

Good Policy or Good Luck? Why Inflation Fell Without a Recession

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Working Paper No. 227

September 29th, 2024

ABSTRACT

This paper analyzes claims that the Federal Reserve is principally responsible for the decline of inflation in the U.S. We compare several different quantitative approaches. These show that at most the Fed could plausibly claim credit for somewhere between twenty and forty percent of the decline. The paper then examines claims by central bankers and their supporters that a steadfast Fed commitment to keeping inflationary expectations anchored played a key role in the process. The paper shows that it did not. The Fed's own surveys show that low-income Americans did not believe assurances from the Fed or anyone else that inflation was anchored. Instead, what does explain much of the decline is the simple fact that most workers nowadays cannot protect themselves by bargaining for higher wages. The paper then takes up the obvious question of why steep rises in interest rates have not so far led to big rises in unemployment. We show that recent arguments by Benigno and Eggertson that shifts in vacancy rates can explain this are inconsistent with the evidence. The biggest factor in accounting for the strength in the economy is the continuing importance of the wealth effect in sustaining consumption by the affluent. This arises, as we have emphasized in several papers, from the Fed's quantitative easing policies. Absent sharp declines in wealth, the continuing importance of this factor is likely to feed service sector inflation in particular.

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<https://doi.org/10.36687/inetwp227>

JEL codes: E0; E5; E6; E62; O23; I12; J08.

Keywords: Inflation; wage-price spiral; inflation expectations; effectiveness of monetary tightening; Phillips curve; central bank credibility; labor market tightness; real earnings growth; earnings uncertainty; the Beveridge ratio; wealth; wealth effect on consumption; affluent consumption; services inflation.

Acknowledgment: Servaas Storm is grateful for grant support from the Institute for New Economic Thinking. Of course, this paper represents the views of the authors and not of any institution with which they are connected.

“for it will come to pass that every braggart shall be found an ass.”

William Shakespeare, *All's Well That Ends Well*, Act 4, Scene 3.

To give credit where credit is due

Late summer festivals have long been traditional high points in the world of arts and music. Nowadays, courtesy of the Federal Reserve Bank of Kansas City, central bankers repair to their own version of Bayreuth or Salzburg: the conference held in late August in Wyoming at the Jackson Lake Lodge in Grand Teton National Park. With its stunning Rocky Mountain backdrop, two time zones away from the Federal Reserve's Washington-based Board of Governors, the conclave is the [Fed's biggest shindig](#), an invitation-only event where, as the [New York Times](#) (August 23, 2024) writes, “loafers cede to cowboy boots. Attendees snack on huckleberry pastries (or swill huckleberry drinks) while discussing the latest economic papers” (Smialek 2024).

This year's retreat focused on the effectiveness of recent monetary policy. In marked contrast to some earlier gatherings, the mood was upbeat. Visibly relieved central bankers could be seen celebrating the fall of inflation, which had come down from a peak of around 10% in early 2022 to below 3%. They were happy to take a few victory laps, crediting themselves with an ultimately successful policy response to the sudden surge in inflation. Their greatest source of pride appeared to reside in their ‘credible commitment’ to defeat inflation, which, in the official narrative, sent a decisive signal to markets, firms and workers that central banks would do “whatever-it-takes” to restore price stability.

To communicants, it was this steadfast commitment that choked off a 1970s-style wage-price inflationary spiral, by keeping inflation expectations ‘anchored’, as central bankers are fond of saying. As a result, they thought, inflation has come down without triggering a deep recession, a feat few economists predicted (including the patron of inflation hawks, Lawrence Summers). And in the process, many noted, breaking very little in the financial system. As TS Lombard's [Dario Perkins](#) (2024) wryly observes, “we are fortunate to have them [i.e., the central bankers] — at least that is what they tell us.”

The speech by Jerome Powell, chair of the Federal Reserve, “was as close to a paean of victory as a sober central banker could utter”, noted [Martin Wolf](#) (2024). Hailing “low unemployment, high participation, historically low racial employment gaps, and, with inflation low and stable, healthy real wage gains that were increasingly concentrated among those with lower incomes,” [Powell](#) claimed that “restrictive monetary policy helped restore balance between aggregate supply and demand, easing inflationary pressures and ensuring that inflation expectations remained well anchored.”

The message that went out to the whole world was that the Fed was increasingly confident that it was succeeding in orchestrating a ‘soft landing’ of the American economy, and would

soon join central banks in Europe and elsewhere in cutting interest rates. Talk of the ‘difficult last mile’ on the road to the 2% inflation totem was rife (Krugman 2023b).

Even prominent establishment critics of Fed policies joined the celebration. “I’ve got to give the Fed credit,” former Treasury Secretary Lawrence Summers said to Bloomberg (on August 23), adding that “while it wasn’t always obvious that this would be the case, they moved strongly enough and vigorously enough to keep expectations anchored.”

But how much credit does the Federal Reserve actually deserve? Is the remarkable macroeconomic turnaround testimony to the Fed’s credibility, determination, and wisdom? Or is it just down to good luck that inflation fell without a sharp rise in unemployment above its estimated natural rate?

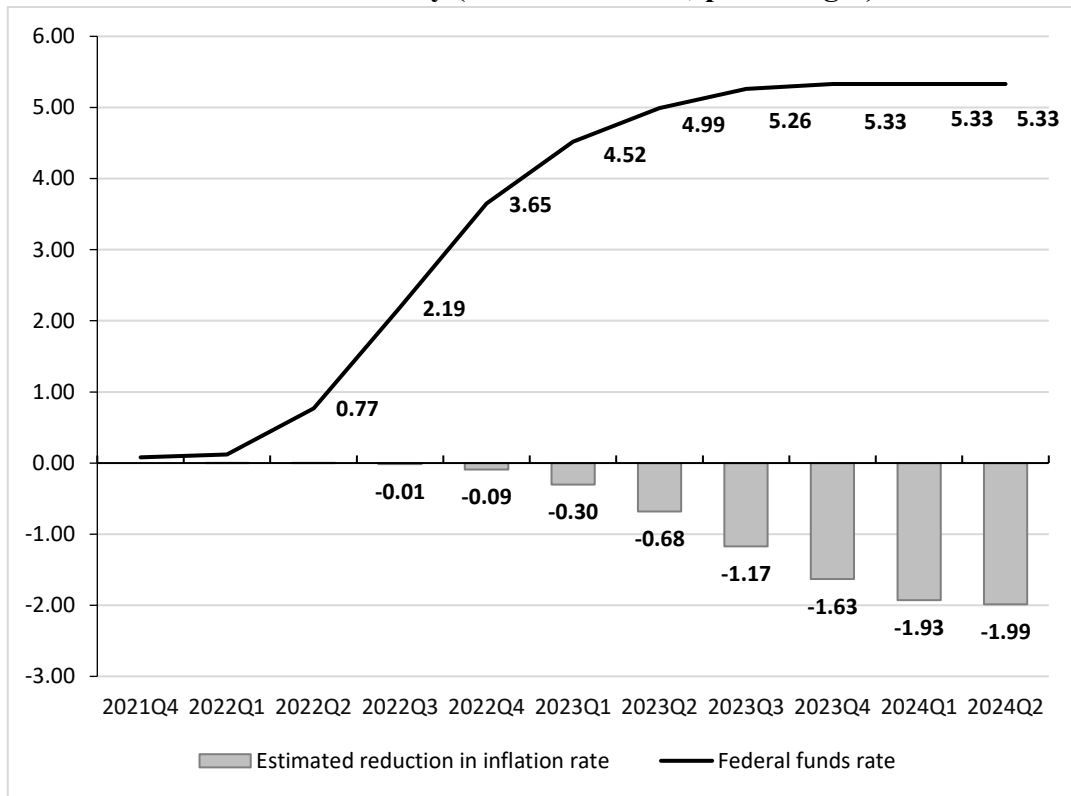
We think it has been mostly due to ‘good luck’, rather than monetary policy, and that central bankers are claiming credit for developments that were mostly beyond their control. The issue is larger than just the usual hubris of central bankers, because the self-congratulatory assessment of monetary policy at Jackson Hole is legitimating a new round of what John Kenneth Galbraith (1973) called Useful Economists, propping up a fundamentally broken macroeconomic model in which the ‘inflation-expectations channel’ plays the central role in wage-price dynamics. The celebration also distracts from the continuing Fed failures to grapple with, or even to recognize, key factors that are still fueling inflation, especially in services.

Empirical evidence on monetary tightening

Let us first consider the empirical evidence on the disinflationary effects of monetary tightening. To gain a preliminary sense of how effective monetary tightening by the Federal Reserve has been in lowering U.S. inflation, we start with a rough calculation using Ray C. Fair’s (2021; 2022) economic model of how much an increase in the Fed’s policy interest rate of 1 percentage point lowers the so-called core Personal Consumption Expenditure inflation rate for the period 2022Q1-2024Q2.¹ The cumulative impact of monetary tightening on the U.S. inflation rate appears in Figure 1.

¹ Fair’s econometric model is the culmination of more than five decades of modelling work on the U.S. economy, based on the Cowles Commission simultaneous equations framework. Fair (2022) measures the U.S. inflation rate based on the price deflator of the U.S. business sector. Here we assume his estimates can be applied to the PCE inflation rate, normally targeted by the Fed.

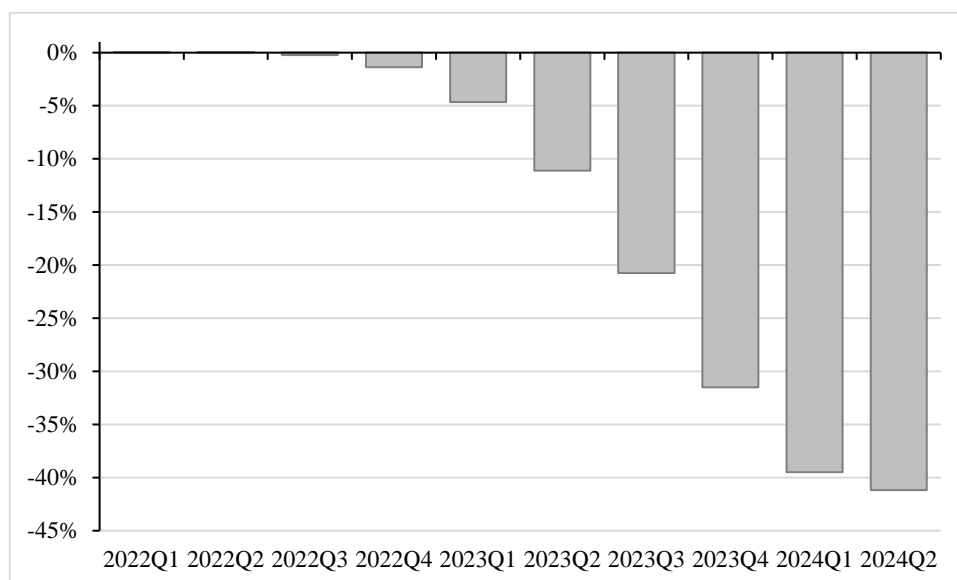
Figure 1
Estimated impact of monetary tightening on the PCE inflation rate:
the U.S. economy (2021Q4-2024Q2; percentages)



Sources: Calculated based on FRED database (*series* FEDFUNDS) and Fair (2022, Table 3).

The steady rise in the policy interest rate—from 0.1% in 2022Q1 to 5.33% in 2023Q4—is found to have cumulatively lowered the core PCE inflation rate by almost 2 percentage points in the second quarter of 2024. This means that the core PCE inflation in 2024Q2 would have been 4.6% without the monetary tightening by the Federal Reserve—instead of 2.6%, the actual PCE inflation rate during 2024Q2). Reckoning in this fashion leads to the conclusion that, as shown in Figure 2, the drastic monetary tightening by the Fed lowered the U.S. inflation rate by circa 40 percent over a period of 8 quarters (2022Q2-2024Q2).

Figure 2
Cumulative percentage reduction in the U.S. PCE inflation rate
(relative to peak inflation in 2022Q2) due to monetary tightening during 2022Q1-
2024Q2



Source: See Figure 1.

A forty percent solution to an acute problem is not derisory, but it hardly justifies all the crowing in the Grand Tetons. And, unfortunately, there are compelling reasons to suspect that the estimate is on the high side. A new analysis by David Reifschneider (2024), using the FRB/US, the Federal Reserve Board’s model of the U.S. economy, for example, suggests that the effect of the Fed’s policy measures was much less. His study considers a range of assumptions for expectations formation, the Phillips curve and the interest sensitivity of aggregate spending. Our rough calculation based on his findings using the standard FRB/US model specification set out in Table 1 suggests that the Fed’s drastic monetary tightening lowered the U.S. inflation rate by less than one-fifth over a period of two years (2022-2024).

Our misgivings about the size of the effect are confirmed by the results of a second counterfactual analysis by Reifschneider (2024) based on the recent wage-prices spiral model of Bernanke and Blanchard (2023) discussed in more detail below. In this counterfactual analysis, the federal funds rate is set 3 percentage points higher (at around 8.5%) than in reality (when it peaked at 5.5%). The much higher interest rates are estimated to have lowered the annualized PCE inflation rate by only around 0.16 to 0.19 percentage points after 1.5 years compared to the actual path of inflation. These results indicate even weaker disinflationary effects than in the standard FRB/US model specification.

