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Published online: 24 Jun 2024.

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Tilting at Windmills: Bernanke and Blanchard's Obsession with the Wage-Price Spiral

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ABSTRACT

Bernanke and Blanchard use a simple dynamic New Keynesian model of wage-price determination to explain the sharp acceleration in U.S. inflation during 2021–2023. They claim that their model closely tracks the pandemic-era inflation and they confidently conclude that " … we don't think that the recent experience justifies throwing out existing models of wage-price dynamics." This paper argues that this confidence is misplaced. The Bernanke and Blanchard is another failed attempt to salvage establishment macroeconomics after the massive onslaught of adverse inflationary circumstances with which it could evidently not contend. It misrepresents American economic reality, hides distributional issues from view, de-politicizes (monetary and fiscal) policy-making, and sets monetary policymakers up to deliver significantly more monetary tightening than can be justified on the basis of more realistic model analyses.

Same Old, Same Old

Three years have passed since inflation began its surge in Spring 2021, which continued until early 2023. As the inflation rate has since begun a hesitant decline, the time has come to look back at and reflect on what has happened during these challenging years and draw policy lessons from the havoc and destruction created by the COVID19 crisis, the disruption of global supply chains, Russia's war on Ukraine, and the increasingly belligerent multipolar geopolitical reality in which national security concerns trump over economic concerns in determining cross-border investment, technology and trading relations. Ferguson and Storm (2023) provide one early critical and comprehensive assessment of the myths and realities of the recent (unexpected) burst of U.S. inflation.

Another recent evaluation of the causes of U.S. pandemic inflation comes from Ben Bernanke and Blanchard (2023), who (in their own words) use a simple dynamic model of wage-price determination to explain the sharp acceleration in U.S. inflation during 2021–2023. The model is a run-of-the-mill New Keynesian macro-economic wage-price spiral model, including an inflation-expectations augmented wage Phillips curve with an aggregate markup price. It presumes considerable wage bargaining power for workers, which is rather at odds with American reality as will be shown below. It also assumes a major role for workers' inflation expectations in the wage

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setting process, which contradicts empirical evidence and reality. And it assigns a key role to the 'extreme' tightness of the labor market (as measured by the elevated vacancy ratio v/u), in driving wage growth and inflation, which also runs counter to empirical evidence.

The model analysis by Bernanke and Blanchard (2023) provides a representative specimen of the approach taken by establishment economists to the recent inflationary crisis, as it includes everything important that is problematic in New Keynesian macroeconomics. This may sound all-too-rash and unwarrantedly harsh, but prominent central bankers, including Federal Reserve Chair Jerome Powell[1] and ECB President Christine Lagarde,[2] take a rather similar view when they state that their policy rate decisions, in these turbulent and uncertain times, are based on a *data driven* approach, and not on standard macro models or monetary policy rules derived from these standard models.

Given the heightened political and economic turbulence and uncertainty, central bankers are undertaking ad-hoc, data-driven monetary policymaking, which is a euphemism for making it up as they go along. This innocent sounding approach may well be concerning, also because the Fed's poor (inflation) forecasting track record does not inspire much confidence in its ability to undertake effective forward-looking monetary policy (Storm 2024). However, in its preference for data-determined policy making, the Federal Reserve is clear, at least, that standard macro models are of little use in the current macroeconomic environment that is particularly fluid economically and politically at domestic and global levels (Ferguson and Storm 2023).

Bernanke and Blanchard beg to disagree. With the benefit of hindsight, they present and estimate a simple dynamic model of prices, wages, and short-run and long-run inflation expectations which they claim closely tracks the pandemic-era inflation. Based on their analysis, Bernanke and Blanchard (2023, 38–39) confidently conclude that " … we don't think that the recent experience justifies throwing out existing models of wage-price dynamics." Bernanke and Blanchard's model has been applied by (central bank) economists in different countries to analyze recent inflation, including Japan (Nakamura et al. 2024), Spain (Ghomi, Hurtado, and Montero 2024) and Belgium (Walque and Lejeune 2024).

The influential paper of Bernanke and Blanchard constitutes another contribution to – what I have elsewhere (Storm 2024) – called the art of maintaining the New Keynesian paradigm. How convincing is the model analysis by Bernanke and Blanchard? How empirically relevant are their mechanisms causing inflation – and how robust and plausible are their econometric findings? In what follows, I will answer these questions based on a critical review of the model analysis of Bernanke and Blanchard.

Bernanke and Blanchard (2023) Findings – But Put into Context

Bernanke and Blanchard (2023) answer to the question posed by the title of their paper ("What caused the U.S. pandemic inflation?") is given in their Figure 12. The figure shows the decomposition of the U.S. CPI inflation rate during the period 2020Q1-2023Q1, which is based on the estimated version of the dynamic model of the two authors. The quarterly CPI inflation rate, at annualized rates, is decomposed into the following three contributions: *(1)* initial conditions (which include the constant terms in the estimated equations as well as the exogenous rate of labor productivity growth); *(2)* supply side shocks to energy and food prices and global supply

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chains that raise production costs; and *(3)* the job vacancy ratio v/u, which captures the inflationary impact of tight labor market conditions.

The surge in the CPI inflation rate – from 2.8% in the fourth quarter of 2020 to a peak of 9.7% in the second quarter of 2022 – is overwhelmingly due to the supply side shocks that raised production costs. This is not surprising, as this is exactly what any data-driven approach would also reveal. Unfortunately, Bernanke and Blanchard do not provide us with the exact numbers, but a visual inspection of their Figure 12 suggests that supply side shocks have been responsible for around two-thirds to three-fourths of the surge in the inflation rate during 2020Q4 and 2022Q2. The contribution of 'initial conditions' to the U.S. inflation rate is found to be roughly constant over the period of analysis, at around 2 percentage points; according to Bernanke and Blanchard (2023, 33), this suggests that, "absent the pandemic-era shocks considered here, inflation would have likely remained stable at around 2 percent or a bit higher into 2023."

Finally, and importantly, the contribution to inflation of tight labor-market conditions – the main concern of many early critics of U.S. monetary and fiscal policies (Blanchard 2021; Domash and Summers 2022; Summers 2021) – was negative during the first two quarters of 2021 and positive but miniscule during 2021Q3-2023Q2.[3] Bernanke and Blanchard appear to not fully appreciate the empirical significance of this particular finding.

To understand the point, let me first emphasize that Bernanke and Blanchard (2023, 15–16) consider the vacancy ratio (the number of job openings per unemployed worker, or v/u) as "a more reliable indicator of labor market conditions [than the unemployment rate] in times, [such] as during the pandemic and its aftermath, in which the efficiency of the employer-worker matching process has changed materially."[4] As is shown in Figure 1 below, the U.S. vacancy ratio rose from less than 1 job opening per unemployed worker during the first quarter of 2021 to 1.9 job openings per unemployed worker in the second quarter of 2022. This is a level of v/u considerably greater than in any earlier period since these data have been collected; the long-run average level of the job vacancy ratio (during 1970–2023) is 0.65. If one takes the vacancy ratio seriously as an indicator of labor market tightness, which is what Bernanke and Blanchard do, then the conclusion must be that the U.S. labor market has been extremely tight, even 'red-hot', during 2021Q2-2023Q4. The American labor market has not been this tight in any period since 1970. But, paradoxically (it seems), Bernanke and Blanchard conclude that the contribution of the 'red hot' labor market to the increase in inflation has been all but negligibly small.

The only sensible conclusion that can be drawn based on their decomposition is that the 'red-hot' labor market did not contribute in a significant manner to the surge in U.S. inflation (2021Q1-2023Q2). Bernanke and Blanchard (2023, 33) reach a similar conclusion:

> " …. the contribution to inflation of tight labor-market conditions – the leading concern of many early critics of U.S. monetary and fiscal policies – was quite small early on, and indeed was negative in 2020 and early 2021 as labor markets suffered from the effects of the pandemic recession. However, over time, as the labor market has remained tight, the traditional Phillips curve effect has begun to assert itself, with the high

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[3]The Bernanke-Blanchard studies for Japan (Nakamura et al. 2024), Spain (Ghomi, Hurtado, and Montero 2024) and Belgium (de Walque and Lejeune 2024) also find that supply-chain and material shocks are the main drivers of recent inflation, whereas the contribution of labour market tightness is marginal. In fact, the exceptionally high numbers of *v/u* are only found in the U.S., which is another reason to suspect that there is something else happening here not necessarily associated with tight labour markets.

[4]Bernanke and Blanchard (2023, 15) note that the relationship between vacancies and unemployment changed materially during the COVID period, with more vacancies (more search effort by employers) needed to achieve a given rate of hiring, holding constant the number of unemployed. Not knowing the reason for this, they conjecture (in their footnote 5): "Firm closures implied that laid-off employees had to find new jobs rather than return to their old ones. Changes in family arrangements, illness, and other effects of the pandemic lockdowns *may* have reduced the (unobserved) intensity of search effort of *some* unemployed workers. Employers *may* have failed to appreciate the extent to which, because of concerns about returning to jobs involving personal contact or *perhaps* because of reassessments of work-life balance, workers had increased their reservation wages." (*Italics added*).
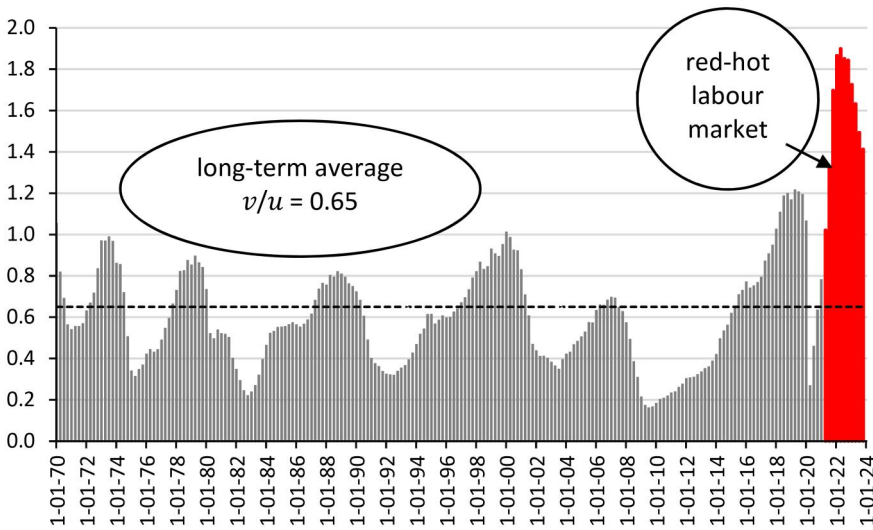
Figure 1. The U.S. job vacancy ratio (1970Q1-2023Q4; quarterly).
Sources: Calculated based on FRED database (*series* JTSJOL and UNEMPLOY) and Barnichon (2010). *Notes*: The data for 1970Q1-2000Q4 were constructed by Barnichon (2010). The job vacancy ratio is the number of vacancies per unemployed worker.

vacancy-to-unemployment ratio becoming an increasingly important, though by no means dominant, source of inflation."

