which is to say, in the current environment, rents are sticky and we worry that if rents rose, that would create a far more optimal outcome. And so we're sad that rents haven't risen, but because housing supply is so inelastic if rents did rise me, you wouldn't get that much more housing. So the fact that rents aren't rising actually doesn't create as much in terms of losses as you might expect. Yes. Did I get that right?

NEIL MEHROTRA: Yes. Basically. So the,

WENDY EDELBERG: I hear I heard that pause.

NEIL MEHROTRA: So in, in models like the one that SRO was talk was using in the earlier presentation where you have multiple sectors.

The losses that come from price stickiness and sectoral specific shocks in these sectors really depends on how [01:25:00] elastic or inelastic supply is. If you have the view that it's in these models, it's if it's really, expensive to build

housing and the price is wrong. And you have the assumption that producers meet that extra demand at that low price by building a lot of housing at really high costs and making a lot of losses.

That's really costly and monetary policy wants to avoid that. But with search, it turns with a search friction that kind of turns it on its head. And what happens is that instead of having this misallocation of labor and too many people building houses and making losses, then you ration that market via the search friction.

And that comes close to, that comes closer to optimal. So that's the sense in our model, why you don't wanna respond. You wanna look through housing inflation. If it were actually the case that the housing market was had less elastic supply, then that could work against it. That could [01:26:00] work against our view that we

WENDY EDELBERG: more elastic,

Speaker 17: sorry. If housing is more elastic, say,

WENDY EDELBERG: I'm so helpful.

NEIL MEHROTRA: If supply is responds more quickly, then you may wanna pay more attention to the housing market because the scope for misallocation on the labor and input side is higher. So it's it's counterintuitive.

WENDY EDELBERG: Do you wanna jump in?

GABE CHODOROW-REICH: Sure.

Let me talk about it a little bit in the context. Of the fed's debate in 2023 and whether to raise interest rates, what would that do to the cost of housing? And one of the things that some people worried about at the time was part of the cost of building is the financing cost for a builder.

And so when you raise interest rates, that directly feeds through into the cost of building. And so maybe we would get a counterintuitive result that raising interest rates would further increase. House prices result in less supply. There's something on the other side of that, which is there are other costs to construction.

There's the [01:27:00] cost of lumber. There is a lot of discussion in 2022 and 2023 about lumber prices being high. You have to get the general contractor

over to your site. There were shortages of general contractors. There's an analogy here actually to something Peter talked about about his outlook for 2026 inflation.

And he had a slide on supply side effects. And then his first bullet on that slide was electricity demand going up. And that confused me for a moment because the headline said supply. And then the first bullet said, demand. And then I realized what he meant, which was there's a big increase in demand for electricity coming from AI centers.

And we're not gonna be able to quickly meet that increase in demand because it's hard to quickly ramp up capacity. And there's a very similar phenomenon in the residential construction sector. It's hard to quickly ramp up how many houses were building. And that was a reason that the cost of building was really high in 2021 and 2022.

There were a lot of people who [01:28:00] wanted to buy new houses and it was hard to build those quickly. So the data gave us experiment about what would happen. The Fed raised interest rates, and so we can ask what happened to house prices, what happened to construction costs, what happened to rents, what happened to rents for new tenants?

And we have a figure in the paper, they all came down right after the Fed raised rates. So in this particular episode, there's a pretty sharp test that says that the Fed, when it raises interest rates, is gonna tend to lower housing costs. And that seems to be generally true historically.

If I can make one more quick point Yes, please. On that which is a bridge to longer term supply side housing policies to reduce zoning restrictions, make it easier to build incentivized towns to build more housing, maybe near transportation. Some of this is in current legislation, proposals on the hill and.

That sometimes gets [01:29:00] discussed under an abundance or an affordability agenda. And there's a question there too about is there a role for monetary policy? And I want to draw a line and maybe people will react to that line. There are supply side shocks that the Fed has to decide how to react to, and Saroj talked a lot about that.

Earlier today the Fed may have some interest in reducing the volatility of supply side shocks because it makes monetary policy jobs harder. If we're always trying to figure out is it a supply shock, is it a demand shock? How should you

respond? Things like affordability to make housing cheaper are things that I think we should do as a country.

But those are not the remit of the Federal Reserve. Just like tariff policy is not the remit of the Federal Reserve. And so as economists, we can advocate for [01:30:00] those, but monetary policy properly, just as it is trying to look through tariffs, would look through structural supply side reforms on housing.

WENDY EDELBERG: So in a moment, I'll turn to you all and ask for some questions from the audience, but I wanna take a second then to summarize where I think we are with regards to. Recommendations of how the world could be better, how policy makers should think about housing inflation. So it sounds like one, we don't do a very good job of accurately measuring inflation for homeowners, and there are clear ways of improving that.

