

# The Economics of Walking About and Predicting US Downturns

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## **Abstract**

Economic shocks are notoriously difficult to predict but recent research suggests qualitative metrics about economic actors' expectations are predictive of downturns. We show consumer expectations indices from both the Conference Board and the University of Michigan predict economic downturns up to 18 months in advance in the United States, both at national and at state-level. All the recessions since the 1980s have been predicted by at least 10 and sometimes many more point drops in these expectations indices. A single monthly rise of at least 0.3 percentage points in the unemployment rate also predicts recession, as does two consecutive months of employment rate declines. The economic situation in 2021 is exceptional, however, since unprecedented direct government intervention in the labor market through furlough-type arrangements has enabled employment rates to recover quickly from the huge downturn in 2020. However, downward movements in consumer expectations in the last six months suggest the economy in the United States is entering recession now (Autumn 2021) even though employment and wage growth figures suggest otherwise.

JEL Codes: J60; J64; J68.

Key words: unemployment, recession, consumer expectations

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## 1. Introduction

Following the collective failure to predict the Great Recession of 2008 economists have redoubled their efforts to predict economic downturns. But predicting downturns with traditional methods and data is notoriously difficult. In two earlier papers (Blanchflower and Bryson, 2021a, 2021b) we examined whether it was possible to predict downturns. Reviewing the comparative cross-country studies, we showed that, once country fixed effects were added to the models, very few variables predict changes in unemployment rates, except lagged unemployment (Blanchflower and Bryson, 2021a). Similarly, in the United States, once one incorporates state fixed effects, little predicts unemployment other than lagged unemployment.

One exception is lagged home ownership, which helps capture mobility frictions in labor markets (Blanchflower and Bryson, 2021a). However, we went on to show that qualitative metrics of economic actors' expectations as to what might happen to the economy, to their labor market prospects, and to their household finances, were all strongly predictive of what happened to aggregate unemployment rates, both at country level in the United States and the rest of the OECD, as well as at state level in the United States (Blanchflower and Bryson, 2021a, 2021b).

We argued that the predictive capacity of these expectations metrics arises from what we term “the economics of walking about”: economic actors on the ground possess information about economic trends based on their own experiences, and the experiences of those in their networks, which allow them to assess likely future economic trends. This is akin to “the wisdom of crowds” whereby the aggregate predictions of non-experts often produce more accurate assessments of situations than those offered by ‘experts’ (Surowiecki, 2005).

We return to the issue in this paper to see whether it is possible to predict turning points in the United States economy since the late 1970s using qualitative data for the United States from The Conference Board and the University of Michigan on consumer expectations. In our previous paper (Blanchflower and Bryson, 2021b) we focused exclusively on the Great Recession of 2008 and showed expectations indexes did a good job of predicting the economic shock, both in the United States and elsewhere. Indeed, they appeared to do a better job than the Sahm Rule which compares a three-month moving average of the present with the lowest values of the moving average over the preceding year (Sahm, 2019).

Repeating that exercise here, but for the United States only, over the period 1978 to September 2021, we show that consumer expectations about future economic trends are highly predictive of economic downturns 6-18 months ahead, thus providing an early-warning-system for the economy.

We identify four criteria to predict these recessions:

Two out of three successive quarters of quarterly GDP growth are negative

There are two successive months of employment declines in the Current Population Survey (CPS) household-level data.

The unemployment rate rises 0.3 percentage points in a single month

Either or both the two expectations measures we examine from The Conference Board and the University of Michigan fall by 10 points or more.

The first three criteria are validated in eye-ball comparisons of the descriptive data series, whilst the predictive power of the expectations metrics is apparent in both descriptive data series and in a regression framework, where expectations 18, 12 and 6 months earlier are statistically significant predictors of downturns.

The rest of this paper is set out as follows. Section Two identifies recessions in the United States with time-series data. Section Three runs unemployment rate regressions to assess the predictive power of lagged consumer expectations in predicting monthly unemployment. Section Four considers the prospects for recession in 2021, despite declining unemployment rates. Section Five concludes.

## **2. Identifying Recessions in the United States with Time-series Data**

Below we examine the six US business cycle peaks – the starts of recessions – since 1978 as called by the NBER Business Cycle Dating Committee (<https://www.nber.org/research/business-cycle-dating>) – henceforth NBCDC. They are as set out in detail in **Table 1**. The peaks occur in:

- 1) January 1980
- 2) July 1981
- 3) July 1990
- 4) March 2001
- 5) December 2007
- 6) February 2020.

The NBER also identified a seventh in 2001 where there were not two successive quarters of negative growth, although two of the four were negative (Q1=-0.3%; Q2=+0.6%; Q3=-0.4% and Q4=+0.3%) implying a further recession beginning in

- 7) January 2001.

In fact, the NBCDC identified seven other start dates for recessions, making fourteen in all since 1945.

- 8) February-October 1945.<sup>1</sup>
- 9) November 1948-October 1949
- 10) July 1953-May 1954
- 11) August 1957-April 1958
- 12) April 1960-February 1961
- 13) December 1969-November 1970
- 14) November 1973-March 1975

As can be seen from the second column of **Table 1** it took between five and twelve months before the NBCDC called the recession. For example, it took the NBCDC a year, until December 2008, to call the start of the Great Recession as December 2007.

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<sup>1</sup> Our GDP data from the OECD starts in 1947.

Column 3 shows the date the recession started using the rule of two out of three consecutive quarters of GDP growth while column 4 shows the start dates based on the Sahm (2019) rule with current (most recent, revised) GDP data, and the final column shows the start date of recession with real time data that was subsequently subject to revision (but was all that policy makers had at the time to make judgement calls).

In part 2 of [Table 1](#) we report the starting dates of recession if we use the criteria of two successive months of absolute employment decline using data on non-farm payrolls (NFP) based on establishment data and from households in the Current Population Survey (CPS). The final column of part 2 of [Table 1](#) shows the starting month for recession based on when the unemployment rate jumped by 0.3 percentage points. We provide further details on these criteria below.

## 2.1. GDP growth

[Chart 1](#) plots quarterly GDP growth for the 297 quarters from Q21947 through Q22021 (Source: OECD). Of these, forty-two - 14.1% - were negative. There were ten occasions when there were two or more successive quarters of negative growth which is often used to describe a recession, especially in most other countries that do not have an official recession - peak and trough - dating committee. The ten are identified below, not all of which were called as recessions by NBCDC.

- 1) Q2-Q3 1947
- 2) Q1-Q2 1949
- 3) Q3-Q4 1953
- 4) Q4 1969 – Q1 1970
- 5) Q3 1974 – Q4 1974
- 6) Q2-Q3 1980
- 7) Q4 1981- Q1 1982
- 8) Q4 1990 - Q1 1991
- 9) Q3 2008 - Q2 2009
- 10) Q1 2020 - Q2 2020

[Table 2](#) shows when these successive negative quarters of growth took place within the series of all quarters of negative growth since World War Two. In addition, there were five further occasions with two out of three non-consecutive negative quarters of growth a) Q1 and Q3 1956 b) Q2 and Q4 1957 c) Q2 and Q4 1960 d) Q3 1973 and Q1 1974 e) Q1 and Q3 2001.

In every case the date identified using GDP is later than that identified by the NBER. So, a couple of negative quarters in a twelve-month period, successive or not seems a good starting rule. Care must be taken of course, as Blanchflower and Bryson (2021a, 2021b) note, since GDP growth gets revised for a long time and is especially problematic at turning points down, when first estimates tend to overestimate the true rate and frequently have the wrong sign. This occurred, for example, in Q22008 in the UK when the first estimate was +0.2% (Blanchflower, 2008) but is now -0.6%.

## 2.2. Monthly Employment Change

The second part of [Table 1](#) reports on peak dates using another rule, namely when there were two successive months of negative growth in a) non-farm payrolls (NFP) obtained from establishment data b) employment from the households in the Current Population Survey (CPS). Of note is that

NFP is revised over the two months after it is first published while the CPS is not. Both surveys show early indications of recession. Take, for example, the July 1990 recession: NFP and CPS both have two negative months starting in June 1990. We provide precise details in [Table 3](#) by month. Months of positive growth are highlighted; the remainder are negative.

**January 1980.** NFP is negative from April-July 1980. CPS is negative in January 1980 and then negative from March-June.

**June 1981.** NFP is negative from August 1981-December 1982; CPS is negative from May 1981-September 1981, then negative again in November and December and March-July and September – December 1982.

**July 1990.** NFP is negative from July 1990-May 1991 and the CPS is negative from June 1990-May 1991 with exception of October 1990 and April 1991.

**dMarch 2001.** NFP is negative from March 2001-April 2002. CPS is negative from April 2001-July 2002 with the exceptions of July and September 2001 and February and May 2002.

**December 2007.** NFP is negative in July and August 2007 and February 2008-October 2009.

**February 2020.** NFP and CPS are negative in February and March 2020.

### 2.3. Unemployment rates

[Table 1](#) also reports the start dates for US recessions since 1978 using the Sahm Rule (Sahm, 2019).<sup>2</sup> The data was downloaded from FRED (<https://fred.stlouisfed.org/series/SAHMREALTIME>): two sets of estimates are available. First that on the currently reported unemployment rate from the BLS and then one in real time, which was the first estimate reported, prior to it being revised by the BLS. The two sets of results are similar. In all cases the Sahm Rule identifies a start date for recession which is after the date identified by NBER.

Column 1 of [Table 4](#) reports the unemployment rate by month for each of the recession events since the late 1970s. In each case the unemployment rate jumps by 0.3 percentage points close to the date the NBCDC calls the recession. For example, for the January 1980 recession the unemployment rate jumps from 6.0% in December 1979 to 6.3% in January 1980. It rises from 7.2% to 7.5% between December 1980 and January 1981; 5.2% to 5.5% in June 1990; 3.9% to 4.2% in December 2000; 4.7% to 5.0% in November 2007 and 3.5% to 4.4% in February 2020.

### 2.4. Qualitative data.

We now move on to look at the extent to which it is possible to use qualitative data to predict turning points and especially upticks in the unemployment rate. We are not the first to have done so. Kirchgässner (1982, 2005) pointed to the value of qualitative data in predicting GDP growth using German data, with some work identifying the correlation between public sentiment and subsequent economic growth going back even earlier (Noelle-Neumann, 1980; Steinbuch, 1980).<sup>3</sup>

In a previous paper we showed individuals' fear of unemployment was predictive of subsequent unemployment rates across many countries in the OECD (Blanchflower and Bryson, 2021a). These data do not exist in the United States. However, there are consumer expectations data from

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<sup>2</sup> It takes three month moving averages of the unemployment rate and takes the current average and deducts the lowest value over the prior three months. When that value reaches 0.5 the Sahm Rule identifies recession.