Table 1
Simulated Effects of the Counterfactual Monetary Policy
(results expressed as changes from baseline)

| | 2021 | 2022 | 2023 | 2024 |
|----------------------------------------------------|-------|-------|-------|-------|
| Standard FRB/US specification | | | | |
| - Federal funds rate (Q4) | 2.54 | 2.98 | 1.13 | -0.37 |
| - PCE inflation rate (Q4/Q4) | -0.01 | -0.19 | -0.29 | -0.28 |
| - Unemployment rate (Q4) | 0.38 | 1.73 | 1.96 | 1.54 |
| Bernanke and Blanchard (2023) specification | | | | |
| - Federal funds rate (Q4) | 2.55 | 3.05 | 1.26 | -0.24 |
| - PCE inflation rate (Q4/Q4) | -0.01 | -0.09 | -0.16 | -0.19 |
| - Unemployment rate (Q4) | 0.37 | 1.72 | 1.96 | 1.56 |

Source: Reifschneider (2024), Table 3.

Reifschneider’s analysis also shows that the more restrictive policy would have pushed the economy back into recession, with the unemployment rate running at around 5 percent in 2022 and 2023 (more than a percentage point higher than the level it actually reached), while relative to actual developments, the higher interest rates also would have likely resulted in lower real wages, not higher.

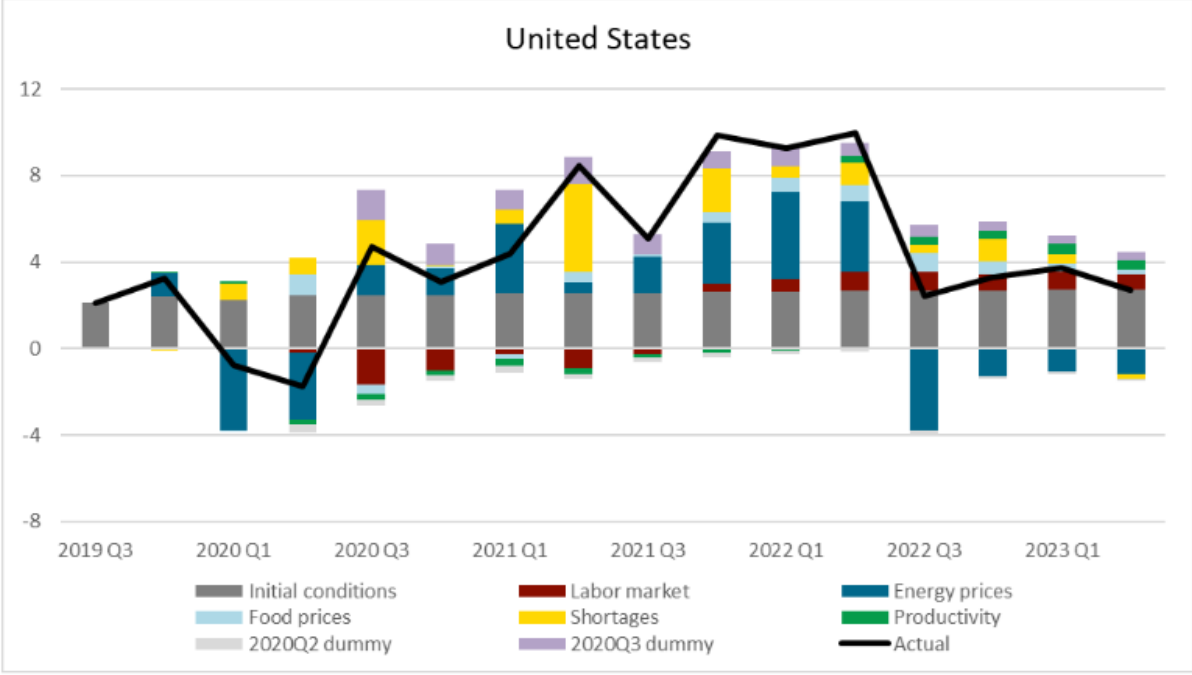
These findings lead us to two observations. First, monetary tightening did have a material impact on inflation, accounting for somewhere between twenty to forty percent of the decline. But somewhere between 60 to 80 percent of the decline should probably be attributed to other (non-Fed policy) factors—notably, the fizzling out of key (pandemic-induced) supply-side shocks, working through energy and food prices, during 2022 and 2023. The easing of global supply-side constraints, “good luck,” or some other set of factors rather than Fed policy did most of the work.

Ben Bernanke and Olivier Blanchard (2024, p. 30) reach much the same conclusion. Using a different modelling approach than ours, they conclude that “the historical decompositions [of the sources of inflation] for most countries point to sequences of strong price shocks with limited dynamic effects as explaining *most of the increase and later decrease* in the recent inflation” (*italics added*).² Their findings for the U.S. appear in Figure 3. Higher energy and food prices and shortages account for most of the acceleration of U.S. inflation and declining energy prices and the disappearance of the shortages drove the fall in inflation. [Dario Perkins](#)

² Using the Fed’s FRB/US model, Reifschneider reaches the following conclusion which is very similar to that of Bernanke and Blanchard (2024). “On a Q4-over-Q4 basis, headline PCE inflation rose from just under 1½ percent in 2019 to almost 6 percent in both 2021 and 2022. Of this 4½ percentage point increase, the standard version of the model attributes about 2¾ percentage points averaged across the two years to unexplained post-COVID shocks, a little under 1 percentage point to increases in relative food and energy prices, and almost a percentage point to other factors, including labor utilization but also other factors.” (Reifschneider 2024, p. 17).

(2024) concurs, drawing the conclusion that central bankers “got lucky and are now taking the credit for developments that were either beyond their control or would have happened anyway.”

Figure 3
Historical decompositions of inflation, 2019Q3–2023Q2, percentage points



Source: Bernanke and Blanchard (2024).

There is another powerful reason for rejecting the Fed’s self-serving assessment. In our view, a key indirect transmission channel through which Powell’s restrictive monetary policy contributed to a slowdown of inflationary pressure in the American economy concerns the U.S. dollar exchange rate and import prices. The U.S. central bank policy rate was raised more than rates in the Eurozone, Japan, China and the UK. As a result, the U.S. dollar strengthened relative to most other currencies. Accordingly, as the dollar rose, imported consumer goods prices fell, contributing to the fall in inflation. In fact, a back-of-the-envelope calculation suggests that declining import prices, partly due to the stronger dollar have lowered the U.S. inflation rate by 2.1 percentage points during 2022Q2-2024Q2—or roughly half of the observed decline in the PCE inflation rate (from a peak of 6.8% in 2022Q2 to 2.6% in 2024Q2).³

This finding is important, because it shows that part of the success of bringing down inflation in the U.S. was due to a stronger dollar mitigating inflationary pressure through lower import

³ We assume, following Taylor and Barbosa-Filho (2021), that a 1 percentage-point increase in import price inflation raises the PCE inflation rate by 0.207 percentage points. Annualized import price inflation declined from 11.6% in 2022Q2 to 1.3% in 2024Q2.

prices and lower export demand. This disinflationary channel does not require a rise in the unemployment rate and a recession to work. Nor – and this is important for our essay – does it depend on anchored inflation expectations any more than changing supply factors did.

Aren't we lucky to have credible central banks?

The evidence thus shows that inflation mostly came down because of factors beyond the control of the Fed. Nevertheless, the Jackson Hole meeting of August 2024 was a virtual saturnalia by the attending central bankers, and their cheerleaders in academia, think tanks and the press, to make us believe that the recent decline in inflation is testimony to the importance of independent central banks. The self-satisfied message coming out of Wyoming was that it was central bank 'credibility' that delivered lower inflation without a recession.

Fed chair Powell stated it well enough: "An important takeaway from recent experience is that anchored inflation expectations, reinforced by vigorous central bank actions, can facilitate disinflation without the need for slack." Drastic monetary tightening influenced the public's expectations of inflation and kept inflation expectations anchored at low levels. However, without the aggressive tightening and the 'credibility dividend' central banks had built up over decades of monetary-policy success, the U.S. and other economies could easily have ended up experiencing wage-price spirals similar to the traumatic one of the 1970s.

The claim is extraordinary when examined in context. First, as we will see in more detail below, there is no evidence whatsoever that we were in danger of reviving the wage-price inflation of the 1970s (see Ferguson and Storm 2023, 2024). After four decades of Reaganomics, Clintonomics, Obamanomics, and the Trump regime, U.S. workers lack the wage-bargaining power to generate a persistent wage-price spiral (Stansbury and Summers 2020). As is shown below, most American workers have suffered a decline in their real earnings (contrary to the claim made by Powell and others), as their nominal earnings have not been able to catch up with surging inflation. Worse, rising prices were, for some time at least, partly due to *rising profit mark-ups*, which means that the process of inflation was (partly and for some time) driven by a profit-price spiral — a phenomenon that could not be named, especially in Jackson Hole (Storm 2023; Ferguson and Storm 2023 & 2024).

Second, as we have argued at length, *mistaken monetary policy* must shoulder an important share of the blame for the recent surge in U.S. inflation. In a context of global and domestic supply bottlenecks, the rise in inflation was overwhelmingly driven by a rise in consumer demand of wealthy Americans (Ferguson and Storm 2023, 2024), thanks to unprecedented gains in the wealth of the richest 10% of U.S. households that directly resulted from the Fed's quantitative easing policies that fueled the demand for (first) goods and (later) services, causing sharp increases in prices.

Subsequent monetary tightening by the Fed did little to nothing to slow or stop these gigantic wealth increases, which (in cumulative terms) fueled an increase in U.S. consumption of more than \$1 trillion during 2021-2023. The Jackson Hole discussions paid no attention to the ineffectiveness of monetary policy in mitigating the wealth effect on consumption. Instead,

they intentionally propagated a cult-like view of effectiveness of monetary policy in preventing a looming wage-price spiral, based on a fake 1970s-counterfactual.

Thirdly, there is simply no reason to think that in the recent episode inflation *expectations* mattered for *actual* inflation. A critical review of the relevant theoretical and empirical literature by Fed economist [Jeremy Rudd](#) (2022) suggests that this belief rests on extremely shaky theoretical as well as empirical foundations. Robert Solow (1979) made the point already long ago: “I’m always a little dubious about an appeal to expectations as a causal factor; expectations are by definition a force that that you intuitively feel must be ever present and very important but which somehow you are never allowed to observe directly.” And according to econometrician Ray C. Fair (2021), available econometric evidence shows convincingly that future inflation expectations depend in large part on actual current and lagged inflation while measures of expected inflation do not matter.

A recent study by the International Monetary Fund (2024) also concludes that expectations were empirically irrelevant in determining the recent rise and the subsequent fall in inflation. As is shown in Figure 4, the impact of inflation expectations on actual inflation (indicated by the red bar) has been found to be negligible — in a modelling approach that allows for such an impact.

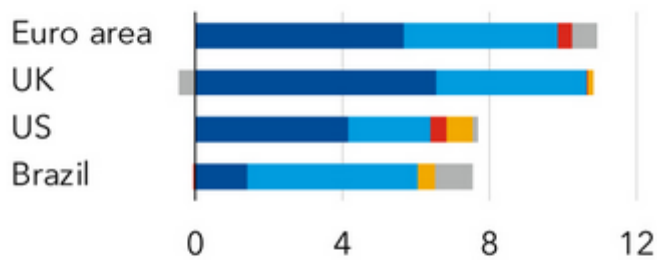
Figure 4
The IMF thinks inflation expectations were irrelevant

Rise and fall in headline inflation

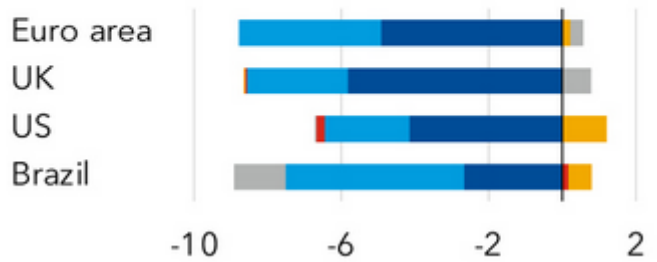
(percentage points)

■ Shocks ■ Pass through ■ Expectations
 ■ Slack ■ Residual

Rise to peak



Fall from peak to latest



Source: Gourinchas (2024).

Without repeating the important arguments made by Rudd and Fair, we will analyze, in the remainder of this essay, the hollowness of the claim that inflation expectations mattered in a causal sense in bringing down inflation and that we are lucky to have credible independent central banks. And we will outline some simple steps the Fed and related authorities could have taken to mitigate the problems with less destructive consequences.

