Consumer Sentiments VS. Economy Realities

A Longitudinal Analysis of Changing Consumer Perceptions in Relation to Employment

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https://github.com/zzeng05/ZENG1-LIU2-727FINAL-scaVSeply.git

Socio-Economic Background

Since the Global Financial Crisis, U.S. households have experienced two unusually severe labor-market downturns—the Great Recession of 2008–2009 and the COVID-19 recession in 2020—plus a long, uneven recovery in between. These shocks were accompanied by historically large swings in both objective indicators such as the unemployment rate and subjective indicators such as the University of Michigan Index of Consumer Sentiment. Understanding how quickly households anticipate or react to changes in employment conditions is important for policy-makers and forecasters: if survey-based expectations move in advance of labor-market data, they could serve as an early-warning signal of recessions or turning points. Our exploratory analysis focuses on the joint evolution of consumer sentiment, expectations about unemployment over the next year, and realized unemployment and payroll job growth since 2008, a period that covers both crises and the subsequent recovery phases.

Exploratory Data Analysis Executive Summary

- **Project Objective**: To examine whether changes in consumer sentiment and unemployment expectations from the University of Michigan Survey of Consumers contain useful information about near-term labor-market outcomes. Specifically, we ask whether monthly shifts in sentiment and in "expected change in unemployment during the next year" are associated with subsequent changes in the unemployment rate and payroll employment 1–12 months ahead.
- **Data Source**: We combine three publicly available sources: (1) the Michigan Survey of Consumers tables for the Index of Consumer Sentiment (Table 1) and expected change in unemployment (Table 30), scraped directly from the Survey's online data archive; (2) the BLS Current Population Survey (CPS) unemployment rate series (LNS14000000); and (3) the BLS Current Employment Statistics (CES) total nonfarm employment series (CES0000000001), from which we construct monthly job changes. All series are monthly and cover 2008–2025.
- **Data Reliability**: The sentiment and expectations measures are based on nationally representative survey samples but are subject to sampling variation and potential mode and nonresponse biases. The CPS unemployment rate and CES payroll employment are official federal statistics with well-documented methodology; they are widely used as benchmark measures of labor-market conditions. Taken together, these data provide a credible basis for descriptive, but not strictly causal, analysis.
- **Theme Emerged**: Across multiple visualizations, we find that broad consumer sentiment tracks major business-cycle events but is only weakly aligned with near-term movements in unemployment or job growth. In contrast, the more targeted question about expected unemployment changes shows a clear and increasingly strong negative relationship with realized changes in the unemployment rate 3–12 months ahead: when more people expect unemployment to rise, it does tend to rise later, although the

explanatory power remains modest.

- **Limitations of the Analysis**: Our analysis is exploratory and descriptive. We focus on the post-2008 period and do not control for other macroeconomic drivers such as inflation, interest rates, or fiscal policy. Lead-lag correlations are computed on overlapping horizons, which complicates formal inference. We also treat survey measures as error-free, even though they contain sampling noise and potential measurement error. Finally, we do not estimate structural models, so we cannot claim that sentiment causes labor-market changes—only that the two move together in systematic ways.

Research Questions

- Do monthly changes in the Index of Consumer Sentiment anticipate short-run changes in the unemployment rate and payroll employment, and if so, at what lead times?
- Do qualitative expectations about unemployment have predictive content for subsequent changes in the unemployment rate, beyond what is captured by the aggregate sentiment index more directly?

Data Source & Assumptions

Our primary predictors come from the University of Michigan Survey of Consumers. We programmatically request historical tables through the Survey's web interface, using a small wrapper function to POST table numbers, years, and frequency parameters and then parse the resulting HTML tables. Table 1 provides the headline Index of Consumer Sentiment; Table 30 provides the distribution of responses about expected change in unemployment during the next year. From Table 30 we construct a "net unemployment expectation" measure equal to the percentage expecting less unemployment minus the percentage expecting more unemployment.

Outcome variables come from the BLS API. We query the CPS unemployment rate (seasonally adjusted) and CES total nonfarm employment, both at monthly frequency from 2008 onward. We compute monthly job changes as first differences in employment. Throughout, we assume that the SCA and BLS time stamps are aligned to the same reference month and that seasonal adjustment and revisions have already been applied by the source agencies. We treat the post-2008 period as a single sample, implicitly assuming that survey questions and measurement practices are stable enough over time to allow pooling.

Data Cleaning

For the SCA tables, we first standardize column names, drop repeated header rows, and coerce month/year fields to integers. We then create a calendar date variable set to the first day of each month and convert index and share variables to numeric form, handling the occasional "DK; NA" responses as missing. For the unemployment expectations table, we compute the net expectation series and reshape the component shares into long format for visualization.

For the BLS data, we query multiple series IDs in a single API call and then unnest them into a long tibble with explicit series_id, year, period, and value columns. We keep only monthly records (M01–M12), derive numeric month values, and again construct a date variable. We then split the long table into a CPS unemployment-rate series and a CES employment series, calculating monthly job changes from the latter. Finally, we merge the SCA and BLS datasets by date, resulting in a panel where each row corresponds to a month with consumer sentiment, unemployment expectations, unemployment rate, and employment growth aligned.

Notable Findings

Finding 1. Consumer Sentiment co-moves with, but does not sharply lead, unemployment or job growth.

Across a range of leads from 0 to 8 months, smoothed dual-axis plots show that the sentiment index falls sharply during the 2008–2009 and 2020 downturns while unemployment rises and job growth turns negative (Visualization 1). However, the turning points in sentiment and the labor market often occur within a few months of each other, and the lines

do not reveal a clean, stable lead of 6–12 months by sentiment. This suggests that the headline index captures broad business-cycle conditions but has limited incremental power for timing short-run labor-market changes.

Finding 2. Net unemployment expectations are systematically related to future unemployment changes.

When we convert the expectations table into a net balance ('less' minus 'more' unemployment) and relate it to subsequent changes in the unemployment rate, we obtain consistently negative slopes and correlations that strengthen with the horizon (Visualization 2). For 6–12-month horizons, the correlation between net expectations and future unemployment changes reaches roughly -0.3 to -0.4, and a 10-point deterioration in net expectations is associated with about a 0.3–0.5 percentage-point increase in unemployment over the following year. Although the R-Squared values are modest (around 0.10–0.18), this pattern indicates that households' specific views about unemployment contain forward-looking information.

Finding 3. Time-series comparisons confirm that expectations move ahead of realized unemployment around major turning points.

In time-series plots that overlay net unemployment expectations and the unemployment rate shifted forward by several months (Visualization 3), we observe that expectations often deteriorate before unemployment peaks and improve before unemployment bottoms out, especially around the 2008–2009 and 2020 episodes. The smoothed series highlight a broad inverted relationship: when a larger share of respondents expects higher unemployment, the future unemployment rate tends to be elevated. This supports the idea that expectations embed information about upcoming labor-market conditions beyond contemporaneous sentiment.

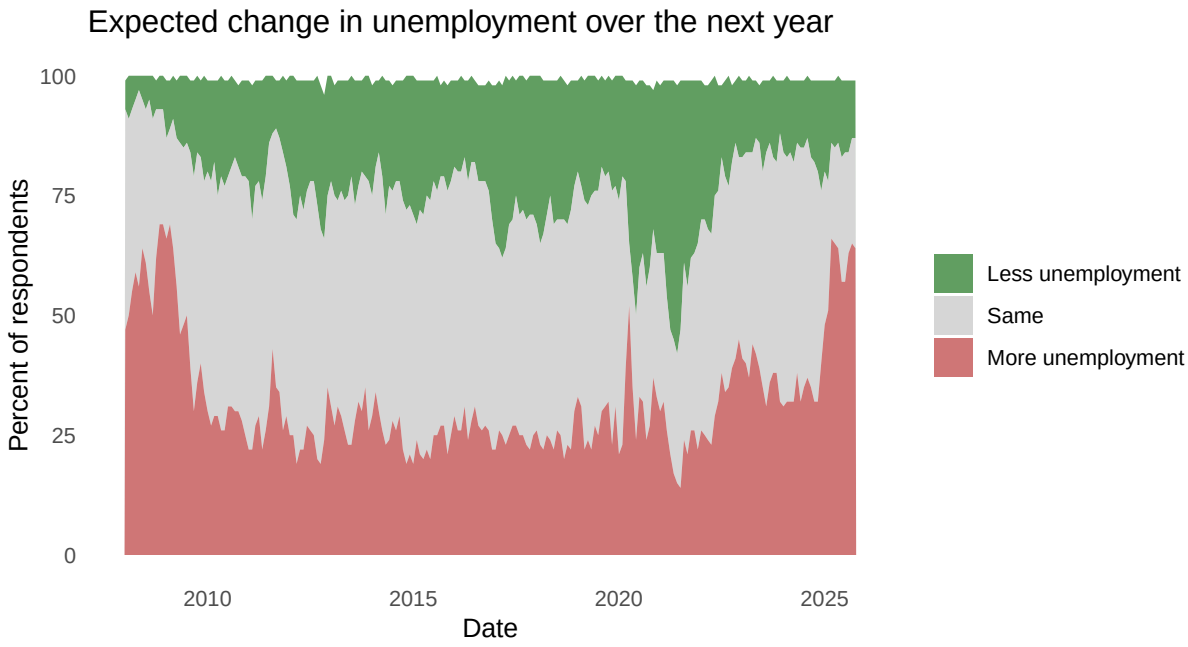
Visualizations

Preview of Consumer Sentiment Data

```
# A tibble: 6 x 4
  date          cs  year month
  <date>     <dbl> <int> <int>
1 2008-01-01  78.4  2008     1
2 2008-02-01  70.8  2008     2
3 2008-03-01  69.5  2008     3
4 2008-04-01  62.6  2008     4
5 2008-05-01  59.8  2008     5
6 2008-06-01  56.4  2008     6
```

Preview of Expected Change in Unemployment During the Next Year

```
# A tibble: 6 x 8
  date       Month  Year  Less  Same  More `DK; NA` Relative
  <date>     <int> <int> <dbl> <dbl> <dbl>    <dbl>    <dbl>
1 2008-01-01     1  2008     6    46    47        1       59
2 2008-02-01     2  2008     9    41    50        0       59
3 2008-03-01     3  2008     7    38    55        0       52
4 2008-04-01     4  2008     5    36    59        0       46
5 2008-05-01     5  2008     3    41    56        0       47
6 2008-06-01     6  2008     5    31    64        0       41
```



- The stacked area chart shows how the composition of unemployment expectations has shifted over time. During recessions and early recovery periods, the share expecting 'more unemployment' rises sharply and dominates the distribution, while the share expecting 'less unemployment' collapses. In expansions, the pattern reverses and 'same' or 'less unemployment' responses become more common. These swings suggest that respondents' unemployment expectations are highly cyclical and therefore promising candidates for leading indicators.

Preview of BLS Data - Unemployment Rate and Job Change

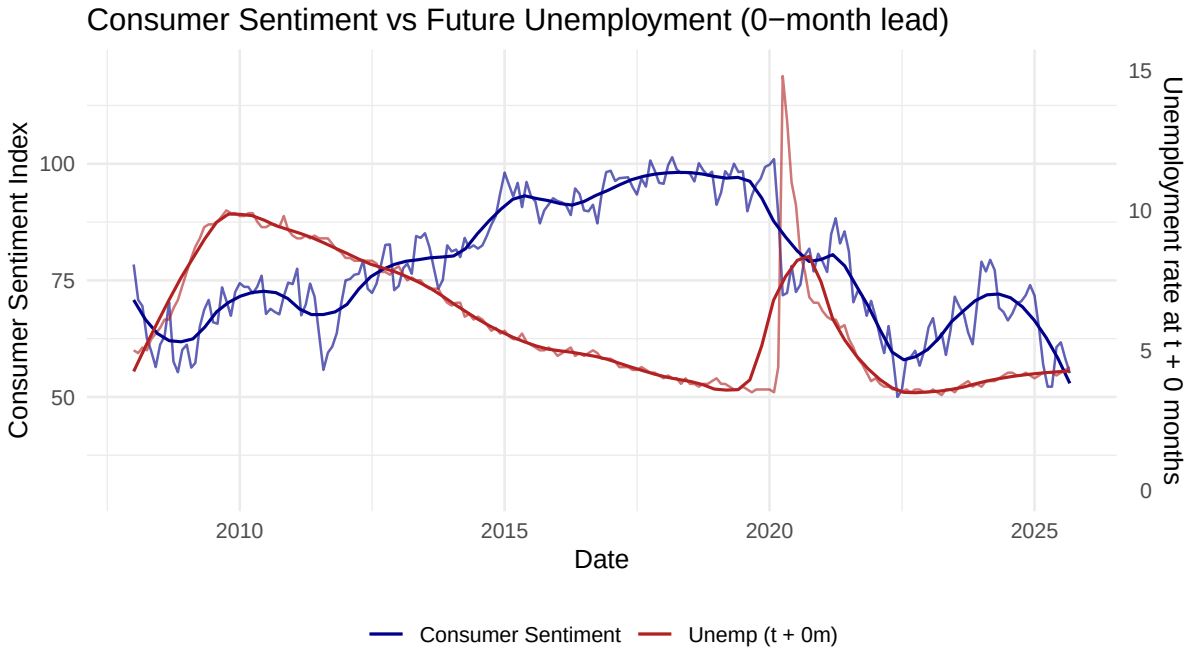
```
# A tibble: 6 x 2
  date       unrate
  <date>      <dbl>
1 2008-01-01    5
2 2008-02-01    4.9
3 2008-03-01    5.1
4 2008-04-01    5
5 2008-05-01    5.4
6 2008-06-01    5.6
```