But they then add, ominously, that "over time a very tight labor market has begun to exert increasing pressure on inflation, pressure which our model predicts will grow over time" (Bernanke and Blanchard 2023, 34–35). In other words, it takes time for the wage-price spiral to wake up, but once it has become awake, it will relentlessly build up over time – and bring us back to the 1970s. This fateful warning is based on the (out-of-sample) projections, which run until the first quarter of 2027, using their model.

Reading between the lines, it is clear that Bernanke and Blanchard are unpleasantly surprised by the discovery that the 'extremely high' vacancy ratio during the post-pandemic period did not significantly contribute to the rise in the CPI inflation rate. The cognitive dissonance must be large. The reason is that their finding of a pitiful contribution of v/u to rising inflation does not fit into the established narrative that the recent bout of inflation must have been caused by expansionary fiscal policies, leading to an overheated labor market and to a situation in which actual output exceeds the economy's potential. In this omni-present narrative, President Biden's 'excessive' COVID relief spending and the even more 'cavalier' $1.9 trillion American Rescue Plan are commonly singled out to have stoked inflation by pushing actual output above potential and by overheating the labor market (Blanchard 2021; Summers 2021).

The finding that the supposedly 'extremely tight' labor market cannot be blamed for the sudden burst in U.S. inflation, conflicts with this narrative of fiscal largesse causing inflation. Figure 2 will increase the cognitive dissonance further, because it also contradicts the standard story. It shows that the output gap of the U.S. economy hovered around zero during 2021Q1-2023Q4, right when the rate of CPI inflation began its surge. The (close to) zero output gap clearly does not signal a structurally overheated American economy – and it is also not aligned with claims of a 'red-hot' labor market and a historically unprecedented job vacancy ratio of nearly 2.

It is noteworthy, as another inconvenient fact, that the output gap during the pandemic-era quarters 2021Q1-2023Q4 was very similar to the output gap during the pre-pandemic period 2017Q1-2019Q4, but the rate of inflation was significantly higher in the recent period than during 2017–2019. The burst in inflation in the pandemic-era period is obviously due to the supply side
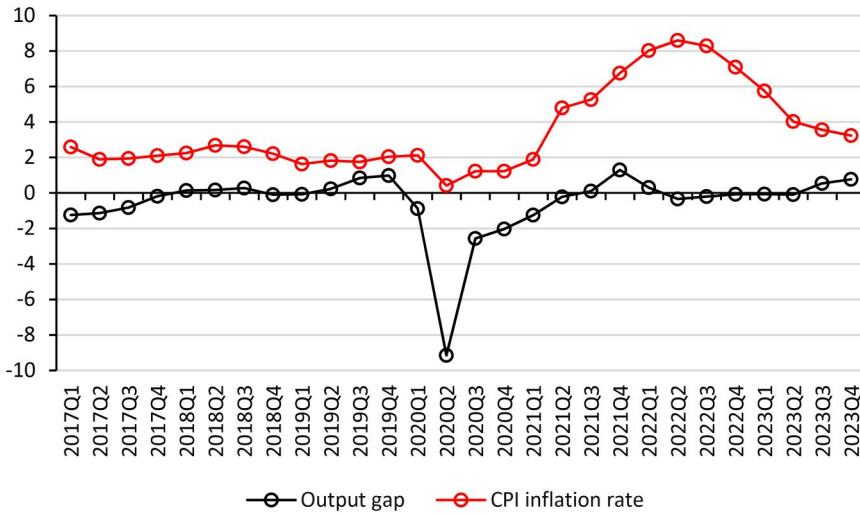
Figure 2. U.S. inflation and the output gap (2017Q1-2023Q4; per cent).
Sources: FRED database (*series* CPIAUCSL and 100*(GDPC1-GDPPOT)/GDPPOT, 100). *Notes*: Inflation is measured using the Consumer Price Index for All Urban Consumers: All Items in U.S. City Average. The inflation rate is calculated on an annualized basis. The output gap is calculated as the difference between real and potential GDP as a percentage of potential GDP. Real potential GDP is the Congressional Budget Office's estimate of the output the economy would produce with a high rate of use of its capital and labor resources.
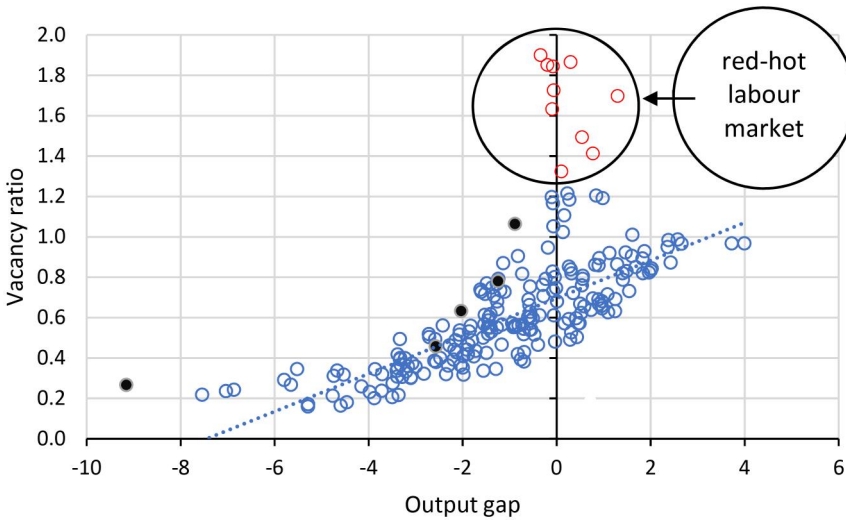
Figure 3. The output gap versus the job vacancy ratio: The U.S. economy (1970Q1-2023Q4).
Sources: see sources of Figures 2 and 3.

shocks to energy and food prices and global supply chains that raised production costs and had nothing to do with nominal wage growth.

Figure 3 explores the issue in greater detail. It plots the U.S. output gap against the vacancy ratio for all quarters during 1970Q1-2023Q4 (a long period of 53 years). The observations for the post-pandemic period are appropriately colored in red, indicating the quarters when America's
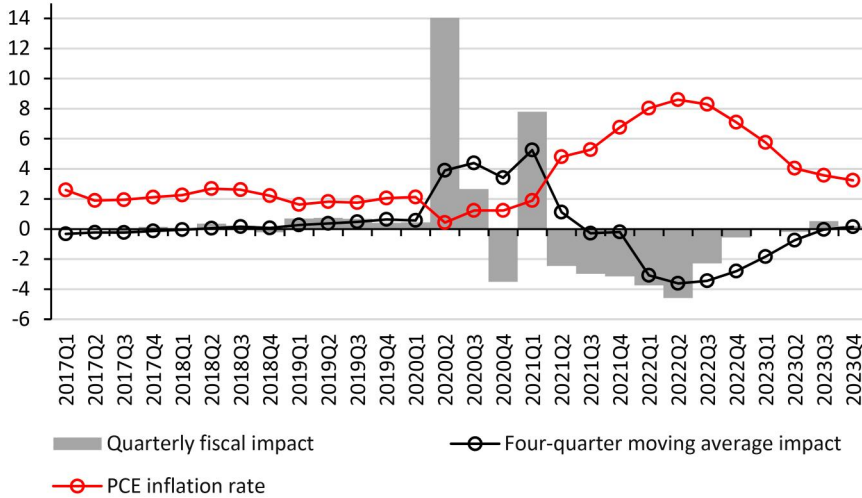
Figure 4. U.S. inflation and Fiscal Policy (2017Q1-2023Q4).
Sources: FRED database (*series* CPIAUCSL); Hutchins Center Fiscal Impact Measure Contribution of Fiscal Policy to Real GDP Growth, published by the Hutchins Center on Fiscal and Monetary Policy at Brookings.

labor market is widely considered to have been 'red hot'. The observations for the four quarters of 2020 appear in black.

The elevated levels of v/u during 2021Q2-2023Q4 are obvious outliers, and not related to the magnitude of the output gaps during the post-pandemic period. Figure 3 suggests a significant disconnect between the overall state of the U.S. economy (as measured by the output gap) and the dramatic rise in the vacancy ratio during 2021Q2-2023Q4.

The established narrative blaming the inflation on the Biden relief spending during 2021 gets another blow when one considers Figure 4, which shows the contribution of the fiscal policy stance to real GDP growth during 2017Q1-2023Q4. It can be seen that the contribution of fiscal policy to real GDP growth has been negative during 2021Q2-2023Q3, amounting to – 4.6% in the second quarter of 2022. During 2021Q2-2023Q3, fiscal policy has been a significant drain on economic growth. It is not plausible to attribute the surge in U.S. inflation to the *de facto* fiscal austerity of the Biden administration.

Finally, Figure 5 presents direct quarterly evidence on the relationship between the vacancy ratio and nominal wage growth for 53 years (1970Q1-2023Q4). Nominal wage growth is measured by the growth rate of hourly compensation of all workers in the U.S. non-farm business sector. The observations for the 'tight-labor-market' period 2021Q3-2023Q4 appear in red; the four observations for the year 2020 are in black. It is evident that the period 2021Q3-2023Q4 is historically unique when it concerns the level of the vacancy ratio, but is completely ordinary or average in terms of the growth rate of nominal earnings.