<sup>3</sup> We thank Klaus Zimmermann for bringing these references to our attention.

The Conference Board (CB) and the University of Michigan (UM) as well as Purchasing Manager Indices from Markit we have obtained access to.<sup>4</sup>

The Conference Board Expectations Index is drawn from the Board's Consumer Confidence Survey ([https://conference-board.org/pdf\\_free/press/TCB\\_CCS\\_TechNote\\_May2021.pdf](https://conference-board.org/pdf_free/press/TCB_CCS_TechNote_May2021.pdf)) and is based on respondents' expectations about conditions six months hence in relation to three issues, namely business conditions, employment conditions and total family income. The expectation survey questions have three response options: positive, negative, or neutral. The response proportions to each question are seasonally adjusted. For each question, the positive figure is divided by the sum of the positive and negative to yield a proportion, which is labelled the "relative" value. For each question, the average relative value for the calendar year 1985 is then used as a benchmark to yield the index value for that question. The expectations index simply averages the indexes from the three questions.

The University of Michigan's Expectations Index is a subset of its Index of Consumer Sentiment and is derived from three questions:

Q1. *"Now looking ahead--do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?"*

Q2. *"Now turning to business conditions in the country as a whole--do you think that during the next twelve months we'll have good times financially, or bad times, or what?"*

Q3. *"Looking ahead, which would you say is more likely--that in the country as a whole we'll have continuous good times during the next five years or so, or that we will have periods of widespread unemployment or depression, or what?"*

The expectations index sums responses to these three questions and rebases the index to 1966 as the base year.<sup>5</sup> The data going back to 1978 which we use here can be found at <https://data.sca.isr.umich.edu/data-archive/mine.php> Curtin (2019) points to the predictive power of the index with respect to unemployment.

**Chart 2** plots the CB and UM monthly series from 1978. **Table 4** column 3 reports the CB expectations index while column 4 reports the University of Michigan expectations index around the times of each recession since the late 1970s. It turns out that they predict well movements in the unemployment rate.

**Charts 3 and 4** also plot them against the 12 months ahead unemployment rates. So, we plot the expectations index for January 2012 against the January 2013 unemployment rate. These expectations indices appear to predict unemployment twelve months ahead and the six turning points.

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<sup>5</sup> For further details <https://data.sca.isr.umich.edu/fetchdoc.php?docid=24770>

In the table below we see that in each of the six cases the expectations index peaks well before the recession date called by the NBER and by that date is approximately twenty points below the peak. We find similarly in 2021 even though the unemployment rate has continued to drop.

|                | The Conference Board |             | University of Michigan |             |
|----------------|----------------------|-------------|------------------------|-------------|
|                | Peak                 | Points drop | Peak                   | Points drop |
| January 1980   | 97.7 (Oct-78)        | 26.3        | 71.7 (Oct-78)          | 17.6        |
| July 1981      | 102.9 (Nov-80)       | 8.8         | 76.9 (Nov-80)          | 6.1         |
| July 1990      | 108.3 (Feb-89)       | 16.5        | 89.9 (Jan-89)          | 13.3        |
| March 2001     | 119.1 (Jan-00)       | 36.0        | 87.6 (Jan-07)          | 22.0        |
| December 2007  | 94.4 (Jul-07)        | 20.5        | 87.6 (Jan-07)          | 21.4        |
| February 2020  | 108.1 (Feb-20)       | 21.3        | 92.1 (Feb-20)          | 21.3        |
| September 2021 | 111.9 (Mar-21)       | 25.3        | 83.5 (Jun-21)          | 18.4        |

We also have monthly expectations data from The Conference Board on the eight biggest US states - California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas - from February 2007 through September 2021. **Table 5** reports unemployment rates and employment change by month for these eight states for the 2007 recession. With the exception of Texas, the unemployment rates rise, while six states have at least two successive months of negative CPS employment falls. The US had a rise in the unemployment rate from 4.7% in November 2007 to 5.0% in December and negative employment growth in five months in 2007.

Part a) of **Table 6** reports the monthly expectations scores in 2007 and show drops from the peak (in yellow) in every case from early in 2007 before reaching lows later in 2007. They show similar patterns in part b) of **Table 6** in 2021 (where peaks are in purple). They reach a peak in the spring and then fell back.

### 3. Regression Analyses Using Lagged Expectations to Predict Monthly Unemployment

We now move on to estimate a series of monthly unemployment equations. **Table 7** uses 521 monthly observations of the unemployment rate and the CB and UM consumer expectations variables with both six month and twelve-month lags. Each equation includes a full set of month dummies and a lagged dependent variable which is significant and positive with a coefficient around 0.5.

First in column 1 we include the CB expectations variable and six and twelve-month lags, both of which are significant and negative. In column 2 the six-month lagged CB expectations variable is entered without the twelve-month lag and remain significant and negative. The results are similar in columns 3 and 4 using the equivalent UM measures. Given the expectations variables refer to circumstances six months ahead we include the two six-month lagged terms which are both significant and negative in the final column. Because of collinearity problems we cannot also include year dummies, but we can when we use the state level data.

We have state level expectations data from the CB for eight states so in **Table 8** we report the results of estimating unemployment equations with a lagged dependent variable using state level expectations data from 2007-2021. There are a total of 1400 observations (8 states \* 175 months).



The state, month unemployment rate is regressed on a twelve-month lag of the state unemployment rate, along with a full set of state, year and month dummies. In column 1 we include the contemporaneous expectations variable which is insignificantly different from zero. We then replace it with, in turn, 6-month, 12-month and 18-month lagged expectations terms. All three are negative and significant. The final column includes the 6 and 12-month lags and both are significantly negative. The best fit in terms of the highest adjusted R2 is column 2 which includes the 6-month lag ( $t=4.5$ ). Lagged expectations predict movements in the unemployment rate.

#### 4. Recession in 2021?

Part 7 of [Table 4](#) suggested that The Conference Board expectations peaked in March 2021 and then fell by 26 points through September 2021. The Michigan data peaked in June 2021 and fell by 18 points by August. Supporting data is also presented in [Table 9](#) which reports the subcomponents of the expectation indices, using CB and UM data. All show slowing from Spring 2021.

Part a) of [Table 9](#) reports data from The Conference Board on the three components of their index on business conditions, employment and income ‘six months hence’. Whether business conditions will be ‘better’ reaches a peak in March 2021 and then declined. Analogously the percent saying they will be ‘worse’ reaches a low in June 2021 and then starts to rise. The percent who say there will be ‘more jobs’ in six months peaks at 35.4 in March 2021 and then declines from 35.4 to 21.5 in September. Those saying there will be fewer reaches a low in June 2021.

Consistent data on a slowing in 2021 across the eight largest states using CB data were provided in part b) of [Table 6](#). All reach peaks in the first four months of 2021 and then decline, by a lot. The US saw a 25pt decline, versus 35 in California; 27 in Florida; 31 in Illinois; 16 in Michigan; 59 in New York; 23 in Ohio; 40 in Pennsylvania and 10 in Texas.

Part b) of [Table 9](#) reports the three components of the UM expectations index which looks forward rather longer than the CB index. It includes three parts on financial situation and business conditions in a year and business conditions five years hence. The proportion saying, they would be better off financially in a year peaked in April 2021 as did the percent saying business conditions will be better in a year. The two relative indices peaked in that month also. The five-year business conditions peaked in June 2021 as did the overall index.

Supporting evidence is also found from the US Purchasing Manager Indices (PMI). These data suggest marked slowing from May 2021 especially in consumer facing sectors. [Chart 5](#) plots the monthly future PMI from 2012. Here respondents are asked about their organization's future business activity.

Q3. *"What is the expected volume of business in twelve-months time – higher, the same or lower?"*

This series had fallen steadily from 2018 through 2020 and then picked up. It has fallen sharply since June 2021.

[Chart 6](#) plots new order PMIs from 2018 for four sectors – consumer goods; consumer services; technology and Financials, all of which show marked declines from around May 2021. We exclude

Basic Materials; Industrials and Healthcare that do not show marked declines. We use new orders rather than the output measures which also show declines from around that date, as these are less likely to be impacted by capacity constraints although both are likely influenced by backlogs of work which are currently at an all-time high. The table below reports the PMIs for May and September 2021.

| Output     | Basic Materials | Consumer Goods | Consumer Services | Financials | Healthcare | Industrials | Technology |
|------------|-----------------|----------------|-------------------|------------|------------|-------------|------------|
| Output     |                 |                |                   |            |            |             |            |
| 5/1/2021   | 59.2            | 61.7           | 73.6              | 71.8       | 65.1       | 65.9        | 69.1       |
| 9/1/2021   | 60.1            | 52.8           | 52.1              | 52.5       | 61.0       | 56.3        | 50.7       |
| New Orders |                 |                |                   |            |            |             |            |
| 5/1/2021   | 69.0            | 68.6           | 78.5              | 63.6       | 68.5       | 63.8        | 69.8       |
| 9/1/2021   | 65.4            | 58.3           | 52.0              | 52.7       | 59.7       | 55.3        | 51.1       |

It is notable how large the declines in new orders are between May and September especially in Consumer Services (-27). The concern here though is that the unemployment rate both in the US as a whole and in these eight states has been in steady decline in 2021 (Table 5). The Sahm Rule is even negative currently as unemployment declines.

A recent survey by The Conference Board<sup>6</sup>, released on 31<sup>st</sup> August 2021, indicates that 42% of workers are worried about returning to the workplace for fear of contracting COVID-19, a substantial increase from June 2021 when only 24% expressed this concern. The State of Work in America Survey by Grant Thornton in September 2021 found that 40% of employees interviewed said they would look for another job if forced to return to the office full-time.<sup>7</sup>

This increased level of anxiety among workers is potentially justified because, as we showed in a recent study analyzing the US Census Bureau's Household Pulse Survey<sup>8</sup>, workers were substantially more likely to contract COVID than non-workers, despite having a higher probability of being vaccinated (Blanchflower and Bryson, 2021c). This is consistent with the idea that being at work, or commuting to it, increases the risk of infection. Such concerns have been exacerbated by the appearance of the Delta variant of the virus.