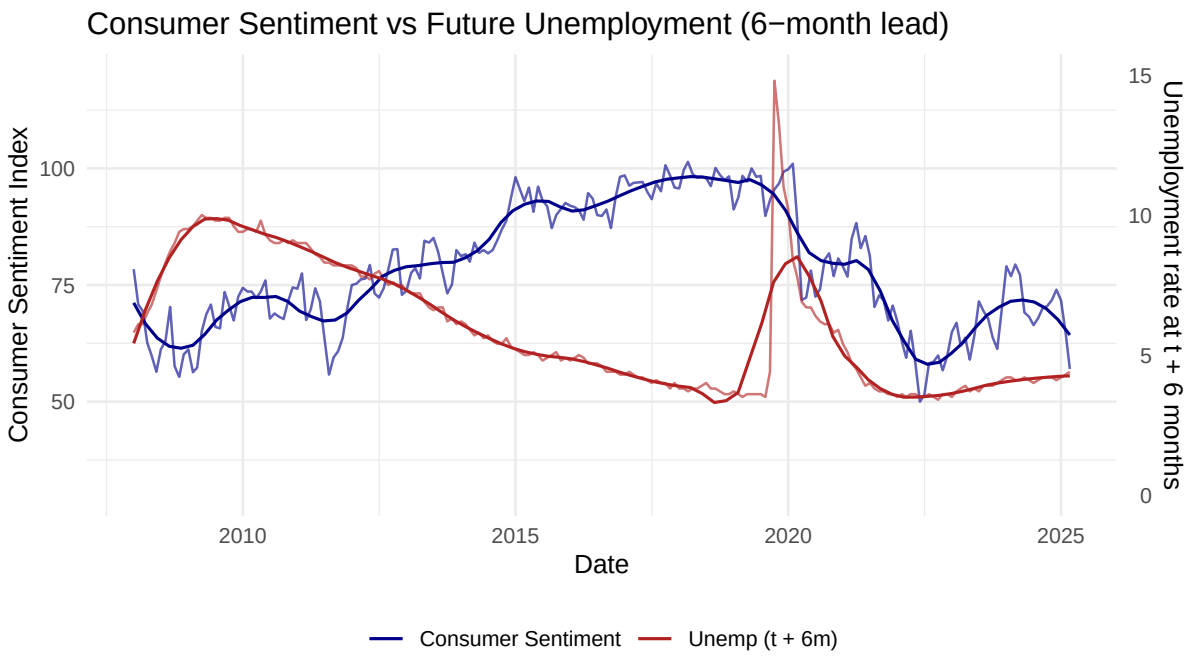
```
# A tibble: 6 x 3
  date       nonfarm_emp job_change
  <date>           <dbl>      <dbl>
1 2008-01-01      138391         NA
2 2008-02-01      138327        -64
3 2008-03-01      138257        -70
4 2008-04-01      138038       -219
5 2008-05-01      137851       -187
6 2008-06-01      137698       -153
```

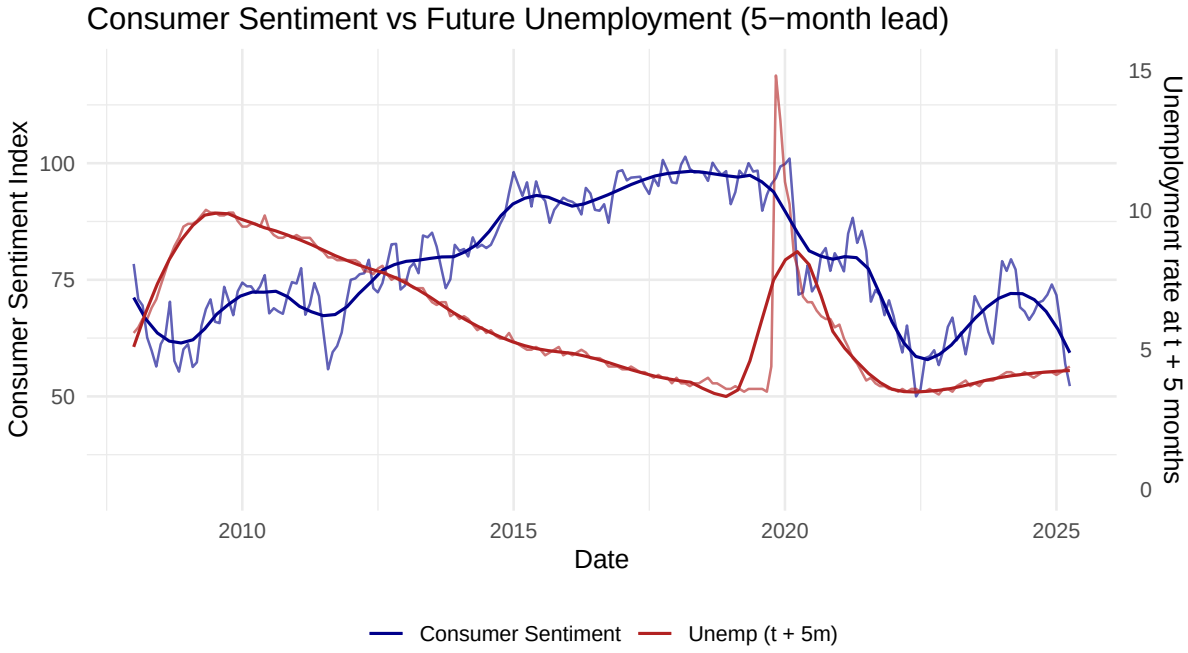
Visualization 1. Lagged Time-Series of Consumer Sentiment & Unemployment Rate/Job Change

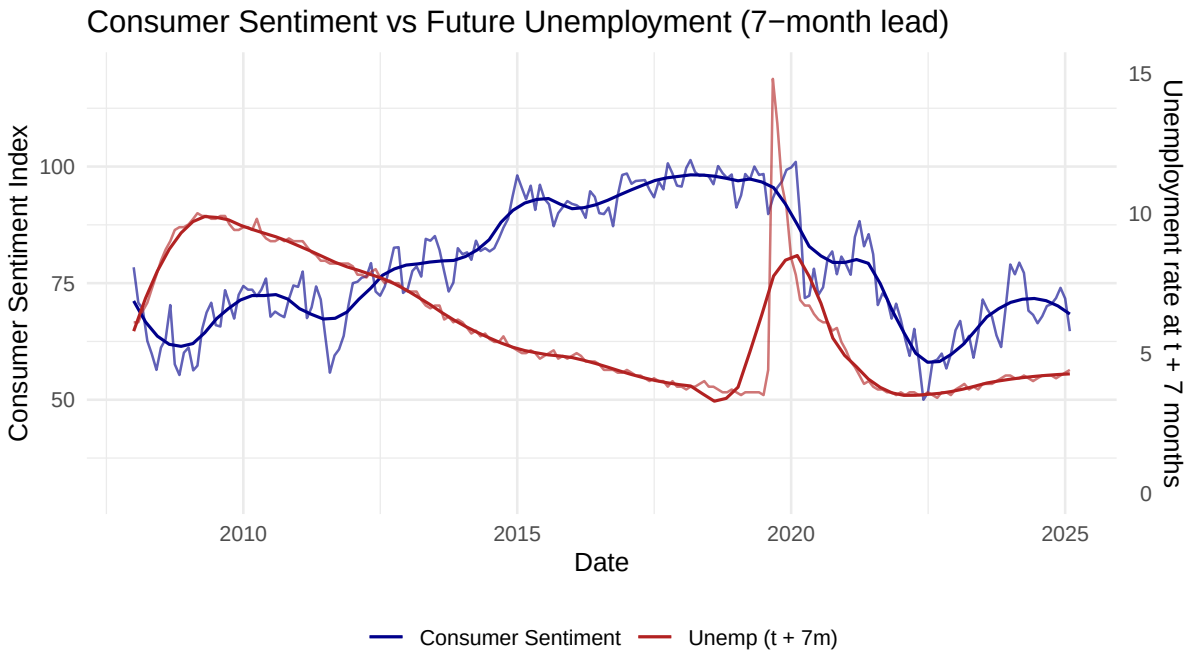
Preview of Merged Monthly Aligned Macro Data

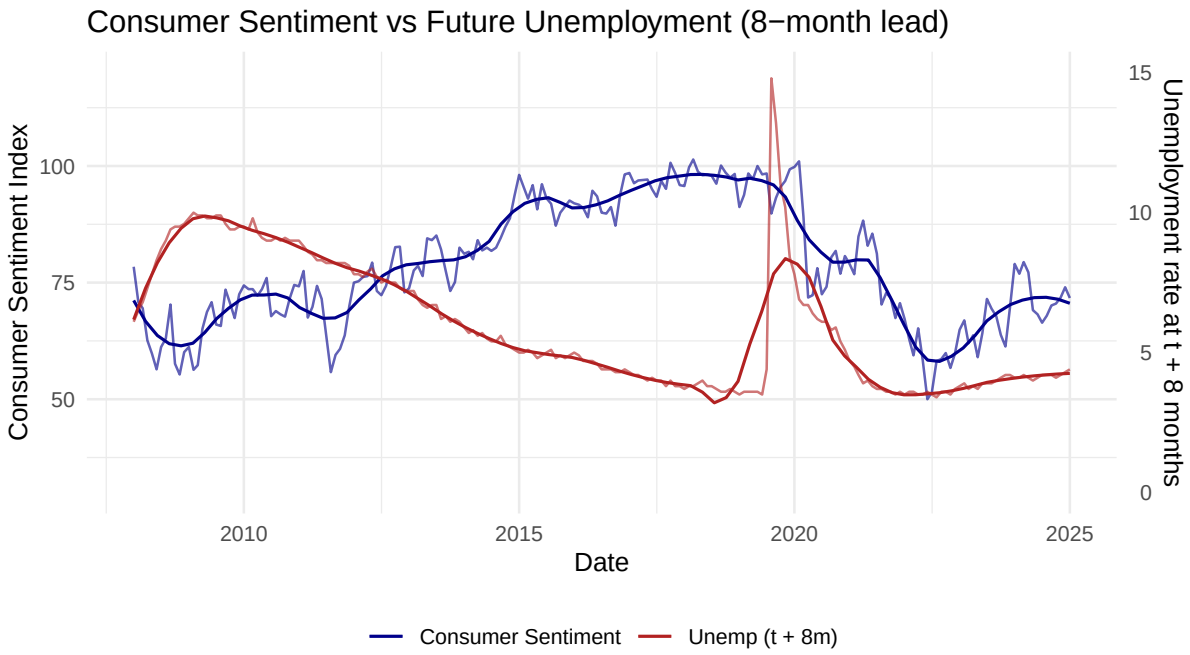
```
# A tibble: 6 x 5
  date          cs unrate nonfarm_emp job_change
  <date>     <dbl>  <dbl>       <dbl>      <dbl>
1 2008-01-01  78.4    5         138391         NA
2 2008-02-01  70.8    4.9       138327        -64
3 2008-03-01  69.5    5.1       138257        -70
4 2008-04-01  62.6    5         138038       -219
5 2008-05-01  59.8    5.4       137851       -187
6 2008-06-01  56.4    5.6       137698       -153
```




Consumer Sentiment vs Future Unemployment (6−month lead)
Consumer Sentiment Index
100
75
50
2010
2015
2020
2025
Date
15
10
5
0
Unemployment rate at t + 6 months
Consumer Sentiment
Unemp (t + 6m)


Consumer Sentiment vs Future Unemployment (5−month lead)
Consumer Sentiment Index
100
75
50
2010
2015
2020
2025
Date
15
10
5
0
Unemployment rate at t + 5 months
Consumer Sentiment
Unemp (t + 5m)



