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Recession and Deflation?

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DISCUSSION PAPER SERIES

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ABSTRACT

Recession and Deflation?*

Central bankers are raising interest rates on the assumption that wage-push inflation may lead to stagflation. This is not the case. Although unemployment is low, the labor market is not 'tight'. On the contrary, we show that what matters for wage growth are the non-employment rate and the under-employment rate. Both are high and act as brakes on wage growth. By lowering already low levels of consumer confidence, higher interest rates are liable to exacerbate workers' inability to maintain their real wages by reducing labor demand still further. Furthermore, we argue inflationary pressures have been generated by short-term supply side problems, rather than excessive demand in the economy. Under these conditions, just as in the Great Recession we anticipate deflation in the near future, coupled with rising joblessness and recession.

JEL Classification: E31, E43, J2, J3, J64

Keywords: unemployment, non-employment, wages, inflation, labor market

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1. Introduction

There is growing recognition among economists in both the United States and the United Kingdom that growth has slowed in the last year or so and that we are likely in a period of negative growth. In recent months this has been accompanied by rising inflation which has been a surprise to many coming, as it does, after a long period of low, stable and below target, inflation. The big question is how deep and long lasting the recessions will be rather than if they are going to occur and whether the inflation will be persistent or temporary.

This combination of recession and inflation is usually accompanied by increasing unemployment in what economists refer to as “stagflation”. At present, rising unemployment is conspicuous by its absence. Indeed, some maintain that the labor market is ‘tight’, pointing to high vacancy-to-unemployment ratios and historically low unemployment rates.

This perception that labor markets are tight – although challenged by some economists including us - coupled with fear that inflationary pressures may persist, has led many policy analysts to prescribe higher interest rates in the hope that this will choke off demand in the economy.

However, critics have argued that current inflationary pressures are not demand driven. First, they point to supply-side problems – notably post-COVID supply chain problems and energy price spikes linked to the war in Ukraine - being central to current inflationary pressures. If so, these may subside in time, suggesting inflationary pressures may be short-lived. Second, they maintain that wage demands are unlikely to push inflation up further because the labor market is less ‘tight’ than it appears. Specifically, they note that non-employment and under-employment rates have been a brake on wage growth and that the fixation on unemployment rates is misplaced and has been ever since the Great Recession of 2008 (Blanchflower et al., 2022).

If this diagnosis of the underlying causes of inflation and the underlying nature of the labor market is correct then hiking interest rates may prove counterproductive, negatively impacting already weak demand in product and labor markets, to the detriment of workers and consumers.

We explore these issues in this paper. We present evidence on long run trends in inflation, wages and labor market employment and participation in the United States. A major puzzle in macroeconomics is why wage growth was so benign in the years from 2010-2020 as the unemployment rate tumbled. We show that this is because the unemployment rate understated the amount of slack in the US labor market. Since the Great Recession of 2008 wages in the United States have not been affected by the unemployment rate but by non-employment and under-employment. If the non-employment rate that existed in 2000 were to exist today, employment would be twelve million jobs higher.¹

For a decade from the summer of 2008 inflation in the United States remained benign. Wage growth also remained well below expectations through 2020, despite the fact that the unemployment rate steadily ticked down from 10% to under 4%. In the years prior to 2008 such a fall would have generated rapid wage growth. And yet, there has been no sign of cost push inflation for years and years.

¹ No other major country has seen falls in the non-employment rate. Exceptions are Greece and Spain that experienced post Great Recession unemployment rates of over 20%.

But then there was the Covid pandemic followed by the war in Ukraine resulting in a strong burst of inflation in 2021 and 2022 primarily because of the blocking of supply chains. There was little evidence it was driven by excess demand. Central banks around the world, led by the Federal Reserve, responded by raising interest rates. Not only that but the Fed signaled to markets that more rate rises were coming so markets tightened and mortgage costs rose sharply. The claim was that had to be done because inflation expectations would become de-anchored – although no evidence was presented to support this claim. Analogies were drawn with the Volcker years when interest rates surged to combat union power that resulted in wage increases and Cost of Living Adjustment (COLA) clauses in union contracts.

We think the US and the UK at the time of writing are both in recession and that growth prospects will be made worse by actions of the Federal Reserve and the Bank of England. The Federal Reserve and the Bank of England are raising rates expecting high inflation but without any serious model. Historically the most likely outcome is deflation, as we discuss below.

Markets are expecting more rate rises to come. Interestingly on the day that Liz Truss resigned as PM Deputy Governor Ben Broadbent at the Bank of England warned “*whether official interest rates have to rise by quite as much as currently priced in financial markets remains to be seen*”.² They are intentionally slowing the economy because of fears of second-order effects.³ The hope is there will be soft landings based on no convincing evidence.

These errors in macro policy have been exacerbated in the UK by the actions of the Truss government when, in September 2022, it introduced a package of unfunded tax cuts which spooked the markets. Almost immediately bond and foreign exchange markets collapsed, and the Bank of England had to step in and rescue pension funds who lacked liquidity. The following day mortgage products were largely withdrawn as sellers couldn’t price products. The IMF even intervened in criticizing these measures.⁴ Collapsing markets meant a series of U-turns were undertaken to unsuccessfully calm markets. Within a few days the Chancellor of the Exchequer returned from the IMF meetings in Washington to be summarily dismissed. Prime Minister Liz Truss has subsequently had to resign as a result of the debacle.⁵ Martin Freedland even argued that this was

² Ben Broadbent, ‘The inflationary consequences of real shocks’, – speech given at Imperial College, London, October 20, 2022.

³ Federal Reserve Bank of Philadelphia President Patrick Harker on October 20th, 2022, for example said “given our frankly disappointing lack of progress on curtailing inflation, I expect we will be well above 4% by the end of the year,” see M.S. Darby Fed’s ‘Harker says high inflation calls for more rate hikes’, Reuters, October 20th 2022. CPI inflation as we will show has been falling sharply and is driven by base effects.

⁴ “We are closely monitoring recent economic developments in the UK and are engaged with the authorities. We understand that the sizable fiscal package announced aims at helping families and businesses deal with the energy shock and at boosting growth via tax cuts and supply measures. However, given elevated inflation pressures in many countries, including the UK, we do not recommend large and untargeted fiscal packages at this juncture, as it is important that fiscal policy does not work at cross purposes to monetary policy. Furthermore, the nature of the UK measures will likely increase inequality. The November 23 budget will present an early opportunity for the UK government to consider ways to provide support that is more targeted and reevaluate the tax measures, especially those that benefit high income earners.” IMF, September 27, 2022. <https://www.imf.org/en/Countries/GBR>

⁵ A UK paper the Daily Star posted a live feed of a lettuce to see if the prime minister had a longer shelf life. <https://www.dailystar.co.uk/news/latest-news/liz-truss-lettuce-last-longer-28235047>

the biggest humiliation of Britain since Suez.⁶ This illustrated more than anything else the fragility of markets as volatility spreads.

In the next section we discuss fear of inflation and the path of inflation. In Section Three we discuss labor market trends. Section Four examines whether the US is in recession while Section Five examines wage formation, pointing to the error made by market analysts and policy advisers in fixating on unemployment rates. In the concluding section we draw out the implications of this analysis and consider whether the actions by the Federal Reserve are in error. We argue they are.

2. Inflation

The United States previously entered a major recession back in December 2007 according to the National Bureau of Economic Research's Business Cycle Dating Committee. It was clear, even by the Fall of 2008, that the Federal Reserve still had no clue that had happened. The failure of Lehman Brothers on September 15th, 2008 changed all that.