The extremely high vacancy ratio did, therefore, not lead to extremely high nominal wage growth – another inconvenient fact that contradicts claims of an operative wage-price inflation spiral. But (as already stated earlier) Bernanke and Blanchard do not give up. They conclude their paper presenting model-based inflation projections for the period 2023Q1-2027Q1, based on three alternative (low, medium and high) scenarios for v/u. If v/u remains permanently at a level of 1.8 job openings per unemployed worker, inflation will remain high and well above the putative inflation target of 2%. Lowering v/u to 1.2 over eight quarters is projected to the CPI inflation rate down to about 2.7 percent, which is (arguably) close the Fed's PCE inflation rate target of 2%.
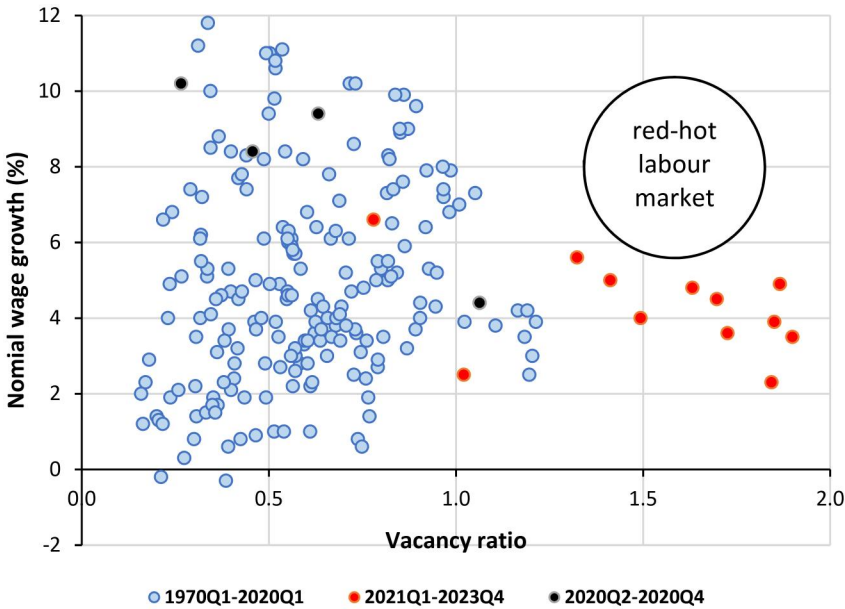
Figure 5. Scatterplot of nominal wage growth against the vacancy ratio (1970Q1-2023Q4).
Sources: Calculated based on FRED database (*series* JTSJOL, UNEMPLOY and PRS85006101) and Barnichon ([2010](#)). *Note*: quarterly nominal wage growth is measured by the growth rate of hourly compensation for all workers in the non-farm business sector.

This conclusion brings us in dangerous policy territory. Bernanke and Blanchard (2023, 38), ignoring the caveats earlier made in the paper, end by concluding that

> "[A]s of early 2023, tight labor market conditions still accounted for a minority share of excess inflation. But according to our analysis, that share is likely to grow and will not subside on its own. The portion of inflation which traces its origin to overheating of labor markets can only be reversed by policy actions that bring labor demand and supply into better balance."

Hence, the inescapable conclusion, with which their analysis ends, is that "labor-market balance should ultimately be the primary concern for central banks attempting to maintain price stability." Monetary policy thus has to remain tight, because it has to create the extra unemployment that is necessary to bring down the v/u ratio, lower nominal wage growth and bring back inflation to 2%. However, the policy conclusions are only relevant when the model analysis is sound and credible. As I shall argue below, this is not the case.

A Few Words on the Econometrics

Bernanke and Blanchard estimate their model equations using quarterly data for the period 1989Q1-2019Q4. To strengthen their estimation results, they include four quarterly lags for each independent variable in each equation as well as four quarterly autoregressive terms for the dependent variable. The choice of using four quarterly lags is left unjustified and also un-problematised.

A close look at the detailed estimation results of Bernanke and Blanchard reveals that most of the estimated coefficients are statistically not significantly different from zero (at a significant level of 10% or less).[5] In fact, out of the total of 211 estimated coefficients, only one-third are

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[5]Bernanke and Blanchard present *P*-values for both (i) the hypothesis that the sum of a set of coefficients is zero and (ii) the joint hypothesis that each of the coefficients applying to a given right-side variable are zero. Both hypotheses are rejected, which is not so surprising, because each equation has between 9 and 25 independent variables. The fact remains that two-thirds of the estimated coefficients on these variables are not statistically significantly different from zero.
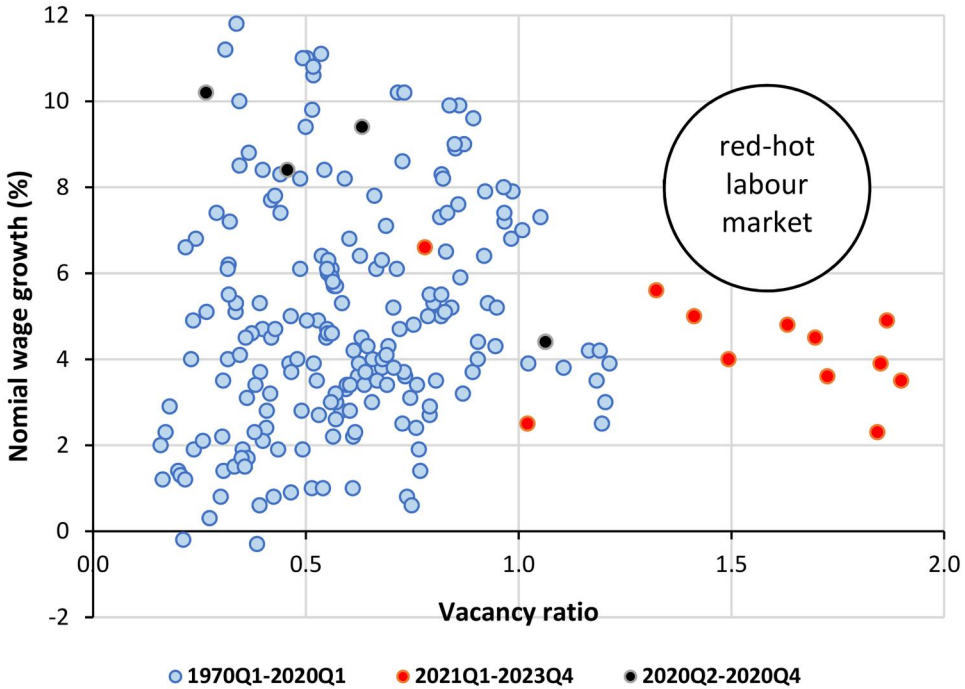
Figure 6. Actual versus estimated nominal wage growth (2017Q1-2023Q4).
Sources: Actual nominal wage growth is measured by the Employment Cost Index (ECI), published by the *Bureau of Labor Statistics*. Simulated wage growth has been calculated based on Equation (*A*), using the additional data sources listed by Bernanke and Blanchard (2023).

statistically significant, while two-thirds are not. While these non-significant coefficients do provide statistical information, and help improve the fit of the estimated equation, they are meaningless from an interpretative economic point of view. The econometric findings of Bernanke and Blanchard must be taken with a few pinches of salt.

Let me illustrate the point with reference to the equation for nominal wage growth, proposed by Bernanke and Blanchard. Nominal wage growth w in the current quarter is a function of four quarterly lagged nominal wage growth, short-run expected inflation p^E in the previous 4 quarters, the job vacancy ratio v/u in the previous four quarters, and one-quarter lagged labor productivity growth (*PRDTVY*) which itself is defined as a moving average. Bernanke and Blanchard further include a 'catch-up' term which is intended to describe to what extent nominal wage growth in the current quarter is influenced by the difference in the previous quarter's actual price level and the price level that had been expected for that period. But their findings show that American workers are unable to recoup the effects of unexpected inflation on their nominal wages – all the estimated coefficients are small and insignificant, and, hence, I exclude this 'catch-up' term from the discussion here.

The estimated equation (*A*) is as follows (when excluding the 'catch-up' term):

$$
\begin{aligned}
w = {}& \underset{+(0.20)}{-0.27} + \underset{(0.10)}{0.16}\, w_{-1} + \underset{(0.10)}{0.12}\, w_{-2} + \underset{(0.10)}{0.17}\, w_{-3} + \underset{(0.10)}{0.00}\, w_{-4} \\
& + \underset{(0.14)}{0.34}\, p^E_{-1} - \underset{(0.15)}{0.03}\, p^E_{-2} + \underset{(0.16)}{0.20}\, p^E_{-3} + \underset{(0.16)}{0.03}\, p^E_{-4} + \\
& + \underset{(1.98)}{3.77}\, (v/u)_{-1} - \underset{(3.63)}{1.81}\, (v/u)_{-2} - \underset{(3.66)}{3.64}\, (v/u)_{-3} + \underset{(2.10)}{2.38}\, (v/u)_{-4} \\
& + \underset{(0.06)}{0.03}\, PRDTVTY_{-1}
\end{aligned}
\tag{A}
$$

The numbers in parentheses are the standard errors. Estimated Equation (*A*) tracks actual nominal wage growth reasonably well (Figure 6). Nominal wage growth is measured here by the

quarterly and annualized rate of change in the Employment Cost Index (ECI), published by the *Bureau of Labor Statistics*. The greatest miss is, quite understandably given the lockdowns and consequent employment restructuring, for the third quarter of 2020, when the equation predicts a larger decline in wage growth than actually occurred.

The goodness of fit is in large measure due to the use of the non-significant coefficients in Equation (A)). A majority of the estimated coefficients are not statistically significant (at 10% or less). Their large standard errors suggest that one might as well have observed an effect this large if the true effect were zero. Leaving in the non-significant variables may make sense for purposes of prediction, but it certainly does not aid interpretation.

If one were to exclude all non-significant coefficients, Equation (A) would reduce to just this:

$$w = \underset{(0.10)}{0.17}\, w_{-3} + \underset{(0.14)}{0.34}\, p^E_{-1} + \underset{(1.98)}{3.77}\, (v/u)_{-1} \qquad \text{(B)}$$

The variables that matter, are the (t-3) lagged rate of nominal wage growth, short-run expected inflation in (t-1) and the vacancy ratio in the previous quarter. The nominal wage growth estimated based on Equation (B) is shown in Figure 6 (as the "simulated wage growth adjusted" curve). The goodness of fit is considerably lower than in the case of Equation (A). The fact that the Bernanke and Blanchard model closely tracks actual wage growth and actual inflation is thus due to the reliance on the non-significant coefficients on lagged exogenous and endogenous variables, which turns the model analysis into an ad-hoc data-driven prediction exercise.