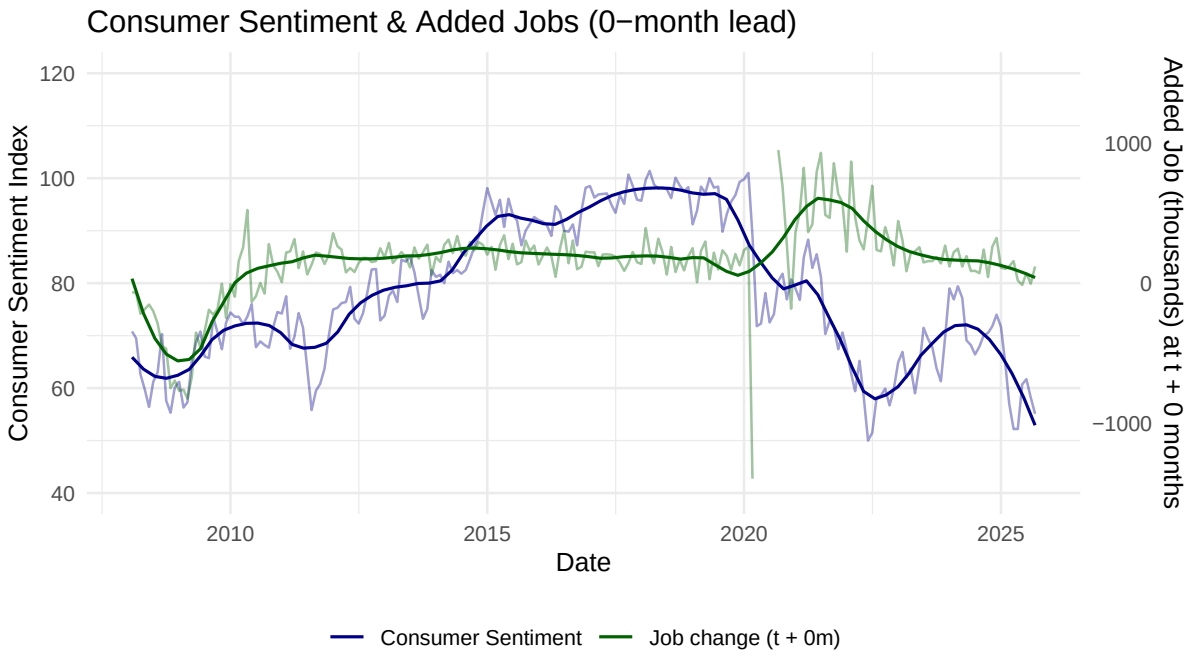


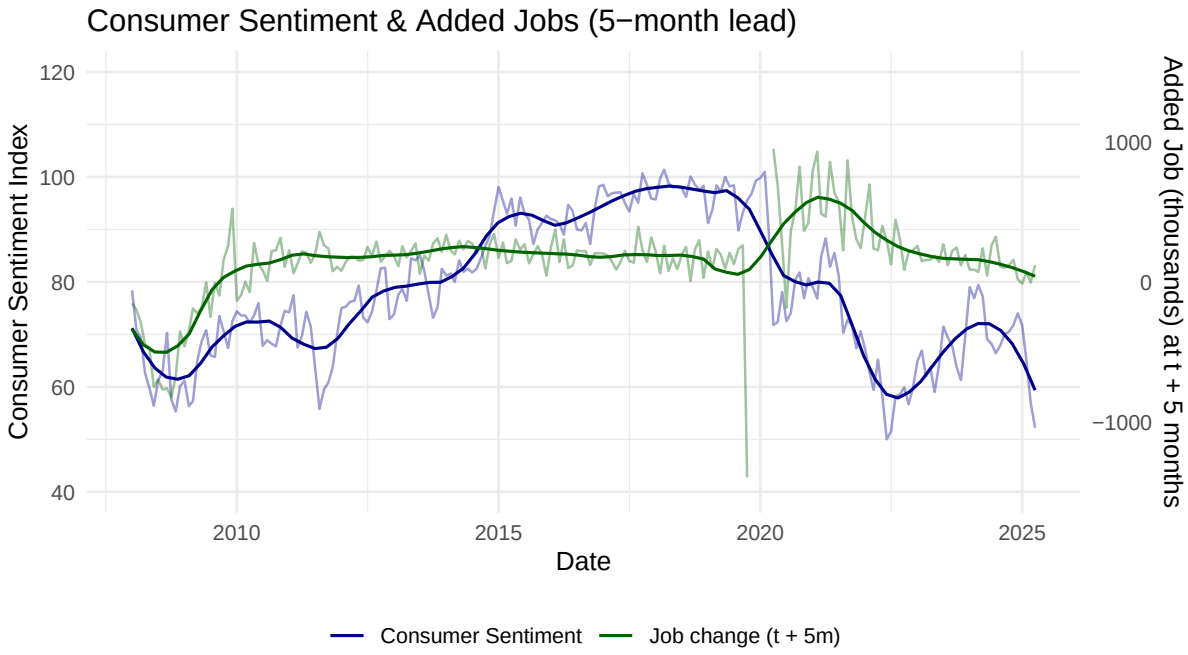
- The smoothed dual-axis plots indicate that the Consumer Sentiment Index and labor-market outcomes share broad cyclical movements: sentiment falls steeply during

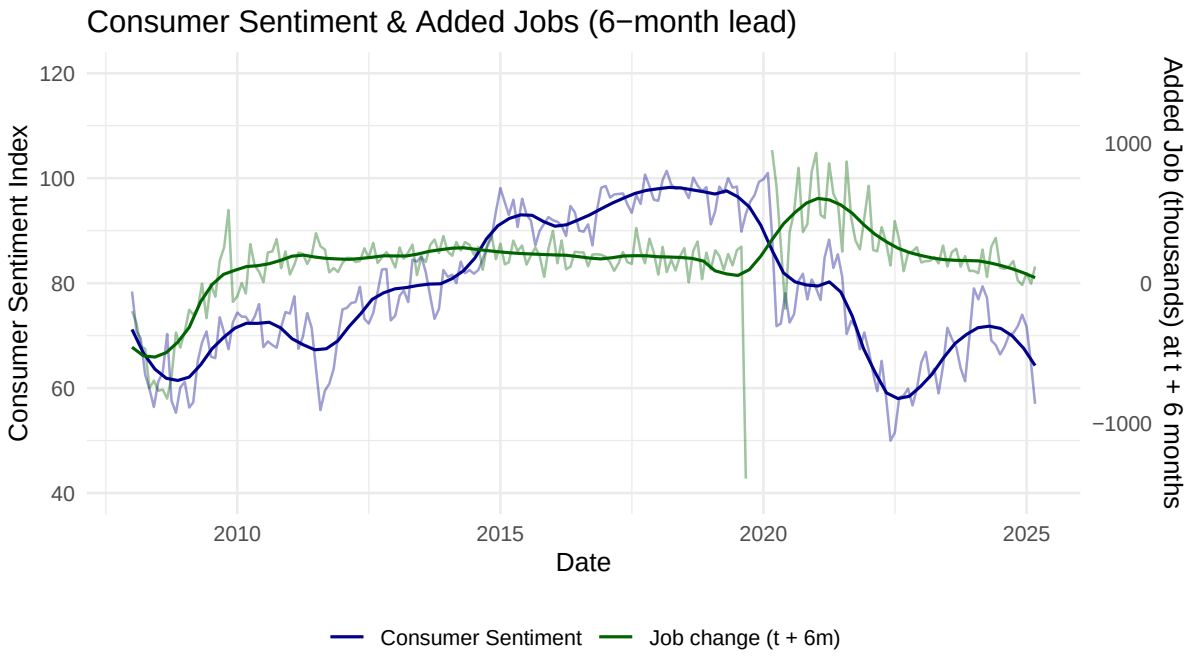
the Great Recession and the COVID-19 downturn, while unemployment spikes and payroll employment contracts. However, the relative timing is not perfectly stable. In some episodes sentiment begins to fall slightly before the unemployment rate rises, but in others the two move almost simultaneously. Likewise, job growth improves as sentiment recovers, but the relationship is noisy at monthly frequency.

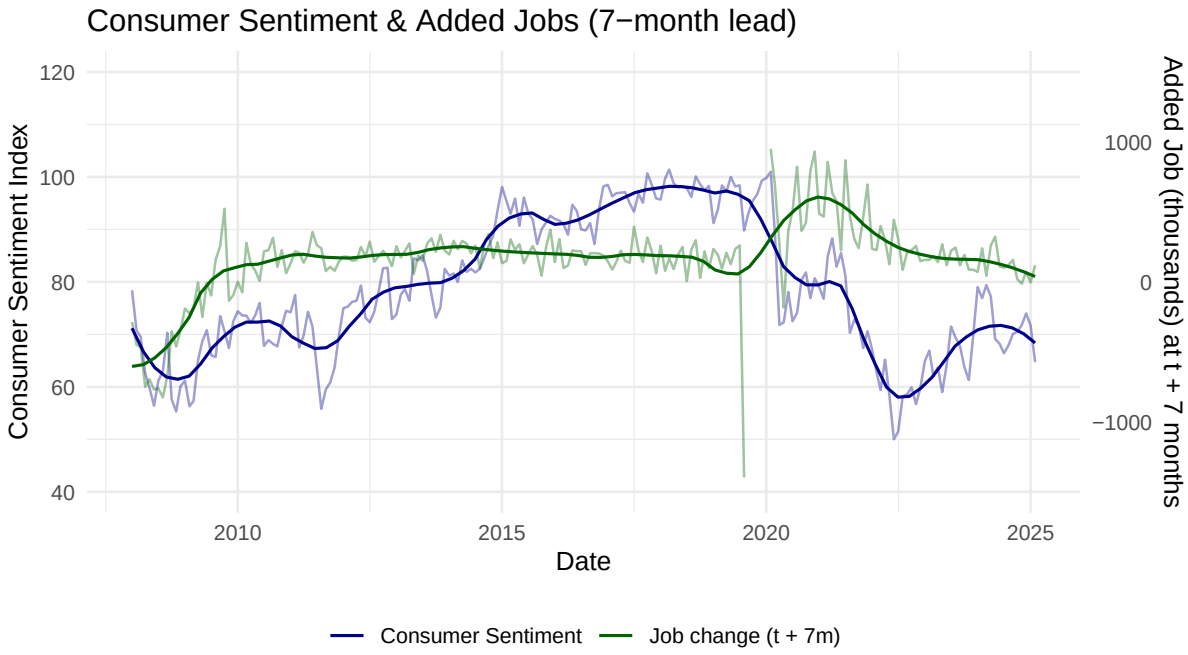
- We overlay light raw lines with LOESS-smoothed curves to reduce monthly volatility and emphasize medium-run swings. Smoothing helps reveal that the major peaks and troughs of unemployment typically lag the troughs and peaks of sentiment by several months, but also makes clear that there is no single 'magic' lag that fits the entire sample.

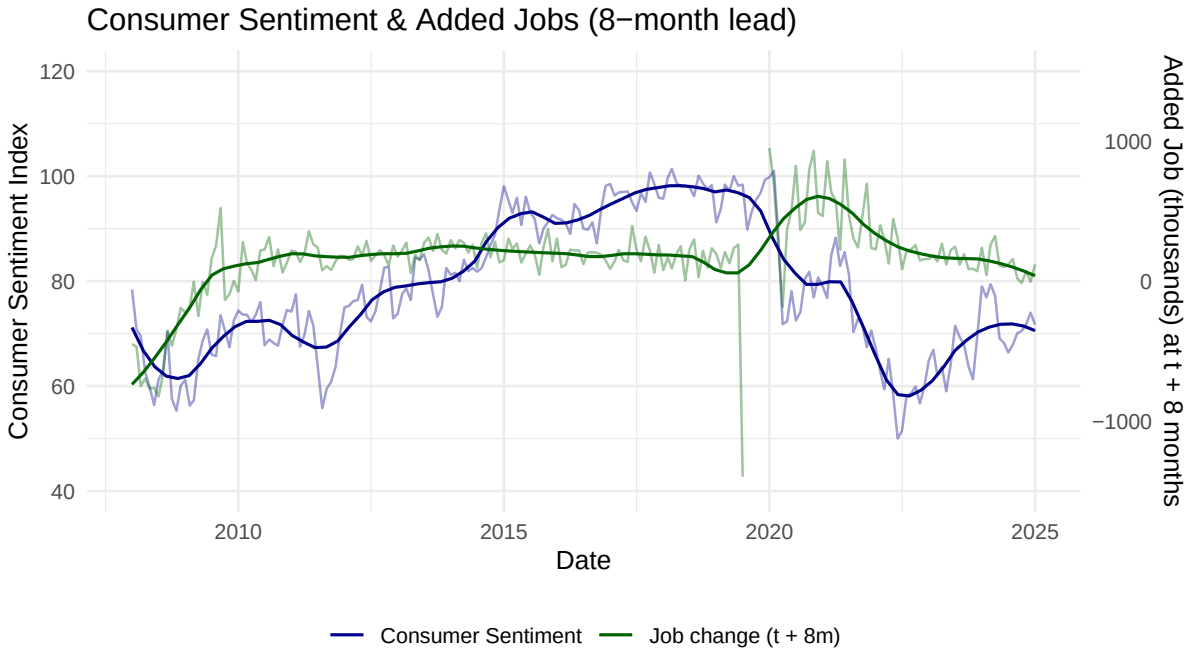
- Overall, the level of consumer sentiment appears more contemporaneous than decisively leading with respect to unemployment and job growth. Sentiment is clearly informative about whether the economy is in a good or bad state, but it does not on its own deliver precise short-term forecasts of the labor market.