Rising anxiety and worry is not confined to workers, however. Chart 7 presents the full series on anxiety and worry from the US Census Bureau's Household Pulse Survey through to end September 2021. The chart plots the percentage of respondents who said that, over the last seven days, they had either (a) not been able to stop or control worrying (b) were feeling nervous, anxious or on edge, for at least half the time. It is apparent that anxiety and worry have been rising again since late June such that, by the end of the period, almost one-in-five experienced worry most of the time, and over one-quarter are anxious most of the time.

<sup>6</sup> [https://conference-board.org/press/return-to-work-survey?mkt\\_tok=MjI1LVdCWiwMjUAAAF\\_iTe9-CPIMu2fzabgohRmYc3H9n8aLZkBstWpFxFxJ3YEA7R7qtR1u5UuBjKqZneyxsAR\\_Tg8r4oArGvtrDYWpTQKWNZmxrQF0tjwuf09TGGxot](https://conference-board.org/press/return-to-work-survey?mkt_tok=MjI1LVdCWiwMjUAAAF_iTe9-CPIMu2fzabgohRmYc3H9n8aLZkBstWpFxFxJ3YEA7R7qtR1u5UuBjKqZneyxsAR_Tg8r4oArGvtrDYWpTQKWNZmxrQF0tjwuf09TGGxot)

<sup>7</sup> <https://www.granthornton.com/library/articles/tax/2021/assessing-the-state-of-american-workers>

<sup>8</sup> <https://www.census.gov/programs-surveys/household-pulse-survey/data.html>

We have argued above that we would expect to see declines in employment and upticks in the unemployment rate to call a recession. But the involvement of the US in propping up the labor market has meant it is hard to see exactly what is going on. A good example of this relates to the wage data. Traditionally when the unemployment rate rises wage growth falls, but the opposite occurred in the US. For example, as the unemployment rose from below 4% to just under 20% in April 2020, wage growth rose.<sup>9</sup> This was due to base and composition effects. Recently though data from the Current Population Survey has suggested wage growth has gone negative in Q22021.<sup>10</sup> This is what was suggested would happen by Chairman of the Council of Advisers to the President Ceci Rouse and Council Member Martha Gimbel (see Rouse and Gimbel, 2020).

*“Usually when we see rising wages, the economy is growing. So how is it that April 2020 – the month when the U.S. economy lost 21 million jobs – saw some of the fastest wage growth in recent memory? And if wage growth slows in the coming months, or even goes into negative territory, what would that tell us about the economic recovery? We explain in this blog why we believe that two measurement issues—composition of the labor force and base effects—explain these trends and why average wage data will be easy to misinterpret in the coming months.”*

And later

*“Average wages are being shaped by a number of different factors right now, including but not limited to composition and base effects in wages. It is possible that headline average wage growth estimates will be negative in coming months. However, those negative estimates would reflect composition and base effects depressing the average wage, rather than wage cuts for workers. The Administration is paying close attention to how these influences are affecting the economic data. As the economy returns to normal we expect these anomalies to gradually disappear.”*

There is evidence from around the world of recent slowing in the qualitative business data in the fall of 2021 as the Delta COVID variant continues to spread around the world.

- i) Australia’s HIS Markit Services PMI contracted for a third straight month in September 2021.
- ii) The UK’s Institute of Directors (IOD) reported that confidence ‘fell off a cliff’ in September.
- iii) HIS Markit flash Eurozone PMI grew at ‘a markedly reduced rate’ in September”.
- iv) The German flash Composite PMI slowed in September.
- v) US flash Composite PMI for September grew ‘at the slowest pace for a year’.
- vi) US flash manufacturing PMI grew the slowest in five months.
- vii) US Flash Composite Services PMI which was the slowest rise in new business for 13 months.

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<sup>9</sup> Average hourly earnings of production and nonsupervisory employees, total private, seasonally adjusted, averaged 2011=2.0%; 2011=1.5%; 2012=2.1%; 2014=2.3%; 2015=2.1%; 2016=2.5%; 2017=2.3%; 2018=3.0%; 2019=3.6%. But in 2020 it rose sharply

|      | Jan  | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2020 | 3.3% | 3.3 | 3.7 | 7.8 | 6.8 | 5.5 | 4.8 | 4.9 | 4.6 | 4.5 | 4.7 | 5.5 |
| 2021 | 5.3  | 5.2 | 4.6 | 1.2 | 2.4 | 3.8 | 4.8 | 4.8 |     |     |     |     |

<sup>10</sup> Median usual weekly earnings (second quartile), Employed full time, Wage and salary workers. Averaged 2011=1.3%; 2011=1.6%; 2012=1.1%; 2014=1.9%; 2015=2.3%; 2016=2.9%; 2017=3.3%; 2018=3.0%; 2019=3.5%. Q12020=5.7; Q22020=10.4; Q32020=8.2; Q42020=5.1: Q12021=3.3% and Q42021=-1.2%.

We believe these data suggest that the US entered recession again around June 2021.

## 5. Conclusion

In this paper we have examined the value of data from consumers - the economics of walking about - in predicting economic downturns in the United States. We show consumer expectations indices from both The Conference Board and the University of Michigan predict economic downturns up to 18 months in advance in the United States, both at national and at state-level. All the recessions since the 1980s have been predicted by at least 10 and sometimes many more point drops in these indices. This is comparable to what we found in an earlier paper using fear of unemployment data to predict turning points in European countries (Blanchflower and Bryson, 2021a).

A single monthly rise of at least 0.3 percentage points in the unemployment rate also predicts recession, as does two consecutive months of employment rate declines. This is true whether establishment or household data are used. These data are relatively timely and are published a few months after the month they relate to, and revisions are minimal. In contrast GDP data gives a clear picture year later after the data have been a long revision process. This is a particular problem at turning points when early estimates of GDP growth are biased upwards. Revisions at turning points frequently involve positive estimates eventually being switched to negative as more evidence arrives of. downswing.

The economic situation in 2021 is exceptional, however, since unprecedented direct government intervention in the labor market through furlough-type arrangements has enabled employment rates and unemployment rates to recover quickly from the huge downturn in 2020. As we have shown, ordinarily when recession is coming, we would expect to see an increase in the unemployment rate – our rule of thumb is a 0.3 percentage point upturn in consecutive months – and declining employment. This is not what is happening. On the other hand, there are clear downward movements in consumer expectations in the last six months which, according to our rules of thumb regarding 10-point declines, would suggest the economy in the United States is entering recession now (Autumn 2021) - even though employment and wage growth figures suggest otherwise.

It seems to us that there is every likelihood that the US is entered recession at the end of 2021. The most compelling evidence is from the Conference Board expectations data for the eight biggest states. The figures below are taken from [Table 6b](#) and show the drop in expectations for 2007 and 2021, from the peak values to December 2007 and September 2021 respectively. In 2007 this is mostly from May 2007 through December 2007, whereas in 2021 it is mostly from March 2021 through September. The size of the declines by state are comparable to those in 2007 prior to the Great Recession. Indeed, for the US as a whole the most recent drop is larger (25 in 2007 versus 19 in 2007). All these figures meet our criterion of a ten point drop for a recession.

|            | 2007 | 2021 |
|------------|------|------|
| California | 36   | 35   |
| Florida    | 64   | 27   |
| Illinois   | 27   | 31   |
| Michigan   | 13   | 16   |

|              |    |    |
|--------------|----|----|
| New York     | 25 | 59 |
| Ohio         | 23 | 23 |
| Pennsylvania | 43 | 41 |
| Texas        | 27 | 10 |
| USA          | 19 | 25 |

So, what is going on? The answer appears to lie in the exceptional nature of the COVID-induced shock to the economy. It has been both an economic shock and a health shock, and one with the potential to derail the economy again over the coming months. It seems likely that, in spite of improvements in traditional labor market indicators, declining consumer expectations about the future of the economy are linked to COVID-related fears and anxieties. This is borne out by the survey by The Conference Board discussed above indicating a recent rise in the percent of workers – and especially women - worried about returning to the workplace for fear of contracting COVID-19, a substantial increase from June 2021 when only 24% expressed this concern.

This increased level of anxiety among workers is potentially justified because, as we showed in a recent study analyzing the US Census Bureau’s Household Pulse Survey,<sup>11</sup> workers were substantially more likely to contract COVID than non-workers, despite having a higher probability of being vaccinated (Blanchflower and Bryson, 2021c). This is consistent with the idea that being at work, or commuting to it, increases the risk of infection. Such concerns have been exacerbated by the appearance of the Delta variant of the virus. Rising anxiety and worry is not confined to workers as noted above. Evidence from the US Census Bureau’s bi-weekly Household Pulse Surveys is consistent suggesting an increase in anxiety and worry since June 2021.

We suspect that fears linked to COVID will continue to affect the real economy and lie behind consumer expectations about an imminent downturn in the economic situation. This is a bold call of course, and not consistent with consensus and only time will tell if we are right. However, equivalent falls in these data in 2007 were an early indicator of recession, missed at the time by policymakers and economists. There is a possibility of course, that these data are giving a false steer. However, missing the declines in these variables in 2007, as most policymakers and economists did, proved fatal. It is our hope such mistakes will not be repeated this time around. They missed it last time, hopefully they won’t miss it this time. These qualitative data trends need to be taken seriously.