In the minutes of the FOMC meeting three days later on September 18th 2008, there were 129 mentions of the word “inflation” and five of “recession”. Fed Chair and 2022 Economics Nobel Laureate Ben Bernanke argued *"I think what we saw in the recent labor reports removes any real doubt that we are in a period that will be designated as an official NBER recession... So, I think that we are in for a period of quite slow growth."* Quite an understatement.

At that same meeting Atlanta Fed President Dennis Lockhart argued *"inflation risks are still in play"*, Kansas City President Hoenig argued *"we also have an inflation issue."* President James Bullard said *"an inflation problem is brewing"*. Philadelphia Fed President Charles Plosser said *"I believe this Committee will need to raise rates in order to deliver on our inflation objectives"*. Governor Don Kohn said: *"despite the incoming inflation data, we can have greater confidence in our forecast that inflation will decline late this year and run much lower in the next few years than in the past year or so, though the risks to that still lie on the upside until we actually see the decline in headline inflation persist."* In contrast Governor Janet Yellen argued *"there is light at the end of this inflation tunnel"*.⁷

At the most recent press conference given by Fed Chair Jay Powell on September 21st, 2022 he mentioned the word “recession” six times and “inflation” 81 times.⁸

"the longer the current bout of high inflation continues, the greater the chance that expectations of higher inflation will become entrenched.... The FOMC is strongly resolved to bring inflation down to 2 percent, and we will keep at it until the job is done. So, the way we're thinking about this is the overarching focus of the Committee is getting inflation back down to 2 percent."

Table 1 compares what happened to inflation around the time of the Great Recession with recent years.

⁶ Martin Freedland, 'The markets have taken back control: so much for Truss's Brexit delusion of sovereignty', the Guardian, 14th October, 2022.

<https://www.theguardian.com/commentisfree/2022/oct/14/markets-take-back-control-brexite-humiliation-britain-suez>

⁷ <https://www.federalreserve.gov/monetarypolicy/files/FOMC20080916meeting.pdf>

⁸ <https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20220921.pdf>

The BLS released the August 2008 CPI inflation numbers on September 16th just before the FOMC September meeting.⁹ The seasonally adjusted estimate fell to 5.4% from what turned out to be its peak of 5.5% the month before. It then started to plummet and was negative – this is deflation – by January 2009. It went back to zero in February 2009 and then negative for eight months in a row reaching a low of -2.0% in July 2009.

The 12-month CPI is calculated approximately by the sum of twelve numbers and each month one is added, and another dropped. Of particular note is that Fed officials did not appear to have predicted that in October a +0.3 was dropped and was replaced by a -0.9; the next month a +0.8 was replaced by a -1.8 dropping the CPI from 3.7% to 1.1%. Finally in December a +0.3 was replaced with a -0.8%, dropping inflation from 1.1% to zero.

The concern from Fed officials and many market commentators today seems misplaced based on the data for 2020-2022 reported in the lower half of **Table 1** because it is driven by base effects. At the time of writing inflation over the last three months was 0.4%, annualized to 1.6%. Big drops are likely to come in the first six months of 2023 as an average of 0.9 is dropped each month. This looks awfully like 2008. It is unclear what the big hang-up is about the persistence of inflation given it is entirely driven by base effects that will drop out by June. For them not to, another supply shock would have to hit. Obviously, the cut in oil production by OPEC is a potential candidate, countered by President.

We simulated what inflation would look like if we simply imposed the monthly average obtained over the period 2010-2019 which are reported in bold italics. Doing so the CPI gets to 2.1% by June 2022. Indeed, it is perfectly conceivable that the fall may be even more rapid than it was in 2008. WTI oil prices have fallen from a peak of \$102.6 per barrel on 7/19/2022 to \$85.55 at the time of writing. Even more dramatic has been the decline in the cost of shipping containers. The latest Drewry WCI composite freight index of \$3,483 per 40-foot container is now 66% below the peak of \$10,377 reached in September 2021.¹⁰ Freight rates for Shanghai – Los Angeles, for example, dropped 13% on the week. Similarly, the price of lumber has fallen to \$494 down from a peak of \$1302 in March 2022.

There is evidence from a long data series published by the Bank of England that suggests that historically the most likely response to a period of high inflation is *deflation*. This is what happened in 2009 after the last major negative shock. The series plotted in **Chart 1** reports annual inflation from 1210; it is taken from the Bank of England's Millenium of Macroeconomic Data for the UK project and available on FRED.¹¹ Historically deflation has been normal. Inflation is not. Of the 807 years of data in the series 340 of them experienced deflation, that is falling prices with the largest being -31% in 1558, the year Elizabeth 1st came to the throne. During the Black Death, inflation averaged 18% from 1350-1352 but deflation of 21% followed in 1353. The year without a summer of 1816 after the eruption of Mt Tambora, which resulted in major food shortages and death, was followed by five years of deflation from 1820-1824. There was inflation

⁹ https://www.bls.gov/news.release/archives/cpi_09162008.htm

¹⁰ <https://www.drewry.co.uk/supply-chain-advisors/supply-chain-expertise/world-container-index-assessed-by-drewry>

¹¹ <https://fred.stlouisfed.org/series/CPIIUKA>

in 1918-1920 as the Great Influenza hit (Barry, 2020), followed by deflation of -9% in 1921 and -14% in 1922.

There is some evidence that consumer price expectations are not elevated. In Europe respondents are asked monthly for their views on price trends over the last and the next twelve months. The responses are scored as an index.¹² The Russian invasion of Ukraine in February 2022 has resulted in a fall in consumer confidence as shown in the first column below for the European Union as a whole. The second column shows a steady rise in experienced inflation over the last year. But the column 3 shows a marked jump in March 2022 in views on what will happen to prices over the next year, which then rapidly falls back.

	Confidence	Last 12 months	Next 12 months
			EU
Jan-22	-11	53	39
Feb-22	-12	58	38
Mar-22	-21	59	63
Apr-22	-22	65	50
May-22	-22	68	46
Jun-22	-24	72	43
Jul-22	-27	73	43
Aug-22	-26	74	37
Sep-22	-30	74	41

Indeed, there seem to be growing fears of deflation in the United States as indicated in responses in the University of Michigan Survey to the following question:

Q1. 'During the next 12 months, do you think that prices in general will go up, or go down, or stay where they are now?' <https://data.sca.isr.umich.edu/data-archive/mine.php>

The distribution is below and shows a rising proportion of respondents are expecting deflation. By August 2022 one in ten respondents said they expected prices to fall over the next twelve months up from 4% two months earlier.

2022	June	July	August
Down	4	5	10
Same	7	10	14
1-2%	7	7	8
3-4%	14	15	12
5%	19	17	14
6-9%	14	13	13
10-14%	14	13	12
15%+	17	16	13
Dk	3	3	3

¹² https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series_en

The Federal Reserve has continued to claim that the labor market is tight based on the low level of the unemployment rate. As we show next, there are several other measures that do not support that claim.

At his most recent press conference after the most recent FOMC meeting of September 21st, 2022, where rates were raised by 75 basis points, the Fed Chairman Jay Powell claimed the labor market was 'extremely tight'.

"Despite the slowdown in growth, the labor market has remained extremely tight, with the unemployment rate near a 50-year low, job vacancies near historical highs, and wage growth elevated. Job gains have been robust, with employment rising by an average of 378,000 jobs per month over the last three months. The labor market continues to be out of balance, with demand for workers substantially exceeding the supply of available workers."

