



Consumer Sentiments VS. Economy Realities

Longitudinal Analysis of Changing Consumer Perceptions in Relation to
Employment

Zupeng Zeng & Troy (Shengkun) Liu

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Socio-Economic Background

Exploratory Data Analysis Executive Summary

- Project Objective
- Data Source
- Data Reliability
- THEME FOUND123
- Limitations of the Analysis

Research Questions

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Data Source and Assumptions

Data Cleaning Process

Notable Findings

Finding 1. Finding Theme

State the finding in a few lines (See Visualization 1).

Finding 2. (See Visualization 2).

Finding 3. (See Visualization 3).

Visualizations

Working repo could be fount at:

<https://github.com/zzeng05/ZENG1-LIU2-727FINAL-scaVSepl.git>

```
# 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
```

```
# 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
```

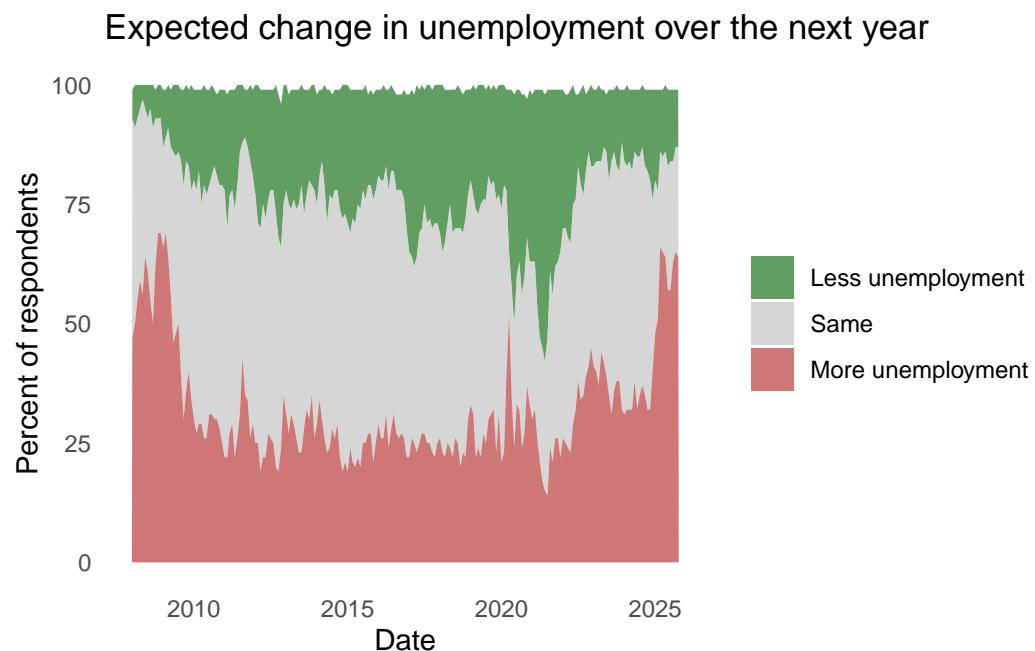
```
# A tibble: 6 x 7
```

```
date      less_unemp same_unemp more_unemp dk_unemp rel_unemp
```

```

<date>      <dbl>      <dbl>      <dbl>      <dbl>      <dbl>
1 2008-01-01     6        46        47        1       59
2 2008-02-01     9        41        50        0       59
3 2008-03-01     7        38        55        0       52
4 2008-04-01     5        36        59        0       46
5 2008-05-01     3        41        56        0       47
6 2008-06-01     5        31        64        0       41
# i 1 more variable: net_unemp_expect <dbl>

```



- BRIEF EXPLAIN HERE

```

# A tibble: 6 x 6
series_id      year period value month date
<chr>          <int> <chr>  <dbl> <int> <date>
1 LNS14000000  2025 M09      4.4     9 2025-09-01