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<sup>11</sup> <https://www.census.gov/programs-surveys/household-pulse-survey/data.html>

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Table 1. Dating of peaks

| NBER peak        | Date called by NBER GDP |        | Sahm Rule current | Sahm real time |
|------------------|-------------------------|--------|-------------------|----------------|
| 1) January 1980  | June 1980               | Q21980 | February 1980     | April 1980     |
| 2) July 1981     | January 1982            | Q41981 | November 1981     | November 1981  |
| 3) July 1990     | April 1991              | Q41990 | October 1990      | November 1990  |
| 4) March 2001    | November 2001           | Q12001 | June 2001         | June 2001      |
| 5) December 2007 | December 2008           | Q12008 | February 2008     | April 2008     |
| 6) February 2020 | April 2020              | Q22020 | April 2020        | April 2020     |

| NBER peak        | 2 months of employment decline |             | Rise in the unemployment rate by 0.3 pp |
|------------------|--------------------------------|-------------|---|
|                  | NFP                            | CPS         |   |
| 1) January 1980  | April 1980                     | March 1980  | December 1979                           |
| 2) July 1981     | August 1981                    | August 1981 | April 1981                              |
| 3) July 1990     | June 1990                      | June 1990   | June 1990                               |
| 4) March 2001    | March 2001                     | April 2001  | December 2000                           |
| 5) December 2007 | July 2007                      | July 2007   | November 2007                           |
| 6) February 2020 | March 2020                     | March 2020  | February 2020                           |

Table 2. 42 quarters of negative GDP growth – source OECD

|          |     |          |         |      |
|----------|-----|----------|---------|------|
| Q2-1947  | (1) | Q1-1970  | Q3-2001 |      |
| Q3-1947  |     | Q4-1970  | Q1-2008 |      |
| Q1-1949  | (2) | Q3-1973* | Q3-2008 | (9)  |
| Q2-1949  |     | Q1-1974  | Q4-2008 |      |
| Q4-1949  |     | Q3-1974  | Q1-2009 |      |
| Q3-1953  | (3) | Q4-1974  | Q2-2009 |      |
| Q4-1953  |     | Q1-1975  | Q1-2011 |      |
| Q1-1954  |     | Q2-1980  | Q1-2014 |      |
| Q1-1956* |     | Q3-1980  | Q1-2020 | (10) |
| Q3-1956  |     | Q2-1981* | Q2-2020 |      |
| Q2-1957* | (7) | Q4-1981  |         |      |
| Q4-1957  |     | Q1-1982  |         |      |
| Q1-1958  |     | Q3-1982  |         |      |
| Q2-1960* |     | Q4-1990  |         |      |
| Q4-1960  |     | Q1-1991  |         |      |
| Q4-1969  | (4) | Q1-2001* |         |      |

Note: \* 2/3 successive negative quarters of GDP growth



Table 3. Monthly employment changes in establishment (NFP) and household surveys (CPS).

|               | NFP  | CPS  |               | NFP  | CPS   |
|---------------|------|------|---------------|------|-------|
| <b>Jan-80</b> | 128  | -54  | Aug-01        | -149 | -830  |
| Feb-80        | 83   | 116  | Sep-01        | -257 | 605   |
| Mar-80        | 111  | -282 | Oct-01        | -317 | -454  |
| Apr-80        | -145 | -480 | Nov-01        | -312 | -154  |
| May-80        | -429 | -288 | Dec-01        | -160 | -191  |
| Jun-80        | -319 | -263 | Jan-02        | -130 | -346  |
| Jul-80        | -261 | 114  | Feb-02        | -116 | 737   |
|               |      |      | Mar-02        | -19  | -261  |
| May-81        | 13   | -8   | Apr-02        | -94  | -51   |
| <b>Jun-81</b> | 194  | -750 | May-02        | 11   | 413   |
| Jul-81        | 111  | 395  | Jun-02        | 50   | -124  |
| Aug-81        | -36  | -4   | Jul-02        | -94  | -2    |
| Sep-81        | -88  | -625 |               |      |       |
| Oct-81        | -97  | 314  | Jul-07        | -31  | -158  |
| Nov-81        | -209 | -171 | Aug-07        | -23  | -223  |
| Dec-81        | -276 | -562 | Sep-07        | 80   | 562   |
| Jan-82        | -330 | 47   | Oct-07        | 79   | -298  |
| Feb-82        | -2   | 70   | Nov-07        | 110  | 6     |
| Mar-82        | -129 | -90  | <b>Dec-07</b> | 108  | -322  |
| Apr-82        | -284 | -96  | Jan-08        | 11   | 105   |
| May-82        | -43  | 540  | Feb-08        | -79  | -222  |
| Jun-82        | -242 | -573 | Mar-08        | -49  | -70   |
| Jul-82        | -344 | -50  | Apr-08        | -240 | 46    |
| Aug-82        | -158 | 140  | May-08        | -177 | -224  |
| Sep-82        | -180 | -129 | Jun-08        | -171 | -171  |
| Oct-82        | -276 | -289 | Jul-08        | -196 | -205  |
| Nov-82        | -121 | -103 | Aug-08        | -278 | -329  |
| Dec-82        | -15  | -80  | Sep-08        | -460 | -127  |
|               |      |      | Oct-08        | -481 | -274  |
| Jun-90        | 17   | -168 | Nov-08        | -727 | -702  |
| <b>Jul-90</b> | -32  | -173 | Dec-08        | -706 | -731  |
| Aug-90        | -208 | -8   | Jan-09        | -784 | -1217 |
| Sep-90        | -98  | -278 | Feb-09        | -743 | -512  |
| Oct-90        | -151 | 12   | Mar-09        | -800 | -933  |
| Nov-90        | -153 | -230 | Apr-09        | -695 | -51   |
| Dec-90        | -48  | -65  | May-09        | -342 | -408  |
| Jan-91        | -111 | -301 | Jun-09        | -467 | -239  |
| Feb-91        | -321 | -185 | Jul-09        | -340 | -108  |
| Mar-91        | -160 | -103 | Aug-09        | -183 | -409  |
| Apr-91        | -210 | 457  | Sep-09        | -241 | -674  |
| May-91        | -115 | -669 | Oct-09        | -199 | -386  |
|               |      |      | Nov-09        | 12   | 227   |
| Feb-01        | 91   | -166 | Dec-09        | -269 | -646  |
| <b>Mar-01</b> | -42  | 171  |               |      |       |

|        |      |      |               |        |        |
|--------|------|------|---------------|--------|--------|
| Apr-01 | -284 | -484 | Jan-20        | 315    | -76    |
| May-01 | -53  | -207 | <b>Feb-20</b> | 289    | 7      |
| Jun-01 | -111 | -219 | Mar-20        | -1683  | -3196  |
| Jul-01 | -122 | 198  | Apr-20        | -20679 | -22166 |

Table 4. Recessions and Consumer Expectations

|                           | Unemployment rate (%) | The Conference Board | University of Michigan |
|---------------------------|-----------------------|----------------------|------------------------|
| a) January 1980 recession |                       |                      |                        |
| Jul-78                    | 6.2                   | 93.3                 | 72.0                   |
| Aug-78                    | 5.9                   | 97.4                 | 67.0                   |
| Sep-78                    | 6.0                   | 95.3                 | 69.8                   |
| Oct-78                    | 5.8                   | 97.7                 | 71.7                   |
| Nov-78                    | 5.9                   | 82.4                 | 62.8                   |
| Dec-78                    | 6.0                   | 86.1                 | 53.8                   |
| Jan-79                    | 5.9                   | 82.2                 | 58.4                   |
| Feb-79                    | 5.9                   | 88.8                 | 62.2                   |
| Mar-79                    | 5.8                   | 78.0                 | 53.7                   |
| Apr-79                    | 5.8                   | 77.9                 | 53.3                   |
| May-79                    | 5.6                   | 78.5                 | 54.9                   |
| Jun-79                    | 5.7                   | 73.3                 | 51.4                   |
| Jul-79                    | 5.7                   | 63.1                 | 44.2                   |
| Aug-79                    | 6.0                   | 60.7                 | 49.3                   |
| Sep-79                    | 5.9                   | 66.9                 | 53.6                   |
| Oct-79                    | 6.0                   | 74.1                 | 49.5                   |
| Nov-79                    | 5.9                   | 73.0                 | 52.0                   |
| Dec-79                    | 6.0                   | 74.8                 | 51.5                   |
| Jan-80                    | 6.3                   | 71.4                 | 54.1                   |
| Feb-80                    | 6.3                   | 74.1                 | 54.9                   |
| b) July 1981 recession    |                       |                      |                        |
|                           | Unemployment rate (%) | The Conference Board | University of Michigan |
| Nov-80                    | 7.5                   | 102.9                | 76.9                   |
| Dec-80                    | 7.2                   | 91.1                 | 60.4                   |
| Jan-81                    | 7.5                   | 85.9                 | 67.9                   |
| Feb-81                    | 7.4                   | 78.4                 | 62.1                   |
| Mar-81                    | 7.4                   | 88.1                 | 62.1                   |
| Apr-81                    | 7.2                   | 93.1                 | 68.8                   |
| May-81                    | 7.5                   | 96.3                 | 73.6                   |
| Jun-81                    | 7.5                   | 94.0                 | 71.2                   |
| Jul-81                    | 7.2                   | 94.1                 | 67.1                   |
| Aug-81                    | 7.4                   | 96.5                 | 70.8                   |
| c) July 1990 recession    |                       |                      |                        |
|                           | Unemployment rate (%) | The Conference Board | University of Michigan |
| Jan-89                    | 5.4                   | 104.1                | 89.9                   |
| Feb-89                    | 5.2                   | 108.3                | 88.8                   |
| Mar-89                    | 5.0                   | 104.9                | 87.6                   |
| Apr-89                    | 5.2                   | 101.8                | 83.2                   |

|        |     |       |      |
|--------|-----|-------|------|
| May-89 | 5.2 | 103.0 | 80.1 |
| Jun-89 | 5.3 | 105.1 | 82.0 |
| Jul-89 | 5.2 | 106.6 | 85.5 |
| Aug-89 | 5.2 | 103.7 | 80.3 |
| Sep-89 | 5.3 | 106.1 | 88.6 |
| Oct-89 | 5.3 | 106.4 | 87.2 |
| Nov-89 | 5.4 | 103.7 | 84.3 |
| Dec-89 | 5.4 | 104.4 | 85.5 |
| Jan-90 | 5.4 | 97.0  | 83.4 |
| Feb-90 | 5.3 | 93.7  | 81.3 |
| Mar-90 | 5.2 | 101.9 | 81.3 |
| Apr-90 | 5.4 | 99.2  | 83.9 |
| May-90 | 5.4 | 100.3 | 79.3 |
| Jun-90 | 5.2 | 96.6  | 76.6 |
| Jul-90 | 5.5 | 91.8  | 77.3 |

d) March 2001 recession

|        | Unemployment rate (%) | The Conference Board | University of Michigan |
|--------|-----------------------|----------------------|------------------------|
| Jan-00 | 4.0                   | 119.1                | 108.6                  |
| Feb-00 | 4.1                   | 114.6                | 107.8                  |
| Mar-00 | 4.0                   | 106.8                | 101.7                  |
| Apr-00 | 3.8                   | 109.7                | 103.7                  |
| May-00 | 4.0                   | 118.7                | 104.8                  |
| Jun-00 | 4.0                   | 111.9                | 100.8                  |
| Jul-00 | 4.0                   | 113.7                | 104.5                  |
| Aug-00 | 4.1                   | 113.9                | 104.0                  |
| Sep-00 | 3.9                   | 115.9                | 103.4                  |
| Oct-00 | 3.9                   | 108.4                | 100.7                  |
| Nov-00 | 3.9                   | 101.2                | 101.6                  |
| Dec-00 | 3.9                   | 96.9                 | 90.7                   |
| Jan-01 | 4.2                   | 79.3                 | 86.4                   |
| Feb-01 | 4.2                   | 70.7                 | 80.8                   |
| Mar-01 | 4.3                   | 83.1                 | 83.9                   |