However, Bernanke and Blanchard go a step further than mere prediction – and use Equation (A), including the non-significant coefficients, to calculate the long-term (cumulative) causal effects on nominal wage growth of changes in the vacancy ratio and short-run expected inflation. Doing so involves quite a leap of faith; after all, the non-significant coefficients might as well be zero. For example, Bernanke and Blanchard calculate the long-run (cumulative) impact on nominal wage growth of an increase in the job vacancy ratio as follows:

- First, they sum the coefficients on the four quarterly lags of the vacancy ratio in Equation (A), which gives $3.77 - 1.81 - 3.64 + 2.38 = 0.693$; and they sum the coefficients on lagged nominal wage growth in Equation (1), which gives $0.12 + 0.17 + 0.34 = 0.46$.
- Then the long-term impact on nominal wage growth of an increase in v/u, by 1 job opening per unemployed worker, holding constant other factors, becomes $\frac{0.693}{1-0.46} = 1.28$ percentage points.

Bernanke and Blanchard conclude that an increase in the vacancy ratio by 1 job opening per unemployed worker raises nominal wage growth by 1.28 percentage points, which, in turn, will raise the CPI inflation rate (one-for-one) by 1.28 percentage points. Bernanke and Blanchard believe that a tighter labor market is strongly inflationary, even though (as we have seen) Figure 5 is showing otherwise.

The estimated inflationary impact of an increase in the vacancy ratio in Bernanke and Blanchard's model is far out of line with the empirical evidence. In fact, it is more than twice as large as available estimates. Using quarterly data for 1960–2021, Barnichon, Oliveira, and Shapiro (2021) find that an increase in the vacancy ratio by 1 unit increases the (core) PCE inflation rate by 0.5 percentage points. More recent econometric findings by Storm (2022) and Domash and Summers (2022) are similar to those of Barnichon, Oliveira, and Shapiro (2021). Bernanke and Blanchard's estimate appears to considerably exaggerate the strength of the effect of a higher vacancy ratio on nominal wage growth, and this may well be related to their reliance on many (lagged) estimated coefficients that in all likelihood are zero.

Take, for example, the sum of the coefficients on lagged nominal wage growth in Equation (A), which is 0.46. We know that, out of 4 coefficients, only the coefficient on w_{-3} is (barely)

significant (see Equation (B)). Bernanke and Blanchard also estimated Equation (A) using the PCE inflation rate (instead of the CPI inflation rate) and using forecasts of the *Survey of Professional Forecasters* (SPF) as proxies for short-run inflation expectations (instead of the one-year-ahead expected inflation rate published by the Cleveland Fed). Not a single coefficient (out of 8 estimated coefficients) on lagged wage growth in these alternative specifications is statistically significant. The message given by the statistical evidence seems rather plain: lagged nominal wage growth does not significantly influence current nominal wage growth and, hence, the 'true' value of the sum of the coefficients on lagged nominal wage growth is very likely zero (and definitely not 0.46).

This, in turn, implies that an increase in the vacancy ratio by 1 unit will raise nominal wage growth by only 0.693 percentage points (I am leaving aside – equally valid – concerns regarding the non-significance of the coefficients on three quarterly lags of the vacancy ratio). The – much lower – impact is more in line with the findings available in the literature, and it is also consistent with Figure 5. All this also implies that the miniscule contribution to inflation of tight labor-market conditions 2021Q3-2023Q2, found by Bernanke and Blanchard, is exaggerating the 'true' impact of labor market tightness by a factor of two.

The Wage-Price Spiral Model

However, far more important than the weak econometrics are major concerns with respect to the internal logic of the simple dynamic New Keynesian model that Bernanke and Blanchard (2023) employ to identify the causes of the U.S. pandemic-era inflation. Their model consists of the following four equations.[6]

Nominal Wage Growth

Bernanke and Blanchard posit the following equation for (quarterly) nominal wage growth:

$$w = \beta\frac{v}{u} + p^E + z_W \tag{1}$$

where w = nominal wage growth; p^E = the short-run (one-year-ahead) expected inflation rate; v/u = the vacancy ratio (the indicator of labor market tightness); and z_W = all the other factors that affect wage determination. Coefficient $\beta > 0$ stands for the impact of a (higher) vacancy ratio on nominal wage growth and is the slope of the (expectations-augmented) wage Phillips curve of Equation (1). We have already noted that $\beta = 1.28$ according to Bernanke and Blanchard's estimations.

Equation (1) is simple, but it hides from view two non-trivial assumptions. First, Equation (1) is the expression of the outcome of a wage bargaining process in which American workers negotiate with employers over current-quarter nominal wage growth (see Bernanke and Blanchard 2023, 6). The wage bargaining power of workers increases when the vacancy ratio rises and the labor market becomes tighter. American workers also are assumed to have enough bargaining leverage (over firms) to protect their real wages in the face of increases in short-run expected inflation p^E. The coefficient on p^E is assumed to be equal to 1, and Bernanke and Blanchard imposed restrictions on the econometric estimates to ensure that an increase in p^E leads to a one-to-one increase in nominal wage growth.

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[6]In what follows, I drop the non-essential embellishments used by Bernanke and Blanchard (2023) to dress up their simple dynamic model. Specifically, they include a 'catch-up' term which is meant to reflect to what extent U.S. workers are unable to recoup the effects of unexpected inflation on their nominal wages. Rather unsurprisingly, this so-called 'catch-up' term is econometrically found to be not significant, and, hence, dropped from the discussion here. I also ignore the time-lags to not clutter the exposition and focus just on the economic logic of the model.

This is clearly unrealistic. Bernanke and Blanchard assume a worker wage bargaining power that evidently does not exist in the U.S. It appears as if they are oblivious of the overwhelming body of empirical evidence that shows that worker power in the U.S. has all but vanished (Ferguson and Storm 2023; Storm 2021). The 'ivory-tower' argument does not apply, because close colleagues of Bernanke and Blanchard have written in no unclear words about the long-term decline in worker power in the U.S.:

> "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, 2).

Federal Reserve economist Jeremy Rudd (2022) concurs, explaining:

> "Outside of a few unionized industries (which now account for only about 6 percent of employment), a formal wage bargain – in the sense of a structured negotiation over pay rates for the coming year – doesn't really exist anymore in the United States. In a world where most employment is "at will," changes in the cost of living will enter nominal wages as part of an employer's attempt to retain workers: If employers pay their workers a wage that falls too far behind the cost of living, they will start to see more quits, which will in turn force them to raise the wages they pay to existing workers (and those they offer to new hires). But there is no real scope for direct negotiation."

The econometric evidence is also crystal clear: findings from Granger-causality tests show that nominal wage growth follows (but not leads) the inflation rate. This result is age-old. For the period 1954–1987, Gordon (1988, 276) concludes that

> "wage changes do not contribute statistically to the expansion of inflation [....] inflation depends on past inflation, not past wage changes. Deviations in the growth of labor cost from the path of inflation cause changes in labor's income share, and changes in the profit share in the opposite direction, but do not feed back to the inflation rate."

Palley (1999) finds the same using monthly data for the period February 1964–December 1997; Fed economists Hu and Toussaint-Comeau (2010) reach the same conclusion using data for 1960Q1-2009Q2; and Storm's (2024) findings based on data during January 1965–August 2023 likewise show that wage growth does not contribute statistically to the inflation rate.

It is fair to conclude that Equation (1) misrepresents the American wage-formation process, not by an inch but by a mile, by assuming a workers' wage bargaining power where there is none.

But Equation (1) involves a second assumption that is non-trivial: Bernanke and Blanchard posit that American workers use one-year inflation expectations as constructed by experts at the Federal Reserve Bank of Cleveland as their measure of p^E. The authors do not provide any evidence that this is what American workers actually do. The point is, they don't.

The available econometric evidence shows that future inflation expectations depend in large part simply on actual current and lagged inflation (Fair 2021, 2022; Rudd 2022). This macro-statistical evidence is in line with (micro-level) survey evidence showing that the strongest predictor of households' and firms' inflation forecasts are what they believe inflation has been in the recent past – which are not always accurate beliefs (Candia, Coibion, and Gorodnichenko 2021; Weber et al. 2022). Based on a careful review of theoretical arguments and empirical proof, Rudd (2022) concludes that the direct evidence for an 'expected-inflation channel' is not just weak, but *very* weak.

American workers would also have been complete fools if they had used their wage bargaining power (which they do not possess in reality) to ensure nominal wage growth in line with the one-year-ahead expected inflation rate published by the Cleveland Fed. The gap between actual CPI inflation and short-run inflation expectations by the Cleveland Fed was enormous during
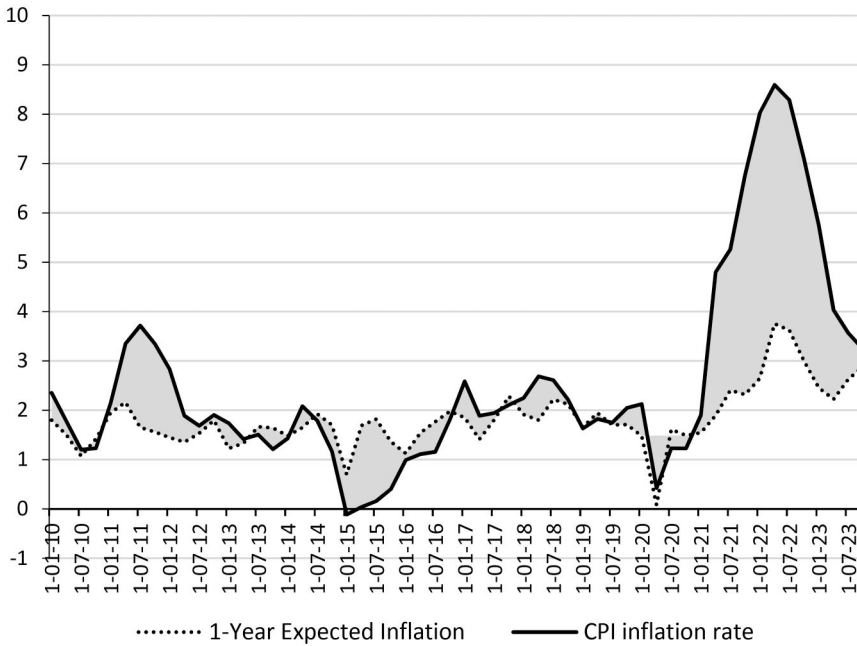
Figure 7. A huge gap between actual and short-run expected inflation.
Sources: FRED database (*series* CPIAUCSL and EXPINF1YR). *Notes*: The 1-year-ahead expected inflation rate is from the *Federal Reserve Bank of Cleveland.*

2021Q2-2023Q4, as is shown in Figure 7. The Fed's one-year-ahead expected inflation rate failed to track the CPI inflation rate, peaking at just 3.75% during the second quarter of 2022, as the CPI inflation rate rose to 8.6%.