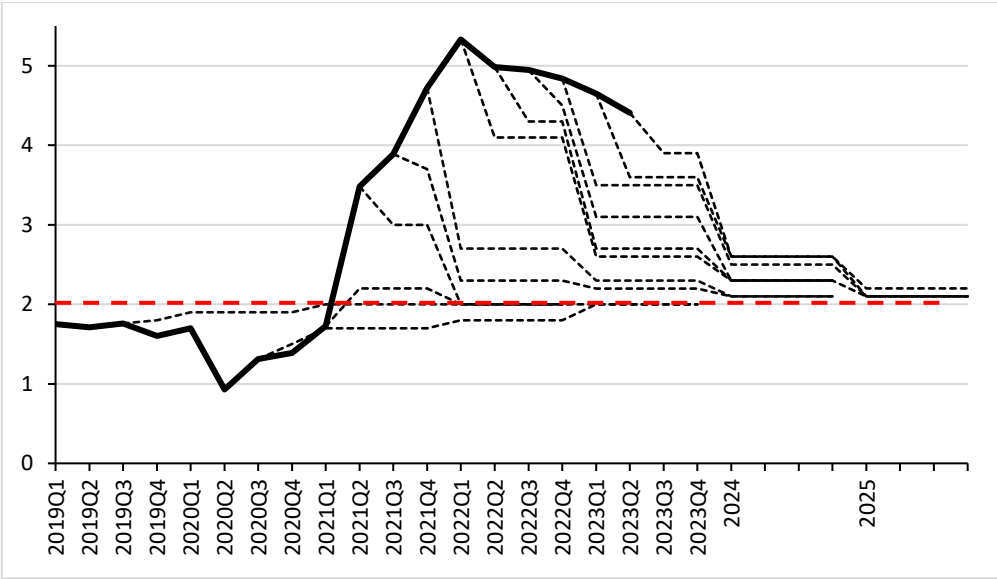
A special form of carnival

A first thing to note is that almost all interest-rate-setters failed to foresee that inflation would ever rise. Having missed its take off, they then overestimated the speed of its decline (see [Giles 2023](#)). Economists at the Bank of England and the European Central Bank (ECB), for example, underestimated the scale and persistence of inflation. The [ECB \(2024a\)](#) even issued a *mea culpa*. The [IMF \(2023\)](#) has also openly acknowledged forecasting “misjudgements” (Koch and Noureldin 2023) — although this openness did not appear in any of its flagship

reports (Giles 2023). But they were hardly alone: across the world, central bankers made poor forecasts, both when inflation rose and when it fell. It is, therefore, not unfair to label the Jackson Hole meetings of 2022 and 2023 as festivals of mistakes – modern forms of the carnivals celebrated by Mikhail Bakhtin and other literary scholars for their colorful inversions of reality.

Treating Jackson Hole as a monetary cognate of Mardi Gras, or perhaps, the Mexican Day of the Dead, makes the detachment of its rhetoric from reality much easier to appreciate. Consider, for example, the *Summary of Economic Projections* (SEP) of the Federal Open Market Committee (FOMC) of the Federal Reserve (Figure 5). The FOMC did not anticipate the surge in the core PCE inflation that started in 2021 and consistently projected the inflation rate to decline rapidly to its 2 percent target rate. Instead, inflation continued to increase in the following quarters. Mohamed El-Erian, president of Queens’ College, Cambridge, and an adviser to Allianz, labelled the Federal Reserve’s original forecast that high inflation would be “transitory” as “one of the worst calls in decades”.

Figure 5
The U.S. core PCE inflation rate and the inflation forecast of the Summary of Economic Projections (SEP) (dashed lines) of the Federal Reserve up to and during the inflation surge (2019Q1-2023Q2; percentages)



Source: Storm (2024); FRED database (*series* PCEPILFE) and Summary of Economic Projections of the Federal Open Market Committee (FOMC) of the Federal Reserve.
Notes: Inflation is measured using the personal consumption expenditures price index (PCEPI) excluding food and energy. The dashed red line is the 2% inflation target.

Why were Fed officials caught flat-footed and why did most professional forecasters have it wrong as well? In El-Erian's view, the inflation forecasting errors by the Fed could be blamed on models "failing to keep up with significant structural change in the economy" and group think. Other observers similarly put the blame on failing models (see Storm 2021). For instance, [Gita Gopinath \(2023\)](#), former first deputy managing director of the IMF, concurs, pointing out that "these models embedding a low Phillips curve slope did a poor job of explaining the pandemic-related surge in prices. Most inflation forecasts based on these models, including ours at the IMF, significantly underpredicted inflation." Model-consistent inflation expectations were completely off, in other words.

As is shown by Figure 5, the FOMC had to constantly update its short-run inflation expectations following the publication of the actual inflation numbers. This means that, in effect, the experts in the FOMC were forecasting inflation based on past inflation — in other words, in real life, the experts were looking backwards at past inflation, adaptatively forming their expectations of future inflation. As Fair (2021, p. 119) concludes, "The assumption [...] that inflation expectations depend only on past inflation, may be the best that one can do."

This carnival of forecast errors by the Fed and other central banks, raises important questions which go beyond just a reputational hit for the Fed. It is quite possible, for example, that the arrant failure of the central bankers left them reeling, driving them to over-compensate and *raise rates more aggressively than necessary*, if only to convince investors and their cheerleaders in academia, thinktanks and the press of their commitment to low inflation. Central bankers needed to cover their backs according to FT's [Chris Giles \(2024\)](#)

The critical issue for economic theory and policy is this: if even the top-experts at the Fed and other professional forecasters cannot adequately predict short-run inflation following the pandemic and the Ukraine war, why would one expect the public — workers and corporations — to base their decisions on the erroneous model-consistent forecasts of these experts? Why on earth would rational economic actors take decisions based on model-consistent inflation expectations ... if the model itself is obviously wrong?

Which measure of inflation expectations, please?

Reflecting on one apparently simple, almost trivial, issue transports one quickly to the heart of the problem with inflation-expectations theories of inflation containment. Beyond obvious cases of hyperinflation, (where details will hardly matter), just which measure of expected inflation is the right one?

Federal Reserve economists Hie Joo Ahn and Chad Fulton (2020) identify 21 contenders of varying plausibility. Inflation expectations indicators differ in terms of the horizon of the expectation, the source of data (survey versus market-based measures), and the associated inflation concept. It turns out that the different measures are often rather poorly correlated

(see Table 2). Short-horizon measures exhibit less correlation with other measures overall and in many cases are negatively correlated with long-horizon measures.⁴

This is a problem that could stump even the Reverend Thomas Bayes. Importantly, all measures of one-year-ahead inflation expectations indicators missed most of the surge in prices during 2021-2023 — this is shown in Figure 6. But it can also be seen that some measures were more wrong than others: the Michigan consumer inflation expectation measure tracked actual CPI inflation most closely, while Powell’s preferred indicator of one-year-ahead inflation — constructed by the Cleveland Fed — performed rather poorly. In fact, the actual CPI rose by 18.8% during 2021Q1-2024Q2, whereas the Cleveland Fed’s one-year-head price index increased by only around 10.2%.

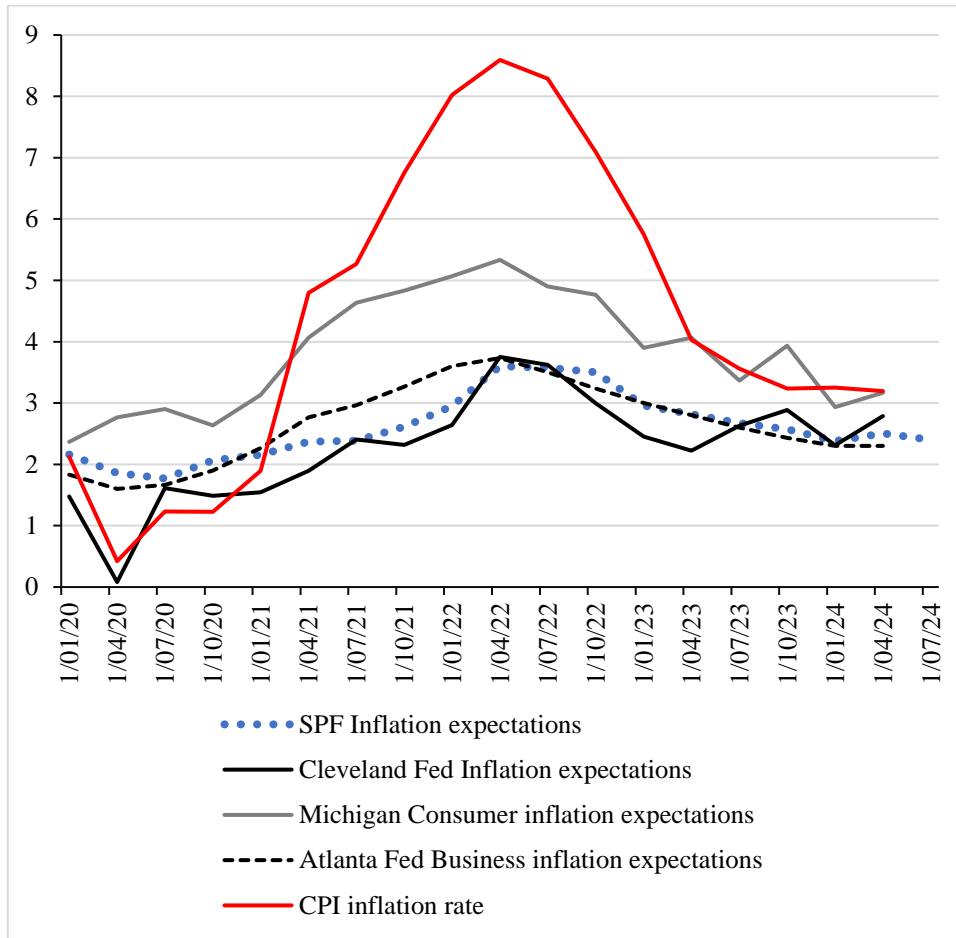
Table 2
Pairwise correlations between selected inflation expectation indicators

| | SPF (10y PCE) | SPF (10y CPI) | Blue Chip (7-11y CPI) | Michigan (5-10y Prices) | Michigan (1y Prices) | Blue Chip (1y CPI) | SPF (1y Core PCE) |
|-------------------------|---------------|---------------|-----------------------|-------------------------|----------------------|--------------------|-------------------|
| SPF (10y PCE) | 1 | | | | | | |
| SPF (10y CPI) | 0.82 | 1 | | | | | |
| Blue Chip (7-11y CPI) | 0.62 | 0.70 | 1 | | | | |
| Michigan (5-10y Prices) | 0.51 | 0.60 | 0.46 | 1 | | | |
| Michigan (1y Prices) | 0.46 | 0.17 | -0.17 | 0.59 | 1 | | |
| Blue Chip (1y CPI) | -0.17 | 0.34 | 0.33 | 0.23 | 0.10 | 1 | |
| SPF (1y Core PCE) | -0.26 | -0.12 | -0.49 | -0.22 | 0.17 | 0.65 | 1 |

Source: Ahn and Fulton (2020).

⁴ The late Edward J. Kane made a related point long ago, adding that the proliferation of possible measures left central banks freer to do what they wanted.

Figure 6
CPI Inflation and One-Year-Ahead Inflation Expectations



Source: FRED data.

In cumulative terms, the Cleveland Fed’s expected price increase during 2021-2024 ‘missed’ circa 45% of the *actual* rise in the CPI. If we make the palpably unrealistic assumption that America’s workers are unionized and based their bargaining strategies on the Cleveland Fed’s one-year-ahead expected inflation projection, they would have done far better by assuming that expected inflation would be equal to the past-period’s inflation. But in reality, workers do not have this wage bargaining power, which reduces the macroeconomic importance of measures of expected inflation even further.

The myth of the looming wage-price spiral

In an attempt to reclaim the narrative on the recent painful inflationary episode and burnish the Fed’s tarnished reputation, Fed Chair Powell suggests that the Fed’s monetary tightening during 2022-2024 prevented the reappearance of that nightmare of all nightmares: the wage-price inflation spiral. Of course, the suggestion is not made explicitly. Instead, using Econspeak, Powell argued that the Fed deserves credit for the fact that inflation expectations

in the U.S. remained well anchored, which in turn means that the Phillips curve stayed put and did not ‘drift up’ — as arguably happened during the 1970s. He even used this argument to justify the Fed’s belated response to the acceleration of inflation during 2021-22, pointing out that “standard thinking has long been that, as long as inflation expectations remain well anchored, it can be appropriate for central banks to look through a temporary rise in inflation.”

Powell’s stance is surreal. Most observers will look at Figure 6 and conclude that inflation expectations, including those constructed by the Fed, were significantly wrong. Powell looks at Figure 6 and concludes that one-year-ahead inflation expectations remained anchored and did not drift upward. The question is where to begin. The problem of seriously engaging with Powell’s stance is fundamental, as was already clearly explained by Robert Solow (1983, p. 146):

“Suppose someone sits down where you are sitting right now and announces to me that he is Napoleon Bonaparte. The last thing I want to do with him is to get involved in a technical discussion of cavalry tactics at the Battle of Austerlitz. If I do that, I’m getting tacitly drawn into the game that he is Napoleon Bonaparte.”

Instead of a technical discussion of cavalry tactics at the Battle of Austerlitz, we need to look carefully at the mechanics of the stylized wage-price inflation model that is implicit in Powell’s reasoning. We think that the model of Bernanke and Blanchard (2023, 2024) fits the bill: it reflects accepted macro thinking and is cited by Powell (2024).

The heart of this model is an inflation equation in which the inflation rate depends on the growth of unit labor cost and the growth of unit non-labor cost (which include profits). Unit labor cost growth is the difference between nominal wage growth and (exogenous) labor productivity growth. It follows that an increase in nominal wage growth raises the inflation rate. The question is: which factors drive nominal wage growth?

Nominal wage growth is assumed to depend on the short-run (one-year-ahead) expected inflation rate and some measure of labor market slack/tightness (usually the unemployment rate, but in some more recent approaches, the job vacancy ratio). Mathematically, the equation has a straightforward message: an increase in the expected inflation rate will raise nominal wage growth one for one. Economically, for this equation to hold true, it must be assumed that American workers have enough wage-bargaining leverage (over firms) to protect their real wages in the face of increases in short-run expected inflation.