Consumer Sentiment & Added Jobs (0−month lead)
Consumer Sentiment Index
Added Job (thousands) at t + 0 months
120
100
80
60
40
1000
0
−1000
2010
2015
2020
2025
Date
Consumer Sentiment
Job change (t + 0m)


Consumer Sentiment & Added Jobs (5−month lead)
Consumer Sentiment Index
Added Job (thousands) at t + 5 months
120
100
80
60
40
1000
0
−1000
2010
2015
2020
2025
Date
Consumer Sentiment
Job change (t + 5m)


Consumer Sentiment & Added Jobs (6−month lead)
Consumer Sentiment Index
Added Job (thousands) at t + 6 months
120
100
80
60
40
1000
0
−1000
2010
2015
2020
2025
Date
Consumer Sentiment
Job change (t + 6m)


Consumer Sentiment & Added Jobs (7−month lead)
Consumer Sentiment Index
Added Job (thousands) at t + 7 months
120
100
80
60
40
1000
0
−1000
2010
2015
2020
2025
Date
Consumer Sentiment
Job change (t + 7m)



- When we compare sentiment to future payroll job changes, the sign of the relationship is intuitive—low sentiment is associated with large job losses, and high sentiment with job gains—but the association is again diffuse. Around 2008–2009 and 2020, sharp drops in sentiment coincide with substantial negative job changes, while the subsequent recoveries in sentiment line up with strong job growth. Outside of these extreme episodes, however, the month-to-month co-movement is weaker.

- We experimented with leads from within 0 to 8 months. Short leads primarily line up with contemporaneous movements, while moderate leads of 5–8 months show that exceptionally weak sentiment often precedes periods of continued job losses. Nonetheless, the visual evidence does not point to a single optimal lead; instead, sentiment seems to anticipate the direction of labor-market conditions over the next several quarters rather than exact turning dates.

- As with the unemployment plots, we apply LOESS smoothing to both series, plotting

raw lines at low opacity and smoother curves on top. This helps us see underlying trends across recessions and expansions without over-interpreting short-lived spikes in monthly payroll data.

Visualization 2. Net expectations vs Subsequent unemployment change

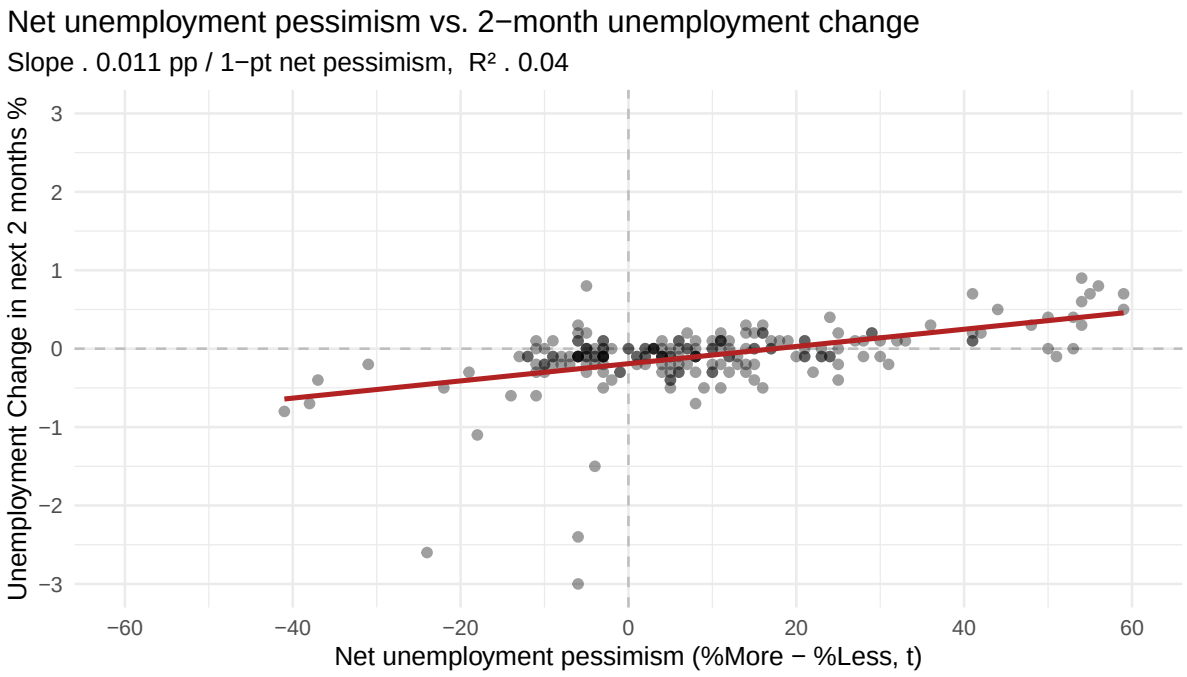
From the Survey of Consumers, we also obtained the percentages of respondents who expect unemployment to be less, the same, or more during the next year, plus a small "don't know / no answer" category. We summarize these answers in a net unemployment pessimism index defined as %More − %Less, which ranges roughly from −60 to +60 in our sample. Positive values indicate that more people expect unemployment to rise than to fall (pessimism), while negative values indicate that more people expect unemployment to fall than to rise (optimism).

`$h_0m`

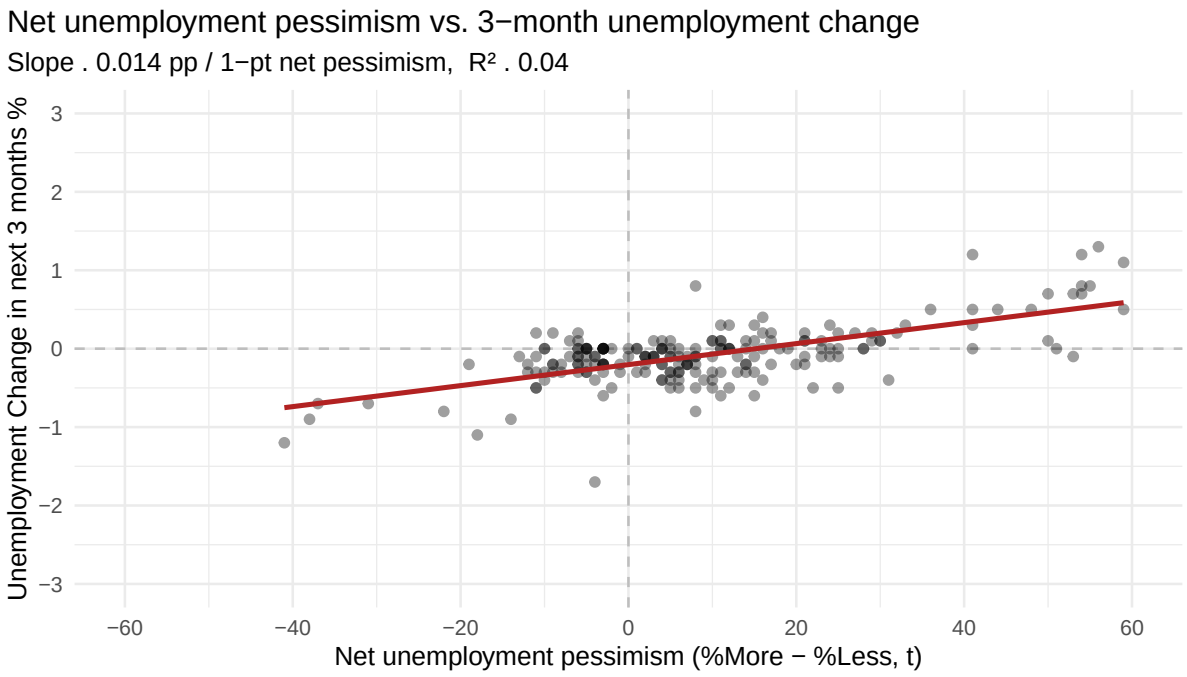
`$h_1m`


Net unemployment pessimism vs. 1−month unemployment change
Slope . 0.007 pp / 1−pt net pessimism, R² . 0.03
Unemployment Change in next 1 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

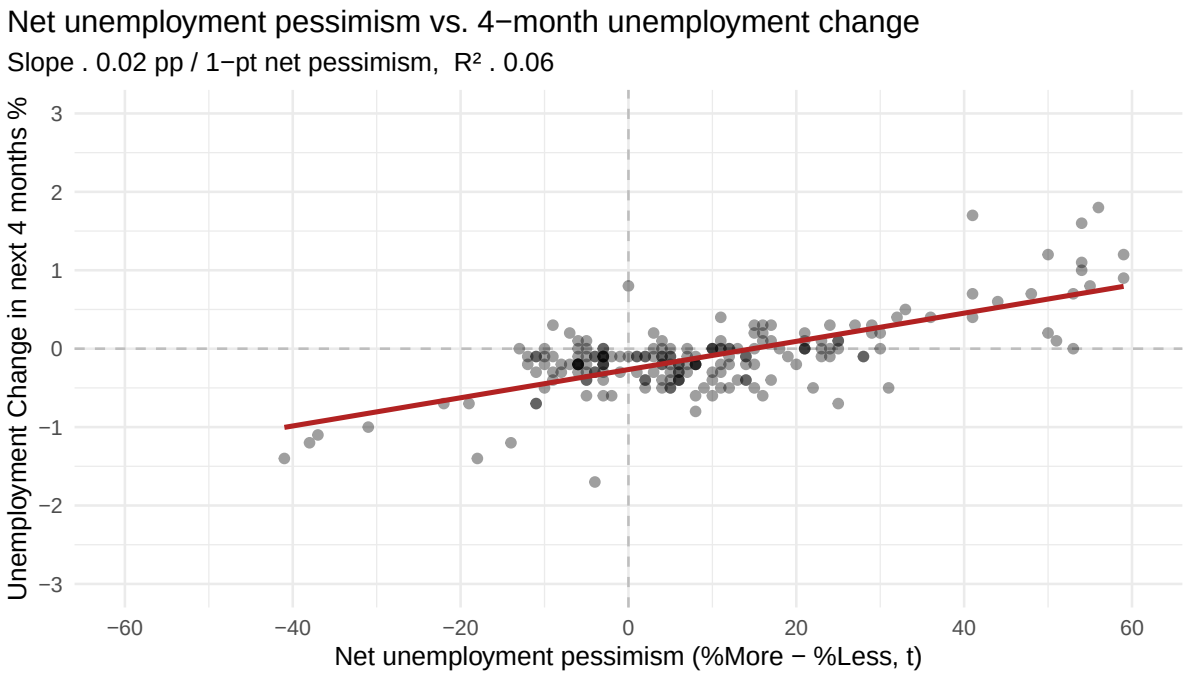
$h_2m


Net unemployment pessimism vs. 2−month unemployment change
Slope . 0.011 pp / 1−pt net pessimism, R² . 0.04
Unemployment Change in next 2 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

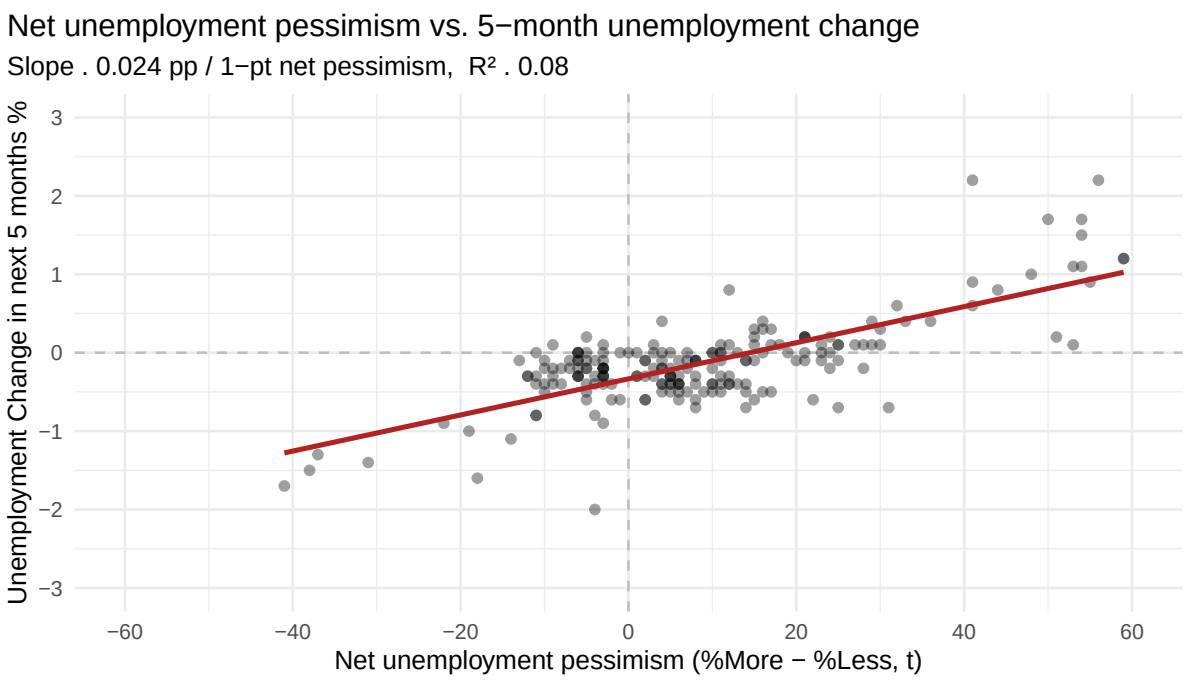
```
$h_3m
```


Net unemployment pessimism vs. 3−month unemployment change
Slope . 0.014 pp / 1−pt net pessimism, R² . 0.04
Unemployment Change in next 3 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