e) December 2007 recession

|        | Unemployment rate (%) | The Conference Board | University of Michigan |
|--------|-----------------------|----------------------|------------------------|
| Dec-06 | 4.4                   | 96.3                 | 81.2                   |
| Jan-07 | 4.6                   | 94.4                 | 87.6                   |
| Feb-07 | 4.5                   | 93.8                 | 81.5                   |
| Mar-07 | 4.4                   | 87.9                 | 78.7                   |
| Apr-07 | 4.5                   | 88.2                 | 75.9                   |
| May-07 | 4.4                   | 90.1                 | 77.6                   |
| Jun-07 | 4.6                   | 88.8                 | 74.7                   |
| Jul-07 | 4.7                   | 94.4                 | 81.5                   |
| Aug-07 | 4.6                   | 89.2                 | 73.7                   |
| Sep-07 | 4.7                   | 85.0                 | 74.1                   |

|        |     |      |      |
|--------|-----|------|------|
| Oct-07 | 4.7 | 80.0 | 70.1 |
| Nov-07 | 4.7 | 69.1 | 66.2 |
| Dec-07 | 5.0 | 75.8 | 65.6 |

e) February 2020 recession

|        | Unemployment rate (%) | The Conference Board | University of Michigan |
|--------|-----------------------|----------------------|------------------------|
| Feb-20 | 3.5                   | 108.1                | 92.1                   |
| Mar-20 | 4.4                   | 86.8                 | 79.7                   |
| Apr-20 | 14.8                  | 94.3                 | 70.1                   |

7) 2021 recession?

|        | Unemployment rate (%) | The Conference Board | University of Michigan |
|--------|-----------------------|----------------------|------------------------|
| Jan-21 | 6.3                   | 88.1                 | 74.0                   |
| Feb-21 | 6.2                   | 95.4                 | 70.7                   |
| Mar-21 | 6.0                   | 111.9                | 79.7                   |
| Apr-21 | 6.1                   | 107.9                | 82.7                   |
| May-21 | 5.8                   | 100.9                | 78.8                   |
| Jun-21 | 5.9                   | 108.5                | 83.5                   |
| Jul-21 | 5.4                   | 103.8                | 79.0                   |
| Aug-21 | 5.2                   | 92.8                 | 65.1                   |
| Sep-21 |                       | 86.6                 |                        |

Table 5. Employment change and unemployment rates by eight largest states, 2007

a) Monthly employment change (000s)

|        | California | Florida | Illinois | Michigan | New York | Ohio | Pennsylvania | Texas | USA  |
|--------|------------|---------|----------|----------|----------|------|--------------|-------|------|
| Jan-07 | 14         | 10      | -3       | -5       | -1       | 3    | 3            | 8     | 58   |
| Feb-07 | 5          | 5       | -4       | -7       | -5       | 0    | 0            | 4     | 29   |
| Mar-07 | 0          | 0       | -2       | -8       | -8       | -1   | -1           | 1     | 263  |
| Apr-07 | 0          | -5      | 1        | -8       | -9       | -1   | -1           | 1     | -734 |
| May-07 | 1          | -8      | 5        | -8       | -7       | -3   | 0            | 3     | 317  |
| Jun-07 | 4          | -9      | 7        | -7       | -3       | -4   | 2            | 6     | 160  |
| Jul-07 | 6          | -9      | 8        | -7       | 2        | -4   | 4            | 9     | -158 |
| Aug-07 | 7          | -7      | 7        | -6       | 6        | -3   | 5            | 13    | -223 |
| Sep-07 | 8          | -4      | 6        | -5       | 10       | -1   | 6            | 18    | 562  |
| Oct-07 | 6          | -2      | 5        | -4       | 11       | 0    | 6            | 21    | -298 |
| Nov-07 | 4          | -2      | 5        | -4       | 11       | 2    | 6            | 23    | 649  |
| Dec-07 | 2          | -4      | 5        | -4       | 9        | 2    | 7            | 24    | -322 |

b) Unemployment rates

|        | California | Florida | Illinois | Michigan | New York | Ohio | Pennsylvania | Texas | USA |
|--------|------------|---------|----------|----------|----------|------|--------------|-------|-----|
| Jan-07 | 4.9        | 2.7     | 4.6      | 7.0      | 4.2      | 5.4  | 4.4          | 4.5   | 4.6 |
| Feb-07 | 5.0        | 2.8     | 4.6      | 7.0      | 4.2      | 5.5  | 4.4          | 4.4   | 4.5 |
| Mar-07 | 5.0        | 2.9     | 4.7      | 6.9      | 4.2      | 5.5  | 4.4          | 4.4   | 4.4 |
| Apr-07 | 5.1        | 3.0     | 4.8      | 6.9      | 4.3      | 5.5  | 4.4          | 4.3   | 4.5 |
| May-07 | 5.1        | 3.1     | 4.9      | 6.9      | 4.3      | 5.6  | 4.4          | 4.3   | 4.4 |
| Jun-07 | 5.2        | 3.2     | 5.0      | 6.9      | 4.4      | 5.6  | 4.5          | 4.3   | 4.6 |
| Jul-07 | 5.3        | 3.3     | 5.1      | 7.0      | 4.5      | 5.7  | 4.5          | 4.3   | 4.7 |
| Aug-07 | 5.4        | 3.4     | 5.2      | 7.1      | 4.5      | 5.7  | 4.6          | 4.3   | 4.6 |
| Sep-07 | 5.5        | 3.6     | 5.3      | 7.2      | 4.6      | 5.7  | 4.7          | 4.4   | 4.7 |
| Oct-07 | 5.7        | 3.7     | 5.5      | 7.3      | 4.6      | 5.7  | 4.8          | 4.4   | 4.7 |

Table 6. Expectations from The Conference Board by eight largest states

| a) 2007 |            |         |          |          |          |      |              |       |      |
|---------|------------|---------|----------|----------|----------|------|--------------|-------|------|
|         | California | Florida | Illinois | Michigan | New York | Ohio | Pennsylvania | Texas | USA  |
| Feb-07  | 94.7       | 123.5   | 96.0     | 35.1     | 80.7     | 77.8 | 81.2         | 110.6 | 93.8 |
| Mar-07  | 101.2      | 96.6    | 89.6     | 31.5     | 76.7     | 75.5 | 70.0         | 111.6 | 87.9 |
| Apr-07  | 87.5       | 102.3   | 78.2     | 23.3     | 79.0     | 51.8 | 93.5         | 117.4 | 88.2 |
| May-07  | 107.2      | 94.5    | 71.8     | 27.0     | 71.2     | 64.9 | 77.8         | 101.4 | 90.1 |
| Jun-07  | 91.4       | 91.4    | 92.5     | 42.2     | 63.1     | 70.0 | 57.0         | 112.0 | 88.8 |
| Jul-07  | 84.2       | 104.3   | 93.1     | 46.7     | 77.4     | 70.9 | 91.8         | 111.1 | 94.4 |
| Aug-07  | 92.8       | 95.1    | 87.5     | 51.0     | 53.6     | 61.0 | 64.4         | 91.5  | 89.2 |
| Sep-07  | 87.4       | 73.9    | 90.2     | 29.9     | 72.8     | 64.6 | 86.1         | 95.9  | 85.0 |
| Oct-07  | 93.2       | 75.0    | 69.4     | 31.6     | 64.8     | 67.6 | 73.7         | 106.6 | 80.0 |
| Nov-07  | 66.7       | 58.5    | 61.2     | 24.8     | 60.4     | 60.3 | 62.4         | 93.4  | 69.1 |
| Dec-07  | 71.0       | 59.8    | 68.8     | 38.4     | 55.8     | 54.7 | 50.4         | 90.5  | 75.8 |

| b) 2021 |            |         |          |          |          |      |              |       |       |
|---------|------------|---------|----------|----------|----------|------|--------------|-------|-------|
|         | California | Florida | Illinois | Michigan | New York | Ohio | Pennsylvania | Texas | USA   |
| Jan-21  | 96.3       | 95.6    | 100.9    | 109.8    | 113.9    | 99.7 | 88.3         | 104.5 | 88.1  |
| Feb-21  | 121.2      | 100.2   | 99.9     | 95.4     | 119.4    | 93.1 | 79.9         | 93.2  | 95.4  |
| Mar-21  | 127.5      | 121.3   | 127.7    | 91.8     | 129.2    | 93.2 | 106.9        | 119.6 | 111.9 |
| Apr-21  | 122.1      | 115.2   | 115.2    | 87.8     | 120.7    | 98.9 | 104.5        | 117.6 | 107.9 |
| May-21  | 114.1      | 109.8   | 104.1    | 69.5     | 93.0     | 83.0 | 95.9         | 114.4 | 100.9 |
| Jun-21  | 115.5      | 117.3   | 93.7     | 89.8     | 119.5    | 96.2 | 108.1        | 112.5 | 108.5 |
| July-21 | 108.9      | 102.8   | 100.6    | 91.4     | 111.9    | 95.4 | 90.4         | 99.3  | 103.8 |
| Aug-21  | 103.5      | 100.9   | 91.3     | 91.9     | 105.5    | 87.6 | 75.1         | 89.1  | 91.4  |
| Sep-21  | 92.9       | 93.9    | 97.0     | 93.4     | 70.7     | 75.7 | 67.2         | 109.7 | 86.6  |

Table 7. Monthly unemployment rate equations, January 1978-August 2021 (months).

|   |               |                |               |                |               |
|---|---------------|----------------|---------------|----------------|---------------|
| Unemployment rate <sub>t-12</sub>       | .5601 (17.65) | .5931 (19.26)  | .4917 (14.17) | .5252 (16.41)  | .4893 (13.47) |
| Conf Board expectations <sub>t-6</sub>  | -.0271 (6.86) | -.0354 (10.77) |               |                | -.0132 (2.35) |
| Conf Board expectations <sub>t-12</sub> | -.0153 (3.74) |                |               |                |               |
| Michigan expectations <sub>t-6</sub>    |               |                | -.0389 (6.44) | -.0495 (11.59) | -.0354 (4.82) |
| Michigan expectations <sub>t-12</sub>   |               |                | -.0167 (2.54) |                |               |
| Constant                                | 6.5633        | 5.7621         | 7.5105        | 6.8041         | 6.8229        |
| Adjusted R <sup>2</sup>                 | .5335         | .5215          | .5458         | .5379          | .5420         |
| N                                       | 521           | 523            | 511           | 517            | 511           |

Unemployment rates are from the BLS. All equations include 11-month dummies. T-statistics in parentheses.