Yes. Awesome. But, and then number two is regardless, even if we did a better job of measuring inflation for homeowners, we still should, for the most part, completely, entirely, [01:31:00] just a little bit. Look, the Fed should not respond to increases in shelter inflation.

NEIL MEHROTRA: I think we should down weight the response to shelter inflation now.

It's hard to be, our insights are coming from a specific model and as there are caveats in the paper that broadly our models don't take into account intrinsic reasons why people may not dislike inflation. And we have to recognize that looking through inflation means tolerating a period in which inflation is above target.

Yeah. And and our models say that like there's no reason that you should have preference over 2% inflation versus 4% inflation. It's all the sort of misallocation that it's causing in the economy through price stickiness that we should worry about and that monetary policy should be trying to fix.

But our models may be missing something. And so with that important caveat and I think that's the general sort of policy recommendation.

WENDY EDELBERG: And then it sounds like the other caveat is that if somehow we could catapult [01:32:00] ourselves to a better world without the zoning restrictions we have, without the nimbyism, without, with and create a much more nimble housing supply, you guys would have to go back and rewrite your paper.

NEIL MEHROTRA: I think we'd have to reconsider, like in, in a world in which housing's much easier to build and much more responsive to to to imbalances in, in demand and supply, then we'd have to consider we'd have to revisit sort of optimal policy because it is a quantitative sort of statement that we're making.

GABE CHODOROW-REICH: We're happy to pay that cost living in a better world with better housing supply. And we'll be back at Brookings in 2065.

WENDY EDELBERG: Alright, we have time for a few questions. Can I take a couple one here and I see one in the back?

AUDIENCE MEMEBER: Yeah. So my, my question is so we wouldn't think that. Owning a home is completely [01:33:00] irrelevant for inflation, right? House prices are going up, right? That's gonna say something about real estate prices that's gonna seep into other prices that could have a feedback loops keep su inflation sustained.

And on the other hand, you're gonna have, if other parts of the baskets prices are going up, that's gonna affect the cost of home. So just as a conceptual matter, are we arguing that the OER concept is wrong, but we should go to a sort of user cost? Or are we saying we should, even if it was a user cost concept, we should still down weight it.

I'm just trying to understand what the

WENDY EDELBERG: Before we come to you that it's such a fundamental question to the paper that I'm gonna let you guys take it now and then we'll go to the next question. So

NEIL MEHROTRA: I, I think and Gabe should definitely weigh in here as a, CPI or measures of inflation, both try and measure the cost of living, but also then there's a question of how monetary policy what the target should be for monetary policy and what monetary policy should be paying attention to.

And I think what we're saying in the paper is that from a cost of living standpoint to [01:34:00] accurately measure the cost of living, you need to have some broader measure than OER in the, in your cost of living measure. And then from. From the standpoint of what should monetary policy be tracking?

What should it be using? I think it would be more comfortable with a, with excluding or down weighting shelter inflation, whether it's measured as OER

user cost in the target. That's with the caveats of how do we feel about inflations our inflation expectations stable things like that.

GABE CHODOROW-REICH: I'll just say very briefly on the user cost. That was one of the motivations for thinking about this question. One of the rationales that intellectual rationale for using OER is that rents and user costs. So is the user cost. The user cost is you buy the house, you get a mortgage, you make a mortgage payment, and then you sell the house, you pay off the mortgage.

And that total net cost is the cost of owning the house. Those should be the same. In a world where people are perfectly happy to rent or own [01:35:00] their house, there are two ways of consuming shelter in the data. They look nothing like each other. They move very differently at high frequencies. They move differently at low frequencies.

The user cost goes way up in 2023 and 2024 because mortgage rates go up and house price growth expectations come way down. And so that's a reason that we. Can't substitute. O we can't substitute the cost of owning with rents. The user cost is also a little bit of a funny measure because nobody buys and sells ev all the time.

And so we have some discussion in the paper about how you actually want to smooth out longer run owning cost as well. But conceptually it's like a user cost plus.

WENDY EDELBERG: Yes. Go ahead.

AUDIENCE MEMEBER: Thank you. This is an example of the kind of robust regional economic research that the Federal Reserve Bank of Minneapolis does, which brings me to two points.

Number one I don't, I'm not buying your sticky inflation thing, especially from the perspective of black and low income [01:36:00] households. Okay. I wonder if you considered that but that's not my, my, my question actually, I see the vice chair join the room, so this is actually for him as well. I run creative vessel research.