```

```
2 LNS14000000 2025 M08      4.3      8 2025-08-01
3 LNS14000000 2025 M07      4.2      7 2025-07-01
4 LNS14000000 2025 M06      4.1      6 2025-06-01
5 LNS14000000 2025 M05      4.2      5 2025-05-01
6 LNS14000000 2025 M04      4.2      4 2025-04-01
```

```
# A tibble: 6 x 2
```

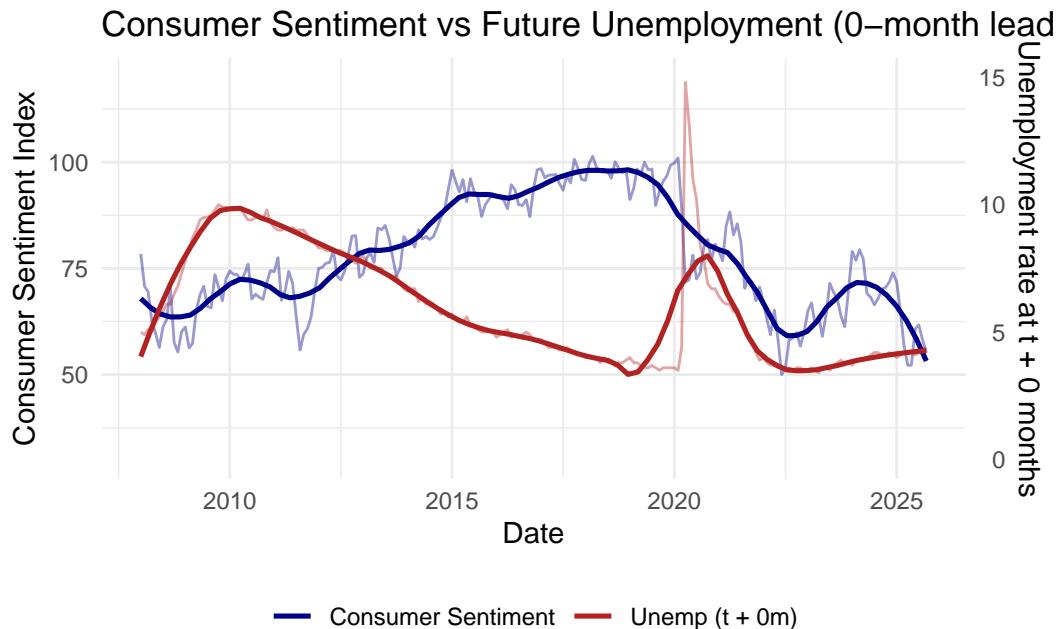
```
date      unrate
<date>    <dbl>
1 2008-01-01     5
2 2008-02-01   4.9
3 2008-03-01   5.1
4 2008-04-01     5
5 2008-05-01   5.4
6 2008-06-01   5.6
```

```
# A tibble: 6 x 3
```

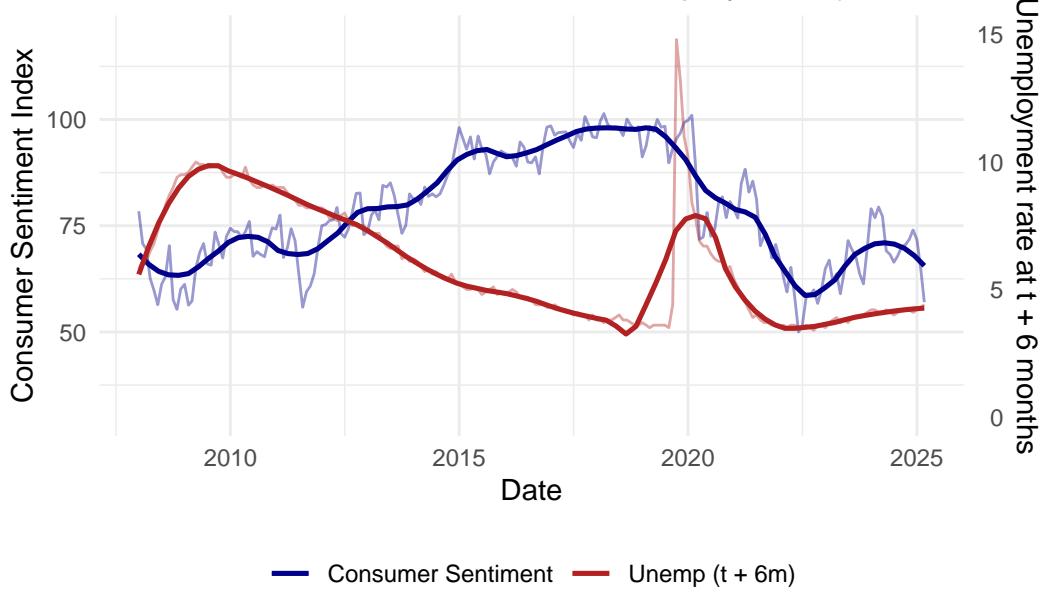
```
date      nonfarm_emp job_change
<date>    <dbl>      <dbl>
1 2008-01-01    138391       NA
2 2008-02-01    138327      -64
3 2008-03-01    138257      -70
4 2008-04-01    138038     -219
5 2008-05-01    137851     -187
6 2008-06-01    137698     -153
```