Table 8. Monthly State Unemployment rate equations, February 2007-August 2021

|   |                 |                 |                 |                 |                |
|---|-----------------|-----------------|-----------------|-----------------|----------------|
| Unemployment rate <sub>t-12</sub>       | .1745 (6.47)    | .1481(5.38)     | .1407 (4.99)    | .1209 (4.17)    | .1365 (4.85)   |
| Conf Board expectations <sub>t</sub>    | -.0011 (0.38)   |                 |                 |                 |                |
| Conf Board expectations <sub>t-6</sub>  |                 | -.0128 (4.51)   |                 |                 | -.0087 (2.81)  |
| Conf Board expectations <sub>t-12</sub> |                 |                 | -.0147 (4.97)   |                 | -.0128 (4.22)  |
| Conf Board expectations <sub>t-18</sub> |                 |                 |                 | -.0149 (4.93)   |                |
| Florida                                 | -1.2145 (7.65)  | -1.2035 (7.44)  | -1.1985 (7.20)  | -1.2273 (7.18)  | -1.1874 (7.15) |
| Illinois                                | -.5425 (3.48)   | -.6404 (4.02)   | -.6731 (4.10)   | -.6959 (4.11)   | -.7163 (4.36)  |
| Michigan                                | -.2761 (1.77)   | -.4464 (2.70)   | -.5198 (3.17)   | -.5826 (3.44)   | -.5569 (3.39)  |
| New York                                | -1.1404 (6.64)  | -1.2893 (7.85)  | -1.3307 (7.86)  | -1.3586 (7.75)  | -1.3886 (8.16) |
| Ohio                                    | -2.7137 (15.52) | -2.9381 (16.33) | -3.0160 (16.21) | -3.0882 (15.93) | -3.0706(16.46) |
| Pennsylvania                            | -.2920 (1.86)   | -.4207 (2.62)   | -.4509 (2.73)   | -.4901 (2.87)   | -.5220 (3.13)  |
| Texas                                   | -1.8206 (10.95) | -1.7945 (10.06) | -1.7961 (9.77)  | -1.8427 (10.16) | -1.7289 (9.72) |
| Constant                                | 4.8513          | 6.1461          | 7.4877          | 7.3914          | 7.8126         |
| Adjusted R <sup>2</sup>                 | .7290           | .7296           | .7272           | .7268           | .7287          |
| N                                       | 1400            | 1352            | 1304            | 1256            | 1304           |
| Excluded California                     |                 |                 |                 |                 |                |



Table 9. Expectations for Six Months Hence: Percent

a) *The Conference Board*

|                            | 2020 |      |      |      | 2021 |      |             |      |      |             |             |         |         |
|----------------------------|------|------|------|------|------|------|-------------|------|------|-------------|-------------|---------|---------|
|                            | Sep  | Oct  | Nov  | Dec  | Jan  | Feb  | Mar         | Apr  | May  | June        | July        | Aug (r) | Sep (p) |
| <b>Business conditions</b> |      |      |      |      |      |      |             |      |      |             |             |         |         |
| Better                     | 36.7 | 36.0 | 26.5 | 29.5 | 31.8 | 33.6 | <b>39.1</b> | 33.1 | 31.0 | 33.7        | 30.9        | 23.4    | 21.5    |
| Worse                      | 15.8 | 15.9 | 22.5 | 22.0 | 18.5 | 16.4 | 11.1        | 12.1 | 14.4 | <b>10.8</b> | 11.9        | 17.4    | 17.6    |
| Same                       | 47.5 | 48.1 | 51.0 | 48.5 | 49.7 | 50.0 | 49.8        | 54.8 | 54.6 | 55.5        | 57.2        | 59.2    | 60.9    |
| <b>Employment</b>          |      |      |      |      |      |      |             |      |      |             |             |         |         |
| More jobs                  | 32.9 | 32.0 | 25.0 | 28.0 | 28.8 | 29.0 | <b>35.4</b> | 31.7 | 27.7 | 26.6        | 25.5        | 23.1    | 21.5    |
| Fewer jobs                 | 16.1 | 19.8 | 21.6 | 22.2 | 23.3 | 19.9 | 14.8        | 14.4 | 17.5 | <b>15.7</b> | 17.8        | 18.0    | 20.3    |
| Same                       | 51.0 | 48.2 | 53.4 | 49.8 | 47.9 | 51.1 | 49.8        | 53.9 | 54.8 | 57.7        | 56.7        | 58.9    | 58.2    |
| <b>Income</b>              |      |      |      |      |      |      |             |      |      |             |             |         |         |
| Increase                   | 17.3 | 17.5 | 16.0 | 15.7 | 14.3 | 16.0 | 18.0        | 17.4 | 16.2 | 20.0        | <b>20.0</b> | 18.2    | 17.3    |
| Decrease                   | 13.0 | 14.2 | 14.5 | 14.6 | 15.0 | 13.0 | 10.1        | 10.5 | 9.3  | <b>8.4</b>  | 8.8         | 9.9     | 11.5    |
| Same                       | 69.7 | 68.3 | 69.5 | 69.7 | 70.7 | 71.0 | 71.9        | 72.1 | 74.5 | 71.6        | 71.2        | 71.9    | 71.2    |

b) *University of Michigan*

|         | Financial Situation in a Year |      |       |            | Business Conditions in a Year |      |       |            | Business Conditions Next 5 Years |           |           |           | Overall Expectation Index |
|---------|-------------------------------|------|-------|------------|-------------------------------|------|-------|------------|----------------------------------|-----------|-----------|-----------|---------------------------|
|         | Better Off                    | Same | Worse | Relative   | Better                        | Same | Worse | Relative   | Good Times                       | Uncertain | Bad Times | Relative  |                           |
| Jan-21  | 35                            | 45   | 14    | 121        | 51                            | 25   | 22    | 129        | 38                               | 9         | 50        | 88        | 74.0                      |
| Feb-21  | 36                            | 45   | 18    | 118        | 50                            | 23   | 26    | 124        | 36                               | 7         | 54        | 82        | 70.7                      |
| Mar-21  | 33                            | 49   | 15    | 118        | 51                            | 25   | 23    | 128        | 41                               | 9         | 47        | 94        | 79.7                      |
| Apr-21  | <b>39</b>                     | 44   | 15    | <b>124</b> | <b>53</b>                     | 24   | 22    | <b>131</b> | 41                               | 9         | 48        | 93        | 82.7                      |
| May-21  | 31                            | 49   | 18    | 113        | 51                            | 23   | 25    | 126        | 42                               | 6         | 49        | 93        | 78.8                      |
| Jun-21  | 35                            | 45   | 16    | 119        | 50                            | 26   | 21    | 129        | <b>43</b>                        | 9         | 46        | <b>97</b> | <b>83.5</b>               |
| July-21 | 36                            | 46   | 16    | 120        | 45                            | 32   | 21    | 124        | 38                               | 9         | 50        | 88        | 79.0                      |
| Aug-21  | 31                            | 45   | 20    | 111        | 31                            | 35   | 32    | 99         | 33                               | 7         | 58        | 75        | 65.1                      |