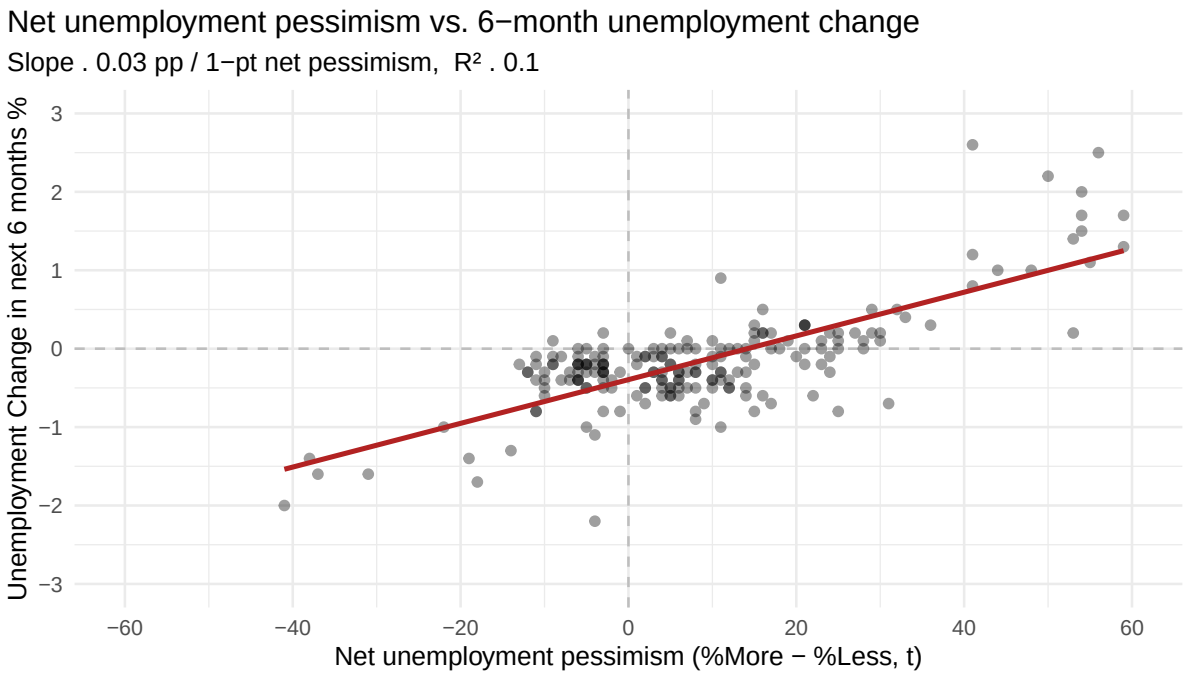
```
$h_4m
```


Net unemployment pessimism vs. 4−month unemployment change
Slope . 0.02 pp / 1−pt net pessimism, R² . 0.06
Unemployment Change in next 4 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

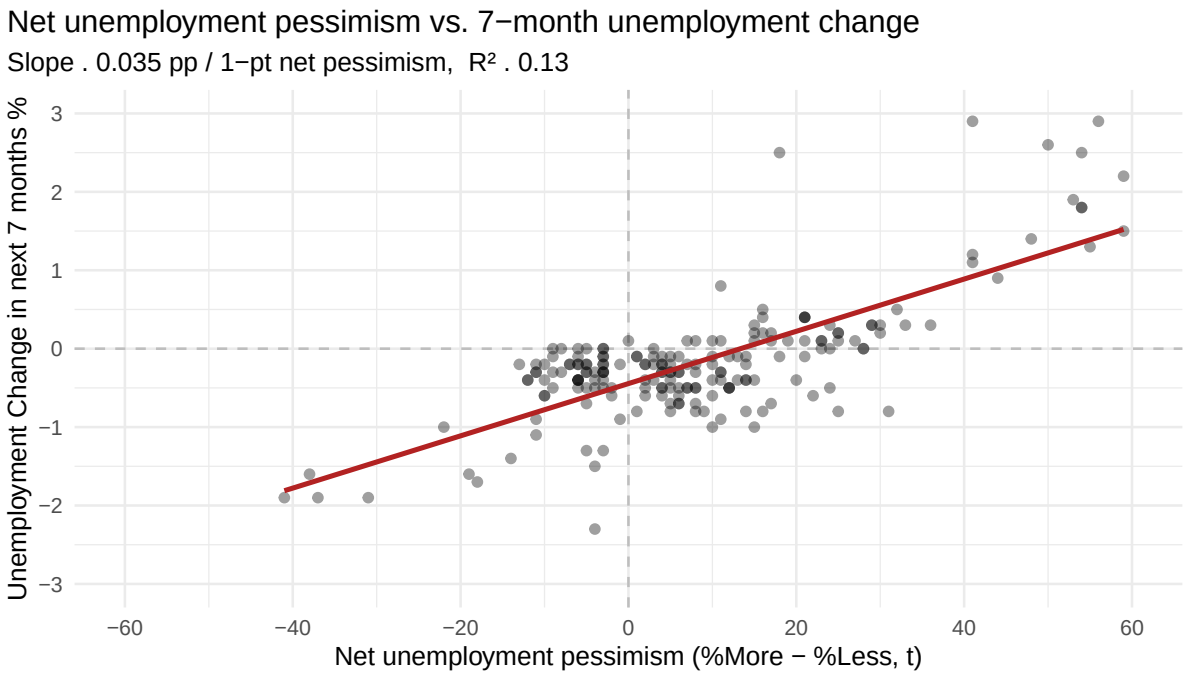
```
$h_5m
```


Net unemployment pessimism vs. 5−month unemployment change
Slope . 0.024 pp / 1−pt net pessimism, R² . 0.08
Unemployment Change in next 5 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

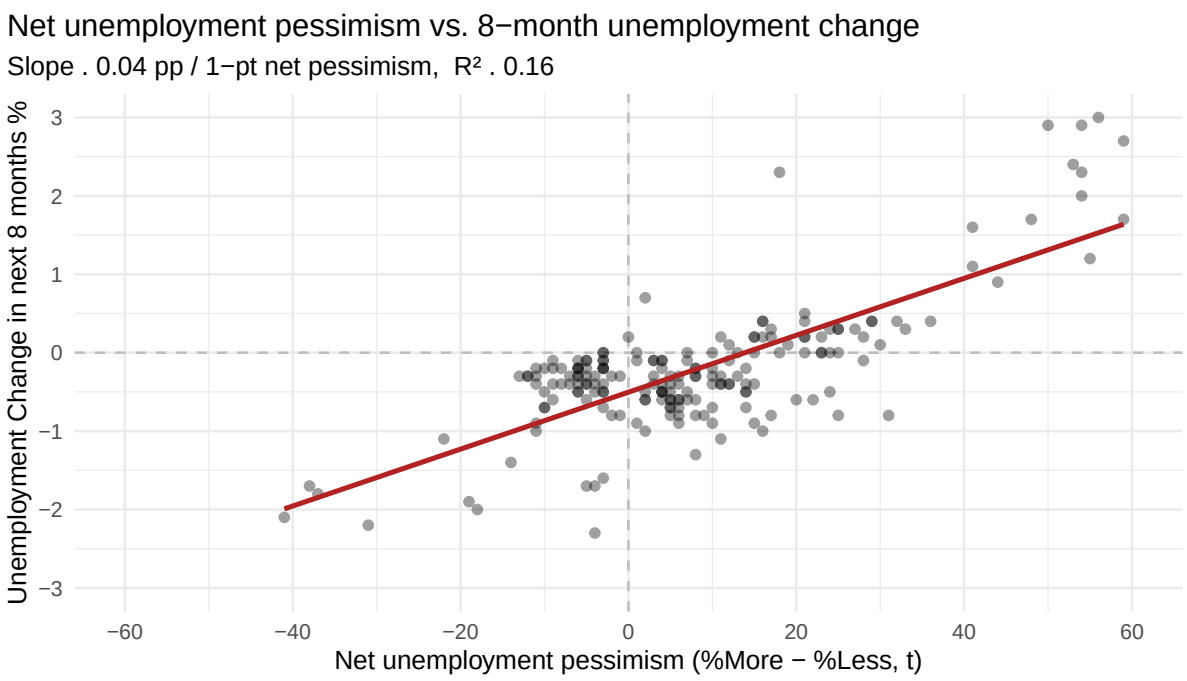
```
$h_6m
```


Net unemployment pessimism vs. 6−month unemployment change
Slope . 0.03 pp / 1−pt net pessimism, R² . 0.1
Unemployment Change in next 6 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

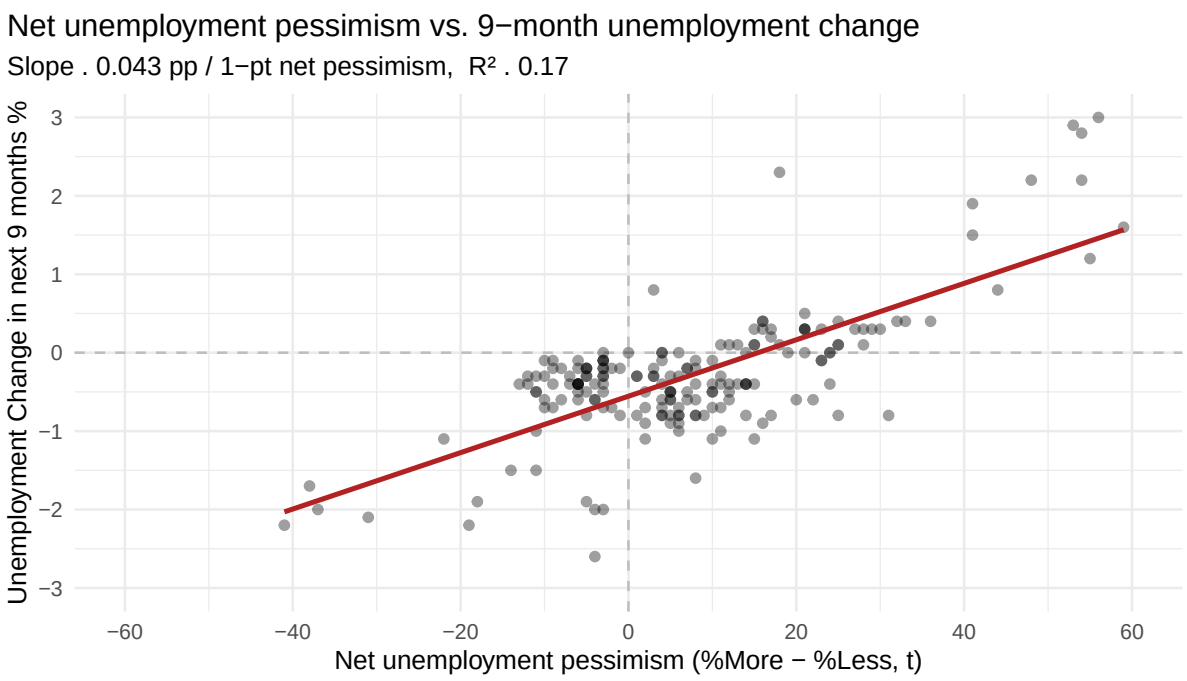
```
$h_7m
```


Net unemployment pessimism vs. 7−month unemployment change
Slope . 0.035 pp / 1−pt net pessimism, R² . 0.13
Unemployment Change in next 7 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