We filed today an amicus brief in federal court in Minneapolis concerning the case, asking for an injunction with respect to the immigration activities in Minneapolis. Our amicus brief contains an economic estimate of the cost of those. Immigration activities as part of our amicus brief. We requested that the

court ask the Federal Reserve Bank of Minneapolis for an economic estimate of the damage done to the local economy due to all of these anti-immigration.

The damages are clear. People afraid to show up to work. Retail spaces not being occupied 'cause people are afraid to come out, people [01:37:00] getting shot on the street. That tends to have a negative impact on the overall economy. And I've requested specifically that the Federal Reserve Bank, perhaps you, the Federal Reserve Bank of Minneapolis, would calculate.

And I'm making light of a very serious situation, but make an economic estimate of the damage done concerning the current situation there.

WENDY EDELBERG: I'm gonna jump in for an now and say that this is yet another place where he's not going to speak for the entire Federal Reserve system. So as much as I deeply care about these issues and have done a lot of research about them, I wanna get one more question that is specifically about inflation and supply.

Shocks and inflation. Ellen, I have a question. Oh, you need a microphone?

ELLEN HUGHES-CROMWICK: I have a question about how you compare your analysis on housing. To the assertion that the Fed needs to see through oil price shocks. Because basic, you're putting the housing [01:38:00] component of inflation in somewhat the same category as oil price.

We, we want the fed to see through, if there's an oil price shock, we want them to see through that. Even though their target is aggregate. PCE price index. Can you comment on compare and contrast with oil?

NEIL MEHROTRA: It's a great question. So typically the case for focusing on inflation, excluding food and energy, is that energy is, those markets are much more flexible and prices are arguably set are set freely in those markets.

So there's no there's no distortion coming from, large increases in demand for oil or large decreases in supply for oil. Okay. But then there's a question about how does it filter through to the broader economy? How does it seep into core inflation? Our prescription about the housing market is slightly different.

It's that it's not that prices are [01:39:00] completely flexible, it's that the way that the rationing mechanism interacts with the supply and elasticity is such that you don't want to you wanna look through inflation and housing. Now it's more

challenging in housing because housing is such a large share of the consumer basket.

Whereas energy is a smaller share. But there's still an open debate, I think on the wisdom of excluding food and energy. I think some governors have talked about perhaps at least including food in the core measure of inflation. It's an, it's a, it's an open discussion.

I think.

GABE CHODOROW-REICH: I'll come back to the first question. I'm not gonna talk about Minneapolis, although but there was a question about sticky inflation in black households in particular. And I thought I would use that to talk a little bit. So first we have a figure in the paper that shows the path of inflation and the path of inflation relative to other prices.

And it does come with the delay. So we document that in the aggregate, but I think your point is more broadly inflation can be felt very [01:40:00] differently for different demographic groups. And there has been some research along that dimension of trying to construct price indexes that are different for different groups, whether it's race, age income.

Typically those indexes vary across groups because of expenditure baskets. So some people spend a lot of money on good one, some people spend a lot of money on good. Two. If the price of good one goes up more than good, two, that's gonna create different inflation. Housing is even more extreme on this because what it means to consume housing is very different if your rent or your own.

And so this comes back to a theme of the measurement difficulty here. When we give rents, when we assume everybody effectively rents, we're giving everybody not only the same expenditure share, but also the same inflation experience. And once you step back from that, you can open the door to disaggregating much more.

And thinking about [01:41:00] young households versus old households, young households who are renting and looking to own old households who are owning and maybe transitioning to rent, you can think more deeply about the experiences of different demographic groups as well.

WENDY EDELBERG: Thank you. I'm glad you, I'm glad you jumped in with that.

Alright. Please join me in thanking Neil and Gabe

and, and just very quickly, I'd like to say that we are honored to close today's event with keynote remarks from Federal Reserve Vice Chair Philip Jefferson, vice Chair. Jefferson has been a thoughtful voice on the path of inflation, the evolution of the labor market and the challenges facing monetary policy, including how to respond to supply shocks.

Following his keynote, the vice chair will take some questions from my colleague, David Wessel, director of the Hutchins Center on fiscal and monetary policy, vice Chair Jefferson, welcome to Brookings and we look forward to your [01:42:00] remarks.

PHILIP JEFFERSON: Good afternoon everyone, and Wendy, thank you so much for that kind introduction. It's an honor to speak at Brookings this afternoon, and today I'd like to start out by sharing my outlook for the economy. Then I will discuss the possible implications of that outlook for the path of monetary policy. Next, I'll turn to the subject matter of this conference and discuss supply side inflation dynamics.