This is clearly unrealistic. For the inflation-expectations mechanism to work, one has to assume a worker wage bargaining power that evidently does not exist in the U.S. (Ferguson and Storm 2023). The causes of the structural loss of worker power in the U.S. have been well documented. To repeat:

“First, institutional changes: the policy environment has become less supportive of worker power by reducing the incidence of unionism and the credibility of the “threat effect” of unionism or other organized labor, and the real value of the minimum wage has fallen. Second, changes within firms: the increase in shareholder power and

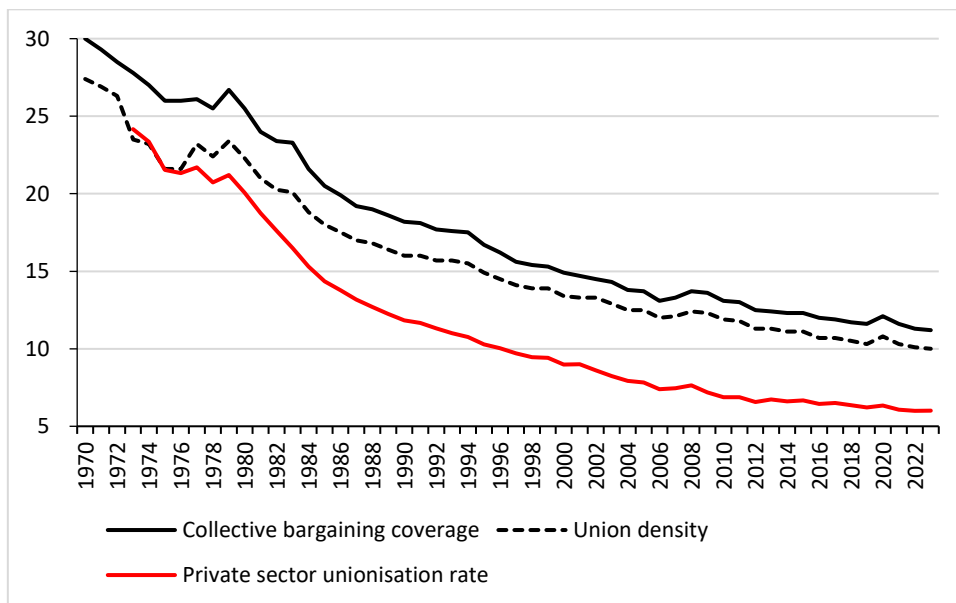
shareholder activism has led to pressures on companies to cut labor costs, resulting in wage reductions within firms and the “fissuring” of the workplace as companies increasingly outsource and subcontract labor. And third, changes in economic conditions: increased competition for labor from technology or from low-wage countries has [...] has improved employers’ outside option” (Stansbury and Summers 2020, p. 2).

Outside of a few unionized industry segments (mostly in the public sector), formal wage bargains—in the sense of a structured negotiations over pay for the coming year—are close to extinct in the United States. The world of pattern bargaining is long gone. As is shown in Figure 7, fifty years ago 30% of American workers were covered by formal wage bargains. By 2023, that percentage had fallen to just 11.2%, nearly all of whom were union members.⁵ In the private sector, the percentage is even lower: a mere 6% of all workers belong to unions. The Biden administration’s much touted friendliness to organized labor (which we fully credit) did not alter these trends: union membership as a percentage of the total workforce has fallen every year and now stands at the lowest rate ever recorded since the Bureau of Labor Statistics began publishing the figures in modern form (BLS, 2024). Over time, job insecurity rose, pay stagnated, and pension coverage withered as workplaces fissured and large corporations shed their role as direct employers in favor of outsourcing work to small companies that compete fiercely with one another (Weil 2014).

All the forces that traditionally counterbalanced firms’ monopsony power and boosted workers’ bargaining power have been weakened in recent decades: Employment protection laws have become looser, the minimum wage has decreased in real terms, the number of workers in the gig economy rose, shareholders have become far more demanding and powerful, and globalization has made workers more vulnerable to threats of job loss due to delocalization.

⁵ According to the BLS, in 2023 10% of the total workforce were union members; another 1.2% were covered by contracts but not union members.

Figure 7
Union density and collective bargaining coverage: The U.S. economy
(1970-2023) in percent



Sources: Data on (aggregate) union density (1960-1982) from Mayer (2004); data on (aggregate) union density (1983-2023) from Bureau of Labor Statistics; data on collective bargaining coverage from OECD Statistics. Data on private sector union density are from Hirsch, Macpherson and Even (2023). The data for 1982 have been obtained by means of interpolation.

Job insecurity has become an endemic part of American working life, even though the official unemployment rate is low. In the U.S., most employment is “at will” and changes in the cost of living will enter nominal wages as part of an employer’s attempt to retain workers, but there is no real scope for direct negotiation (Rudd 2022). In the face of a flood tide of political money from businesses and billionaires, union political contributions in federal elections have failed to keep pace. They now clock in at lilliputian levels: approximately 7% of all political money (Ferguson, Jorgensen, and Chen, 2022).

So much for “countervailing power.” The conclusion is clear: the assumption that an increase in the short-run expected inflation rate will one-for-one raise nominal wage growth is empirically untenable.

But we can go one step further and battle Napoleon on cavalry tactics. That is, we can show that the logic of the accepted wage-price inflation model is flawed *in its own terms*. For clarity’s sake, we will do this in the following steps.

First, going by his public statements, Powell’s greatest worry was that the public’s short-run inflation expectations would become unanchored. In plain terms, he was concerned that workers and firms would not trust that the Fed would be capable of (soon) bringing down the elevated inflation rate and would expect one-year-ahead inflation to become even higher.

Second, fearing further increases in inflation, workers would claim higher nominal wages, which would further raise prices — and turn the wage-price dynamics into a self-fulfilling wage-price spiral, since these price increases further raise inflation expectations and, hence, nominal wages.

But Figure 6 shows that measures of one-year-ahead inflation expectations did not increase very strongly, notwithstanding the sharp acceleration of the actual inflation rate (to a peak of 8.6% in the second quarter of 2022). This means that inflation expectations did not play a significant role in the recent inflation process — exactly what is shown by the analysis of the IMF (2024) pictured in Figure 4.

In Jackson Hole’s Mardi Gras understanding of the world, the ‘stickiness’ of short-run inflation expectations is evidence of the considerable trust of the American public in the inflation-fighting capabilities of the Federal Reserve. That is, the U.S. public did not raise inflation expectations significantly, even while actual inflation was rocketing, because the aggressive monetary tightening by the Fed reinforced the Fed’s already credible reputation, supposedly based on the historical record, in controlling inflation.

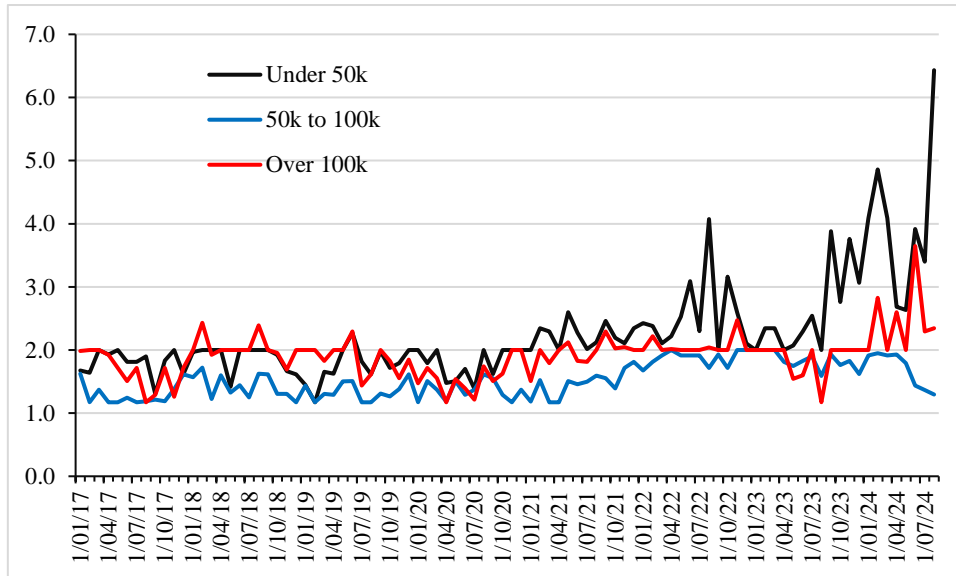
As we already argued above, the ‘stickiness’ of inflation expectations may have had an altogether different and more prosaic cause, namely: forecasting errors and a failure to foresee the uncertain future. This explanation is convincing, because the forecasting errors were made by experts, including those working at the Fed.

But leaving this alternative explanation aside, Powell’s claim defies all logic. On the one hand, he assumes that U.S. workers have the bargaining power to claim higher nominal wages in response to an increase in their forward-looking inflation expectations. But on the other hand, he appears to think that these workers did not raise their inflation expectations, which they could have done, because they continued to believe that the Fed would bring down the inflation rate very soon. If we assume that U.S. workers bargain for wage growth based on the Cleveland Fed’s one-year-ahead inflation rate, then these same workers would have suffered a decline in their real wages by circa 5 percentage points over a period of only 2½ years, just because of the Cleveland Fed’s failure to foresee the actual surge in CPI inflation.

It is simply not believable that U.S. workers, assuming to begin with that they possess wage bargaining power (which they do not have in reality), are willing to suffer real wage declines for prolonged periods of time (e.g., during 2021Q2-2023Q4) when deciding on the nominal wage rate, just because they remain stubbornly convinced that the one-year-ahead inflation rate published by the Cleveland Fed is correct. It is not just unbelievable, but also an affront to the majority of American workers, who have been struggling to pay for their daily expenses and were forced to live pay check to pay check during the pandemic-era inflation.

Empirical evidence, ironically evidence provided by the Fed itself, shows that America’s low-income workers do not believe the Fed. As is shown in Figure 8, once monetary tightening started, New York Fed survey data show that workers earning less than \$50,000 per year immediately became much more uncertain about their earnings growth than more affluent Americans. They clearly did not believe in the ability of the Fed to engineer a soft landing of the U.S. economy, while being powerless in the face of rising prices.

Figure 8
Earnings growth uncertainty:
Median one-year ahead uncertainty by income class
(January 2017 – August 2024)



Source: New York Fed Survey of Consumer Expectations. Link:

<https://www.newyorkfed.org/microeconomics/sce.html#/earnexp-6>

Our venture into Powell’s cavalry tactics leads us to a paradoxical conclusion. Either we assume (following the accepted model) that American workers do have the bargaining power to raise their nominal wages in response to higher inflation expectations. In this case, workers behaved foolishly by basing their inflation expectations on the Cleveland Fed’s one-year-ahead inflation expectations measure instead of on the actual inflation rate of the previous period. Or, alternatively, we assume that American workers do not have the bargaining power to raise wages, in which case short-run inflation expectations do not matter as a causal factor driving the actual inflation process at the levels recently experienced.

Why did inflation fall without a recession?

The U.S. inflation rate actually fell because global supply-side constraints eased with the passage of time and food and energy prices declined. The dollar appreciation helped by lowering the U.S. dollar cost of imports and by weakening export demand for American goods. The Biden administration also released stocks from the strategic petroleum reserve at key moments and made fitful efforts to resolve chaos at ports. But a major reason why U.S. inflation fell is that the real wages of U.S. workers took a hit. That is, the inflationary process slowed down and the inflation rate declined, because America’s workers were, in general, unable to raise their nominal wages in line with the rise in the cost of living. Falling real

wages absorbed the shock to the price level, unlike in the 1970s, when U.S. workers (and unions) could still protect their real wages against rising inflation.

Let us first consider the evidence for the recent period 2021Q1 – 2024Q2 in Figure 9. Real wage growth is defined in terms of the growth rates of average real hourly earnings and of the Employment Cost Index (ECI – another popular measure of earnings that includes benefits). It is clear that as soon as CPI inflation goes up, real wage growth goes down. The cumulative loss in average real hourly earnings during the first quarter of 2021 and the second quarter of 2024 is 4.3% — as is shown in Figure 10. The cumulative decline in the real ECI is 3%.

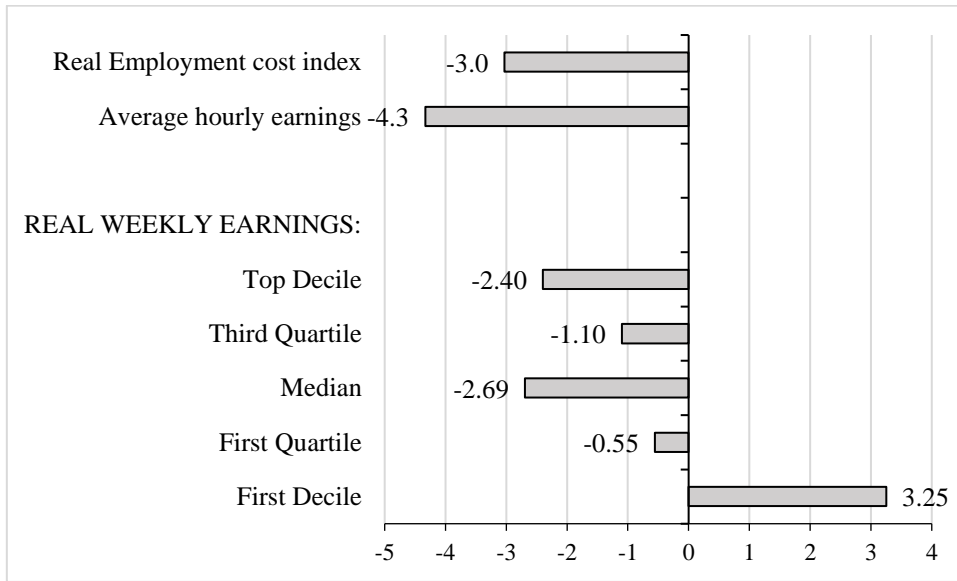
Figure 9
Growth rate of real hourly compensation and the CPI inflation rate
(2021Q1 – 2024Q2)



Source: BLS data and FRED database.