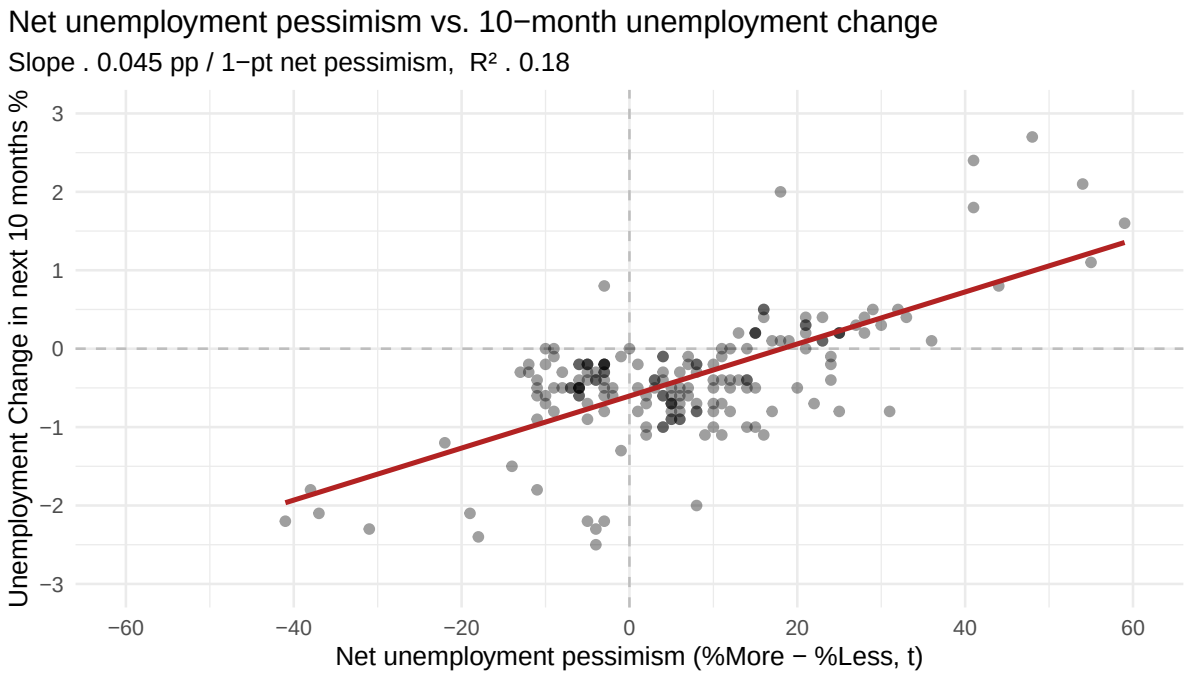
```
$h_8m
```


Net unemployment pessimism vs. 8−month unemployment change
Slope . 0.04 pp / 1−pt net pessimism, R² . 0.16
Unemployment Change in next 8 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

```
$h_9m
```


Net unemployment pessimism vs. 9−month unemployment change
Slope . 0.043 pp / 1−pt net pessimism, R² . 0.17
Unemployment Change in next 9 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

```
$h_10m
```


Net unemployment pessimism vs. 10−month unemployment change
Slope . 0.045 pp / 1−pt net pessimism, R² . 0.18
Unemployment Change in next 10 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

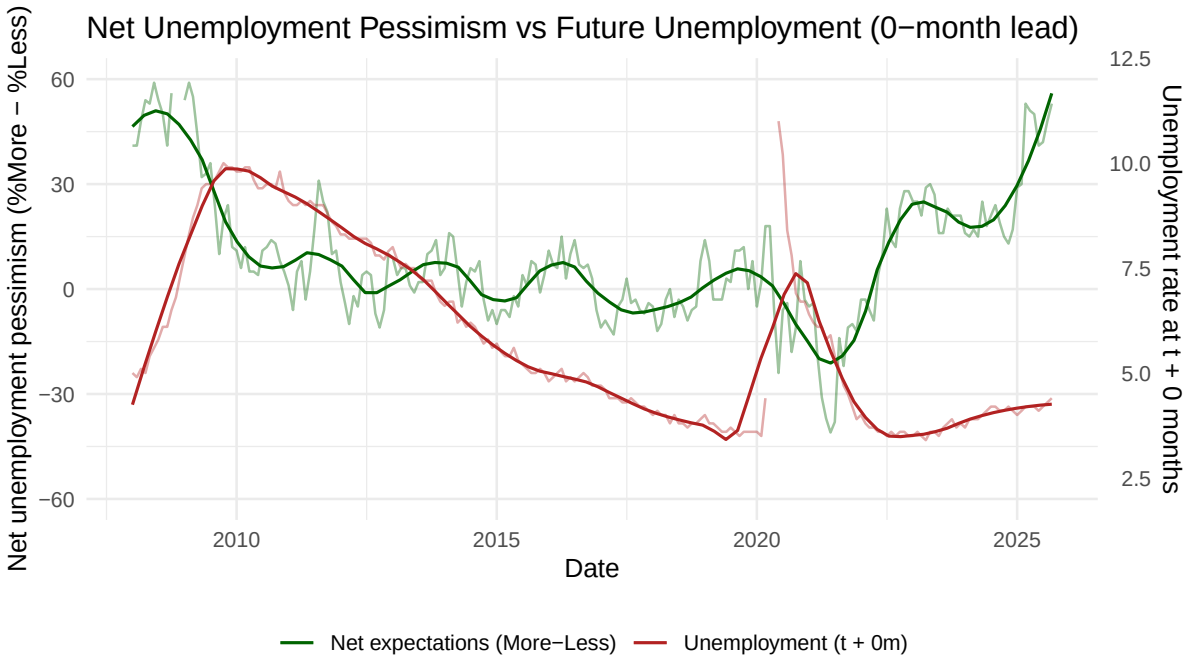
```
$h_11m
```

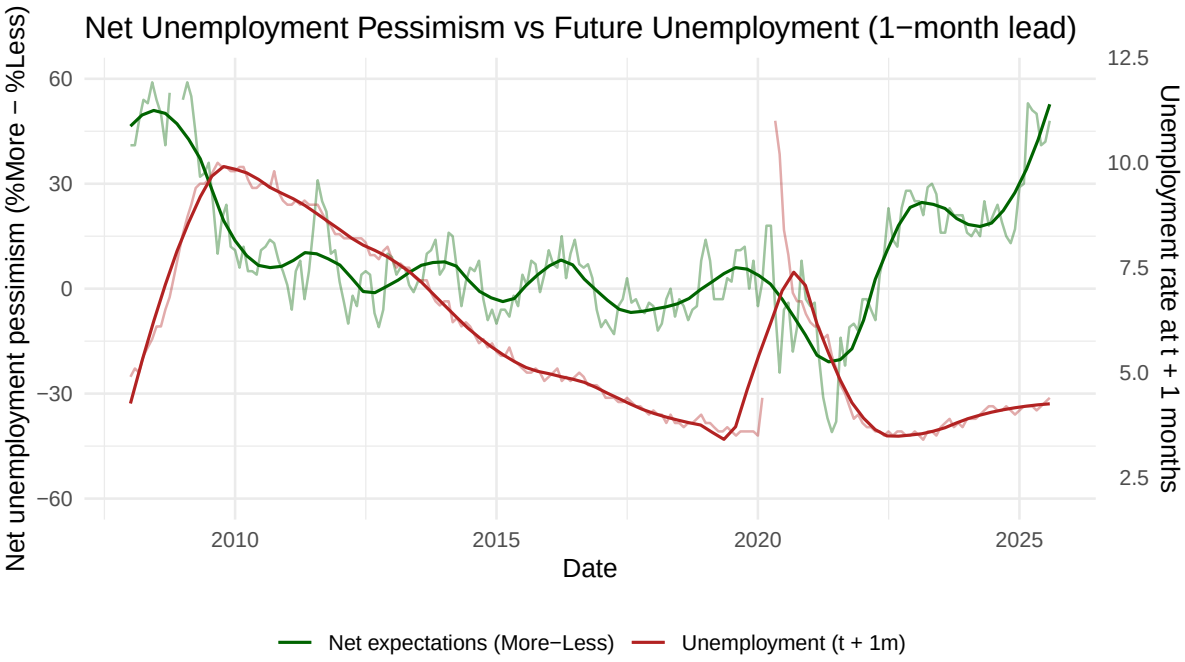

Net unemployment pessimism vs. 11−month unemployment change
Slope . 0.047 pp / 1−pt net pessimism, R² . 0.18
Unemployment Change in next 11 months %
3
2
1
0
−1
−2
−3
−60
−40
−20
0
20
40
60
Net unemployment pessimism (%More − %Less, t)

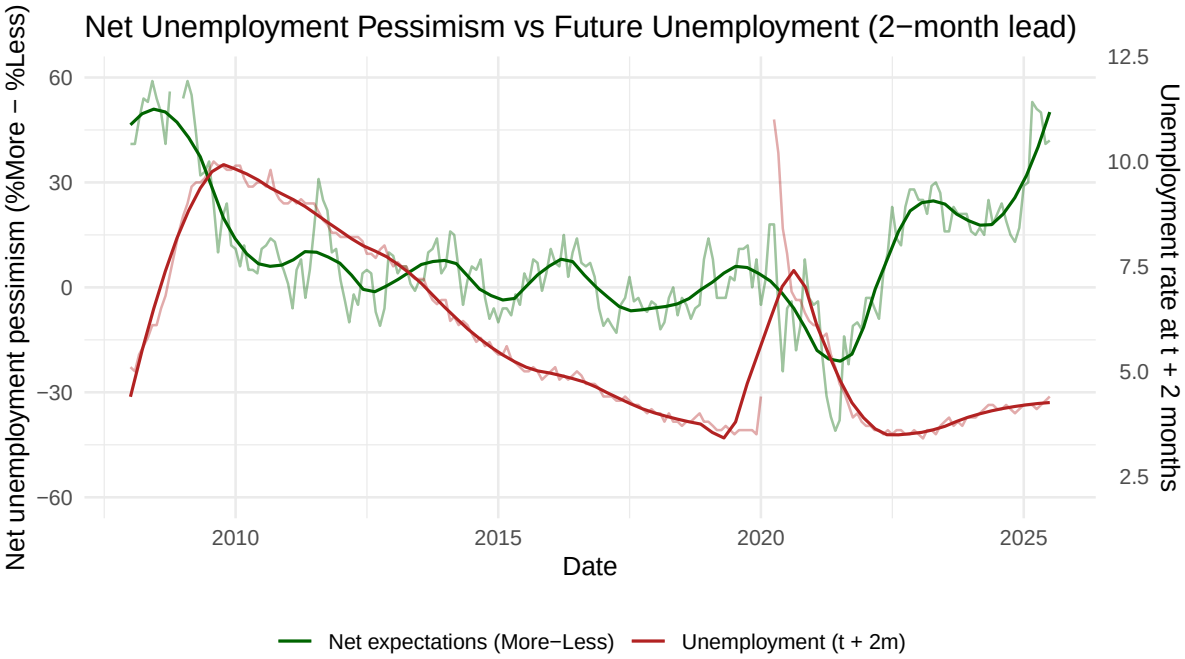
```
$h_12m
```

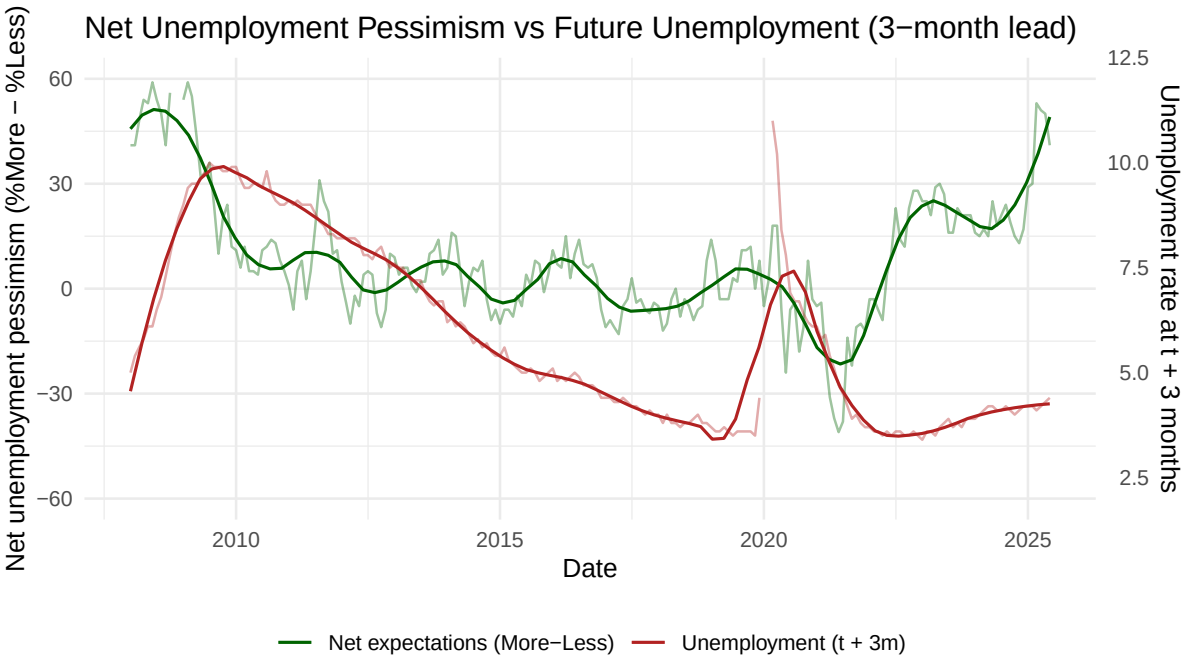
- For each horizon from 1 to 12 months, we compute the change in the unemployment rate between month t and month t + h and regress this change on the net unemployment pessimism index at time t (%More − %Less). The resulting scatter plots and regression summaries show an increasingly strong positive relationship as the horizon lengthens: at a 3-month horizon the correlation is about +0.21 with a small positive slope, while by 9–12 months the correlation reaches roughly +0.4 and the slope is around +0.04 to +0.05 percentage points of unemployment per 1-point increase in net pessimism. In practical terms, a 20-point shift toward expecting more unemployment is associated with about a 0.8–1.0 percentage-point increase in the unemployment rate over the following year. R^2 values rise from near zero at short horizons to around 0.17–0.18 at 10–12 months, indicating that expectations explain a non-trivial, though still limited, share of future unemployment variation. Together, these results suggest that the net pessimism index is a moderately informative leading indicator of labor-market deterioration.