After my remarks, I look forward to our discussion. At the start of this year, I am cautiously optimistic about the economic outlook. I see signs suggesting that the labor market is stabilizing, that [01:43:00] inflation can return to a path towards our 2% objective, and that sustainable economic growth will continue to be sure there are risks to both sides of the dual mandate given to us by Congress.

Maximum employment and stable prices. Incoming data, bear careful watching. Broadly speaking, economic activity appeared to be strong late last year in the third quarter of 2025. Gross domestic product rose at an annual rate of 4.4%. That was a sharp acceleration from the first half of last year, mostly reflecting strong consumer spending, excuse me, and upward swing in net exports, which were especially volatile over the first three quarters of 2025.

In addition, GDP data for the fourth quarter of [01:44:00] 2025 and the first quarter of 2026 will be affected by last year's federal government shutdown and subsequent reopening, however. GDP data through the third quarter and the readings on spending we have received for the fourth quarter suggest that domestic demand held up well last year.

It was supported by strong consumer spending and business investment, including investment for artificial intelligence, which could support productivity

growth for 2026. I have revised up my growth forecast modestly in recent weeks, informed by signs that the economies of the economies continued resilience.

Now I expect the economy to grow at a rate similar to last year's estimate of 2.2%. In terms of labor market data, the unemployment [01:45:00] rate was 4.4% in December and has changed a little in recent months. Non-farm payrolls declined at an average pace of 22,000 per month over the final three months of last year.

But when excluding government employment, private payrolls rose at an average pace of 29,000 per month. Looking over the past few quarters, the evidence suggests that the pace of job creation has eased, at least part of the slowdown in the job market, reflects a decline in the growth of the labor force due to lower immigration.

And labor force participation. However, labor demand has softened as well other measures of labor, market conditions. Point to stabilization, for example. New claims for unemployment benefits have remained low in recent months. [01:46:00] While I look forward to reviewing January's jobs report, I see the overall labor market as roughly in balance with a low hiring, low firing environment prevailing in this less dynamic labor market.

The downside risk to employment remain, but my baseline for the unemployment rate is to hold approximately steady through this year. I now turn to the price stability side of our mandate. Progress on disinflation has stalled over the past year, and inflation remains elevated relative to our 2% target.

Based on the most recent available data, it is estimated that the personal consumption price index rose 2.9% for the 12 months ending in December. In the core prices, [01:47:00] which exclude the volatile food and energy categories rose 3%. Those readings are similar to the levels recorded at the end of 2024. The stall in the disinflationary process is mainly because of tariffs or some goods.

Over the past year, we have seen the decline in services price inflation, mostly due to easing price pressures in housing services. But this decline has been offset by an increase in core goods price inflation. Certainly some upside risk remain, but I expect the disinflationary process to resume this year once increased tariffs pass through more fully to prices.

In addition, projected strong productivity growth may be a source of [01:48:00] further help in bringing inflation down to our 2% target. I'll say more on this point later.

After assessing the current state of the economy and reflecting my cautious optimism, I supported the FMCs decision last week to maintain the federal funds rate at the current level. Over the past year and a half, the committee lowered the target range for the policy rate by 175 basis points. That included three reductions late last year.

These rate cuts were responses to downside risk to employment amid somewhat reduced upside risk to inflation. Collectively, these adjustments put our policy rate broadly in the range of estimates of the neutral rate, while [01:49:00] maintaining a balanced approach to promoting our dual mandate objectives. Our policy stance should help stabilize the labor market while allowing inflation to resume is decline towards our 2% target.

We always follow a prudent meeting by meeting approach. The current policy stance is well positioned to address the risk to both sides of our dual mandate. I believe that the extent and timing of additional adjustments to our policy rate should be based on the incoming data, the evolving outlook, and the balance of risks.

Now that I've shared my near term outlook for the economy in monetary policy, I will turn to the topic of supply side influences on inflation, the [01:50:00] subject of this conference to, to do that. I will first look back briefly at lessons learned about this topic from the economic experience of the pandemic period.

Then I will discuss current factors driving what could be a persistent increase in productivity growth. Finally, I'll consider some potential implications of a persistent increase in productivity growth for inflation.

The unprecedented events surrounding the COVID-19 pandemic highlighted the critical role played by supply dynamics in shaping inflationary pressures. The pandemic created global disruptions in labor markets, international trade and supply chains, making it more costly to produce and transport goods.

Geopolitical events such as [01:51:00] the war in Ukraine boosted input prices through restrictions on commodity production and additional slap supply chains disruptions further exacerbating inflationary pressures. These constraints on supply were accompanied by shifts in the composition and level of demand,

partly driven by support of fiscal and monetary policy responses to the pandemic.