We disagree, for reasons we explain below

3. Labor Market Quantities

In the years before the Great Recession in the US movements in the unemployment rate closely tracked those of other labor market quantities such as the inactivity rate and the non-employment rate. In the years since then the various measures have taken quite different paths. As [Chart 2](#) illustrates the unemployment rate rose to a peak of 10.0% in October 2009. It then fell steadily through 2020, before rising sharply in the Spring of 2020 with the onset of COVID and lockdown. At the time of writing, in October 2022 it stands at 3.5%. The unemployment rate mean reverted to pre 2008 levels, whereas the other three variables plotted in the chart did not.

In [Chart 2](#) we also plot the underemployment rate, U7, defined in Bell and Blanchflower (2020) as the number of workers who are part-time for economic reasons (PTFER) divide by employment. This peaked in 2009 and declined more slowly than the unemployment rate did.

The path of both the inactivity rate and the non-employment rates track each other closely.¹³ Both were markedly higher in 2020 than was the case in either 2008 or 2000. It is notable that this is not the case in any other advanced country other than Greece and Spain that have double digit unemployment rates.¹⁴ All the other countries have similar demographics, globalization and technology – young people in Canada, Germany and France also play computer games. So, any explanation has to be US-specific. We believe this is down to inadequate aggregate demand.

To have a sense of the scale of the slack this suggests we simply calculated how much additional employment there would be in September 2022 if the non-employment rate from January 2000 (64.6%) prevailed versus that currently prevailing (60.1%) with employment of 158,936,000. The answer is 11.9 million additional jobs.

In addition, claims have been made by Chair Powell as well as other Fed officials such as Waller (2022) that vacancy data tells us something about tightness in the labor market. Blanchflower,

¹³ The inactivity rate is 100 minus the labor force participation rate (labor force/population) while the non-employment rate is 100 minus the employment rate (employment/population).

¹⁴ As an example, in the UK the employment rate was 59.3% in January 2000 versus 60.9% currently.

Bryson and Spurling (2022) examine the relationship between the vacancy data published as JOLTS data and find that the ratio to the number of unemployed has risen over time. Unfortunately, the variable, which has risen steadily since 2010 is negatively correlated with wage growth.

The problem is that advertised vacancies tell us little about number of hours under offer in the jobs. Second no information is available on the pay under offer in any vacancy. Third, we have no idea where they are and in which occupations and how much of a mismatch there is with the unemployed: jobs for software engineers in Seattle, WA are not much value for people looking for jobs in hairdressing in Miami, FL. We have no data by state by year and so it is perfectly possible that a vacancy that is reported is three thousand miles away from the unemployed person wanting the job. Fourth it is increasingly easy to advertise, and almost costless, so it is unclear there is any information in these data. Fifth, there is no evidence that the gap between U and V enters into wage equations, especially as the unemployment rate does not (as we show below).

Finally, US vacancy data turns out to be inflated and unreliable.¹⁵ As reported by Evan Ryser, Toby Dayton, CEO of LinkUp has argued against using them. *"Duplicate listings, sponsored jobs, and syndication is going on and that has been accelerating in the last five to ten years in the recruitment advertising industry. The JOLTS data and the government data unfortunately also has some of those inflated numbers."* Nela Richardson, chief economist at payroll processing firm ADP argued *"I would be hesitant to use JOLTS as a substitute for meaningful changes in the labor market. Job openings is a signal, but it's not a job, and people have applied to zombie jobs that don't exist,"*

One of the major macro questions in the period 2010-2020 was, why was wage growth so benign given low levels of the unemployment rate? This is illustrated in **Chart 3** using the longest wage series available in the US for private sector production and non-supervisory workers. We use weekly wages as our measure given the fact that there is evidence that workers are hours constrained. In the period prior to 2008 wage growth was closer to 4% when the unemployment rate was below 5%, whereas in the subsequent period it was closer to 2%. The other major series available that we use in the econometric estimates below is weekly earnings from the Current Population Survey. It is clear from **Table 2** that these data show benign wage growth over the post-recession period.

In the latest labor market release published by the BLS for September 2022 the unemployment rate was 3.5% down from 3.7% in July while the employment rate rose slightly from 60.0% in July to 60.1%. In contrast, weekly wage growth of Production and Non-supervisory workers has fallen steadily from 7.0% in February 2022 to 4.8% in September. Nominal weekly wage growth of all employees slowed over these two dates from 5.5%, to 4.1% for these two dates.

In the years since 2008 weekly wage growth is uncorrelated with the unemployment rate. Below we show that wages are in fact negatively correlated with the non-employment and underemployment rates. The unemployment rate under-estimates labor market slack in the USA.

4. Recession?

¹⁵ Evan Ryser, 'US jobs firms say jobs openings data inflated', Market News International, July 28th, 2022.

It seems that the Fed aggressively raising rates is an error, not least as the US appears to already be in recession. GDP growth in the first two quarters of 2022 were both negative and may well be revised lower, as downward revisions are what happens at turning points. It turns out that the rule of two successive quarters of negative growth is a good indicator of recession in most other advanced countries (Blanchflower and Bryson, 2022ab). One problem in the US is that the NBER didn't use that rule in the Great Recession or the prior recession in 2001. The rule they used was two out of three successive quarters being negative.

There is a major question of whether the United States is in recession. The first piece of evidence is that GDP growth was negative for both Q1 (-0.4%, Q/Q) and Q2 (-0.15) of 2022. The second is that there is evidence from qualitative variables, based on the economics of walking about, (Blanchflower, 2007) that are the main ex-ante predictors of recession (Blanchflower and Bryson, 2022a, 2022b).

Blanchflower (2009) in April 2009 examined qualitative data and argued that:

"For some time now, I have been gloomy about prospects in the United States, which now seems clearly to be in recession... The US seems to have moved into recession around the start of 2008."

This conclusion was drawn based on declines in housing market quantities and prices in 2006 and 2007 and subsequently of the University of Michigan and the Conference Board consumer confidence measures in 2006 and 2007 (see Data Appendix 1). Similar patterns were also found for the UK.

Blanchflower and Bryson (2022a) further examined how to predict US recessions since 1978 as defined by the NBER BCDC. They found that consumer expectations were good at predicting five of five recessions from 1980 through the Great Recession - January 1980; July 1981; July 1990; March 2001 and December 2007. The concern is that the same variables that predicted these recessions were also flashing red in 2020.

Chart 4 plots consumer expectations using the University of Michigan survey. It is now at a level below that observed in 2008. **Table 3** provides updated information on consumer expectations from the Conference Board for the eight largest states. Blanchflower and Bryson (2022a) show that declines in this variable in these states in 2007 predicted the start of recession at the end of 2007. The rates of decline between the peaks and troughs in the series are of a similar magnitude today. The indications are therefore that the US is in recession. Despite that the Federal Reserve is raising rates.

There is evidence also that Europe is headed to recession and that unemployment is set to rise again. This is apparent from **Chart 5 in which** we plot responses from the monthly business and consumer surveys conducted by the European Commission on what respondents think will happen to unemployment over the next twelve months?¹⁶ As Blanchflower and Bryson (2022c) show this is a good predictor of unemployment twelve months ahead. In 2007 the series started picking up before the unemployment rate and it picked up again in 2011 as it did in 2018 before the

¹⁶ https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series_en

unemployment rate did. The uptick in fear since the war in Ukraine in early 2022 is notable at a time when the unemployment rate itself is falling. It predicts rising unemployment.