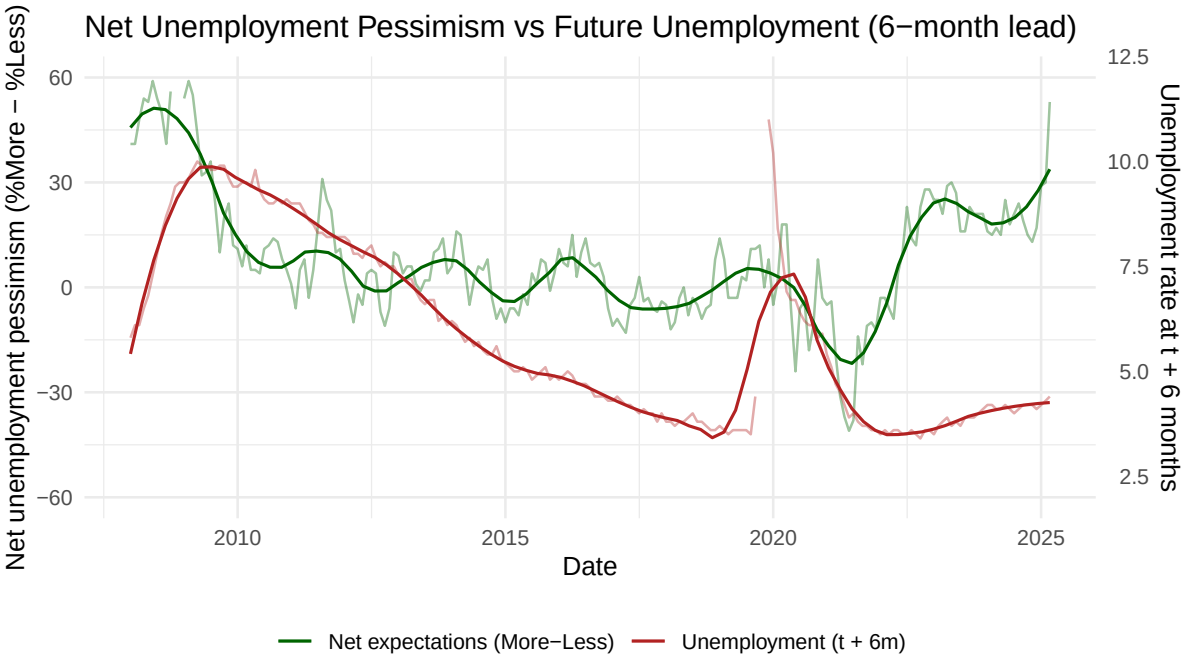
Visualization 3. Net expectations & Actual Unemployment

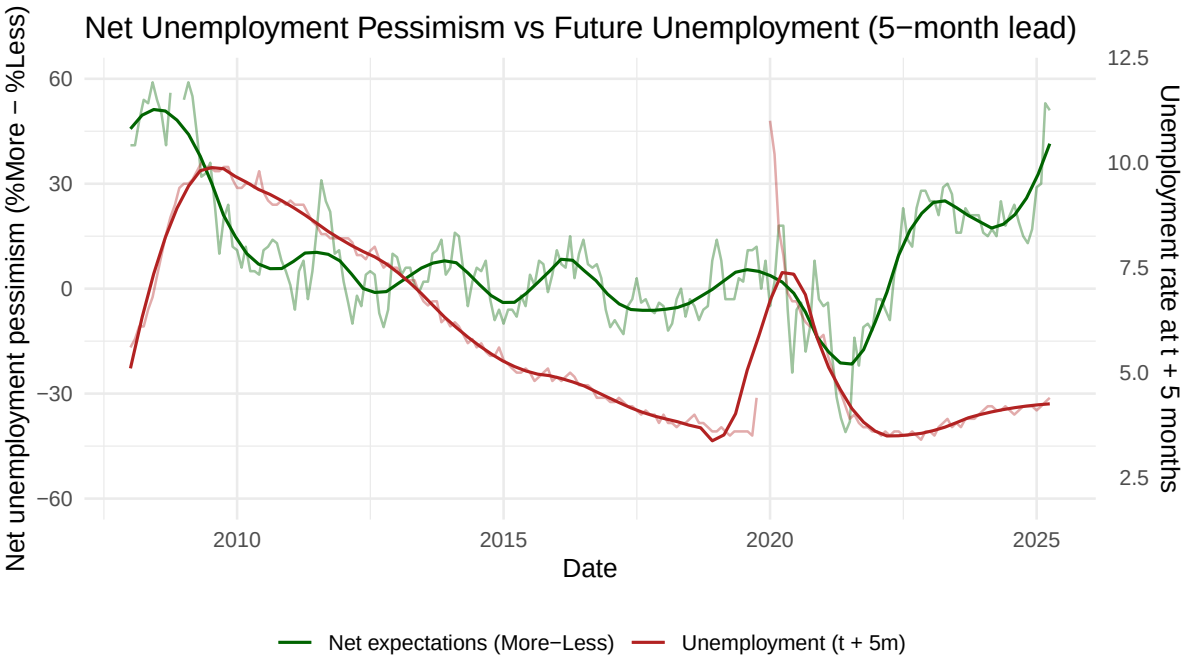


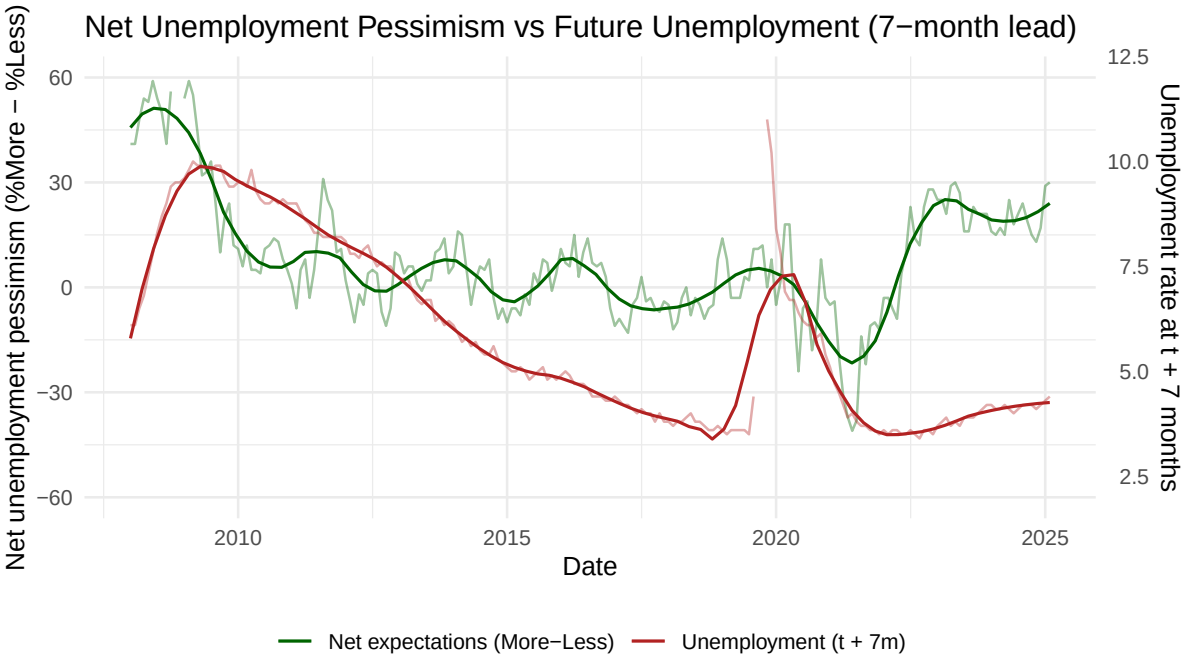

Net Unemployment Pessimism vs Future Unemployment (1−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 1 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 1m)

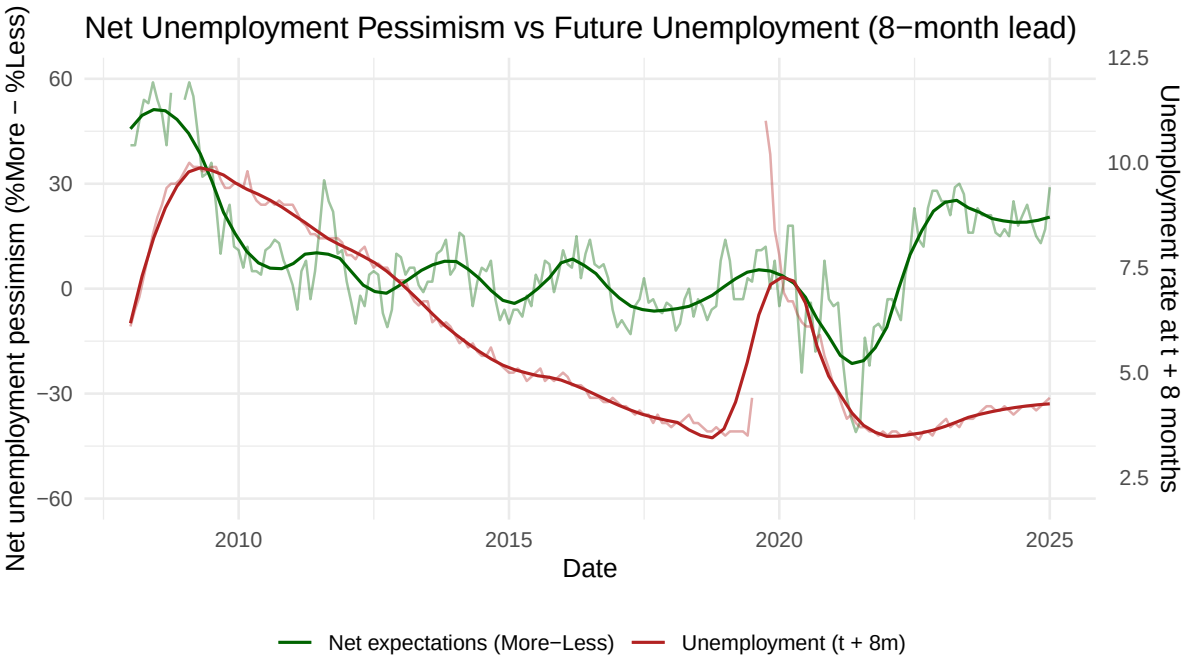

Net Unemployment Pessimism vs Future Unemployment (2−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 2 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 2m)