The resulting supply demand imbalances pushed the 12 month change in total PCE prices up to a high of 7.2% in June of 2022. The labor market tightened considerably around this time with the unemployment rate reaching a nearly 60 year low of 3.4% in April of 2023. Models of inflation [01:52:00] dynamics built on standard Phillips curve relationships, however, were unable to explain fully the magnitude of this surge in inflation.

This was true even for models that tried to address the natural rate of unemployment in real time to the unusual economic circumstances. Richer models developed since then, including those presented at this conference, emphasize the importance of features such as nonlinear, nonlinearities, and alternative measures of economic slack, as well as the role of input output linkages in propagating supply chain disruptions throughout the economy.

The disrupt disruptions caused by the pandemic have receded and inflation has come down sharply since earlier in the decade. Nevertheless, it remains [01:53:00] above our target. As I noted earlier. Moreover, the economy has continued to evolve rapidly over the past few years, particularly in response to technological advances in changes in the policy landscape.

These changes have affected the economy's supply side and likely will continue to do so with implications for the behavior of prices and wages. Research that untangles the complex and dynamic effects of changing supply conditions on prices and shed lights on appropriate policy responses, therefore remain crucial and of great value to policy makers.

One important development in recent years is that structural productivity growth in the United States, which is a key component of [01:54:00] aggregate supply in the economy, appears to be notably above the growth rates observed in the decade before the pandemic Productivity growth in the business sector is reported to have increased at an average annual rate of 2.2% from the start of 2020 to the third quarter of last year.

Notably faster than the 1.5% pace over the previous business cycle. If this more rapid pace of productivity growth persists, it will have important economic implications. Strong productivity growth has the potential to support a robust expansion in economic output and strong real wage gains without adding to inflationary pressures.

Some of the recent strength in productivity [01:55:00] growth may reflect one-time factors. For example, many firms expanded the use of labor saving technologies early in the pandemic, in the face of significant labor shortages in some sectors, however, other factors may be more persistent. New business formation has remained strong since early in the pandemic, which has likely supported strong productivity growth because new firms tend to adopt more efficient production processes.

Also, this new business formation has been disproportionately concentrated in high tech industries, which tend to drive productivity gains More recently. Integration of AI into production and the workplace may already be having some early effects on productivity, although most [01:56:00] economists expect that the bulk of any productivity gains due to AI are likely yet to come.

Other factors may also have some effect on productivity going forward, including higher tariffs, which academic research suggests will be a drag on productivity growth and deregulation, which should provide a boost. That said, it is too soon to say if productivity effects from these policies have begun to materialize and what their net effect will be.

Should we expect the pickup in productivity to affect inflation as the pandemic experience? As in the pandemic experience, the likely answer depends on how the balance between the supply and demand is affected over time. For example, though businesses and [01:57:00] individuals are increasingly adopting ai, the most transformative structural changes from this new technology may still be ahead of us.

Excitement about the potential of ai, however, appears to be affecting economic activity today, contributing to a boom in data center construction and AI related investment. Even if AI ultimately succeeds in greatly enhancing the productive capacity of the economy, a more immediate increase in demand associated with AI related activity could raise inflation temporarily absent offsetting monetary policy actions.

Of course, productivity is not the only change in supply conditions that may influence inflation. Reductions in immigration, for example, [01:58:00] typically lead to a reduction in the supply of labor. Though the effect on inflation may be mild if aggregate demand is simultaneously reduced through lower consumption from this group.

Still, even if demand declines in line with supply wage and price inflation could still be boosted if the reduction in immigration results in labor shortages in

sectors that depend heavily on immigrant labor. While changes to aggregate supply are usually driven by broader economic forces. Monetary policy plays a pivotal role in regulating the level of aggregate demand.

Consequently, prudent policy that maintains a maintains balance in supply and demand conditions can influence weather improvements and productivity translate into inflationary [01:59:00] or disinflationary pressures. Whether monetary policy is stimulating or restraining aggregate demand depends on the position of the short of short term real interest rates, vis-a-vis the neutral rate, which reflects the underlying balance of saving an investment in the economy.

All other things being equal persistent increases in productivity growth are likely to result in an increase in the neutral rate, at least temporarily with faster productivity gains, consumers may anticipate higher future income growth and choose to spend more now reducing their saving rate. At the same time, increased productivity gains also imply a rise in the marginal product of capital, and thus higher investment demand.

In addition to influencing aggregate [02:00:00] demand, directly, monetary policy also has a role to play in maintaining anchored inflation expectations during the pandemic. Well anchored longer term inflation expectations likely helped to prevent the surge in inflation from becoming entrenched and subsequently facilitated progress towards the FMCs 2% inflation objective without a large increase in unemployment.