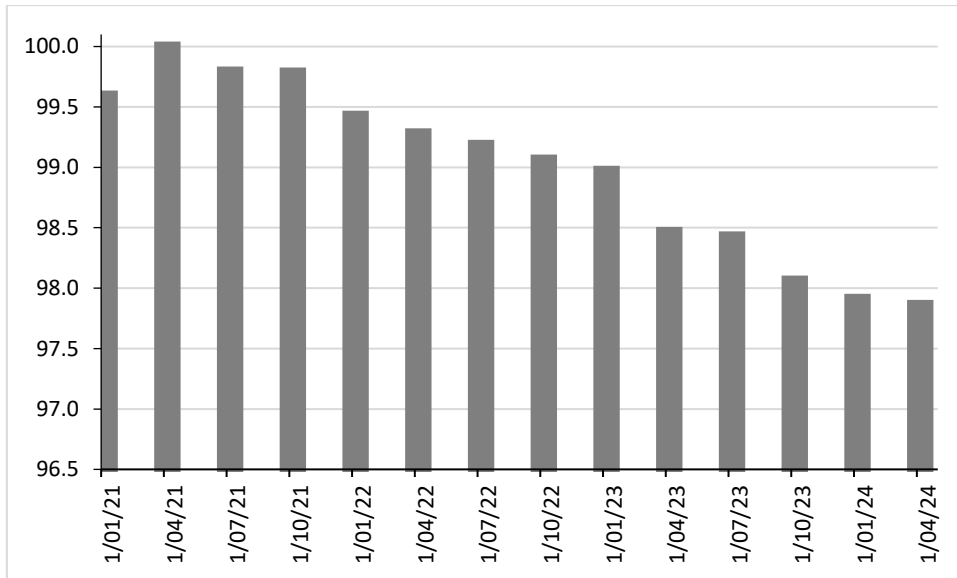
Median real weekly earnings also suffered a cumulative decline — by 2.7% during 2021Q1-2024Q2. Weekly earnings directly capture changes in hourly earnings as well as in hours worked per week. The changes in hours worked are not negligible – they declined on average between 2021-2024Q1, with the fall accelerating in recent quarters — as is shown in Figure 11 (see also Ferguson and Storm 2024).

Figure 10
Cumulative change in real wages (2021Q1 – 2024Q2)



Source: BLS data and FRED database. Deflated using the CPI.

Figure 11
Change in Average Weekly Hours Worked:
All Workers in the Non-Farm Business Sector (2021Q1 – 2024Q2)
(2017 = 100)



Source: FRED database.

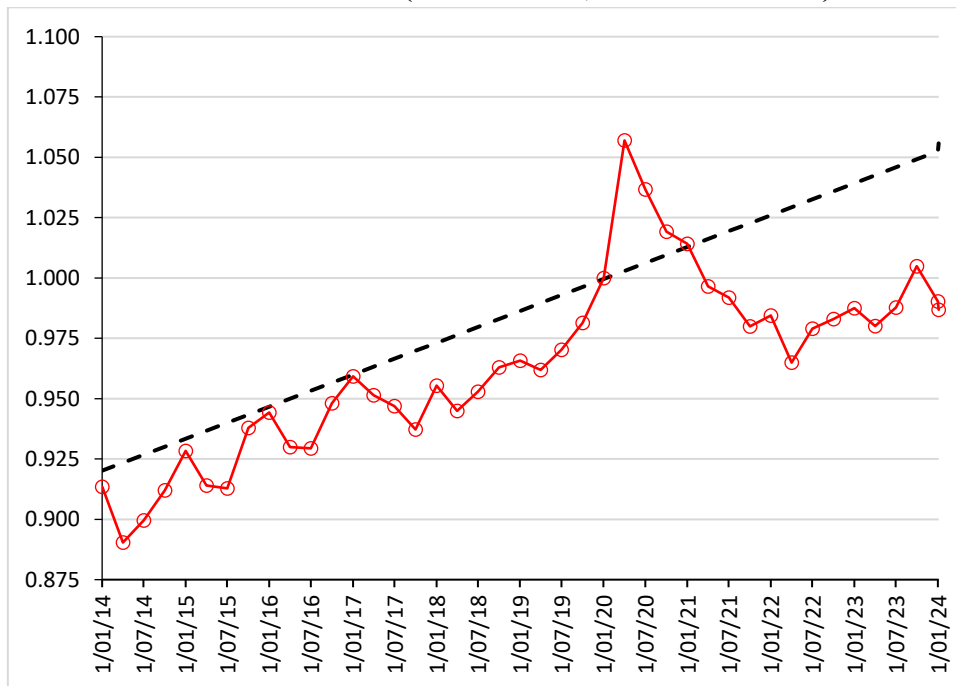
Figure 10 shows that all American workers, except the lowest paid belonging to the bottom decile of the American wage distribution, took a hit during 2021Q1-2024Q2. Workers in the bottom decile experienced a real income increase during the recent inflationary period. Their

real weekly earnings rose by a cumulative 3.25% during the thirteen quarters of 2021Q1-2024Q2 — or by around \$ 0.44 per hour of work (in constant 2017 consumer prices).

We have argued elsewhere against claims, e.g., by Autor *et al.* (2023), that COVID or the advent of the Biden administration ushered in a radical structural transformation of the U.S. labor market in favor of the least advantaged workers. Because this sweeping claim received so much media attention, doing the rounds in Washington thinktanks and policy circles, it is worth re-examining in more detail, using recent data. This is what we do in Figures 12 and 13. Autor *et al.* (2023) conclude that (using data on *hourly* earnings from the Current Population Survey through December 2023), the real *median* wage is higher than what would be expected based on trends from the five years prior to the pandemic (2014-2019). We have shown that this claim does not hold true when one uses the more comprehensive measure of real weekly earnings instead of hourly earnings (Ferguson and Storm 2024). We have updated our analysis to the second quarter of 2024 and, as Figure 12 shows, the real median wage has stagnated during 2021-2024Q2 and is considerably below its pre-pandemic trend. (According to our estimates, the real median wage in 2024Q2 is 7% lower than what it would have been based on its pre-pandemic trend.)

Figure 13 plots the evolution of the real weekly earnings of the bottom 10% of American workers against its pre-pandemic trend (estimated based on quarterly data for 2014Q1-2019Q4). It can be seen that real weekly earnings of the lowest wage earners grew along its pre-pandemic trend during 2021-2023 but have been declining during the first six months of 2024. It is impossible to see this (and Figure 12) as evidence of a radical structural transformation of the U.S. labor market in favor of lower-paid workers.

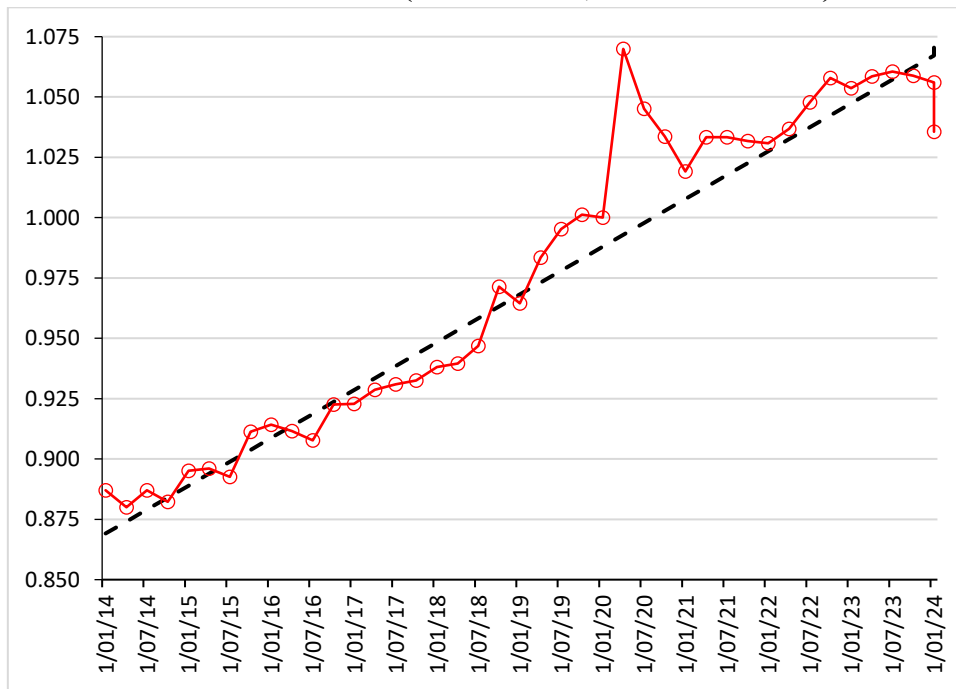
Figure 12
Real Wages at the Middle:
Median Usual Weekly Real Earnings of Wage and Salary Workers,
16 Years and Over (2020Q1 =1.0; 2014Q1-2024Q2)



Source: Calculated based on FRED database.

Instead, we have shown that those very modest earlier real gains for the bottom 10% of workers are best considered as the result of a ‘repricing’ of jobs in essential activities with more exposure to infections, no options for social distancing and close proximity to others that suddenly became hazardous due to COVID19 (Ferguson and Storm 2023, 2024).

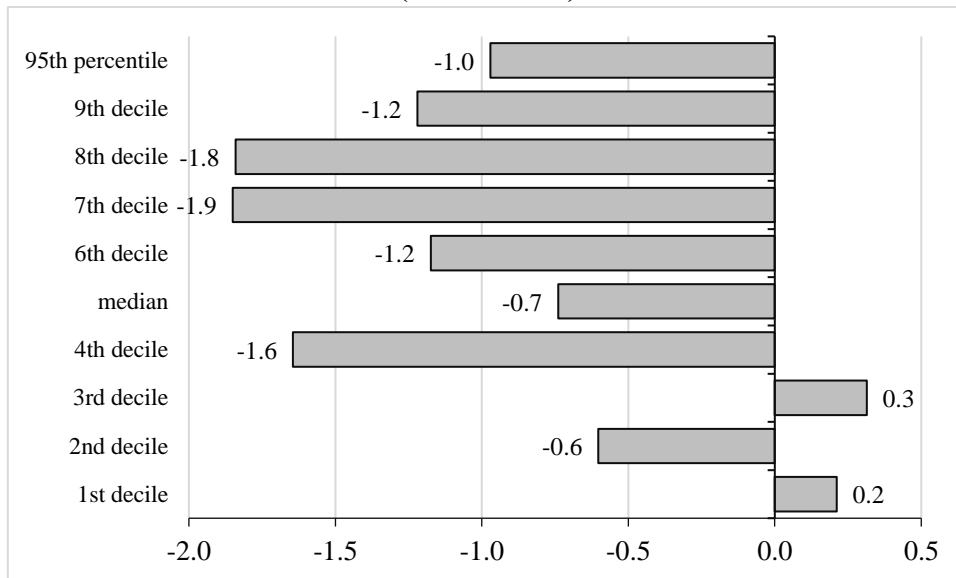
Figure 13
Real Wages at the Bottom: Usual Weekly Real Earnings of the Bottom 10%
of Wage and Salary Workers,
16 Years and Over (2020Q1 =1.0; 2014Q1-2024Q2)



Source: Calculated based on FRED database.

Wages and salaries make up an important part of household incomes, alongside government social benefits (which include social security benefits, Medicare and Medicaid and unemployment benefits). Declining real wages did have a negative impact on real household incomes, which was only partly offset by government social benefits. As a result, median real household income in the U.S. has declined during 2019-2023 (Figure 14) and real incomes have fallen for households in almost all income deciles (Ferguson and Storm 2024 and Census, 2024). The evidence is indisputable: American household incomes have absorbed a substantial part of the recent price shock.

Figure 14
Change in Real Household Income by Decile
(2019 – 2023)

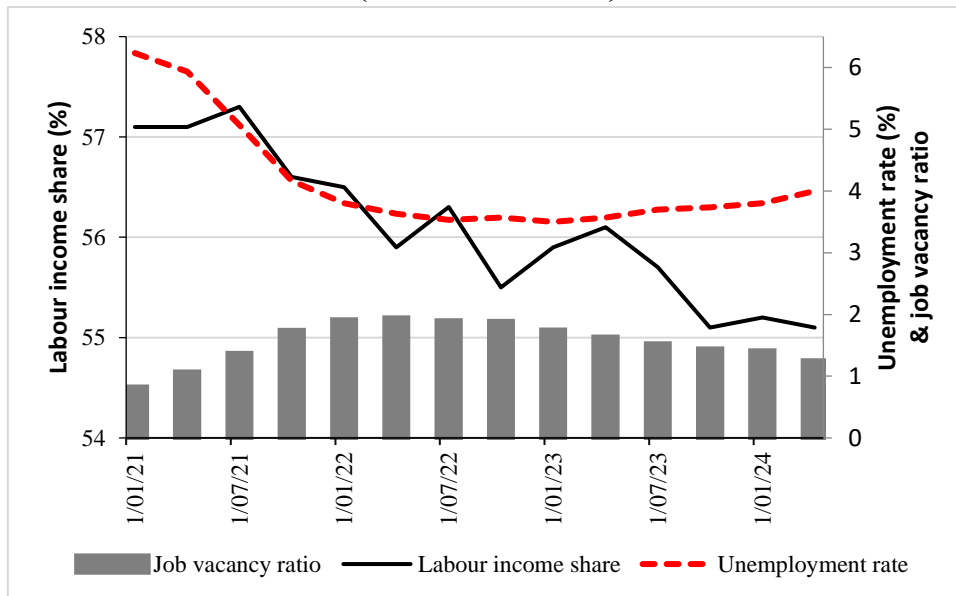


Source: FRED database and Census (2024), *Income in the United States 2023*.