5. Wage Curve Estimates

The question we address in this section is whether the unemployment rate enters wage equations. This is at the heart of current debates about the potential for wage-push to ‘de-anchor’ inflation expectations since the unemployment rate is treated as the labor barometer which identifies the degree to which demand for labor can engender wage-push inflation. **Table 4** suggests that unemployment is not key to understanding wage formation. The table updates through to 2022 estimates from Blanchflower, Bryson and Spurling (2022) that estimated state*year level equations using data aggregated from the micro data from the Current Population Survey Merged Outgoing Rotation Group (MORG) files. Here we add data from the Basic Monthly files for 2021 and January-September of 2022.

The dependent variable is the log of weekly wages in year t over the period 1980-2022 and equations include a lagged dependent variable along with a full set of state and year dummies. There are a total of 2193 observations – 50 states plus the District of Columbia * 41 years i.e. $51*43=2193$. We report estimates for the entire period in column 1 and separate estimates in the remaining columns for i) 1980-1993 ii) 1994-2003 iii) 1980-2007 and iv) 2008-2020. We also include controls for the underemployment rate and the one-year lagged non-employment rate. This is the specification used in Blanchflower and Oswald (2008).

We map onto the data the unemployment, underemployment and non-employment rates for the years through 2021. We calculate them from the micro data, which is how the rates are calculated by the Bureau of Labor Statistics (BLS), for 2022. In panel 1) we include only the unemployment rate (U3). In panel 2) we add the underemployment rate which is the percentage of part-time workers who want full-time employment. Finally, in panel 3), we also include the non-employment rate (NER), that is, the number out of the labor force divided by the adult population.¹⁷ For each panel we present four models corresponding to different time periods.

In panel 1) the unemployment rate is negative and statistically significant. This is the case if we pool all years of data (column 1), as well as pre and post 2000 (columns 2 and 3) and post the Great Recession (column 4). However, adding the underemployment rates in panel 2), which is always significantly negative, drives the unemployment rate to insignificance in the last two columns for the later years. In panel 3) the non-employment rate is weakly significant over the whole period and prior to 2000, but it is significant and negative, in the later two periods, and the unemployment rate once again is insignificant. The underemployment rate is strongly significant and negative throughout.

We conclude that the unemployment rate does not tell us much of anything about whether the labor market is anywhere close to full employment. The underemployment and non-employment rates, which did not mean revert over the period since 2008, are significant negative determinants. Non-mean reverting variables explain a non-mean reverting variable, wage growth. The unemployment

¹⁷ The inactivity rate is similar to the NER but adds the unemployment rate to the numerator so is $(U+O)/\text{population}$. We focus on the NER rather than the inactivity rate because it is more robustly and significantly associated with wage growth.

rate, which did mean revert does not explain non mean reverting wage growth. The implication is that analysts are mistaken when they say the US labor market is tight because unemployment is low. They have not appreciated that the wider 'reserve army of labor' acts as an important drag on wage growth. Since this larger group matters for wage determination it is clear that the US labor market is not tight or close to full employment.

6. Conclusions

The Federal Reserve missed the Great Recession. The concern is that it has also missed the 2022 recession. China has slowed and the UK seem to already be in recession. Inflation seems to have peaked. Real wages are falling. For the first time in decades strikes are on the rise as workers try to protect their living standards while older folks are protected.

Wage growth came in the 1970s and 1980s after the two oil price hikes as trade unions were able to flex their muscles. The reason for this was that after the Paris riots in 1968 union membership rose around the world. In 1978 there were 22 million union members which constituted around a quarter of all wage and salary workers. In 2022 there were 14 million members covering a tenth of workers who do not have strong bargaining power.

We have a long series, back to 1964 on real wages in the United States for production and non-supervisory workers that we plot in [Chart 6](#). The red dotted line for the United States sets the index at 100 for real wages in January 2000, which were \$285 per week. We should note that this is well below the peak achieved in October 1972 of \$346 compared with \$324 currently. In the chart we also have data on real Average Weekly Earnings for the UK also set to 100 in 2000. We do not have a longer time series. Real wages in the UK rose sharply through 2008 and then declined through 2014 before picking up again. In both countries real wages picked up during lockdown in 2020, presumably mostly due to composition effects as lower paid workers dropped out of the surveys. In 2022 both countries experienced falling real wages as inflation picked up.

Claims have been made that the US labor market is 'tight' based on the unemployment rate. But, as we have shown, this is uncorrelated with wage growth. Blanchflower et al (2022) also show that the Vacancy-Unemployment rate is negatively correlated with wage growth, that is, it has the wrong sign compared to a theory in which we would expect a high VU ratio to signal a tight labor market. Instead, what matters for wage growth are the underemployment and non-employment rates. Both are robustly negatively correlated with wage growth. Neither have reverted to pre-Great recession levels. If we were to restore the employment rate in December 2007 (62.7%) rather than the present rate of 60.1% with overall employment of 158,936,000 employment today in the United States would be 6.9 million jobs higher. This is a reasonable indicator of labor market slack currently existing in the US labor market. This slack is holding down wage growth.

The fragility of the global economy has been illustrated in the UK in response to a budget announced in the UK by Kwasi Kwarteng on September 7th. Unfunded tax cuts to the rich were announced. It led to a collapse in the bond and foreign exchange markets. The following week UK pension funds had to be rescued by the Bank of England and the following day three quarters of mortgage products were withdrawn by lenders such as Halifax, Virgin, Santander and HSBC because they could not price products. In the UK there are no 15 or 30-year fixed mortgages and most products are fixed for much shorter periods around five years. This is a problem as 1.8

million people on low fixed rate mortgages have to refinance them, to much more expensive ones, amidst a public outcry. Mortgage defaults are set to rise inexorably. The housing market was the third UK market to crash in a week. Not good.

In 2008, the collapse in the Florida housing market spread around the world, generating a global recession. The same thing happened in the 1920s, resulting in the Great Crash which was followed by the Great Depression. Contagion is in the air. The global economy is fragile.

Central bankers are raising interest rates on the assumption that wage-push inflation may lead to stagflation. The assumption is that inflation is sticky, based on no evidence, and slowing is needed to pull it down. High inflation in their view will lead to quite high inflation. The assumption is that the US economy is tight and close to full employment. The problem is that is incorrect in our judgment.

In its most recent forecast, in August 2022 prior to the disastrous mini budget that forced Truss to resign, the MPC was forecasting below target inflation at the forecast horizon and some significant prospect of deflation. **Chart 7** shows that at current market interest rates by the start of 2025 - the forecast horizon - there was a 50% chance CPI inflation would be below 1%. The fact that a significant proportion of the fan is below the zero line shows growing probabilities of deflation. Inexplicably based on this below target forecast, the MPC has raised rates at its last six meetings to 2.25%. That includes at the meeting where it forecast below target inflation. Further rate rises are expected, although why remains unclear. Prospects of falling prices in the UK have increased compared with that forecast after the recent market crash as the economy heads into recession. GDP growth in August 2022 was -0.3%.

The Fed is assuming that raising rates will result in a soft landing, with only a small fall in output and relatively benign rises in joblessness. The historical evidence suggests it is more likely that deflation follows high inflation, as it did when other major shocks hit, including the Black Death and the Great Influenza. Deflation is likely unless there is another negative supply shock. In our view it unlikely to be the case that there is a soft landing, or that high inflation persists. The high inflation currently is driven by base effects that will drop out over the next few months taking inflation back to, and likely below, the 2% target.