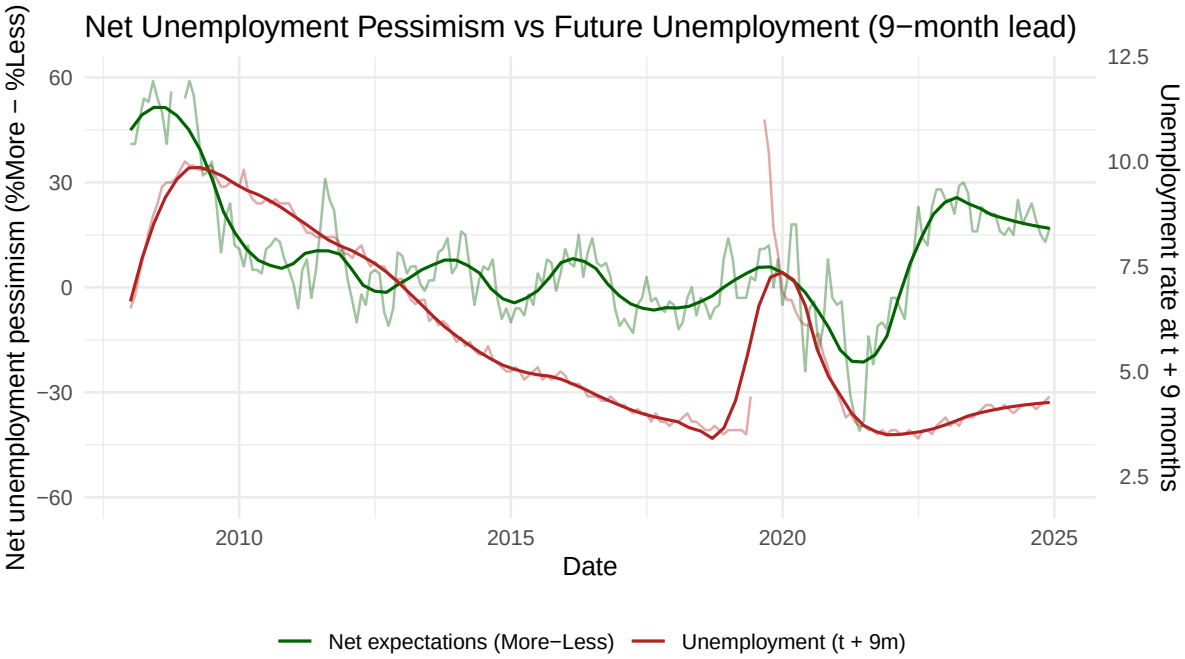

Net Unemployment Pessimism vs Future Unemployment (3−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 3 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 3m)

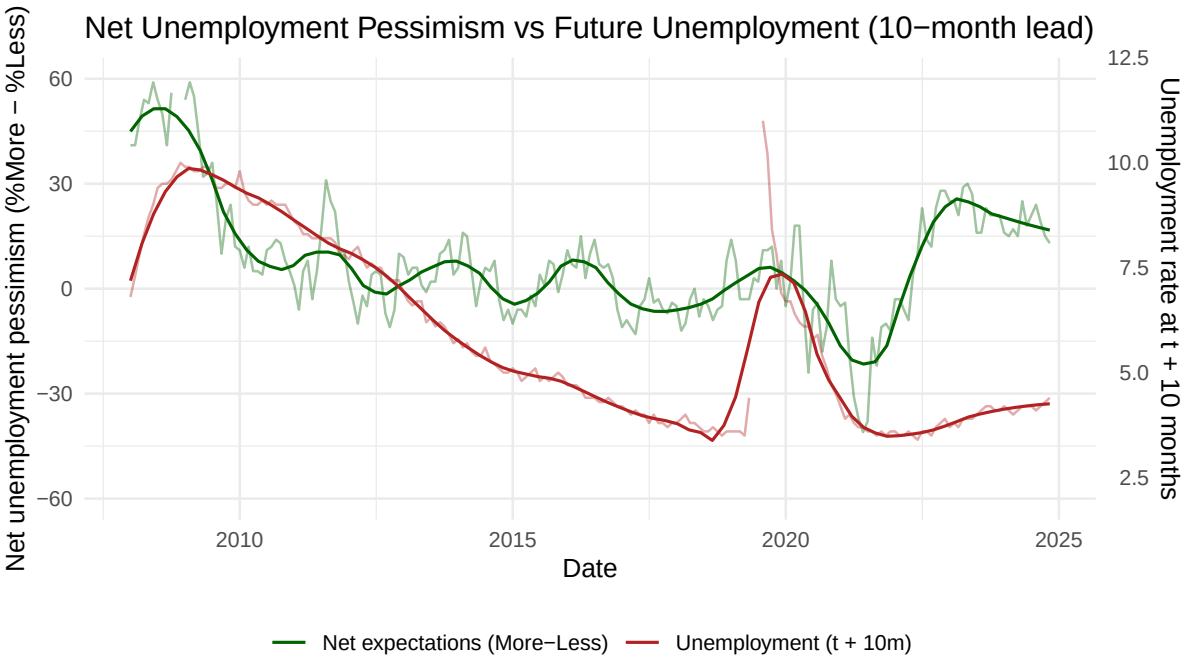

Net Unemployment Pessimism vs Future Unemployment (6−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 6 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 6m)

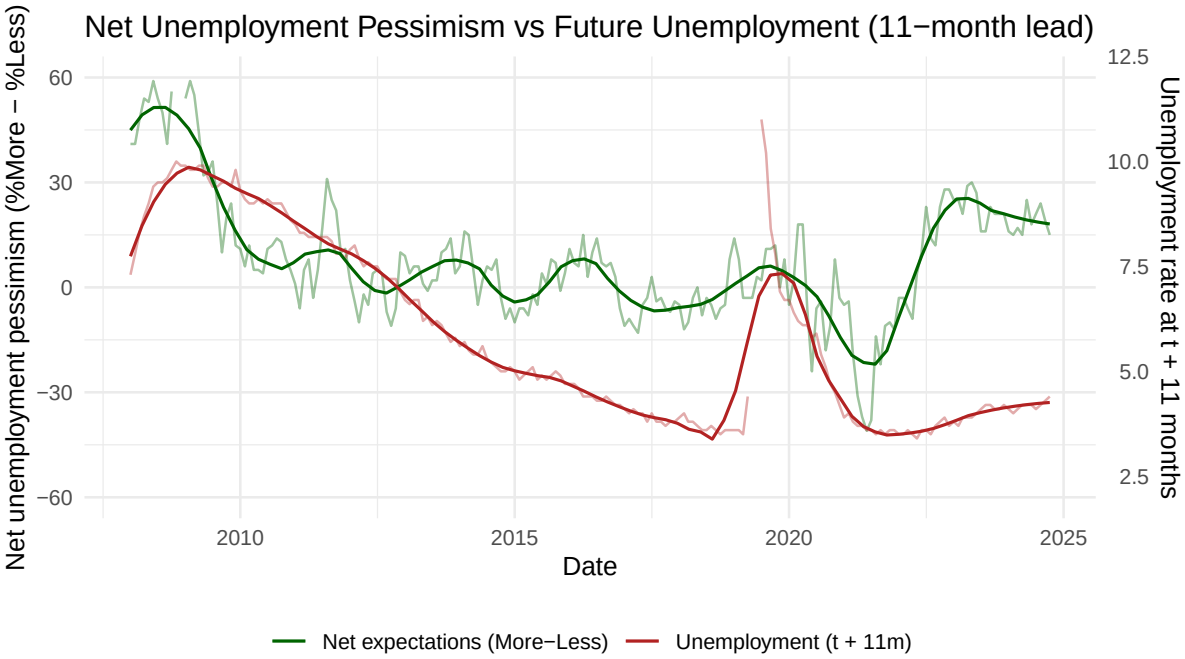

Net Unemployment Pessimism vs Future Unemployment (5−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 5 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 5m)

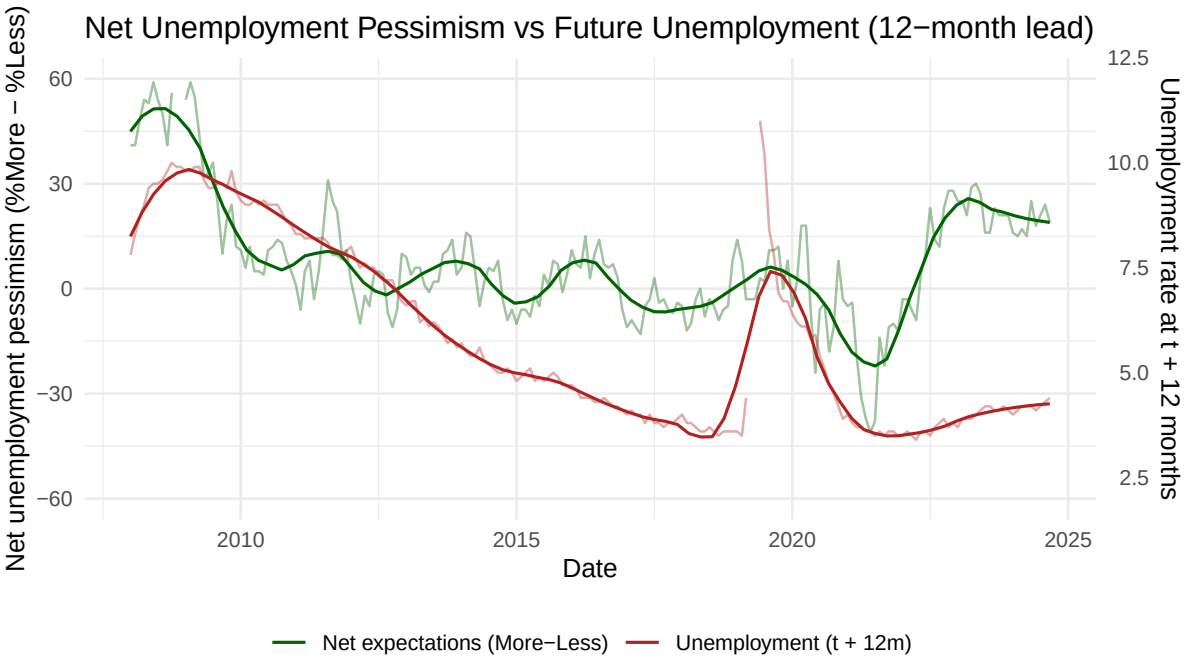

Net Unemployment Pessimism vs Future Unemployment (7−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 7 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 7m)


Net Unemployment Pessimism vs Future Unemployment (8−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 8 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 8m)


Net Unemployment Pessimism vs Future Unemployment (9−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 9 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 9m)


Net Unemployment Pessimism vs Future Unemployment (10−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 10 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 10m)


Net Unemployment Pessimism vs Future Unemployment (11−month lead)
Net unemployment pessimism (%More − %Less)
Unemployment rate at t + 11 months
60
30
0
−30
−60
12.5
10.0
7.5
5.0
2.5
2010
2015
2020
2025
Date
Net expectations (More−Less)
Unemployment (t + 11m)



- To complement the scatter plots, we construct time-series overlays of the net unemployment expectations index and the unemployment rate shifted forward by various lead times. For each lead h, we rescaled the future unemployment rate to the same vertical range as the expectations index so both can be shown on a single axis. We then plot raw and smoothed lines for 0–12-month leads. This visualization emphasizes the timing of peaks and troughs rather than the exact linear relationship.

- The time-series plots reinforce the scatter-plot evidence: net unemployment pessimism tends to rise ahead of increases in the unemployment rate and to fall ahead of declines. The alignment is especially clear around the 2008–2009 and 2020 recessions, where expectations begin to signal trouble several months before unemployment surges. While not perfectly synchronized—expectations sometimes move on false alarms or react to news that does not fully materialize—the patterns suggest that households absorb forward-looking information about the labor market and that this information shows up in the Survey of Consumers before it is fully visible in official unemployment statistics.

Implications

Our findings imply that survey-based expectations can add value to traditional labor-market monitoring. Policy-makers and forecasters who track the Michigan survey might gain several months of advance warning about shifts in unemployment risk, particularly when net expectations move sharply negative. For central banks, a deterioration in unemployment expectations could signal upcoming slack in the labor market and downward pressure on wage growth; for fiscal authorities, it might justify earlier consideration of counter-cyclical support. At the same time, the modest variance explained (R-Squared) remind us that expectations are only one piece of the forecasting puzzle and should be combined with other indicators rather than used in isolation.

Conclusion & Outlook

Our exploratory analysis shows that while the broad Consumer Sentiment Index co-moves with unemployment and job growth, it is the targeted expectations question on unemployment that carries the clearest predictive signal for future labor-market changes. Net expectations about unemployment are negatively correlated with subsequent changes in the unemployment rate, with the relationship strengthening over 6–12-month horizons. These patterns are consistent with the view that households respond not only to current conditions but also to news and perceptions about the near-term economic outlook.

Looking ahead, several extensions would deepen this work. We could extend the sample back before 2008 to test whether the relationships hold across earlier cycles, estimate multivariate forecasting models that control for inflation and interest rates, and explore heterogeneity by income, age, or other demographic factors if micro-level survey data become available. Another natural step would be to compare the predictive content of Michigan expectations with other surveys (e.g., Conference Board, professional forecasters) or with financial-market measures of labor-market expectations.

Limitation

This project has several important limitations. First, the analysis is confined to the post-2008 period, which may over-weight the unique dynamics of the Great Recession and the COVID-19 shock. Second, all relationships are estimated using simple correlations and bivariate regressions with overlapping horizons; we do not account for serial correlation or perform formal out-of-sample forecasting tests. Third, both sentiment and expectations are measured with survey error and may be influenced by factors unrelated to the labor market

(e.g., political events), which we do not model. Finally, our dual-axis visualizations involve rescaling variables, which aids interpretation but can be misleading if taken as evidence of one-for-one relationships. These caveats should be kept in mind when interpreting the results.

References

https://data.sca.isr.umich.edu/data-archive/mine.php

https://www.bls.gov/cps

https://www.bls.gov/ces