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

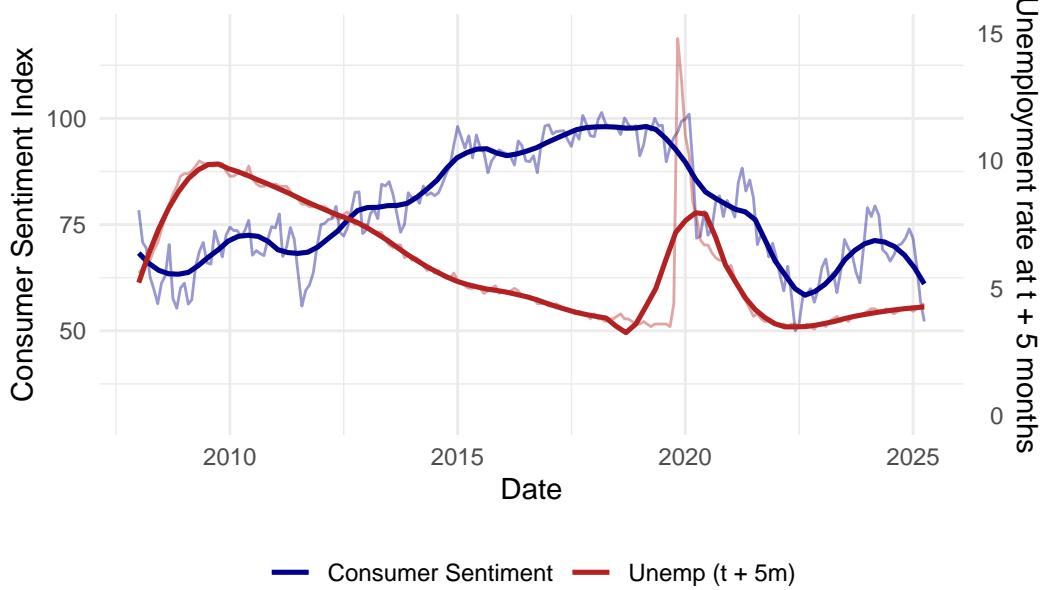
```
# A tibble: 6 x 5
  date          cs  unrate nonfarm_emp job_change
  <date>     <dbl>   <dbl>      <dbl>      <dbl>
1 2008-01-01  78.4     5  138391       NA
2 2008-02-01  70.8    4.9  138327     -64
3 2008-03-01  69.5    5.1  138257     -70
4 2008-04-01  62.6     5  138038     -219
5 2008-05-01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



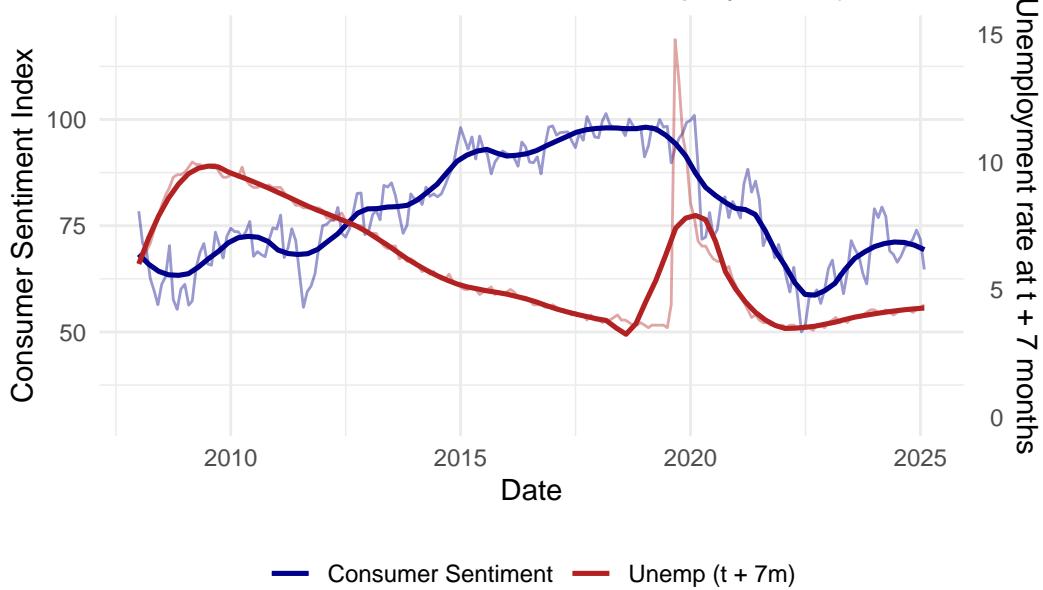
Consumer Sentiment vs Future Unemployment (6-month lead)



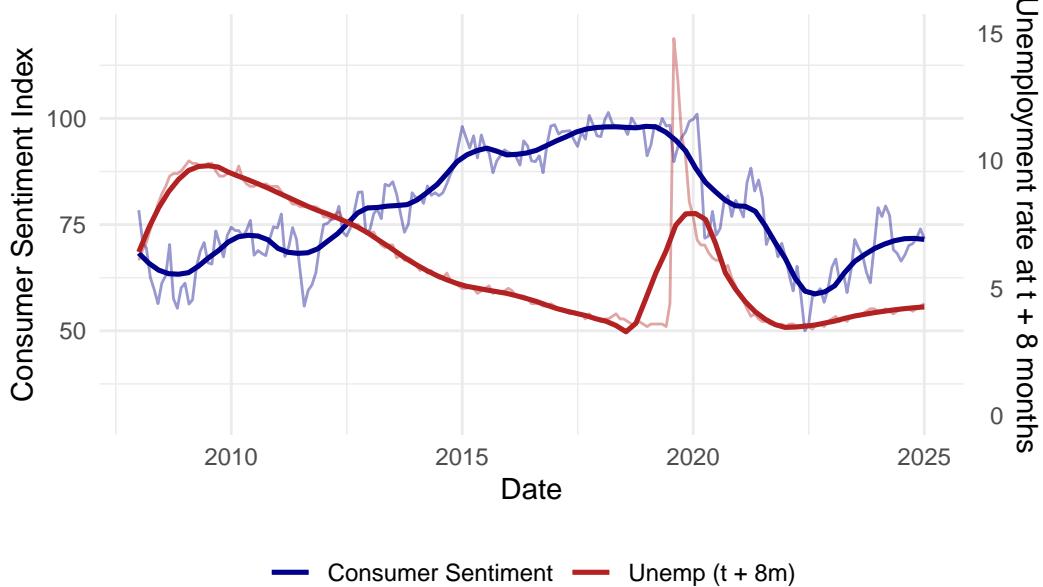