Although unemployment is low, the labor market is not 'tight' or anywhere close to full employment. On the contrary, we show that what matters for wage growth is the non-employment rate and the under-employment rate. Both are high and act as brakes on wage growth. By lowering already low levels of consumer confidence, higher interest rates are liable to exacerbate workers' inability to maintain their real wages. Furthermore, we argue inflationary pressures have been generated by short-term supply side problems, rather than excessive demand in the economy.

Under these conditions, we anticipate a hard landing in the United States with deflation in the near future, coupled with rising joblessness. This is what happened in the Great Recession. Inflation in the US went from 5.6% in the summer of 2008 to -2% a year later and the unemployment rate doubled, to 10%. It is our expectation that this scenario is likely to repeat in 2023. We expect recession and deflation and a dramatic rise in joblessness in 2023 and 2024 exacerbated by FOMC action. The extent of the recession may well be deeper and longer lasting than the Great Recession.

As in 2008 this will demand rapid U-turns on the part of the central bank. History not only rhymes but repeats itself.

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Table 1. US CPI Seasonally unadjusted

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly changes												
2007	0.2	0.4	0.5	0.3	0.4	0.2	0.2	0	0.4	0.3	0.8	0.3
2008	0.3	0.2	0.4	0.2	0.6	1.0	0.7	-0.1	0.1	-0.9	-1.8	-0.8
2009	0.3	0.4	-0.1	0.1	0.1	0.8	0	0.3	0.2	0.3	0.3	0.1
CPI												
2007	2.1	2.4	2.8	2.6	2.7	2.7	2.3	1.9	2.8	3.6	4.4	4.1
2008	4.3	4.1	4.0	3.9	4.1	4.9	5.5	5.3	5.0	3.7	1.1	0
2009	-0.1	0	-0.4	-0.6	-1.0	-1.2	-2.0	-1.5	-1.4	-0.2	1.9	2.8
Monthly changes												
2020	0.2	0.1	-0.3	-0.8	-0.1	0.5	0.5	0.4	0.2	0.1	0.1	0.3
2021	0.2	0.4	0.6	0.6	0.7	0.9	0.5	0.3	0.4	0.9	0.7	0.6
2022	0.6	0.8	1.2	0.3	1.0	1.3	0	0.1	0.4			
CPI												
2020	2.5	2.3	1.5	0.4	0.2	0.7	1.0	1.3	1.4	1.2	1.1	1.3
2021	1.4	1.7	2.7	4.2	4.9	5.3	5.3	5.2	5.4	6.2	6.8	7.1
2022	7.5	7.9	8.6	8.2	8.5	9.0	8.5	8.2	8.2	7.5	6.9	6.4
2023	5.9	5.3	4.3	4.2	3.3	2.1	2.2	2.3	2.1			

Notes: Numbers in bold are simulated using the monthly averages from 2000-2019.

Table 2. Annual Quarterly Weekly Wage Growth from the Current Population Survey (%)

	Qtr1	Qtr2	Qtr3	Qtr4
2007	3.7	4.7	3.0	2.6
2008	3.8	4.2	3.6	4.0
2009	2.6	2.1	2.5	2.7
2010	2.2	0.8	0.3	0.5
2011	0.1	1.8	1.8	1.6
2012	1.9	2.4	0.7	1.4
2013	0.5	0.6	1.7	1.4
2014	3.0	0.5	2.5	1.7
2015	1.5	2.7	1.6	3.3
2016	2.7	2.9	3.0	2.9
2017	4.2	4.2	3.9	0.9
2018	1.8	2.0	3.3	5.0
2019	2.7	3.7	3.6	4.0
2020	5.7	10.4	8.2	5.1
2021	3.3	-1.2	0.7	2.6
2022	4.9	5.2		

Table 3. Consumer expectations, Conference Board, October 2021-October 2022.

	California	Texas	New York	Florida	Illinois	Pennsylvania	Ohio	Michigan	USA
Oct-21	94	95	89	105	107	92	79	81	89
Nov-21	98	90	100	99	98	89	83	101	90
Dec-21	108	86	101	103	82	77	86	90	95
Jan-22	97	101	90	106	94	85	73	75	89
Feb-22	100	91	85	97	89	66	72	85	81
Mar-22	103	81	88	86	70	65	84	68	77
Apr-22	96	90	106	90	65	63	72	62	79
May-22	91	75	81	81	69	60	60	67	74
Jun-22	75	71	90	83	73	43	61	64	66
Jul-22	66	69	82	64	50	52	61	50	66
Aug-22	87	75	89	82	75	65	58	65	76
Sep-22	95	71	94	94	76	62	66	68	80
Oct-22	96	80	89	85	88	73	53	85	78
Peak to trough	23	32	29	43	28	27	24	37	29

Source: CCI Press release October 25th 2022, The Conference Board

Table 4. Weekly wage equations, using CPS, 1980-2022

	1980-2022	1980-1999	2000-2022	2008-2022
1)				
Wages _{t-1}	.8763 (89.00)	.8625 (57.66)	.7206 (35.48)	.5996 (19.98)
Unemployment rate	-.0245 (8.76)	-.0327 (8.88)	-.0242 (5.29)	-.0136 (2.46)
Adjusted R ²	.9978	.9934	.9904	.9815
N	2193	1020	1173	765
2)				
Wages _{t-1}	.8672 (88.44)	.8488 (56.74)	.7004 (34.66)	.5786 (19.59)
Unemployment rate	-.0076 (2.10)	-.0108 (1.99)	-.0068 (1.28)	+.0016 (0.27)
Underemployment rate	-.0196 (7.33)	-.0230 (5.41)	-.0270 (6.34)	-.0302 (4.51)
Adjusted R ²	.9978	.9934	.9907	.9815
N	2193	1020	1173	765
3)				
Wages _{t-1}	.8648 (87.55)	.8440 (56.74)	.6938 (34.23)	.5749 (19.51)
Unemployment rate	-.0062 (1.70)	-.0081 (1.43)	-.0037 (0.70)	+.0058 (0.93)
Underemployment rate	-.0185 (6.75)	-.0216 (5.02)	-.0265 (6.24)	-.0316 (5.60)
Non-employment rate _{t-1}	-.0238 (1.89)	-.0317 (1.69)	-.0652 (2.90)	-.0774 (2.44)
Adjusted R ²	.9978	.9950	.9909	.9815
N	2193	1020	1173	765

T-statistics in parentheses. All variables in logs. Equations include full sets of state and year controls. MORGS through 2020 and CPS Basic Monthly files for 2021 and January – September 2022.