If we assume (following Bernanke and Blanchard) 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 $2^1/_2$ 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 that they possess wage bargaining power (which they do not have), 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 insult 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.[7]

All in all, Equation (1) makes no empirical sense. It assumes that U.S. workers have the bargaining power to determine wage growth and hold forward-looking inflation expectations, but at the same time behave foolishly.

Price-Setting

Bernanke and Blanchard (2023) assume the following macro-economic *price-setting* rule:

$$p = w - \ell + z_P$$

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[7]A 2023 survey by Payroll.org find that 78% of Americans live pay check to pay check, while a 2023 Forbes Advisor survey reported that 29% of the respondents have an income that does not cover their standard expenses. See: https://www.forbes.com/advisor/banking/living-paycheck-to-paycheck-statistics-2024/.

where ℓ = labor productivity growth, and z_P = the growth rate of relative costs of non-labor inputs, variations in markups, and other factors affecting price-setting. The inflation rate p depends on the growth of unit labor cost $(w - \ell)$ and the growth on unit non-labor cost (including profits). Substitution of Equation (1) into the price-setting rule gives the expectations-augmented price Phillips curve (with slope β):

$$p = \beta \frac{v}{u} + p^E - \ell + z_W + z_P \tag{2}$$

According to Equation (2), inflation is determined by nominal wage growth (relative to exogenous labor productivity growth) and exogenous shock factors. This is a classic wage-price spiral model of inflation. Higher wage growth raises the inflation rate (a movement along the Phillips curve) and short-run inflation expectations (due to which the Phillips curve will begin to drift upwards). The final two equations describe the formation of short- and long-run inflation expectations.

Inflation Expectations

By endogenizing the short-run inflation expectations p^E of workers Bernanke and Blanchard (2023) lead us through the looking glass into a parallel universe. Bernanke and Blanchard believe that the short-run (one-year-ahead) inflation expectations of American workers are anchored to their long-run (10-year-ahead) inflation expectations π and to the actual inflation rate in the previous quarter p_{-1} :

$$p^E = \delta \pi + (1 - \delta)p_{-1} \tag{3}$$

If $\delta = 1$, short-run inflation expectations are fully 'anchored' to long-run expectations. But if $\delta < 1$, actual CPI inflation influences short-run inflation expectations (after one quarter). Long-run inflation expectations π are supposed to be a weighted average of last period's long-run inflation expectations and actual inflation:

$$\pi = \gamma \ \pi_{-1} + (1 - \gamma)p_{-1} \tag{4}$$

Again, if $\gamma = 1$, long-run inflations are not affected by the actual inflation rate, but only by long-run expected inflation in the previous quarter; the value of π_{-1} at any point in time is determined by the history of inflation. However, if $\gamma < 1$, long-run expected inflation is not fully anchored, but will change in response to changes in (lagged) actual inflation. δ and γ are argued to be close to, but not equal to 1.

Substitution of Equation (4) into Equation (3) gives the final expression for short-run inflation expectations:

$$p^E = \delta \gamma \ \pi_{-1} + (1 - \delta \gamma)p_{-1} \tag{5}$$

Substitution of Equation (5) into the price Phillips curve Equation (2) gives:

$$p = \beta \frac{v}{u} + \delta \gamma \ \pi_{-1} + (1 - \delta \gamma)p_{-1} - \ell + z_W + z_P \tag{6}$$

Inflation Dynamics

The inflation dynamics described by the Phillips curve Equation (6) represents an unstoppable wage-price spiral. To understand the mechanics, consider a sudden, drastic, tightening of the labor market: the job vacancy ratio v/u increases by 1 job opening per unemployed worker (as happened in the U.S. during 2021Q1-2022Q4; see Figure 1).

As is shown in Figure 8, the increase in the vacancy ratio from $(v/u)_{-1}$ to (v/u) raises the CPI inflation rate from $\hat{p}$ to $\hat{p}_{new}$; in the figure, this is represented by a movement along the initial Phillips curve PC_0 from point A to point B; both short-run and long-run inflation expectations
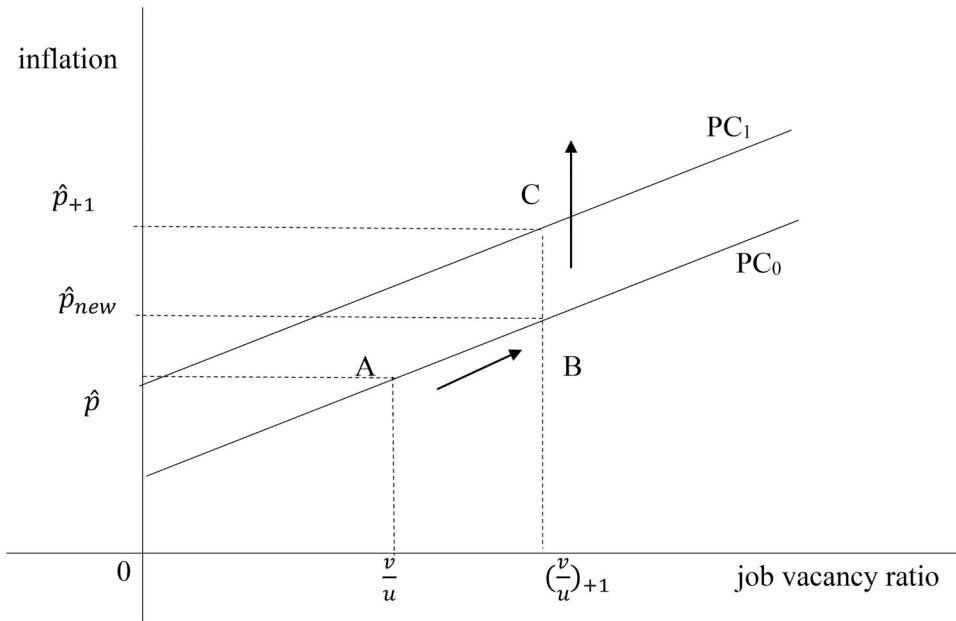
Figure 8. The expectations-augmented Phillips curve (PC).

remain unchanged (in the first quarter). Then, in the next quarter, short- and long-run inflation expectations begin to rise; as a result, the Phillips curve drifts upwards, from PC_0 to PC_1, and the rate of inflation increases further – from $\hat{p}_{new}$ to $\hat{p}_{+1}$. Workers' inflation expectations become unanchored and this leads to a never-ending upward shift in the Phillips curve. This both magnifies and (infinitely) prolongs the one-time inflationary impact of a drastically tighter labor market. Note that the Phillips curve will continue to drift upwards, while the job vacancy ratio remains stuck at $\frac{v}{u}$. Bernanke and Blanchard thus worship at the altar of the vertical long-run Phillips curve (Storm and Naastepad 2012).

The dynamic properties of Bernanke and Blanchard's model are Illustrated with numbers in Figure 9, which shows the impact on inflation of a permanent increase in the vacancy ratio by 1 unit; this amounts to a permanently much tighter labor market. (This is an unrealistic scenario; the U.S. job vacancy ratio rose from 1 job opening per unemployed worker in the second quarter of 2021 to a peak of 1.9 in 2022Q2, but it subsequently declined to 1.4 in the fourth quarter of 2023 see Figure 1). As is shown in Figure 9, the projected increase in the CPI inflation rate is equal to 2 percentage points after 16 quarters. This means that the initial impact on the inflation rate of the increase in v/u by 1 unit, which is equal to 1.28 percentage points, becomes amplified (by a factor of 1.56) due to 'un-anchoring' of short- and long-run inflation expectations. These simple results closely resemble those presented by Bernanke and Blanchard (their Figure 2).

It is through this inflation-expectations channel that the one-time inflationary shock, triggered by a tighter labor market, turns into a permanent and unstoppable wage-price spiral. The projected rate of inflation equals 2.6% after 8 years and 4.2% after 20 years, and so on. If $\gamma = \delta = 1$, the Phillips curve would stay put, and there would be no accelerating inflation. Bernanke and Blanchard (2023, 31) conclude the following:

> "…. The takeaway is that persistent labor market pressure leads to *ever-increasing inflation*. The rate of increase in our estimated model is relatively low, reflecting a weak estimated catch-up effect and well-anchored inflation expectations. Yet, as inflation expectations are not fully anchored, extended labor market tightness can lead to significant additional inflation." *(italics added)*
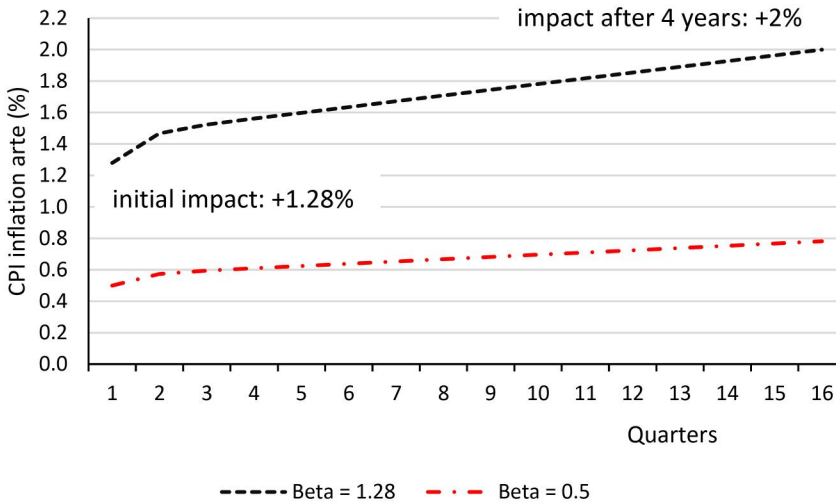
Figure 9. Responses of CPI inflation to a *permanent* increase in the vacancy ratio based on Bernanke and Blanchard (2023) model.
Notes: Following Bernanke and Blanchard (2023), it is assumed that $\beta = 1.28$; $\gamma = 0.975$ and; $1 - \delta\gamma = 0.875$. In the red scenario, $\beta = 0.5$.