Anchored inflation expectations also provided greater policy flexibility to support both objectives in the dual mandate. For example, although I see higher tariffs as having boosted inflation somewhat in 2025, I continue to see it as a reasonable base case that the effect on inflation will not be long lasting and will amount to a [02:01:00] one-time shift in the price level.

In part because anchor inflation expectations should limit second round effects of tariffs on prices and wages. With the FOMC strongly committed to returning inflation to its target, the risk of such a one-time shift being leading to sustained inflation is likely to be low. This implies that there is more leeway for the supply side of the economy to evolve without the need for precautionary monetary policy restraint.

Our understanding of supply side developments and their effect on inflation has grown rapidly in recent years and seems likely to continue evolving in the future. Future. I am studying these trends carefully because they matter to

setting appropriate [02:02:00] monetary policy to achieve both parts of our dual mandate.

As I have stated, I have supported the FMCs decisions to lower the target range for the policy rate by 175 basis points since the middle of 2024. In my view, those actions have brought the federal funds rate broadly in the range of estimates of the neutral rate, while maintaining a balanced approach to promoting our dual mandated objectives.

I view the current policy stance positioned to respond to economic developments, putting the economy in a good position as we move forward. Thank you once again to the Brooking institutions for inviting me to be here today. I look forward to our discussion.[02:03:00]

Okay.

DAVID WESSEL: Thank you very much governor Jefferson for a comprehensive, and it's always good to hear somebody being optimistic, so I appreciate that. I wanna, I have a couple of questions and then I'll give some time to the audience. We'll run a little bit over.

Today, under normal circumstances at eight 30 this morning, we would've gotten a Bureau of Labor Statistics jobs report, once again, because of the inability of Congress to fund the b the Labor department. It's delayed, we'll get it on Wednesday instead. And I wonder if you could reflect on this in two respects.

One is A, how much of a problem is it for the Fed that we're not getting timely data? But secondly, more significantly, how important is government data, reliable government data to the making of monetary policy and the functioning of our economy?

PHILIP JEFFERSON: Well, as you can imagine I certainly was expecting the data to come out today for the labor market and but I want to [02:04:00] emphasize that it not coming out does not prevent us from doing our job.

Okay. In that there are a wide variety of sources related to the labor market, for example, that we rely on. There's data that is generated by the states there. There's data generated from the pri private sector, and also there are Federal Reserve sources of data. And we always look at a broad cross section of data to do our work.

Now that being said these situations where the data does not appear, the official data does not appear in a timely manner. Further impresses upon me how much I appreciate the work done by the statistical associations agencies here in Washington and elsewhere. That data is the gold standard [02:05:00] in terms of how I think about it.

And I look forward for, to the time in which we do catch up and all of the data is there before us, but its absence as long as it's temporary doesn't prevent us from being able to get an assessment of what the state of the economy is, the labor market in particular, and prices, because those are the key things, the labor market.

And prices that will help us to fulfill our congressional mandates.

DAVID WESSEL: But in a world where we have scanner data and everything, can private data substitute for public official data?

PHILIP JEFFERSON: Well, I like to think of them as being compliments. Okay. And in the short term we have to rely on these alternative sources of data.

We think that by looking at them, reaching [02:06:00] out to our contacts in the economy, people who are experiencing the economy in in real time we have a process where before every meeting, every governor has the opportunity to talk to people out there in the economy and get more color as to what's going on.

And then we do have this private sector data and data from the states. That whole collection of data is good enough to give us an assessment of what is going on.

DAVID WESSEL: I guess what I meant is, let's say that BLS went away. Would that be a good thing or a bad thing for you?

PHILIP JEFFERSON: That would be a very bad thing.

DAVID WESSEL: Why?

I just wanna be clear here. Okay. Just checking. Okay.

PHILIP JEFFERSON: That would be a, because there, there are resources that the government has that no other entity out there could possibly fulfill in terms of coverage. So we want the BLS to stay there, be vibrant because we rely on them.

DAVID WESSEL: To turn to the labor market for a [02:07:00] minute, in your remarks, you made the case that, of course they're downside risk, but the labor market is stabilizing, you said?

PHILIP JEFFERSON: Yes, it's, yes.

DAVID WESSEL: And some of your colleagues, governor Waller in particular, have taken a different view. Governor Waller says that when we get the latest revisions to look like, there was very little, if any, payroll growth last year.

And I'm wondering, when you look at the labor market, what would le, what do you think, where would, what is the downside risk? What is it that would lead you to think that we're on the downside of stabilizing?