In line with the decline in real wages (in Figure 10), the labor income share also decreased — from 57.1% in 2021Q1 to 55.1% in 2024Q2 (see Figure 15). What is remarkable, however, is that (average) real wages declined and the labor income share fell during a period of time in which the unemployment rate was exceptionally low (*i.e.*, below 4%) and the job vacancy ratio (*i.e.*, the ratio of the number of vacancies per unemployed worker) was extraordinarily elevated.

In fact, the vacancy ratio rose to an unprecedented level of almost two job openings per unemployed worker in the second quarter of 2022 and has remained almost twice as high as its long-run average value of 0.65 job openings per unemployed worker during 2023-2024 (see Figure 18 below). This means, and this may appear paradoxical, that American workers (with the exception of the poorest-paid 10%) failed to protect their real wages during the recent surge in inflation, right at the time when the U.S. labor market was widely held to be ‘super-tight’ and strongly ‘overheated’.

Figure 15
Labor income share, the unemployment rate and the job vacancy ratio
(2021Q1 – 2024Q2)



Source: BLS data and FRED database.

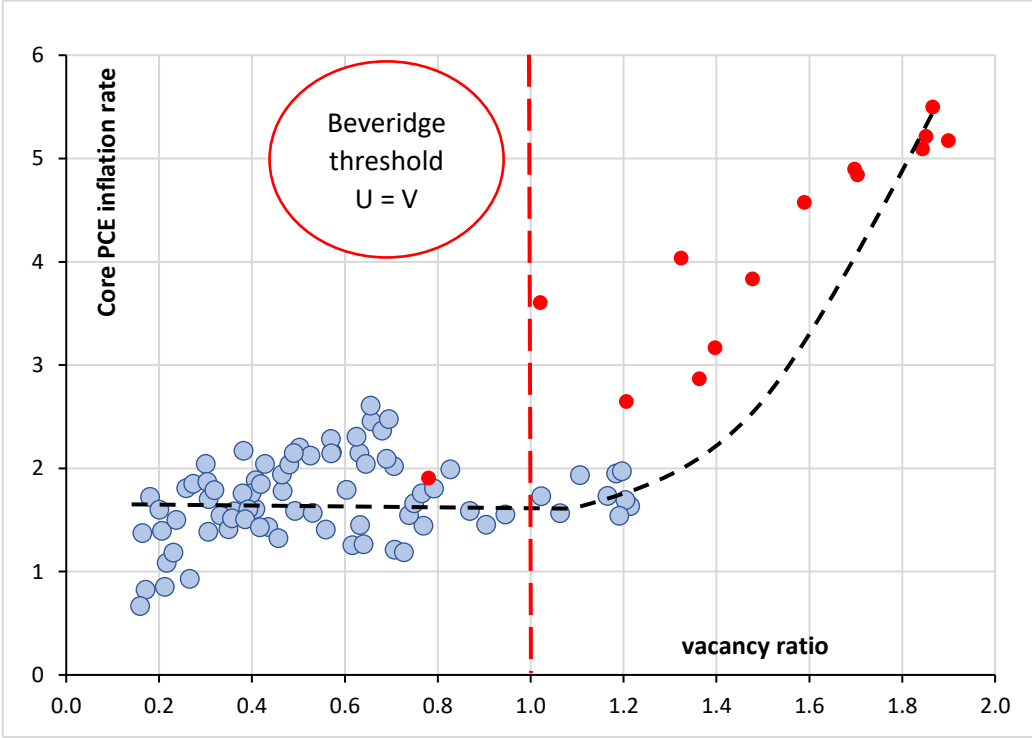
The paradox is only apparent, however. The reality is that structural loss of bargaining power of U.S. workers just described leaves American workers unable to protect their real wages against the onslaught of rising prices, rising profit margins and rising interest rates, even in a supposedly ‘red-hot’ labor market. This is the sad truth. Perversely, instead of acknowledging that workers took the hit and cushioned the inflation, the Fed has been trying to bamboozle public opinion by blaming those most hurt by the inflation for a non-existent wage-price spiral, while congratulating itself (the Fed) for being so tough on inflation that inflation-expectations remained anchored. And, paraphrasing Keynes, it is easier to bamboozle than to debamboozle the public. The most recent skulduggery coming out of Jackson Hole involves the invocation of a novel concept called the ‘Beveridge threshold’.

The Beveridge threshold

Many prominent economists, including, notably, [Lawrence Summers](#), predicted it would take years of punishingly high unemployment to bring inflation back down. But these dire predictions have not been borne out. So far, the U.S. economy is experiencing a relatively soft landing. The consensus view among the central bankers gathered in Jackson Hole holds that monetary tightening contributed to a cooling off of the ‘red hot’ labor market, as is shown by the drop in job openings per unemployed workers (the job vacancy ratio). The groupthink among central bankers is perfectly captured by the [paper](#) of Pierpaolo Benigno and Gauti Eggertson (2024) that Eggertson presented at the Jackson Hole meeting in August 2024.

The essence of the argument made by Benigno and Eggertson is illustrated in Figure 16 in which we plot the job vacancy ratio against the core PCE inflation rate (using observations for the period 2001Q1-2024Q2). It is clear from the figure that higher vacancy rates coincide in time with higher rates of inflation — but graphs can be misleading and the coincidence could well be spurious, as is shown in tongue-in-cheek Figure 17.

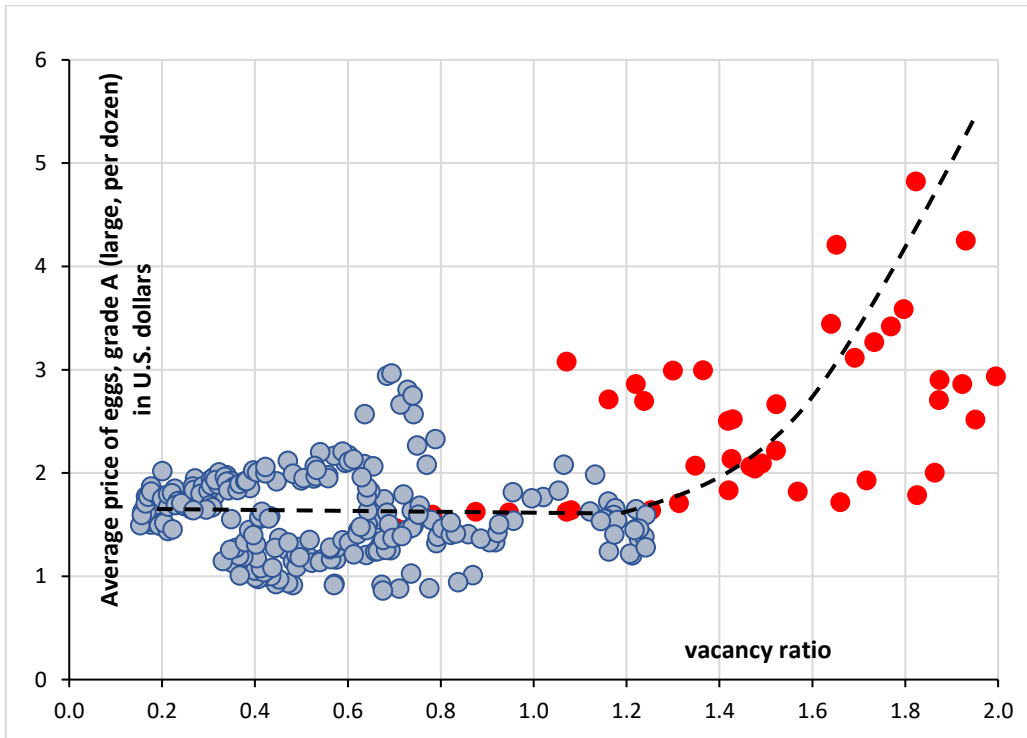
Figure 16
The job vacancy ratio *versus* the core PCE inflation rate
(2001Q1-2024Q2)



Sources: Storm (2024); constructed by the authors based on FRED data.

Figure 17 plots the monthly job vacancy ratio against the nominal egg price during January 2001 – July 2024. We observe a pattern very similar to the one visible in Figure 16. Even the Beveridge threshold appears to work: as soon as the vacancy-unemployment ratio exceeds 1, egg prices begin to rise. It should be clear that the observed pattern is spurious, since there is no causal relationship between the aggregate vacancy ratio and egg prices — even though [Jason Furman](#) might disagree. The steep increases in egg prices in especially the year 2022 did not come as a result of Fed tightening. While chickens perhaps may be said to have come home to roost, hens did not suddenly stop laying eggs because the Fed increased interest rates. The rise in egg prices arose from peak cost increases in fuel and feed, as explained by [James Galbraith and Isabella Weber](#) (2024). In addition, the [ongoing bird flu outbreak](#) (which started in February 2022) reduced the number of egg-laying chickens, as U.S. farmers had to euthanize thousands of egg laying hens to contain the outbreak. By January of 2023, nearly 45 million egg laying hens were lost during this outbreak which led to a decline in egg supply by 15%.

Figure 17
The job vacancy ratio *versus* the average price of eggs, grade A per dozen
(January 2001 – July 2024)



Source: FRED data base.

Figure 17 does hold an important lesson while interpreting Figure 16, though: similar to the increases in the price of eggs, the steep increases in the core PCE inflation rate during 2022-2023 were related to sharp increases in fuel, food and feedstock prices and shortages (in the egg case: caused by the outbreak of avian influenza) — as is shown by Bernanke and Blanchard’s findings in Figure 3.

Benigno and Eggertson (incorrectly, as we shall see) interpret the visual pattern of Figure 16 as a causal relationship. That is, in their worldview, a vacancy ratio in excess of 1 (which is when the number of job openings is equal to the number of unemployed workers) reflects a tight labor market; a tight labor market must, in their view, inescapably lead to higher nominal wage growth; and higher nominal wage growth must lead to a higher rate of inflation. In other words, their — implicit — model is a wage-price inflation model in which workers have sufficient bargaining power to push through nominal wage increases when the labor market is tight.

It should be clear that the dashed curve in Figure 16 is a resuscitation of the decades-old Phillips curve, but with a theoretical twist. The novel Phillips curve is strongly non-linear: it is flat (‘horizontal’) for as long as the vacancy ratio is smaller than 1, then it suddenly steepens once the vacancy ratio exceeds unity and the economy supposedly enters a ‘labor shortage’

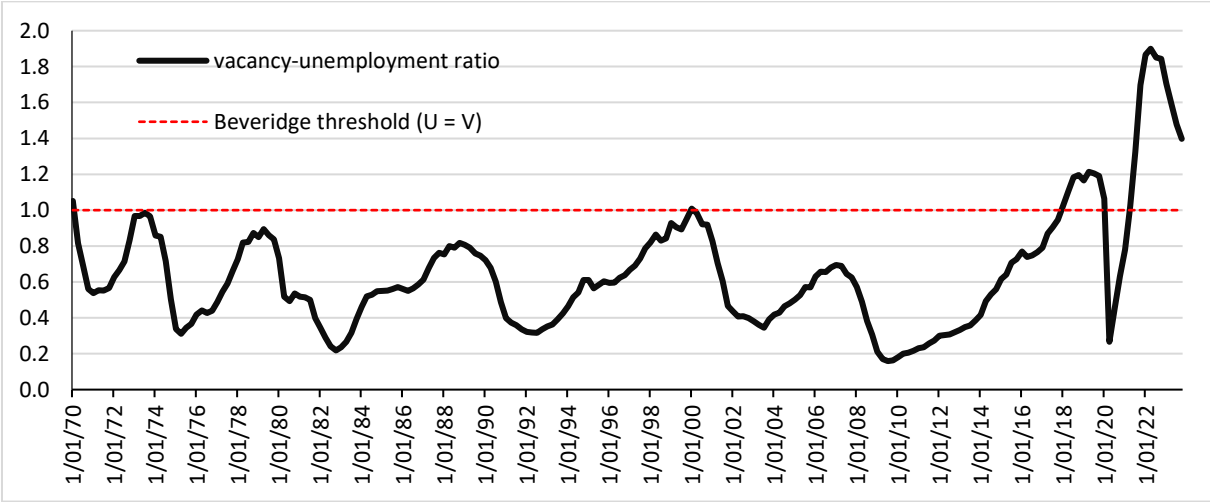
regime. In a rather jolly turn of phrase, Benigno and Eggertson (2024) call the point where there is one job opening for every unemployed worker, the Beveridge threshold. The threshold is named after William Henry Beveridge (1879-1963) who helped shape Britain’s post-World War II welfare state policies and institutions. The Beveridge threshold is indicated in Figure 16. When asked about the Beveridge threshold by the New York Times, Eggertson responded: “That was something I am quite proud of having introduced just now [...] I’m hoping it will catch on because I think it’s a nice phrase.” (Coy 2024).

Based on their Phillips curve augmented with the Beveridge threshold, Benigno and Eggertson argue that monetary tightening cooled off the ‘red hot’ labor market through a drop in job vacancies rather than through an increase in the number of unemployed. And because the novel Phillips curve steepens so strongly beyond the Beveridge threshold, relatively small drops in the vacancy ratio are associated with relatively large declines in the inflation rate. It is thus easy to understand why Benigno and Eggertson’s paper was so warmly received by the central bankers in Jackson Hole. The paper credits them with orchestrating the remarkable feat of a soft landing of the economy.

Unfortunately, the analysis of Benigno and Eggertson is much less convincing outside the Jackson Lake Lodge in Grand Teton National Park, Wyoming. One stumbling block concerns the evidence concerning the Beveridge threshold.