Figure 9 also illustrates what would happen if $\beta = 0.5$, which is arguably more realistic than Bernanke and Blanchard's assumption that $\beta = 1.28$. The short-term and long-term inflationary impacts of a drastically tighter labor market become considerably smaller; the projected increase in the CPI inflation rate now equals only 0.8 percentage points after 16 quarters. But also in this alternative case, persistent labor market tightness, helped by the un-anchoring of inflation expectations, is modeled to lead to ever-increasing inflation, albeit at a slower pace. What is the validity of the inflation-expectations channel proposed by Bernanke and Blanchard?

A Critique of Bernanke and Blanchard's Model

The inflation-expectations channel in the Bernanke and Blanchard model generates a rather strange anomaly: both short- and long-term inflation expectations continue to permanently lag behind actual CPI inflation. This is shown in Figure 10, which presents the responses of the CPI inflation rate and expected rates of inflation to a permanent increase in v/u by one unit.

It can be seen that both one-year-ahead and 10-year-ahead expected inflation rates become unanchored and contribute to the wage-price spiral, but it is also the case (in this model) that workers are permanently expecting a much lower rate of inflation than the actual inflation rate. In the model, the permanently incorrect inflation expectations do not matter for workers' real wages, because the CPI inflation rate and nominal wage growth rise in tandem (see Equation (2)). But it is a mystery why short- and long-run inflation expectations, if these are to play a meaningful role in the story, respond so slowly and so incompletely to the surge in inflation, triggered (in this scenario) by a tighter labor market.[8]

The conventional claim, also advanced by Bernanke and Blanchard, is that the muted responses of inflation expectations to increases in actual inflation reflect the fact that workers' inflation expectations are 'well anchored', in the sense that they exhibit stable behavior at levels consistent with the stated inflation target (of 2%) of the Federal Reserve. In other words, workers

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[8]The mystery disappears if one assumes that America's workers understand and accept the model of Bernanke and Blanchard and if one assumes that that model is the 'true' model of the U.S. economy. Circular reasoning can solve almost any problem.
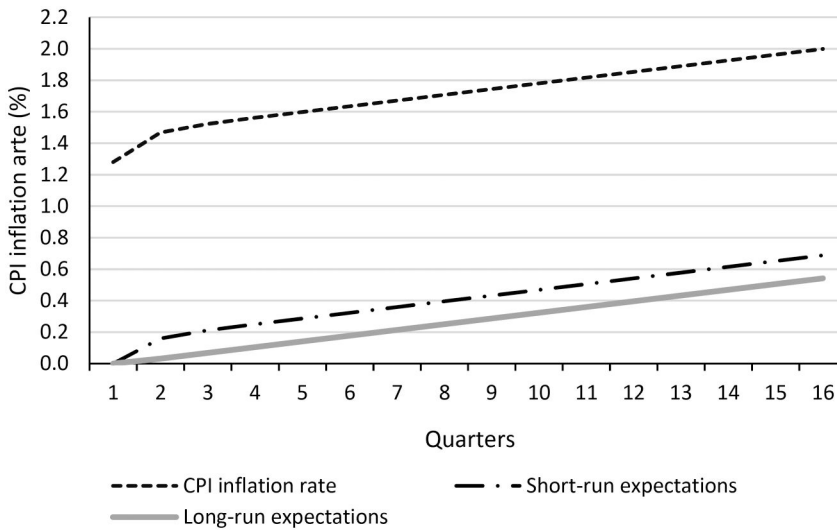
Figure 10. Responses of CPI inflation and of inflation expectations to a *permanent* increase in v/u based on Bernanke and Blanchard (2023) model.

consider the Fed's inflation targeting policy as credible, and, as a result, they do not get carried away by a sudden surge in actual inflation. Instead, they reasonably expect that the Federal Reserve will do 'whatever it takes' to stop the increase in inflation, tighten monetary policy and create enough additional unemployment so as to lower v/u, cool down the labor market and bring down the inflation rate (to 2%). The muted responses of inflation expectations are, therefore, claimed to be based on the (additional) expectation that the Federal Reserve will be able to stop the (otherwise permanent) wage-price spiral in its tracks.

The logic of this argument may well be impeccable, but the argument has little validity for the real world. The credibility argument takes it for granted, and incorrectly so, that monetary tightening by the Federal Reserve is capable of bringing down the inflation rate rather quickly. This is not a realistic assumption, however. We calculated the predicted decrease in the core PCE inflation rate, using Fair's (2022) quarterly forecasts of an increase in the policy interest rate by 1 percentage point for the period 2022Q1-2023Q4. The cumulative impact of monetary tightening on the U.S. inflation rate appears in Figure 11. The steady rise in the policy interest rate – from 0.1% in 2022Q1 to 5.33% in 2023Q4 – has cumulatively lowered the core PCE inflation rate by 1.63 percentage points in the fourth quarter of 2023.

This means that the core PCE inflation in 2023Q4 would have been 4.8% without the monetary tightening by the Federal Reserve – instead of 3.2% (the actual PCE inflation rate during 2023Q4). The drastic monetary tightening by the Fed has thus managed to lower U.S. inflation by circa one-third. But it took time for monetary tightening to work: the cumulative decline in the U.S. inflation rate was only 0.68 percentage points after two full years. Figure 11 shows "in a simple experiment the power of the Fed to affect inflation, which is less that many people seem to realize" (Fair 2022, 16). It is paradoxical that Bernanke and Blanchard use four quarters lag for each and every variable in their model, but do not pay attention to the really existing lags associated with monetary tightening.

It remains mysterious why American workers would be gullible enough to believe that the Fed's inflation targeting is credible. It would cost them dearly. As is shown in Figure 12, because nominal wage growth fell short of the CPI inflation rate during 2021Q2-2023Q2, workers had to swallow a cumulative real wage decline of around 5 percentage points. Permit me to repeat the
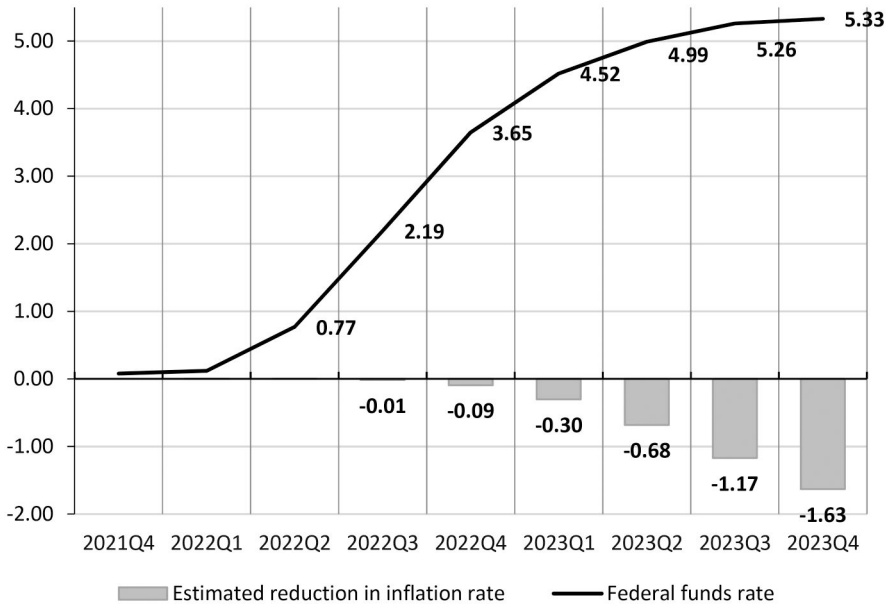
Figure 11. Estimated impact of monetary tightening on the PCE inflation rate: the U.S. economy (2021Q4-2023Q4; percentages). *Sources*: Calculated based on FRED database (*series* FEDFUNDS) and Fair (2022, Table 3). See Storm (2023).
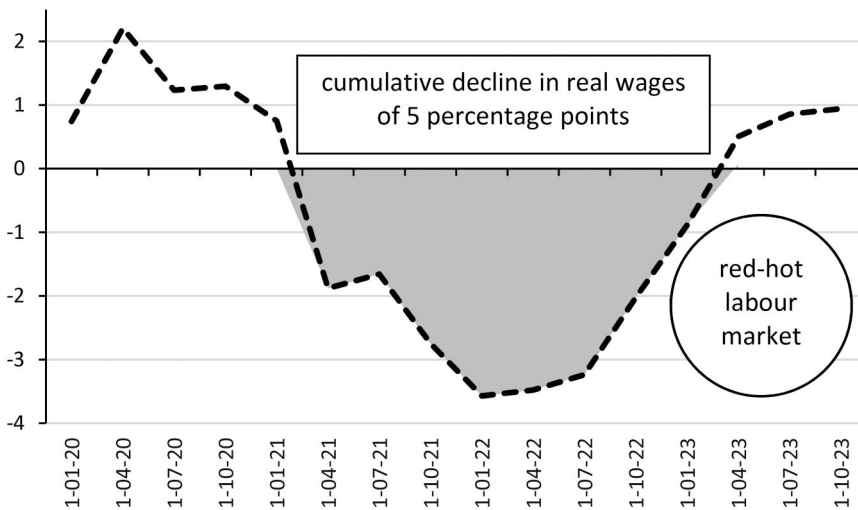
Figure 12. Annualized U.S. real wage growth (2021Q2-2023Q2; percentages). *Sources*: Nominal wage growth is measured by the Employment Cost Index (ECI), published by the *Bureau of Labor Statistics*. Real wage growth has been calculated using the CPI (FRED database *series* CPIAUCSL).

obvious point that this is exactly the period during which the U.S. labor market is supposed to have been 'red hot', with a job vacancy ratio of almost 2 job openings per unemployed worker.

Bernanke and Blanchard (2023) argue that the prolonged decline in real wages has been caused by unanticipated supply shocks that raised costs and, hence, prices. That is, the shock term z_P in Equation (2) was positive, driving up prices. Workers, in their view, behaved rationally by putting faith in the Fed's ability to control inflation, because the inflationary outcome would have been

far worse, if they had done otherwise. After all, if American workers had decided to claim higher nominal wage growth in response to the sudden supply side-driven surge in inflation, inflation expectations would have become un-anchored, γ and δ would have gone down, and the inflation rate would have accelerated more and faster. Thank goodness, American workers are real patriots who know what has to be done during a national emergency: keep trust in the brave inflation-fighters of the Federal Reserve.