PHILIP JEFFERSON: Well, let me first say that in terms of the data that we have available to us. In the second half of the year, the unemployment rate, for instance, stayed pretty much constant.

Okay. So when I say that the labor market is going towards stabilizing, that's one summary statistic you can look at. It, it, as the chair has said before, it is in this curious balance where we have low [02:08:00] hiring low firing, and certainly it's the case that job creation has been weaker than any of us would like.

And that could be have to do with what's going on again, on the labor supply and labor demand side of the labor market. Now, we know from historical experience that things can change in the labor market quickly. And an example would be, for instance, if layoffs were to pick up usually that change happens very rapidly.

But I think where the policy rate is now is one in which we are supporting the labor market. And if you look back over what we did over the last year and a half in terms of bringing the policy rate down by 175 basis points, my view is that we don't need to see any more weakening in the labor market.

I, I would not. Want that. And that's part of the reason why we made the adjustments that we did so that we wouldn't see the [02:09:00] spike in layoffs and things of that sort that would indicate significant weakening. Across the FOMC individuals have different views and and I think that's a healthy thing.

DAVID WESSEL: And I wanted to drill down a little bit on something you said about AI and productivity in your remarks. So there is one view that AI will increase the rate of productivity growth. It'll increase the capacity of the economy to supply goods and services at, and we can run the economy hotter. But I think you made a really good point in your speech that, well, that's not the only possibility here. We could have a situation where people anticipate productivity growth and they spend more. Now maybe the stock market, the wealth effect does that. And you also made the really interesting point that of course, if productivity growth is substantially higher, that will raise the neutral rate of interest.

And that would mean that the Fed would have to have higher rates. Everything else held constant. And I wonder if you could elaborate on that last [02:10:00] point. Why is it that higher productivity growth could lead the Fed to have higher rates rather than lower?

PHILIP JEFFERSON: Well, so the neutral rate, the, let me say a little bit.

So the neutral rate is a theoretical concept. That says that it is one in which it at that neutral rate when it exists, there is not pressure for the economy to expand or contract. There is in a long run, steady state equilibrium. Okay? And now a challenge of that concept is that in the real world, something is always happening so that it never comes in into being.

But let's say for example, it was the case that we got to a long run equilibrium with no aggregate demand, aggregate supply shocks, and we had strong productivity growth that [02:11:00] translates into strong income growth, wage growth for households. Okay. In the sense that we can think of the rate of wage growth as consistent, our 2% target being one in which you have the 2% target and the plus productivity growth.

DAVID WESSEL: Right?

PHILIP JEFFERSON: Okay. Well, in that world, if the productivity is growing, then you're gonna have stronger. Real wage growth that's gonna lead to more robust economic activity. And you want the policy rate to be neutral with respect to that increase in, in, in right demand.

DAVID WESSEL: I see. Okay. One final question before I turn to the audience.

There's a lot of focus now on the terms that Fed Governors serve your term as Vice chair runs through September, 2027. [02:12:00] I haven't seen anything on truth social about what the president thinks about you to your benefit. Your term as governor runs all the way to 2036. So what do you think? Are you planning to stick around till 2036 or you got something better to do?

PHILIP JEFFERSON: I am.

DAVID WESSEL: I warned him. This

PHILIP JEFFERSON: right

DAVID WESSEL: is not a alone.

PHILIP JEFFERSON: Okay.

Okay. So I am completely focused right now on the job that I have. Okay. And that's what I come in thinking about every day, is doing the best job that I have right now that I can. And that dual mandate that's been given to us by Congress. And beyond that, I don't have any other focus.

DAVID WESSEL: I see. Okay. I'm gonna take a couple questions. Here's the deal. Tell us who you are. Ask a question. Over here first, wait for the mic questions end with a question mark.

JONATHAN PINGLE: Hi Jonathan Pingle. So I just wanna ask you for a [02:13:00] little bit more color on your inflation outlook. And this in the nicest way, this is a contrast to Governor Cook's recent speech where she was talking about her concern over the fed's credibility and inflation.

The speech you just gave sounds pretty sanguine about the inflation outlook, even though, inflation's close to 3% as you noted in the speech core PCE having hit the target in five years. And even though because it's tariffs, it might not warrant much monetary policy response. You also mentioned the speech not responding to the potential strength and growth due to ai 'cause of the productivity gains.

What are the risks to, are you worried about the Fed's credibility? There's a former vice chair here who once pointed out to me that it was hard won that credibility. I'm just curious if you could just elaborate if the takeaway is that your inflation outlook is as a sanguine, as it suggests.

DAVID WESSEL: Great. There's a woman in the back the white sweater.