Chart 1. CPI, UK 1210-2015

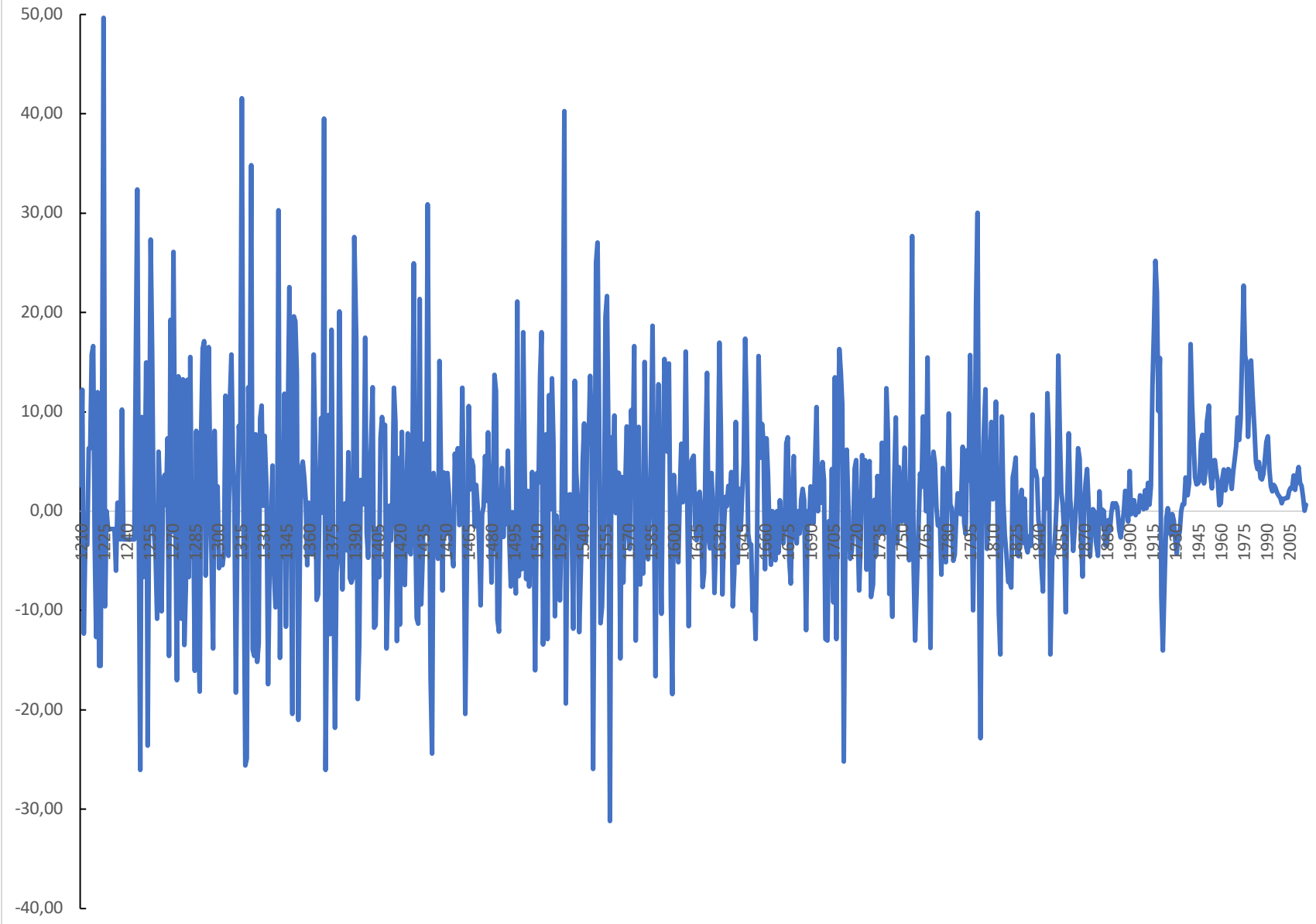


Chart 2. Labor Market Quantities

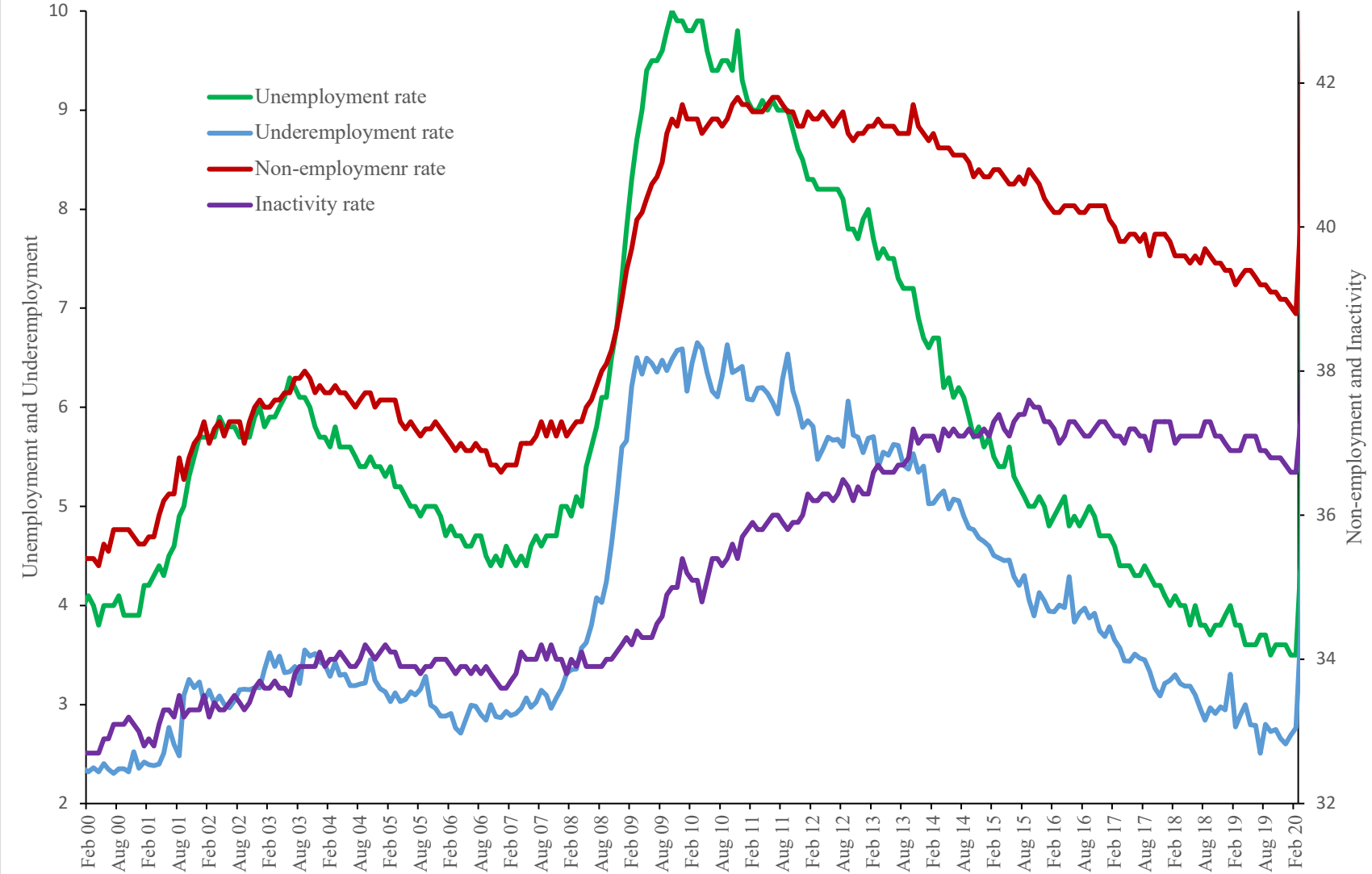


Chart 3. Weekly Wage Growth for Production and Non-supervisory Workers and the Unemployment Rate