Consumer Sentiment vs Future Unemployment (5-month lead)



Consumer Sentiment vs Future Unemployment (7-month lead)

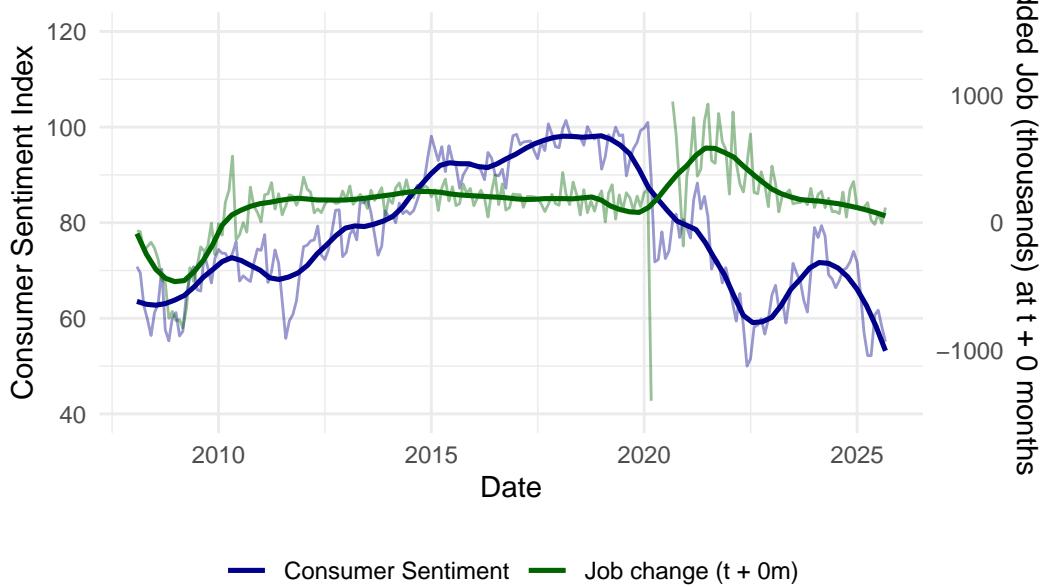


Consumer Sentiment vs Future Unemployment (8-month lead)

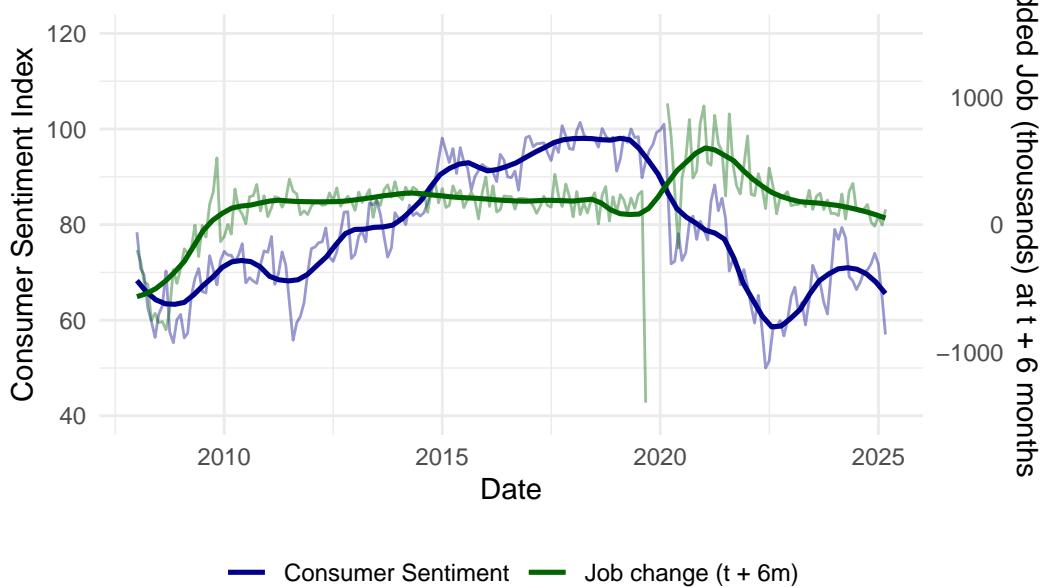


- ANALYSIS HERE
- EXPLAIN LOGISTICS OF SMOOTHING
- ENDED UP NOT THAT CLEAR INDICATING

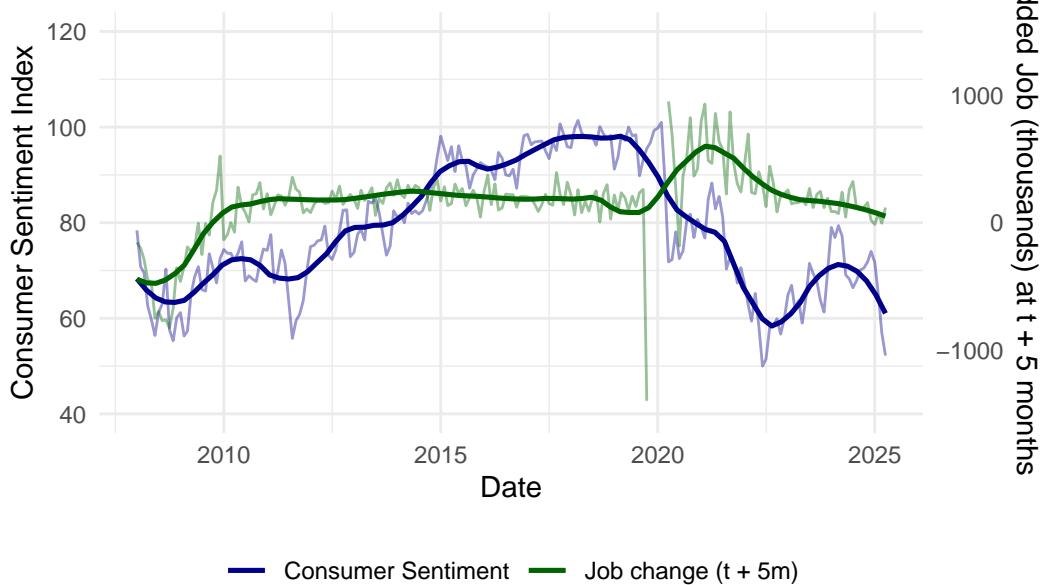
Consumer Sentiment vs Added Jobs (0-month lead)



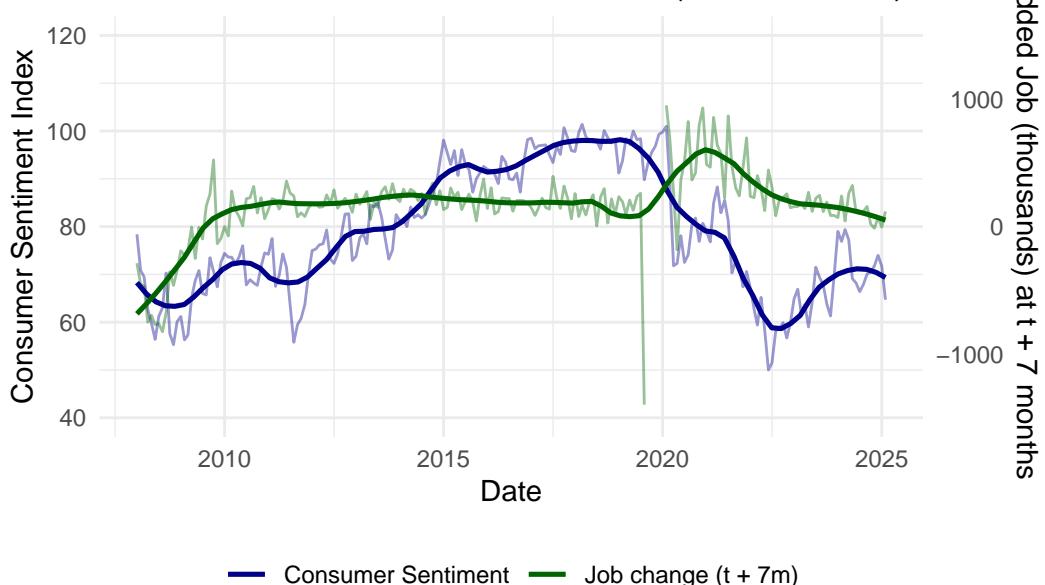
Consumer Sentiment vs Added Jobs (6-month lead)

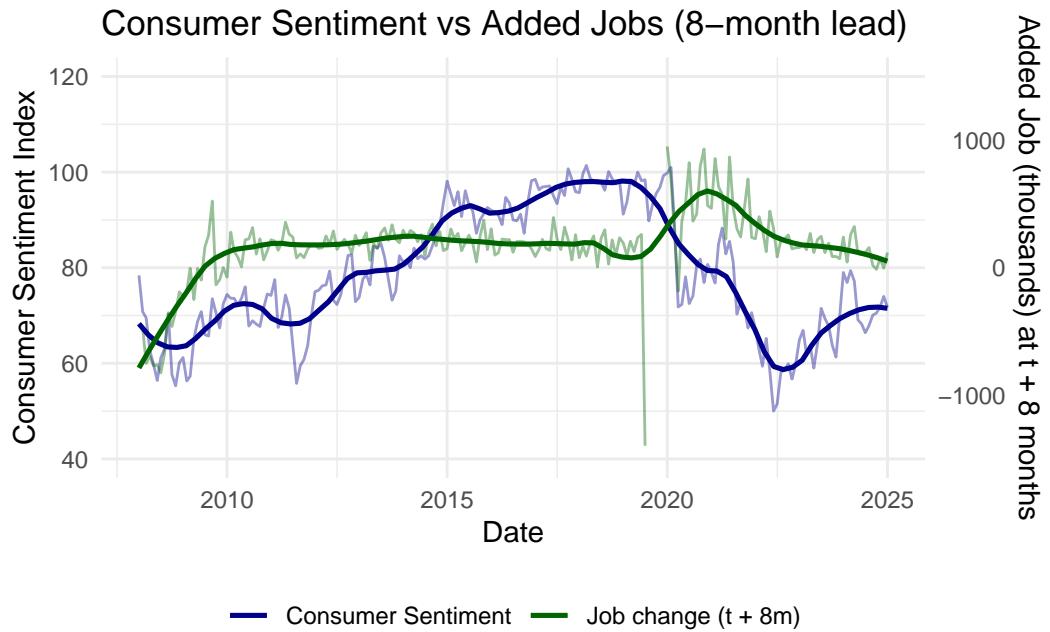


Consumer Sentiment vs Added Jobs (5-month lead)