This leads us to an even bigger problem in Bernanke and Blanchard's model: it is constructed based on the implicit assumption that, in the steady state, the growth rate of real wages equals the growth rate of labor productivity (ℓ) *in the absence of (unexpected) shocks* (i.e., $z_P = 0$). This can be seen from Equation (2), when we define real wage growth ($w - p$) as follows:

$$(w - p) = \ell - z_P \tag{7}$$

If positive, the 'shock term' z_P represents an unanticipated increase in (relative) production costs, caused by a hike in oil and energy prices, food prices, supply chain disruptions and short-ages of critical intermediate inputs (as indeed occurred during 2021–2023). Only in case z_P is positive, real wage growth will be lower than (exogenous) labor productivity growth. Bernanke and Blanchard argue that this is what has happened during the pandemic era. Their own decom-position analysis shows that around *three-fourths* of the surge in U.S. inflation has to be attrib-uted to the cost shock originating from COVID19 lockdowns, supply chain disruptions and food and oil price increases. Bernanke and Blanchard thus put the blame of the real wage losses on the 'unanticipated cost shocks' that did fundamentally upset the global and the U.S. economies.

It needs to be emphasized that z_P is defined as the 'normal' trend-wise growth rate of critical intermediate inputs (such as food, computer chips and energy), relative to trend-wise nominal wage growth. An unanticipated increase in the *level* of these costs will show up in a one-period increase in z_P; put differently, prices of oil, energy, food and critical intermediate inputs do jump up (or go down), but generally do not increase (decrease) permanently. This implies that z_P will soon revert back to zero, and, hence, $z_P \approx 0$ on average in normal times as well as in the blissful steady state. Accordingly, Bernanke and Blanchard do assume that real wage growth must, on average, equal labor productivity growth in the longer run.

Figure 13 illustrates this structural feature of Bernanke and Blanchard's model. A permanent supply side shock to the *level* of production costs leads to one-period increase in z_P, a sharp increase in inflation (by 2 percentage points) that is almost completely reversed after a few quar-ters. (z_P goes back to zero in all later quarters.) The low persistence of inflation in this case reflects the fact that inflation expectations are (supposedly) well anchored. Because of the (small) effect of the inflation shock on long-run expectations, inflation ends up permanently slightly higher. According to Bernanke and Blanchard, the conventional wisdom that monetary policy-makers can 'look through' temporary supply shocks is therefore justified.

Importantly, through the expected-inflation channels, nominal wage growth (which is running behind the inflation rate) catches up with the (small) increase in the inflation rate and, hence, real wage growth recovers, after an initial decline, within just a few quarters. This is consistent with the assumption that real wage growth equals exogenous labor productivity growth in the longer run (as in Equation (7)), assuming $z_P \approx 0$.

The real-wage rigidity built into the model magnifies the inflationary impact of labor market tightness. Bernanke and Blanchard make the same mistake again and assume a worker wage bar-gaining power that evidently does not exist (Stansbury and Summers 2020). This is powerfully illustrated by Figure 14, which shows that the growth rate of real wages of American workers has structurally fallen short of the growth rate of labor productivity during 1990–2023. The average annual growth rate of labor productivity during these 33 years was 1.99%, while real wages increased by just 0.46% per year. The real wage rigidity that is implicitly built into the macro
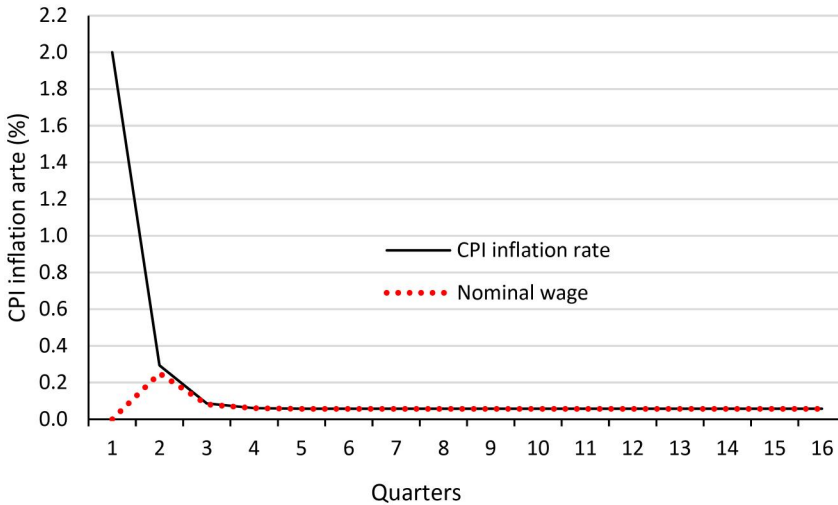
Figure 13. Response of CPI inflation and nominal wage growth to a *permanent* increase in the level of production costs based on Bernanke and Blanchard (2023) model.

Figure 14. Real wages and labor productivity: the U.S. (1990Q1-2023Q4; 1990 = 100).
Source: Productivity and Costs Data, *Bureau of Labor Statistics*.

model of Bernanke and Blanchard is a fantasy – U.S. workers can only dream that real wage growth would actually match productivity growth.

Hence, U.S. real wages are not downwardly rigid, but rather have been falling relative to labor productivity. Rather than being a source of inflationary pressure, real wages have acted as an absorber of inflationary shocks. By building real-wage rigidity into their model, through the inflation-expectations channel, Bernanke and Blanchard again exaggerate the inflationary consequences of a tight labor market and of cost shocks. Their model analysis is biased, designed to demonstrate the supposedly *Very Serious Inflationary Consequences* of an exaggerated tightness of
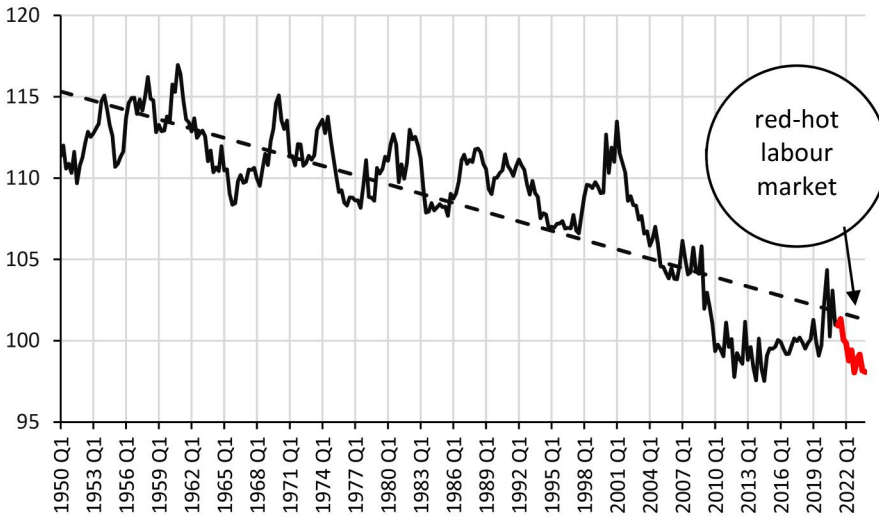
Figure 15. The labor income share: the U.S. (1950Q1-2023Q4; 2017 = 100).
Source: Productivity and Costs Data, *Bureau of Labor Statistics*.

the labor market, setting monetary policymakers up to deliver significantly more monetary tightening than can be justified on the basis of alternative and arguably more realistic model analyses (e.g., Fair 2021, 2022).

In doing so, Bernanke and Blanchard (2023) manage to ignore the single most important stylized fact on the post-1980 U.S. economy: the secular decline in the labor income share (Figure 15). The declining labor income share is a direct consequence of the decline in worker (union) power (Stansbury and Summers 2020), which, in turn, is consistent with another salient aspect of the macroeconomic experience of the U.S. in recent decades: the substantial decline in both unemployment and inflation, reflected in the flattening of the price Phillips curve (Storm 2024).

Ignoring the secular decline in the labor income share in a macro model for the U.S. economy amounts to performing 'The Tragedy of Hamlet' without the Prince of Denmark. True, but Hamlet's part is not left out accidentally, rather it has been dropped on purpose, i.e., to disguise economic reality, hide distributional issues from view, and de-politicize (monetary and fiscal) policy-making. Bernanke and Blanchard's approach to economics, which refuses to engage with the central economic problems of our times, serves a purpose, however. In fact, economics, done this way, "becomes, however unconsciously, a part of an arrangement by which the citizen or student is kept from seeing how he is, or will be, governed," as John Kenneth Galbraith (1973, 6) pointed out long ago. "Such an economics is not neutral," he added (Galbraith 1973, 11) "it is the influential and invaluable ally of those whose exercise of power depends on an acquiescent public." The true purpose of this kind of economics is, quoting Fed economist Jeremy Rudd (2022, 1), "to provide an apologetics for a criminally oppressive, unsustainable, and unjust social order."

The State of Macro is Not Good

Bernanke and Blanchard (2023) use a simple dynamic New Keynesian model of wage-price determination to explain the sharp acceleration in U.S. inflation during 2021–2023. Their model analysis is another attempt to salvage establishment macroeconomics after the massive onslaught of adverse inflationary circumstances with which it could evidently not contend. The confidence with which they conclude that " … we don't think that the recent [inflation] experience justifies

throwing out existing models of wage-price dynamics" (Bernanke and Blanchard 2023, 38–39) is remarkable, but on closer look also misplaced.

Leaving aside other questions concerning the rather eccentric econometrics underlying the model analysis, it is important to note that Bernanke and Blanchard's estimate of the impact of an increase in the job vacancy ratio on nominal wage growth considerably exaggerates the inflationary effects of a tight labor market, as it is more than twice as large as other, more reliable estimates of the same effect in the literature. Despite this 'bias' in favor of wage-push inflation, Bernanke and Blanchard find that (exogenous) supply side shocks have been responsible for around two-thirds to three-fourths of the surge in the inflation rate during 2020Q4 and 2022Q2, while the contribution to inflation of tight labor-market conditions was found to be negative during the first two quarters of 2021 and positive but miniscule during 2021Q3-2023Q2. Reality prevails, after all.