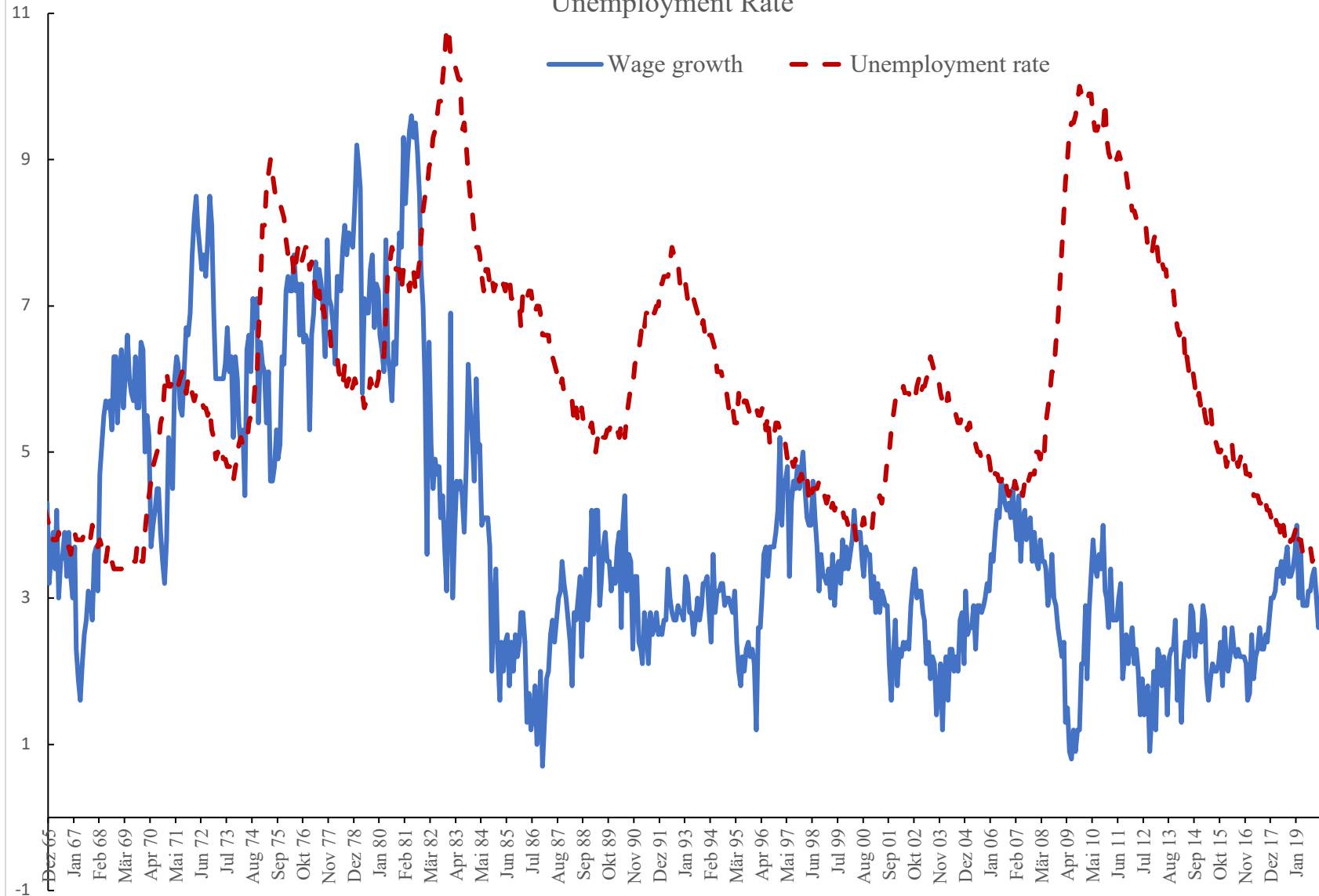


Chart 4. Consumer Expectations - University of Michigan

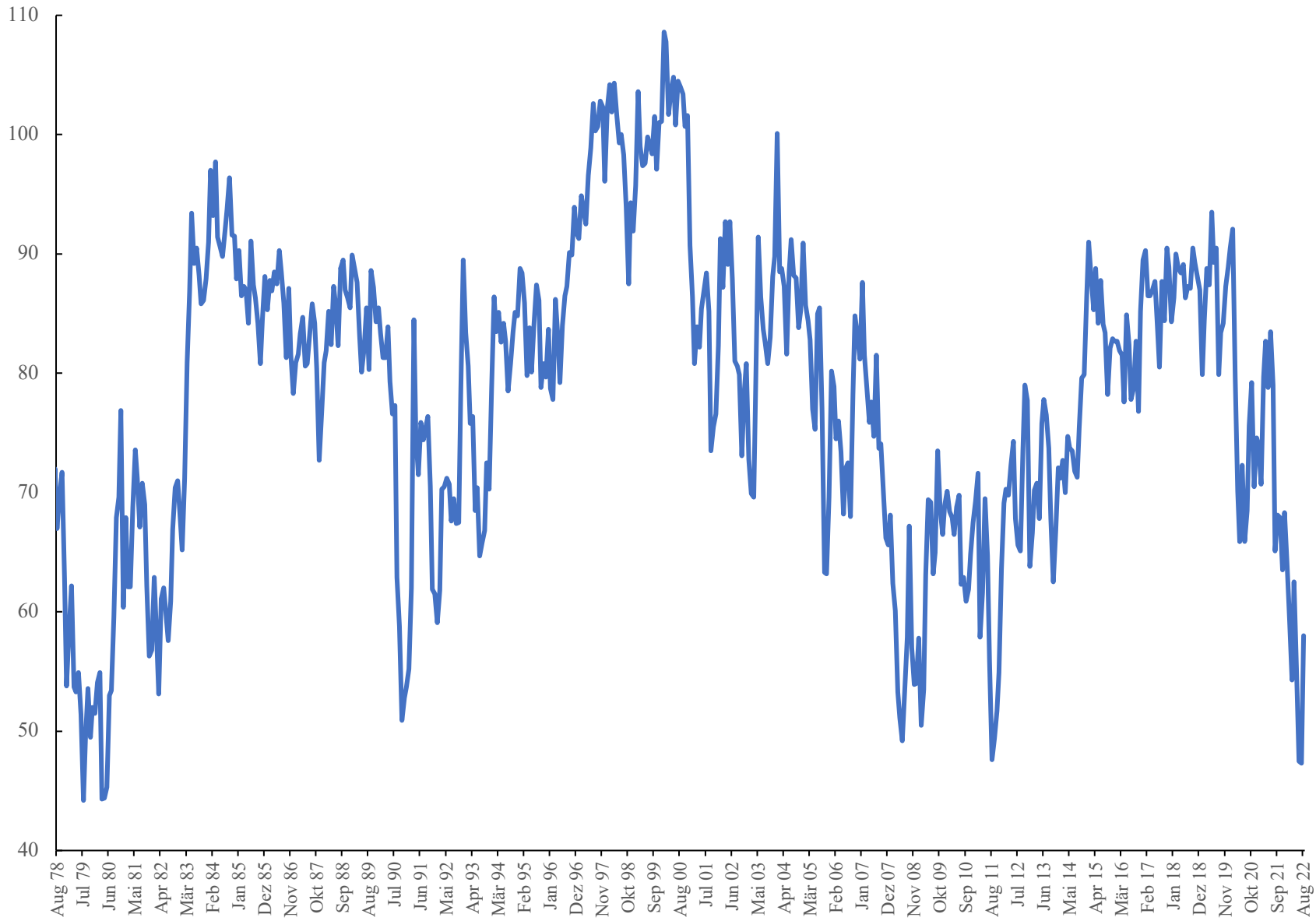


Chart 5. EU Fear and the Unemployment rate

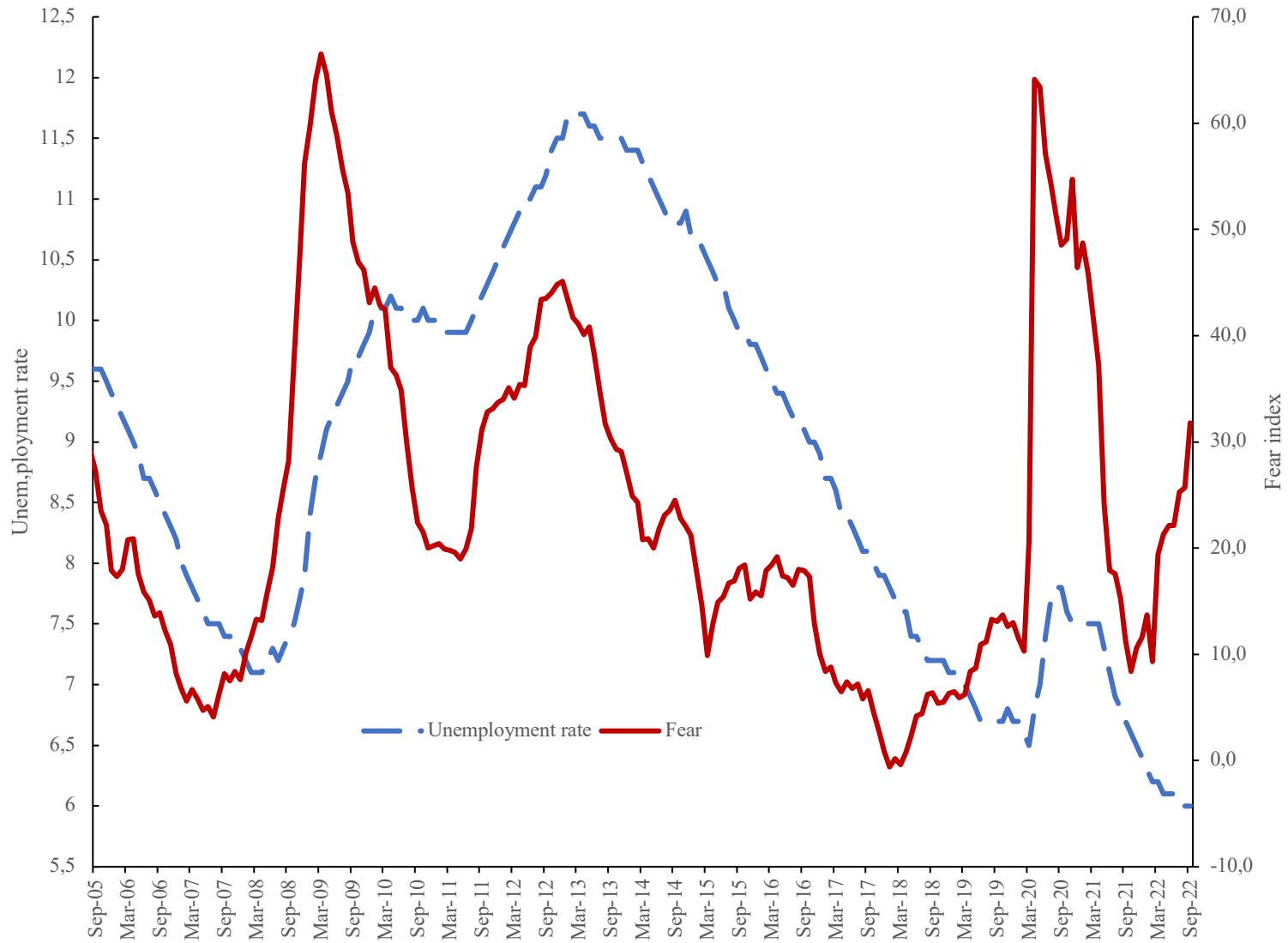


Chart 6. Real Weekly Wages: January 2000=100