SARAH MILLER: Hi. Thanks so much for being here. I'm Sarah Miller. I'm with Columbia Law School. There was an interesting paper coming outta the Atlanta Fed in the [02:14:00] fall that found a causal link between inflation and market concentration. And I'm curious if that's something that you're concerned about.

If that's an issue that deserves more study at institutions like these or others or if there's a relevant part of the inflation conversation that touches on market concentration,

DAVID WESSEL: we'll take one over here.

AUDIENCE MEMEBER: Thank you. And the current Bloomberg News governor, how much of your productivity increase are you putting on the ai boom, please. Thank you.

DAVID WESSEL: Okay, so the first question is, how are you, how can you be so optimistic about inflation? And are you worried about the fed's credibility if inflation continues to come in for whatever reason above target?

PHILIP JEFFERSON: Okay. So first, let me speak to the credibility piece. Measures of longer term expectations are still very close to our 2% target, and that's been the case for some time.

So that suggests [02:15:00] to me that the American people believe that we are committed to bringing inflation down to our target. So my view is that we are still perceived of as being credible now with respect to the current situation with inflation being above target. I think that we have an understanding as to why that is.

It has to do with the effects of tariffs on some goods prices and that we, that I expect, and let me be clear, all of my responses are my views alone. I'm not speaking for the FOMC or the board. Okay. My view is that once the effects of the tariffs on goods work through into prices, then that will allow [02:16:00] the measured inflation in core goods to subside.

If you look at the other major components of the total PCE price index that having to do with services has been coming down over time in a way that is consistent with landing at a level that's consistent with 2% inflation. So once we

have the tariff effect work through and assuming that there are no other major shocks, okay, that's a strong assumption, but that's where I am today.

Then I think a reasonable case can be made that inflation. Will continue down towards 2%, say in the second half of 2026.

DAVID WESSEL: So you have a forecast that basically inflation's not, is going to, inflation's gonna keep coming down and unemployment's not gonna go up. And it seems to me what you're saying is you're watching both of these [02:17:00] gauges.

And if either it doesn't perform the way you expect, you may lead to different monetary policy, then just steady as she goes. Is that fair?

PHILIP JEFFERSON: Well, I think, yeah. So what we're always, what I am always focusing on is that, I'm looking at not only where things are today in terms of the data that you just mentioned, but what really matters at the margin is the shifts in the balance of risks.

Okay. And so it's not just a matter of looking at the data that's incoming, it's thinking about the forecast and the balance of risks.

DAVID WESSEL: And you think the risks are balanced now roughly?

PHILIP JEFFERSON: Well that has to do with exactly where the neutral rate is or when we might think the neutral rate is. So the reason I supported holding constant at this last meeting, whereas I had supported the 175 basis points coming.

Over the [02:18:00] last year and a half is because I thought that the policy rate was in a good position to continue to provide support to the labor market while being mindful of the fact that the actual bedroom inflation rate is still above our target.

DAVID WESSEL: I see. Okay. So there were two other questions if you have quick responses.

One is, are you familiar with or have any views on the idea that inflation has a causal relationship with market concentration? And is there something besides AI that's driving productivity growth?

PHILIP JEFFERSON: Okay. So let me look at deal with the market concentration question and say that as a monetary policy maker what might be driving the inflation in terms of microstructure or anything like that is not critically important to me.

What's important to me and what the responsibility [02:19:00] given to the Fed by the Congress is that we conduct monetary policy so that there is price stability. And so that means that, I am not thinking about or focusing on the micro structure of markets and things of that sort. I'm focused on what we need to be doing right now to and in the future to bring the inflation rate back to 2%.

DAVID WESSEL: And is there something else going on productivity growth that's interesting besides ai?

PHILIP JEFFERSON: Well, exactly, that's one way of asking that question. I thought I heard it as well. How much of the productivity growth can we impute to ai better than Mike? Exactly. No but and this is a very interesting, and in some cases controversial question because it's asking are we already seeing the gains from AI in the current data in terms of productivity?

And reasonable people can [02:20:00] disagree with that. Based upon how much uptake and adoption has already occurred in with regards to ai. So actually in the moment, in the short run where we are right now, my answer is that I don't know, in, in terms of how much of the current productivity boom is, can be attributed to ai.

Because in my speech you recall I mentioned new business formation as being something that is important that was coming out of the pandemic. And that has sustained that new business formation especially the part of it that is in the tech sector is a real driver of productivity on average economy wide.

DAVID WESSEL: Great. Well, I wanna thank you for coming here today and I look forward to seeing you again before your term expires in 2036. [02:21:00]

PHILIP JEFFERSON: Thank [02:22:00] you.