Consumer Sentiment vs Added Jobs (7-month lead)





- ANALYSIS HERE
- EXPLAIN TEST & FINDING ON DIFFERENT LAGS
- EXPLAIN LOGISTICS OF SMOOTHING

Visualization 2. Scatter: net expectations vs subsequent unemployment change

- ADD LOGISTICS OF CALCULATING NET EXPECTATIONS OF UNEMPLOYMENT HERE! (MAYBE SHOW BRIEF DATAFRAME?)

Horizon: 0 months

Correlation (net expectations, future Δunemp): NA

Slope (OLS): 0 pp change in unemp per 1-pt net expectation

R-squared: NaN

Horizon: 1 months

Correlation (net expectations, future Δunemp): -0.169

Slope (OLS): -0.0069 pp change in unemp per 1-pt net expectation

R-squared: 0.029

Horizon: 2 months

Correlation (net expectations, future Δunemp): -0.19

Slope (OLS): -0.0111 pp change in unemp per 1-pt net expectation

R-squared: 0.036

Horizon: 3 months

Correlation (net expectations, future Δunemp): -0.206

Slope (OLS): -0.0144 pp change in unemp per 1-pt net expectation
R-squared: 0.042

Horizon: 4 months
Correlation (net expectations, future Δ unemp): -0.249
Slope (OLS): -0.0197 pp change in unemp per 1-pt net expectation
R-squared: 0.062

Horizon: 5 months
Correlation (net expectations, future Δ unemp): -0.279