UK: Average Weekly Earnings total pay
USA: Production and Non-supervisory private sector

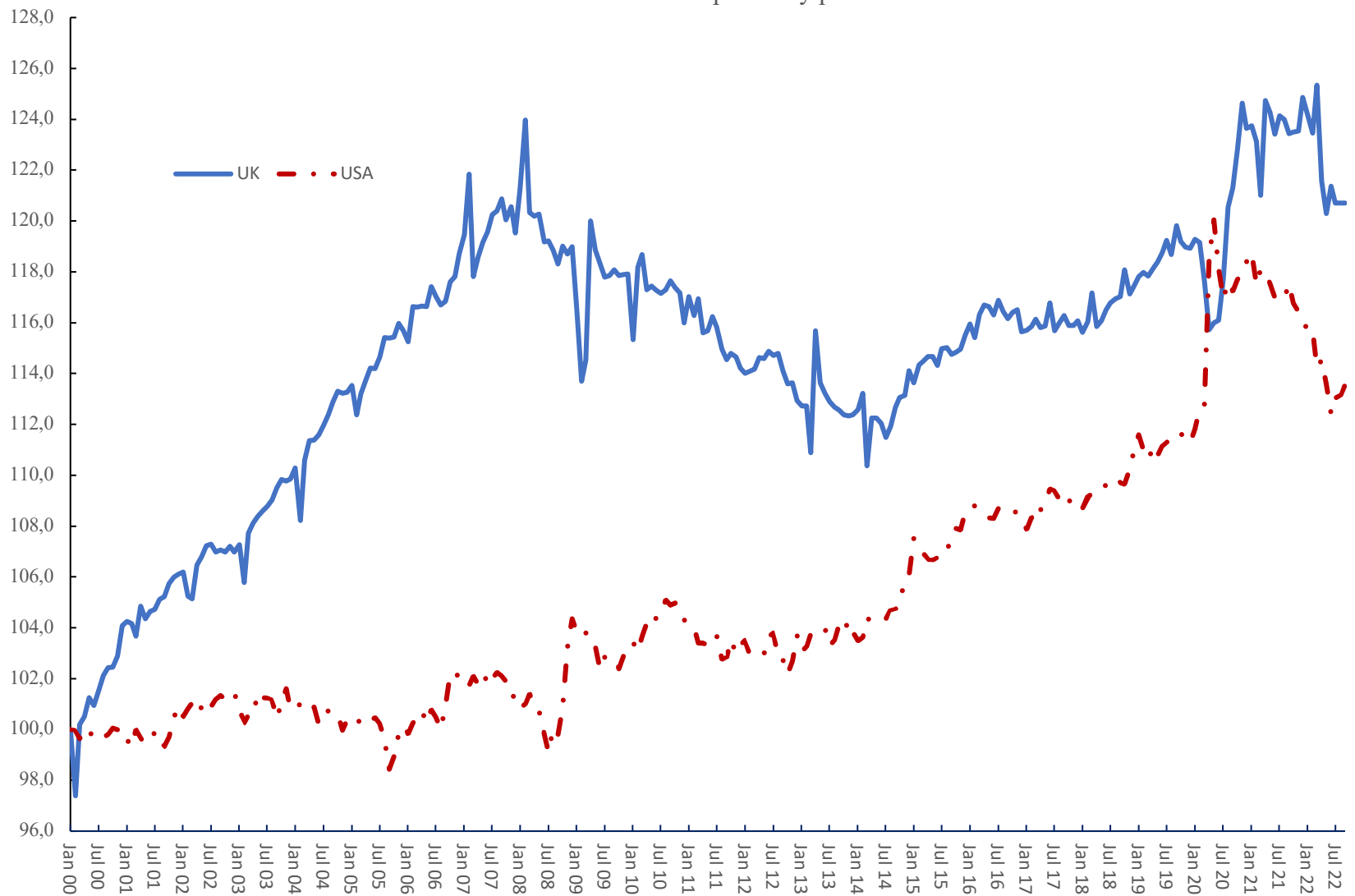


Chart 7. MPC's CPI inflation projection based on market interest rates, August 2022. Source Monetary Policy Report August 2022