Chart 1. United States Quarterly GDP Growth, 1947Q2-2021Q2

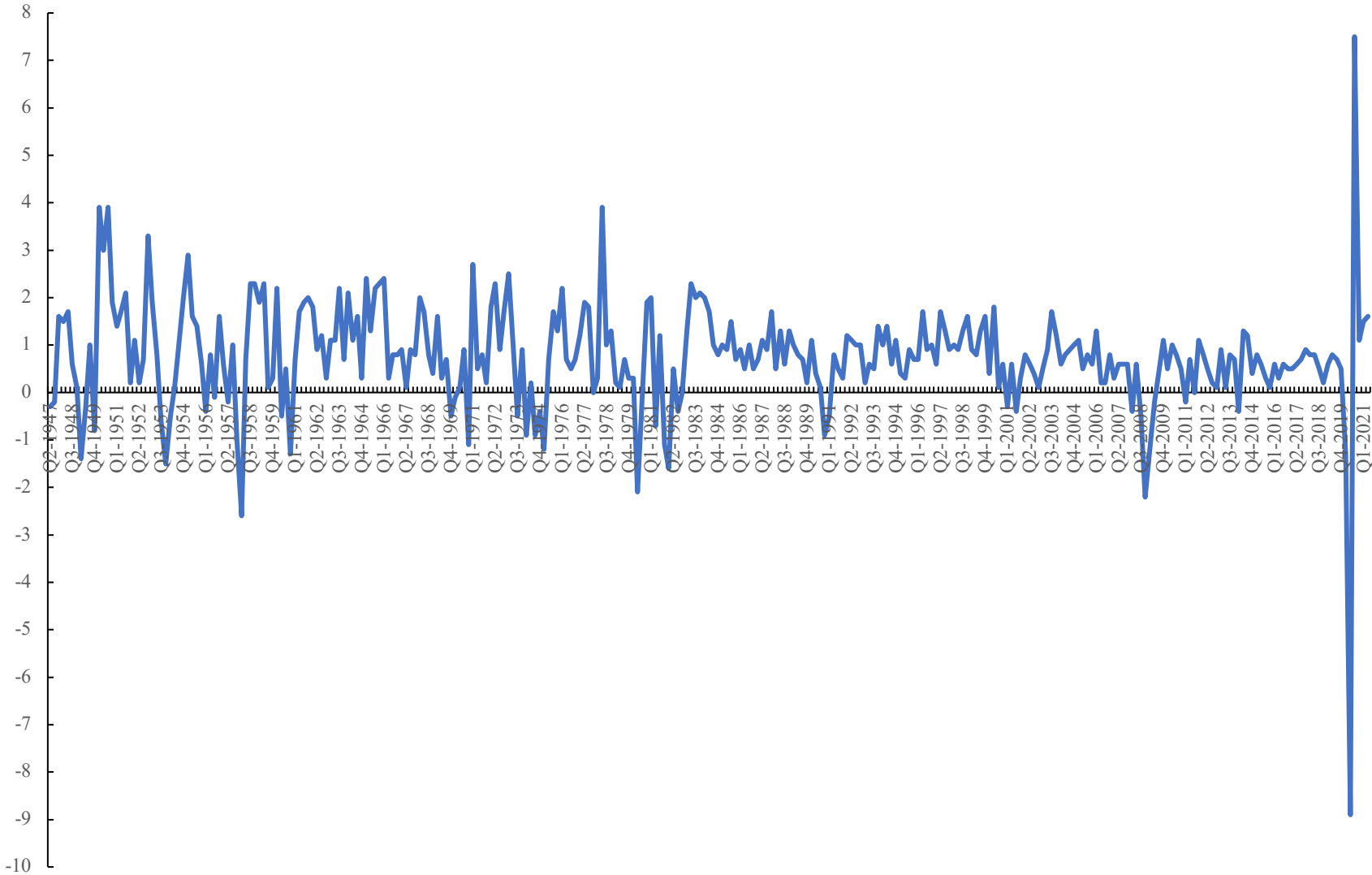
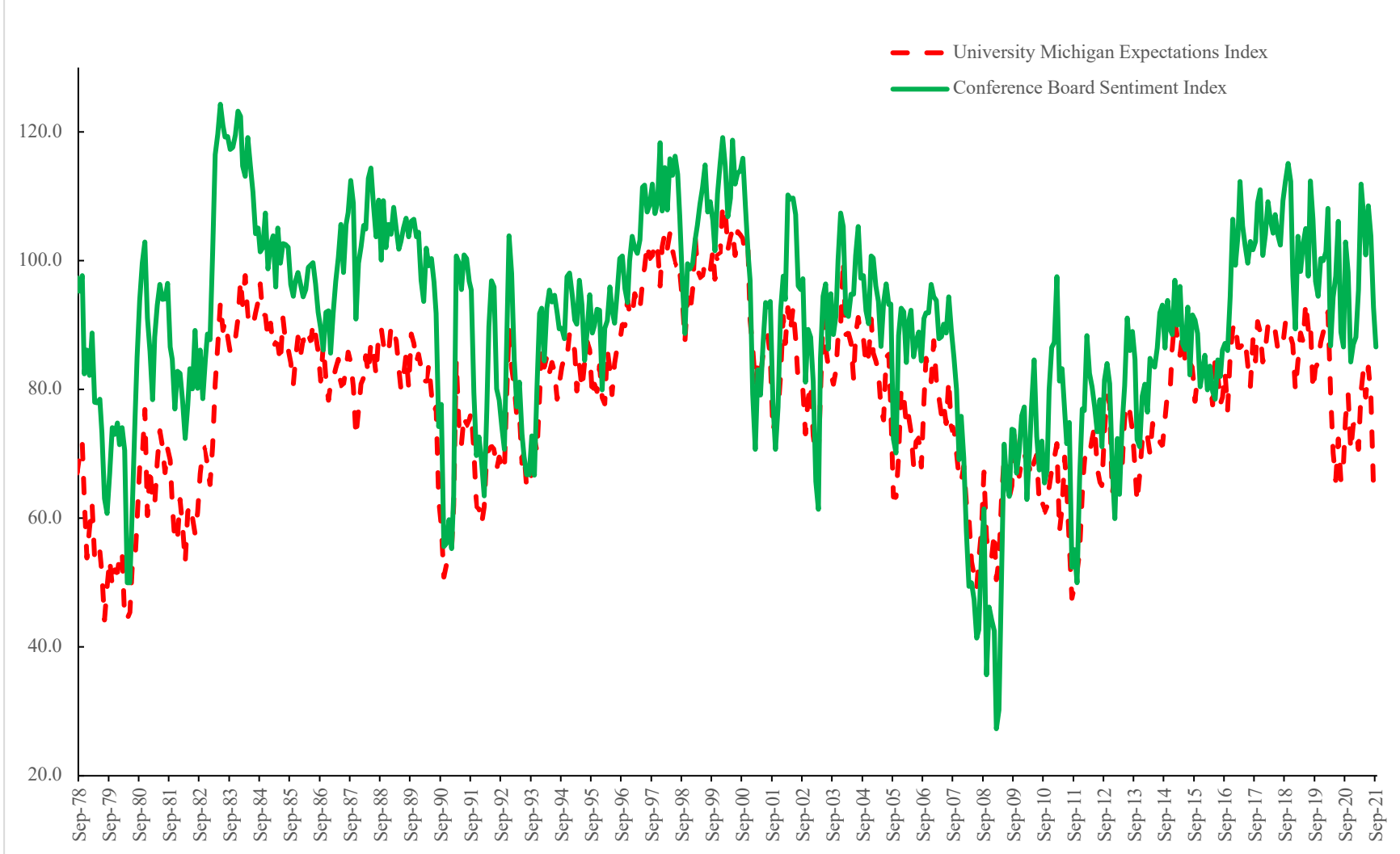


Chart 2. Monthly Expectations Indices, 1978-2021



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Chart 3. University of Michigan Expectations Index and twelve months ahead unemployment rate

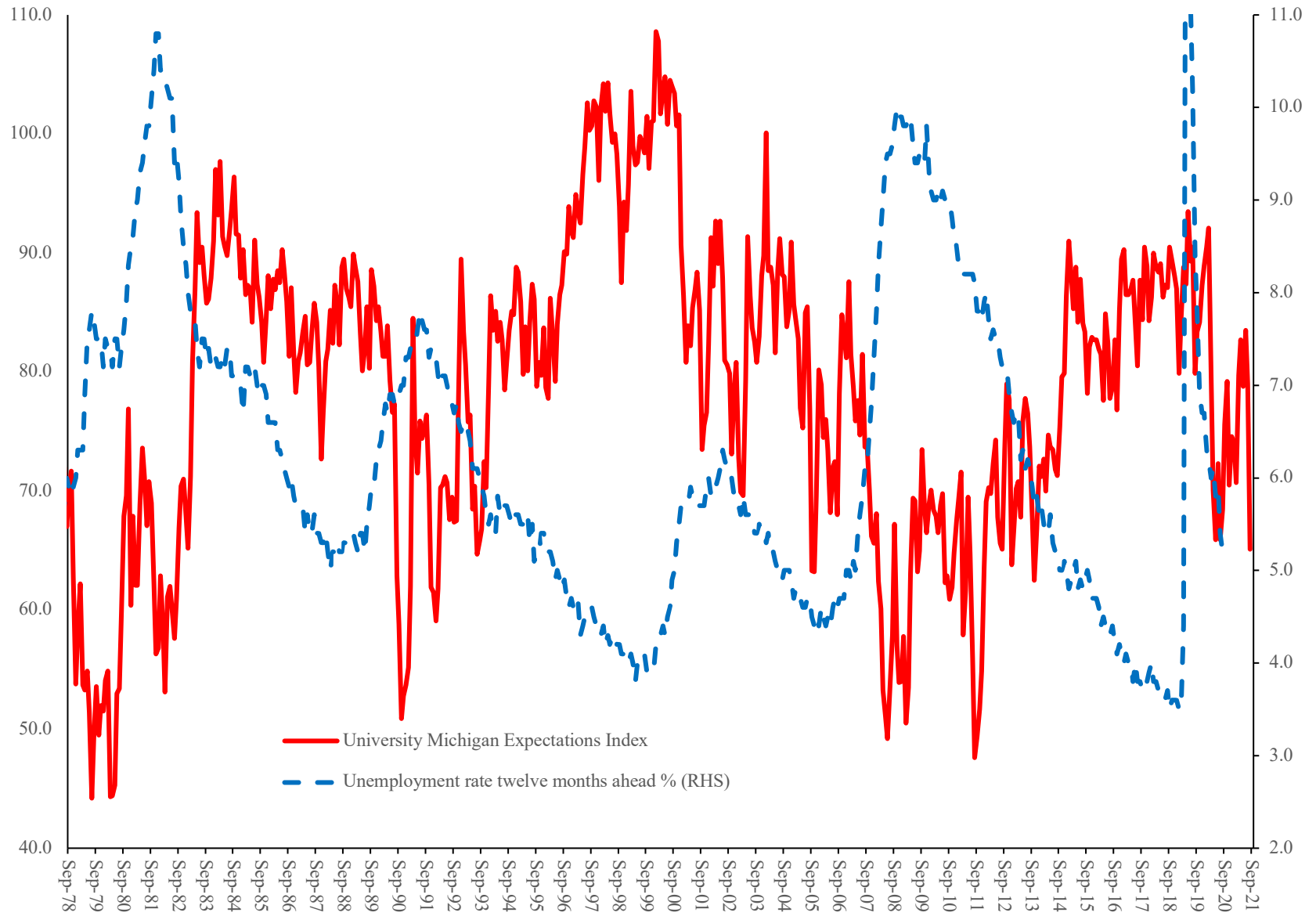
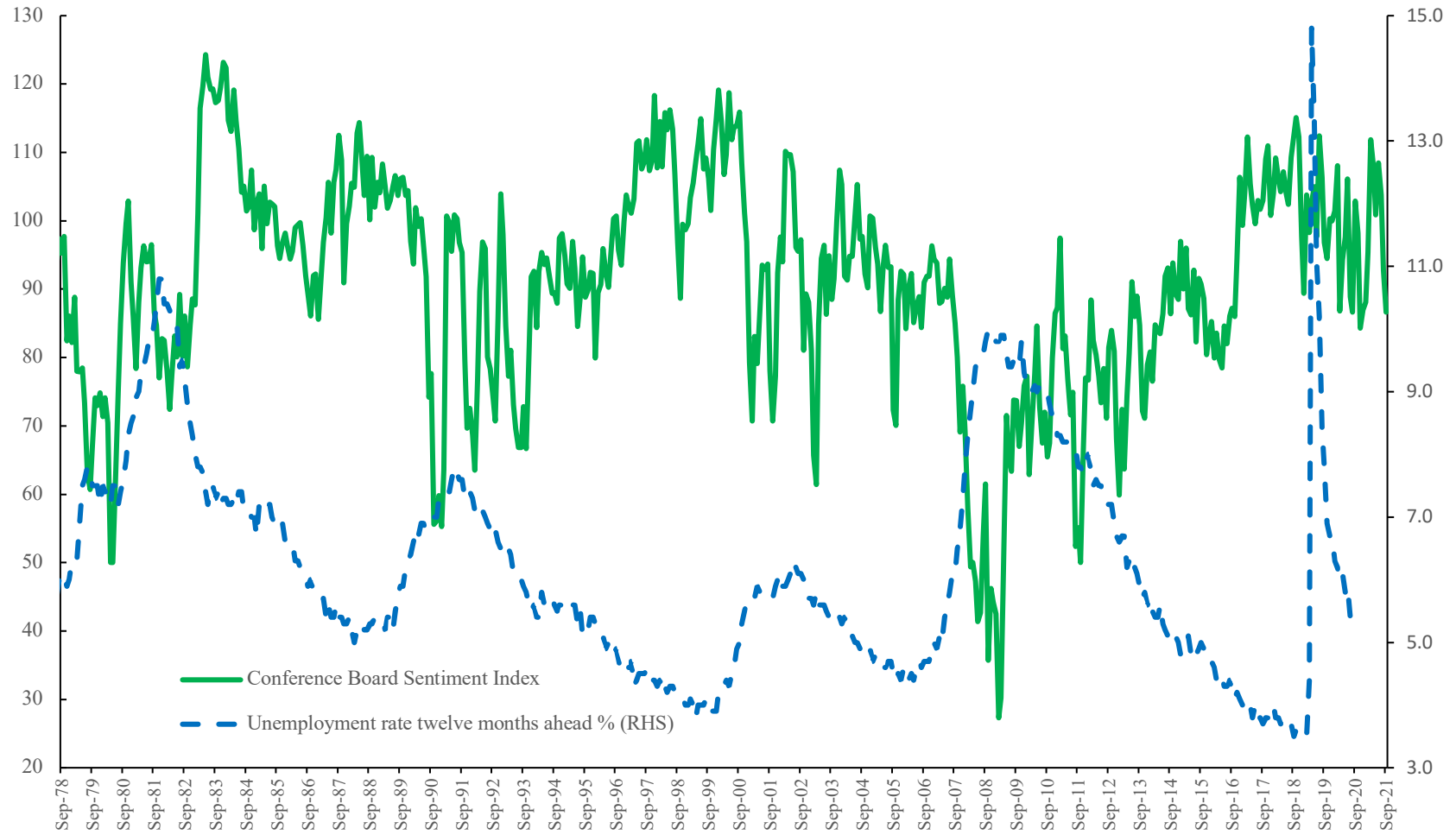