Figure 18 presents long-run evidence on the vacancy ratio for the U.S. (1970Q1-2024Q2). This evidence is instructive. It can be observed that the vacancy ratio did not exceed 1 (the Beveridge threshold) during a period of 48 years (or 192 quarters): 1970Q1-2017Q4. Second, the vacancy-unemployment ratio rose beyond the Beveridge threshold during the nine quarters of 2018Q1-2020Q1 without triggering a notable rise in the inflation rate. The Phillips curve did not steepen then, in other words.

Figure 18
The vacancy-unemployment ratio: the U.S. economy
(1970Q1-2024Q2)



Source: FRED database.

The vacancy ratio dropped below 1 during 2020Q2-2021Q1 and finally rose to a level of almost 2 job openings per unemployed worker during 2022. Taken together, the number of vacancies was lower than the number of unemployed workers in 196 quarters out of 218 quarters during 1970Q1-2024Q2, or about 90% of the time during this period of more than 54 years. The vacancy ratio did not rise above 1 in earlier times of rapid economic growth and low unemployment (such as the second half of the 1990s).

This should have raised an alarm: why do we observe this historically idiosyncratic rise in the vacancy ratio (above the threshold of 1) during 2021Q2-2024Q2? How reliable are the recent job opening numbers? Did anything change in the world of recruitment and job search? We have observed before that resorting to data about job vacancies became popular among mainstream economists as the much-touted Phillips Curve relation between unemployment and inflation broke down. And that a close look at U.S. data raises deep [doubts about these data's reliability](#) over time. Federal Reserve economists [Mongey and Horwich \(2023\)](#) have noted these problems as well, pointing out that the data on U.S. job openings have become disconnected from other indicators, seriously complicating the labor market outlook.

One plausible factor in skewing the job openings rate (and the vacancy ratio) is that digital technologies have dramatically lowered the cost to employers of job posting, recruiting, and evaluating candidates. As firms have become familiar with using the internet, they have begun experimenting with strategic uses of their newfound powers. Over time, the result has been an increase in dubious postings. Recent survey evidence suggests that many firms now advertise positions with no intention of any imminent hiring (Ferguson and Storm 2024b).

For instance, an August 2024 [survey](#) of more than 700 recruiters in the U.S. reported that 81% of recruiters post ghost job adverts. When the weighting of these fake job adverts is calculated, [approximately 36% of jobs posted online](#)—more than a third—are actually not real vacancies. Such information allows them to track the replacement cost of their current workforce in real-time and remind current employees that they could be dispensed with.

Estimating the percentage of faux ads is hardly an exact science, but evidence suggests that they increased slowly in the years before the pandemic, [then shot up dramatically once COVID hit](#). The practice is now common enough to raise hackles among [job seekers \(and their counselors\)](#) who applied for positions they believed are being offered in good faith (Ferguson and Storm, 2024b).

Benigno and Eggertson (and others) treat these data with no sense of their fragility. They take no account of faux positions or their likely seismic increase once COVID hit. [We think](#) it is worthless as evidence about the real state of labor markets.

Figure 19 presents further evidence that contradicts the argument made by Benigno and Eggertson (2024) that got such a warm reception in Wyoming. Figure 19 plots quarterly nominal wage growth against the quarterly vacancy ratio for the long period 1970Q1-2024Q2. Quarterly nominal wage growth is measured by the growth rate of hourly compensation for all workers in the non-farm business sector. A simple regression shows that the vacancy ratio and nominal wage growth are not statistically significantly associated during this period of 54 years; the vacancy ratio and nominal wage growth are also not significantly correlated during the period

2001Q1-2024Q4. The observations in red are for the very recent period 2021Q1-2024Q2, and show exceptionally high job vacancy ratios (on the horizontal axis), but very average growth rate for nominal wages (on the vertical axis).

Figure 19
Nominal wage growth versus the job vacancy ratio
(1970Q1-2024Q2)

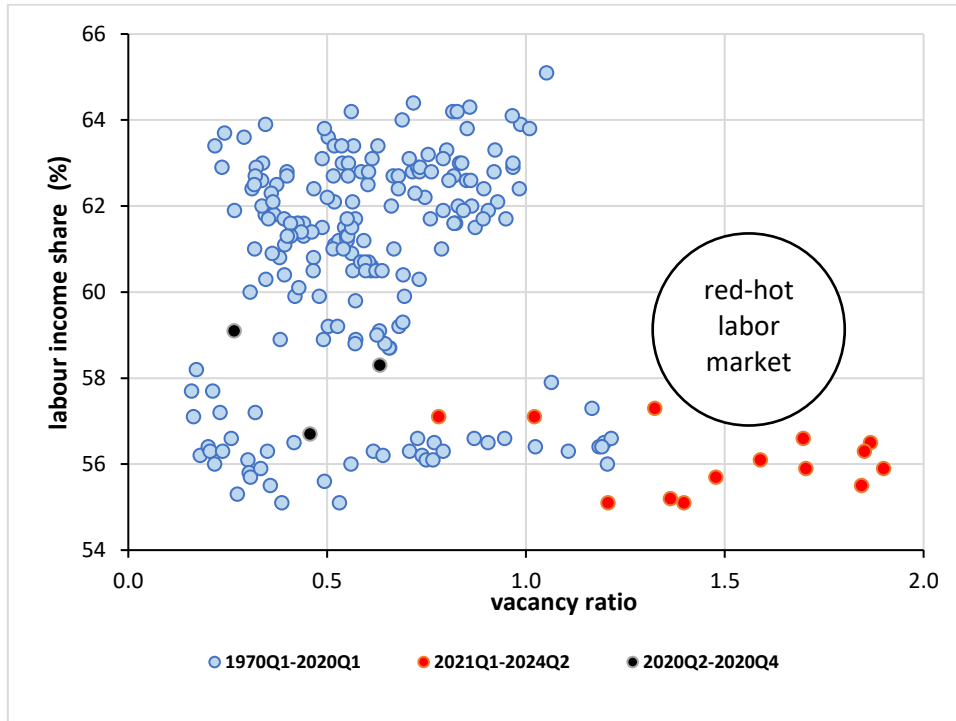


Sources: Calculated based on FRED database (*series* JTSJOL, UNEMPLOY and PRS85006101) and Barnichon (2010). *Note:* quarterly nominal wage growth is measured by the growth rate of hourly compensation for all workers in the non-farm business sector.

Figure 19 thus falsifies the hypothesis of Benigno and Eggertson that vacancy ratios exceeding the Beveridge threshold value of 1 ‘cause’ an increase in inflation because they are associated with increases in nominal wage growth. They are not — and the pattern shown in Figure 16 is spurious indeed. Benigno and Eggertson laid an egg.

Figure 20 hammers the final nail in the coffin of Benigno and Eggertson’s resuscitated Phillips curve. In Figure 20, we plot the vacancy ratio against the labor income share; the observations in red are — again — for the recent period. Again, higher vacancy rates are not associated with a higher labor income share. In fact, the historically extremely high vacancy ratios during 2021Q1-2024Q2 are associated with historically relatively low values for the labor income share. Better illustrations of the declining power of American workers than Figures 19 and 20 will be hard to find — although it has to be said that Stansbury and Summers (2020) do offer compelling additional evidence.

Figure 20
Labor income share versus the job vacancy ratio
(1970Q1-2024Q2)



Sources: Calculated based on FRED database (*series* JTSJOL, UNEMPLOY and PRS85006101) and Barnichon (2010). *Note:* quarterly nominal wage growth is measured by the growth rate of hourly compensation for all workers in the non-farm business sector.

U.S. workers' real wages have been a principal "absorber" of the recent price shocks. The majority of American workers took the hit — and deserve credit for not stoking up, but absorbing, the acceleration in inflation.⁶

Why a soft landing?

A key reason why the monetary tightening by the Fed did not result in an overall recession is that the U.S. economy has benefited from an expansion in supply due to immigration and

⁶ Our discussion of inflation losses is not exhaustive. The subject is too large to be considered in this paper. Bank depositors, for example, also took a hit, as real interest rates on their deposits turned negative in the summer of 2020 and remained negative until the autumn of 2022. While many bank clients chased higher rates in certificates of deposit, many others did not. They lost big. Certain specific sectors of the economy were hit disproportionately. A few sectors – notably banks receiving interest on their required reserves at the Fed – also appear to have done especially well over the period as a whole.

productivity improvements. Both factors contributed significantly to the relaxation of supply constraints and neither are controlled by the Fed.

Let us consider immigration first. The Congressional Budget Office (CBO) has substantially revised its estimates of annual net immigration — the number of people who enter the United States net of those who leave each year — relative to previous reports. The CBO now projects that [3.3 million people](#) on net immigrated to the United States in both 2023 and 2024 (Orrenius *et al.* 2024). These estimates run about 2 million people higher than earlier ones, and are mostly driven by higher estimates of undocumented and unauthorized immigrants. Other private assessments run higher. It seems safe to regard the CBO estimates as a reasonable lower bound, warranting the conclusion that recent net immigration numbers are substantially higher than the pre-pandemic trend and that overall net immigration has enlarged the American civilian labor force by something like 2%.

Assessments of migration's impact on the economy are famously controversial and often, highly partisan. But we see little reason to disagree with Federal Reserve economist [Evgeniya Duzhak](#)'s analysis (2024). She argues that this strong migration inflow lowered the job vacancy-to-unemployment ratio by around one-fifth from its peak level, because some new migrants filled job openings, while undocumented migrants cannot register as unemployed workers.⁷ Given the common delays in migrants transitioning to the labor force and updated estimates pointing to a continuing strong inflow of migrants, she expects the vacancy ratio to decline further. The rise in net immigration is not generally held to have been the work of the Federal Reserve. But it has been clearly a factor in enabling a soft landing of the U.S. economy.

Another enabling factor has been the recovery of U.S. (labor) productivity growth which has helped to lower unit labor cost and production costs in general. This subject is complicated: It is premature to attribute its recent growth to the widespread introduction of generative artificial intelligence (AI) in the economy – this is a process that will take time, to the extent that it happens at all. Recent productivity growth is also not due to a renaissance of U.S. manufacturing — nor is it down to a reallocation of resources from less to more productive sectors ([Sandbu 2024](#)). The recovery of productivity growth is likely best ascribed to productivity increases within specific industries, notably knowledge-intensive ones: professional and business services, education and health, and information services (media, telecoms, data processing). These industries also seem to be the ones that have added the most to their physical capital stock — notwithstanding the monetary tightening by the Fed.

Many of these belong to the cash-rich industry segments that are heavily investing in AI. [U.S. federal government spending on AI](#) has grown very rapidly, particularly in the Department of Defense and related national security agencies (Larson *et al.* 2024). Many of the programs target relatively newer venture capital supported contractors such as Palantir, together with

⁷ Such workers are likely tallied very incompletely in assessments of Covid incidence; we hope to return to this point in another paper. Note that legal requirements for visa waivers for skilled workers are among the factors making it attractive for firms to post vacancies that they do not intend to actually hire for in the short run. See the discussion in Ferguson and Storm (2024b).

leading firms in the traditional military-industrial complex. Taking private and public spending together, these AI capital expenditures are rapidly snowballing into a macroeconomic force. According to [recent estimates](#), private data center and AI related investment will likely be \$225-250 billion in 2024, up from \$150 billion in 2023, and are expected to grow by 20% annually to \$350 billion in 2026 (Bianco 2024). The widespread, though not universal, conviction that AI heralds a transformation in the economy akin to 19th century railway booms and its increasing connection with national security concerns means that increases in interest rates deter relatively few firms from massively stepping up AI investment (or campaigning for more federal support).

The U.S. economy thus benefited from an expansion in supply due to immigration and productivity improvements — and this allowed aggregate demand and the economy to grow as the inflation rate began to come down.

But so did something else. In Table 3, we decompose real GDP growth (during 2022Q1-2024Q2) into contributions from personal consumption, gross private domestic investment, net exports and government consumption and investment expenditure.

During the eight quarters of 2022Q3-2024Q2, personal consumption growth accounted for around 60% of real GDP growth, while the growth of private investment accounted for 16% of real GDP growth and net exports contributed 6%. Public current and capital expenditure was responsible for circa 20% of economic growth; spending by state and local governments accounts for the bulk of this contribution, whereas federal spending was responsible for around 4% of economic growth.

If we consider only the three most recent quarters, the growth of personal consumer expenditures accounted for more than 70% and private investment accounted for one-third of economic growth. As just explained, the rising importance of private investment reflects in part the ongoing boom in business spending on Artificial Intelligence (AI) and business investment crowded in by public spending and tax breaks stimulated by the Inflation Reduction Act (IRA). But it is clear that personal consumer spending has been the major driver of the recovery of American economic growth during 2022-2024.