Of greater importance are three key flaws built into, and distorting, their simple dynamic New Keynesian model of wage-price spiral inflation. First, Bernanke and Blanchard use the job vacancy ratio as their measure of demand pressure in the price Phillips curve (instead of the unemployment rate or the output gap). The 'extremely high' job vacancy ratio during 2021Q3-2023Q4 has been shown to have been considerably of out of sync with other indicators of demand pressure, including the output gap (Figure 3), and is also *not* associated with 'extremely high', but with moderate nominal wage growth (Figure 5). The use of this outlier indicator for demand pressure, in combination with an estimated coefficient of v/u on nominal wage growth that is double the magnitude of the effect found in the literature, unduly reinforces the wage-price spiral mechanism in the model analysis (Storm 2024).

Second, it is claimed that a *permanently* tighter labor market leads to permanently higher inflation. This sounds very dangerous, but the outcome of permanently rising inflation is based on the non-plausible inflation-expectations channel, formalized by Bernanke and Blanchard, that does not survive a confrontation with economic reality and empirical evidence. This inflation expectations channel is based on two contradictory (and equally unrealistic) assumptions. On the one hand, U.S. workers are assumed to possess the bargaining power to force firms to pay nominal wage increases in line with increases in short-run expected inflation. This presupposes a worker wage bargaining power that palpably does not exist (Stansbury and Summers 2020).[9]

On the other hand, these powerful, forward-looking workers do not strongly ratchet up their inflation expectations in the face of a sudden surge in actual inflation, because their inflation expectations are well-anchored in the belief that the Federal Reserve will quickly and effectively bring inflation down to its target. As a result, inflation expectations permanently fall short of actual inflation, which is – in this model – a reason why the acceleration of inflation is happening in slow-motion; it takes many years before the Phillips curve becomes vertical, but, as we all know, "The long run is a misleading guide to current affairs. In the long run we are all dead," as John Maynard Keynes wrote in his 1923 work, *A Tract on Monetary Reform*. It is a mystery why Bernanke and Blanchard assume that American workers are able to raise wages in line with expected inflation and at the same time are gullible enough to believe that the Fed's inflation targeting is credible. It is not, because the effects of monetary tightening on inflation are limited and take time to build, with the results that workers will have to go through a prolonged period of real wage declines (Figure 12).

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[9]It must be noted that a new wave of unionisation is under way in U.S. manufacturing. It has been given a powerful shot in the arm by the United Auto Workers (UAW) victory in the Volkswagen assembly plant in Chattanooga, Tennessee, in April 2024. The UAW has announced that a majority of workers at Mercedes-Benz in Vance, Alabama have signed up to join the union. Public union campaigns have also been launched at Hyundai in Montgomery, Alabama, and Toyota in Troy, Missouri. It is inevitable that this unionisation wave (from a very low private-sector unionisation of only 6%) will fuel mainstream fears about wage/price inflation.

Third, Bernanke and Blanchard assume that American workers have wage bargaining power, which they use to protect their real wages. This not a bug, but a feature of their model, behind which the economic reality – for ages, real wages have failed to keep up with labor productivity growth and the labor income share is in secular decline – has been hidden. Bernanke and Blanchard overlook, or refuse to consider, the fact that worker power has dwindled in the U.S., as many men and women had to go from stable, decently paying jobs in factories and stores to insecure work in the gig or services economy – and the decline of private-sector unions has resulted in the near-monopoly of political lobbying about private sector economic issues by corporate and shareholder interests, influencing Democrats and Republicans alike (Ferguson, Jorgensen, and Chen 2022). Likewise, Bernanke and Blanchard do not wish to entertain the possibility that some of the inflation surge during 2021Q2-2023Q4 must be attributed to increases in corporate profit markups (Storm 2023) and speculation in oil and energy markets (Breman and Storm 2023). These are errors of commission, not omission, and they are not neutral, but provide an apologetics for an unequal, unjust, oppressive and politically unstable social order.

It is not surprising, therefore, that the Federal Reserve uses a data-driven approach to its monetary policy decisions. The established New Keynesian models are of no use. The state of macro is not good.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

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References

Barnichon, R. 2010. "Building a Composite Help-Wanted Index." *Economics Letters* 109 (3): 175–8. https://doi.org/10.1016/j.econlet.2010.08.029

Barnichon, R., L. E. Oliveira, and A. H. Shapiro. 2021. "Is the American Rescue Plan Taking Us Back to the "60s?." In *FRBSF Economic Letter 2021-27*. San Francisco: Federal Reserve Bank of San Francisco. https://www.frbsf.org/economic-research/publications/economic-letter/2021/october/is-american-rescue-plan-taking-us-back-to-1960s/.

Bernanke, B., and O. Blanchard. 2023. "What Caused the U.S. Pandemic-Era Inflation?" NBER Working Paper 31417. Cambridge, Mass: National Bureau of Economic Research. https://www.nber.org/papers/w31417

Blanchard, O. 2021. "In Defense of Concerns Over the $1.9 Trillion Relief Plan." *Peterson Institute for International Economics.*

Breman, C., and S. Storm. 2023. "Betting on Black Gold: Oil Speculation and U.S. Inflation (2020–2022)." *International Journal of Political Economy* 52 (2): 153–80. https://doi.org/10.1080/08911916.2023.2238565

Candia, B., O. Coibion, and Y. Gorodnichenko. 2021. "The Inflation Expectations of U.S. firms: Evidence from a New Survey." NBER Working Paper No. 28836. Cambridge, Mass.: National Bureau of Economic Research. https://www.nber.org/papers/w28836

Domash, A., and L. H. Summers. 2022. "How Tight Are U.S. Labor Markets?" NBER Working Paper 29739. Cambridge, Mass.: National Bureau of Economic Research. https://www.nber.org/papers/w29739

Fair, R. C. 2021. "What Do Price Equations Say About Future Inflation?" *Business Economics* 56 (3): 118–28. https://doi.org/10.1057/s11369-021-00227-2

Fair, R. C. 2022. "A Note on the Fed's Power to Lower Inflation." *Business Economics* 57 (2): 56–63. https://doi.org/10.1057/s11369-022-00254-7

Ferguson, T., P. Jorgensen, and J. Chen. 2022. "How Money Drives U.S. Congressional Elections: Linear Models of Money and Outcomes." *Structural Change and Economic Dynamics* 61 (June): 527–45. https://doi.org/10.1016/j.strueco.2019.09.005

Ferguson, T., and S. Storm. 2023. "Myth and Reality in the Great Inflation Debate: Supply Shocks and Wealth Effects in a Multipolar World Economy." *International Journal of Political Economy* 52 (1): 1–44. https://doi.org/10.1080/08911916.2023.2191421

Galbraith, J. K. 1973. "Power and the Useful Economist." *American Economic Review* 63 (1): 1–11.

Ghomi, M., S. Hurtado, and J. M. Montero. 2024. "Analysis of Recent Inflation Dynamics in Spain. An Approach Based on the Blanchard and Bernanke (2023) Model." Banco de España Working Paper 2404. Madrid: Banco de España. https://www.bde.es/f/webbe/SES/Secciones/Publicaciones/PublicacionesSeriadas/DocumentosOcasionales/24/Files/do2404e.pdf

Gordon, R. J. 1988. "The Role of Wages in the Inflation Process." *American Economic Review* 78 (2): 276–83.

Hu, L., and M. Toussaint-Comeau. 2010. "Do Labor Market Activities Help Predict Inflation?" *Federal Reserve Bank of Chicago Economic Perspectives* 34 (2): 52–63.

Lagarde, C. 2023. "Christine Lagarde: ECB Press Conference – Introductory Statement." https://www.bis.org/review/r230316h.htm

Nakamura, K., S. Nakano, M. Osada, and H. Yamamoto. 2024. "What Caused the Pandemic-Era Inflation? Application of the Bernanke-Blanchard Model to Japan." Bank of Japan Working Paper No. 24-E-1. Tokyo: Bank of Japan. https://www.boj.or.jp/en/research/wps_rev/wps_2024/data/wp24e01.pdf

Palley, T. I. 1999. "The U.S. Inflation Process: Does Nominal Wage Inflation Cause Price Inflation, Vice-Versa, or Neither?" *Review of Radical Political Economics* 31 (3): 12–9. https://doi.org/10.1177/048661349903100302

Powell, J. 2023. "Transcript of Chair Powell's Press Conference July 26, 2023." https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20230726.pdf

Rudd, J. B. 2022. "Why Do We Think That Inflation Expectations Matter for Inflation? (And Should We?)." *Review of Keynesian Economics* 10 (1): 25–45. https://doi.org/10.4337/roke.2022.01.02

Stansbury, A., and L. H. Summers. 2020. "The Declining Worker Power Hypothesis: An Explanation for the Recent Evolution of the American Economy." NBER Working Paper 27193. Cambridge, Mass.: National Bureau of Economic Research. https://www.nber.org/papers/w27193

Storm, S. 2021. "Cordon of Conformity: Why DSGE Models Are *Not* the Future of Macroeconomics." *International Journal of Political Economy* 50 (2): 77–98. https://doi.org/10.1080/08911916.2021.1929582

Storm, S. 2023. "Profit Inflation is Real." *PSL Quarterly Review* 76 (306): 243–59.

Storm, S. 2024. "The Art of Paradigm Maintenance: How the 'Science of Monetary Policy' Tries to Deal with the Inflation of 2021-2023." *European Journal of Economics and Economic Policy* 21 (2).

Storm, S., and C. W. M. Naastepad. 2012. *Macroeconomics beyond the NAIRU*. Cambridge, Mass.: Harvard University Press.

Storm, S. 2022. "Inflation in a Time of Corona and War." INET Working Paper No. 185. New York: Institute for New Economic Thinking. https://www.ineteconomics.org/research/research-papers/inflation-in-the-time-of-corona-and-war

Summers, L. H. 2021. "The Biden Stimulus Is Admirably Ambitious. But It Brings Some Big Risks, Too." *The Washington Post*.

Walque, G., and T. Lejeune. 2024. "What Caused the Post-pandemic Era Inflation in Belgium? Replication of the Bernanke-Blanchard Model for Belgium." National Bank of Belgium Working Paper 447. Brussels: National Bank of Belgium. https://www.nbb.be/doc/ts/publications/wp/wp447en.pdf

Weber, M., F. D'Acunto, Y. Gorodnichenko, and O. Coibion. 2022. "The Subjective Inflation Expectations of Households and Firms: Measurement, Determinants, and Implications." NBER Working Paper No. 30046. Cambridge, Mass.: National Bureau of Economic Research. http://www.nber.org/papers/w30046