Chart 4. Conference Board Expectations Index and twelve months ahead unemployment rate



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Chart 5. US PMI Future Index, July 2012-July 2021

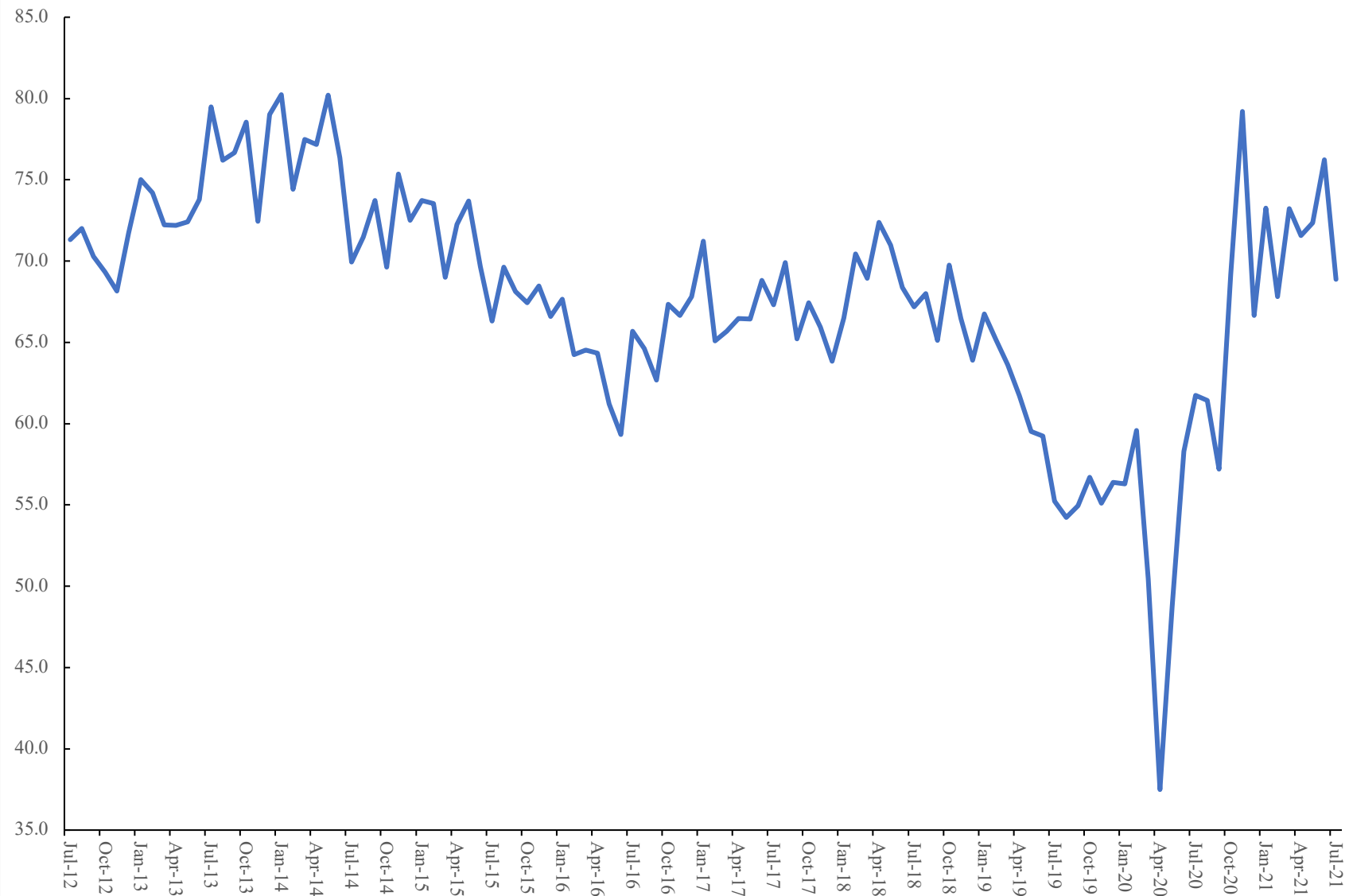


Chart 6. US PMI New Orders September 2018-September 2021

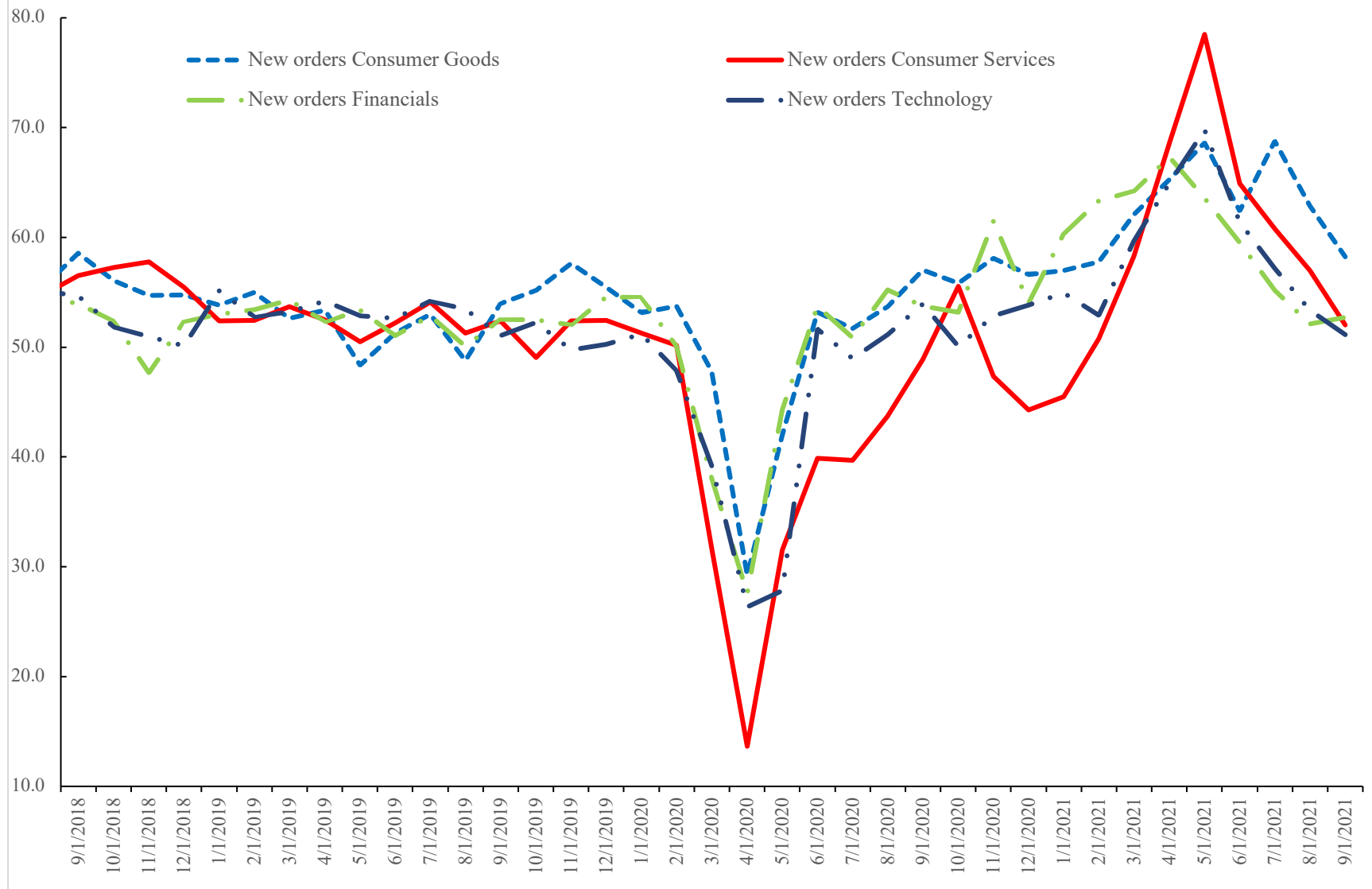


Chart 7. Anxiety and worry from the US Household Pulse Surveys, April 2020-Sept 2021  
 (% saying 'more than half the days' or 'nearly every day')