Table 3
Contributions to Percent Change in U.S. Real GDP
(at annual rates; 2022Q1-2024Q2)

| | 2022 | | | | 2023 | | | | 2024 | |
|----------------------------------------------------------|--------------|--------------|--------------|-------------|--------------|--------------|-------------|-------------|--------------|-------------|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| Real GDP | -1.00 | 0.30 | 2.70 | 3.40 | 2.80 | 2.40 | 4.40 | 3.20 | 1.60 | 3.00 |
| Personal consumption expenditures | 0.64 | 1.71 | 1.02 | 0.81 | 3.27 | 0.65 | 1.72 | 2.33 | 1.3 | 1.9 |
| <i>Goods</i> | -0.41 | -0.37 | -0.54 | -0.15 | 1.59 | -0.08 | 0.76 | 0.73 | -0.25 | 0.63 |
| <i>Services</i> | 1.05 | 2.09 | 1.55 | 0.96 | 1.67 | 0.73 | 0.96 | 1.6 | 1.55 | 1.27 |
| Gross private domestic investment | 1.34 | -1.67 | -1.05 | 1.08 | -1.63 | 1.42 | 1.8 | 0.16 | 0.64 | 1.47 |
| Net exports of goods and services | -2.4 | 0.5 | 2.5 | 0.56 | 0.33 | -0.11 | -0.1 | 0.09 | -0.61 | -0.9 |
| <i>Exports</i> | -0.51 | 1.4 | 1.63 | -0.12 | 0.23 | -0.54 | 0.53 | 0.66 | 0.21 | 0.12 |
| <i>Imports</i> | -1.9 | -0.9 | 0.87 | 0.68 | 0.1 | 0.44 | -0.63 | -0.57 | -0.82 | -1.01 |
| Government consumption expenditures and gross investment | -0.6 | -0.27 | 0.26 | 0.9 | 0.84 | 0.48 | 0.94 | 0.61 | 0.3 | 0.52 |

Source: Bureau of Economic Analysis, Table 1.1.2. *Note:* We used the revised national accounts data, published on September 26, 2024.

The strong rebound of personal consumer expenditures in the U.S. is surprising in view of the considerable decreases in real hourly earnings, real median weekly earnings and the real ECI, documented in Figure 9 and it contrasts glaringly with consumption patterns in most of Europe.⁸ The large majority of American households have been experiencing declining real wages and declining real incomes and one would reasonably expect consumer spending to stagnate or decline — but this is not what happened.

⁸ See the discussion of consumption in Europe by [the European Central Bank](#) (ECB 2024b) “Real GDP growth has been notably weaker in the euro area than in the United States since the start of the pandemic... buoyant private consumption growth in the United States accounts for most of the growth gap.” The report, however, does not consider wealth increases and thus flounders in its attempts to understand why.

The puzzle is resolved in our two earlier papers. As documented by Ferguson and Storm (2023, 2024), real consumption spending rose above its long-run trend during 2021Q2 and remained significantly above trend throughout 2022-2023.

Neither draining household savings nor rising household indebtedness can account for the substantial growth of consumption expenditure during 2021-2023, while real incomes were shrinking across all deciles of the income distribution. Where did the funding come from?

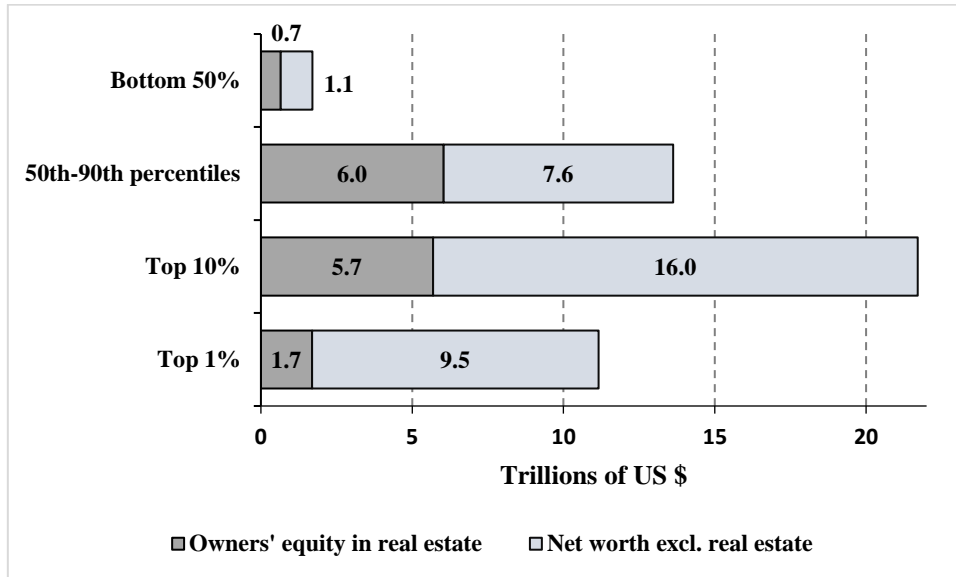
The answer emerges with great clarity when one breaks down the growth of real personal consumption expenditure by income classes. It is clear that the extra demand during 2021-2023 disproportionately originated from the richest 10%-20% of American households (Ferguson and Storm 2024) and certainly not from the temporary COVID aid programs that were rapidly withdrawn (Ferguson and Storm 2023, 2024). Affluent Americans financed this spending spree out increases in wealth with no peacetime historical precedent. In plain English, the recovery of economic growth must be attributed to the unprecedented increases in asset prices, which persisted despite eventual monetary tightening by the Federal Reserve and which boosted consumption of the rich through the wealth effect.

The wealth effect on personal consumption

The unparalleled asset price inflation was the direct result of the decade-long quantitative easing pursued by the Federal Reserve and the accompanying low interest rates, but especially the dramatic resumption of that policy after COVID hit. The asset price inflation has continued, with some dramatic hiccups, in the face of the Fed's drastic monetary tightening during 2021-2024.⁹ Ferguson and Storm (2024) present evidence on the unprecedented increases in housing wealth (defined as owners' equity in real estate) and financial wealth of households (defined as corporate equities and mutual fund shares) in recent years – and on the sharp increase in wealth concentration. Figure 21 presents the wealth gains, made during 2019Q4-2023Q4, from housing wealth and financial wealth, when taken together, for the top 1%, the top 10%, the 50th-90th percentiles and the bottom 50% of the U.S. wealth distribution. Total household wealth rose by \$37 trillion during these four years, as American society and the U.S. economy were going through a pandemic, a recession and an uncertain recovery process that included a significant rise in the inflation rate. In fact, during 2020-2023, aggregate U.S. household wealth rose 45% above its longer-run trend.

⁹ Speculation is rife about why the interest rate rises did not lead to a larger downturn. A good part of the answer, we suspect, is the coincidence of the takeoff of the AI boom with the rate rises and, perhaps, Fed caution about the effects of excessively rapid rate rises on the financial system. But the question is too large for this paper. What matters for our argument is the sheer continuing increase in wealth.

Figure 21
Increase in Net Worth of U.S. Households by Wealth Percentile,
2019Q4-2023Q4



Source: Distributional Financial Accounts of the Federal Reserve.

The distribution of the aggregate wealth gain is heavily biased in favor of the rich. The wealthiest 1% of households captured 30% of this spectacular rise in financial wealth; the wealthiest 10% seized 59% of the wealth gains (amounting to \$21.7 trillion). The bottom 50% of the wealth distribution, in contrast, received a pitiful 5% of the aggregate increase in household wealth (or \$1.8 trillion). In view of these unprecedented increases in household wealth, it is reasonable to expect some impact on household consumption, especially consumer spending by the wealthiest 10% (or 20%) of U.S. households, and through that, on inflation.

We argue that this is what has happened (see Ferguson and Storm 2024). The enormous increase in financial wealth, heavily biased in favor of the richest, funded lopsided growth in personal consumption spending in the U.S., which enabled the recovery of aggregate economic growth, even while an overwhelming majority of households remains in recessionary conditions. Rising wealth inequality and the uneven wealth effect have hidden the reality of America’s dual economy from view (Storm 2017) (Temin, 2018).

It is an irony of history, not well understood, that much of the recent surge in U.S. inflation has been caused by Federal Reserve policies—and worse, the lopsided inequality in wealth makes controlling consumption spending by raising interest rates much harder for the Fed. Consumption by the affluent is far harder to stop without interest rate increases that could bring the rest of the economy to its knees.

Conclusion: Inflation control in the real world

Our discussion began with an attempt to gauge the extent to which the Fed was responsible for the decline in inflation. Comparing three different quantitative approaches led to the conclusion that the Fed could plausibly claim credit for somewhere between twenty and forty percent of the decline at most. We then marshalled strong reasons for rejecting claims that a steadfast Fed commitment to keeping inflationary expectations anchored played any role in the process.

Both the empirical and the theoretical evidence against the importance placed on inflationary expectations and central bank credibility in containing the recent inflation are strong. The Fed's own surveys show that low-income Americans did not believe assurances from the Fed or anyone else that inflation was anchored. The plethora of eminently respectable but mostly wildly mistaken inflation projections makes it obvious that arguments about workers crediting the Fed's commitment to stamping out inflation lead to impossible contradictions in both fact and logic. At the rates of inflation of the recent past, invoking credibility, Phillips Curves, job vacancies rates, etc., just leads to a jungle of poorly estimated inflation indicators that no human beings can master, including central bankers. In any case, most workers nowadays cannot protect themselves by bargaining for higher wages; their ability to do so has been fatally undermined by the decline of the New Deal order. The Tower of Babel about expectations and central bank credibility just distracts attention from the mechanisms that really mattered, notably the inability of virtually the entire workforce to protect its real wages.

Jackson Hole's happy anticipations of a soft landing hurry past the reality of the American dual economy today. Most of the population actually has experienced a hard landing. We are not surprised that many Americans have been telling pollsters for a long time that they feel they are already in recession (Dickler, 2024).

By contrast, the rich and super-rich have many reasons to celebrate a very soft landing indeed. In this paper, we updated the mountain of evidence that has accumulated over the past several years highlighting the importance of the wealth effect in sustaining consumption by the affluent. This arises, as we have emphasized, from the Fed's quantitative easing policies and has produced top heavy changes in wealth with no precedent in peacetime. The sharp rise in interest rates has not thus far reversed this trend, likely for the reasons we sketched. Thus, the influence of this wealth effect on consumption continues and is the most important reason the U.S. macroeconomy has kept chugging along.

All this, of course, raises interesting questions about whether the celebration in Jackson Hole might not be premature. We think several possibilities merit brief scrutiny.

Firstly, in the short run, the problem of service sector inflation continues. As we first outlined almost two years ago, the strong demand for services from the affluent and especially the super-rich is propelling many price rises in that sector. Over time this historic transfer is also sucking more and more resources into the affluent top sector of America's dual economy. Many of these shifts are socially irrational (Ferguson and Storm, 2023, 2024). The flow of workers into high end restaurants as day care, nursing homes, and other lower wage industries struggle, offers an especially vivid example, but it is far from alone. It does not help that the

service sector is heavily populated with oligopolies, especially in health care and financial services. Together with changes in technology, the torrent of incoming funds, we suspect, is likely to make demand in some segments even more inelastic and thus fuel the consolidation of even more oligopolies. We are not surprised that prices for many medical services, air travel, insurance, and other sub-sectors keep going up, or that private equity is spreading in these sectors.

A recently published study in *Nexus*, a journal published under the auspices of the National Academy of Science, shows that most Americans greatly underestimate the concentration of wealth (Szasz et al., 2024). It is tedious to keep repeating the obvious, but we repeat our warnings from almost two years ago: The shift in consumption patterns is historic and continuing. In the absence of wealth destruction on a large scale, the pattern of high consumption by the affluent will not disappear. Antitrust can help, but in the world we live in it is slow and feeble, and now under ferocious attack in both political parties. Nor do all the problems in services relate to oligopoly anyway. At a macro level, something like Keynes' proposal for absorbing excess wartime consumption via bond issues will be far less destructive than blunderbuss rises in interest rates (Ferguson and Storm, 2023, 2024).

Our earlier papers spotlighted other reasons for anxiety about continuing inflation. We pointed to climate change and geopolitics, or more precisely, the emerging multipolar world economy, as factors that guaranteed continuing shocks. Wildfires, extreme heat, floods, and locally violent storms are now common and clearly destabilizing insurance and some other parts of finance. No less disruptive are armed conflicts that hold massive further potential for price shocks. Shipping patterns in the Red Sea have altered drastically, for example, though so far, the economic shock mostly falls on Europe and Asia, though with special force on Egypt.

Another factor that is perhaps unusually powerful in the United States in creating price rises is the force of money politics. Our earlier paper pointed to a variety of regulated prices that behave very oddly. In recent years, consumer prices for electricity, for example, have been virtually decoupled from fluctuations in other energy prices: in COVID and the inflation, they stayed up, even as oil and gas prices fluctuated. This problem clearly resides in the domination of the regulatory process by major firms. With demand for electric power soaring from AI, crypto, and other big users, we find it hard to believe that the current regulatory process can resist the Amazons of political money that now course through the system with its many revolving doors. Our doubts will harden to certainty, if the Federal Election Commission follows through on a recent proposal to permit investors who believe they might be "harmed" by public disclosure of their contributions to keep them secret (Federal Election Commission, 2024). Dark money is already a major problem in American politics, but if the FEC adopts this latest proposal or anything like it, not just democracy, but price stability is likely to take a massive hit.

This raises an intriguing question in the longer run. Because a wage price spiral can be dismissed as an important driver of U.S. inflation this time does not mean that the system might not eventually grind down so many people that broader and more radical patterns of protest, akin to those shaking some European states could not occur. Plenty of social protests are clearly showing in the US right now, but they mainly take directly political form; they are

not affecting most wage/price bargains except on the edges. But it is useful to remember that more dramatic forms of discontent have historically emerged in many countries that do lead to dramatic shifts in wage bargaining processes, even if these are historically different animals from cyclical wage/price dynamics. In plain English, in other words, central banks could perhaps overplay their currently strong hands.

Our conclusion is thus that the cult of the Fed and other central banks as the decisive stabilizer of the economy is empirically mistaken, but also a dangerously misleading distraction. The carnival images at Jackson Hole and elsewhere are not real; central bankers promise to be “data driven” because their favorite models are far off the mark. Analysts and policymakers will also need to tackle further bouts of inflation with a much wider range of tools, including fiscal policy, and they lack power to fix many of the most potent causes of inflation that loom in the future, such as climate change.

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