Slope (OLS): -0.0239 pp change in unemp per 1-pt net expectation
R-squared: 0.078

Horizon: 6 months
Correlation (net expectations, future Δ unemp): -0.323
Slope (OLS): -0.0296 pp change in unemp per 1-pt net expectation
R-squared: 0.104

Horizon: 7 months
Correlation (net expectations, future Δ unemp): -0.365
Slope (OLS): -0.0354 pp change in unemp per 1-pt net expectation
R-squared: 0.134

Horizon: 8 months

Correlation (net expectations, future Δ unemp): -0.398

Slope (OLS): -0.0401 pp change in unemp per 1-pt net expectation

R-squared: 0.158

Horizon: 9 months

Correlation (net expectations, future Δ unemp): -0.412

Slope (OLS): -0.0431 pp change in unemp per 1-pt net expectation

R-squared: 0.17

Horizon: 10 months

Correlation (net expectations, future Δ unemp): -0.42

Slope (OLS): -0.0455 pp change in unemp per 1-pt net expectation

R-squared: 0.176

Horizon: 11 months

Correlation (net expectations, future Δ unemp): -0.419

Slope (OLS): -0.0467 pp change in unemp per 1-pt net expectation

R-squared: 0.175

Horizon: 12 months

Correlation (net expectations, future Δunemp): -0.416

Slope (OLS): -0.0477 pp change in unemp per 1-pt net expectation

R-squared: 0.173

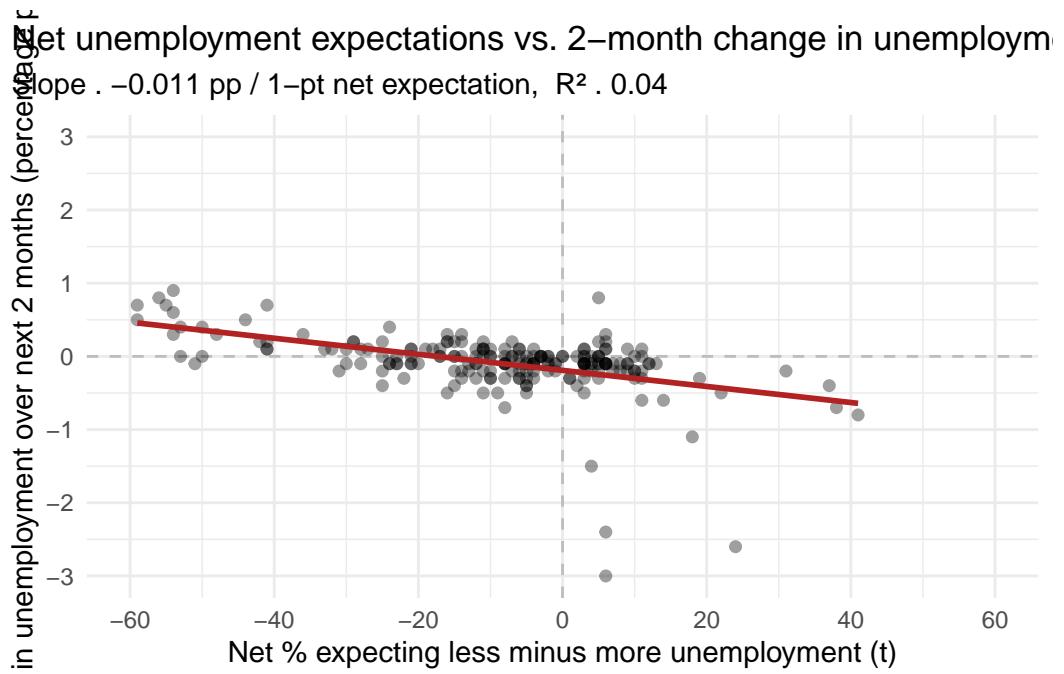
\$h_0m



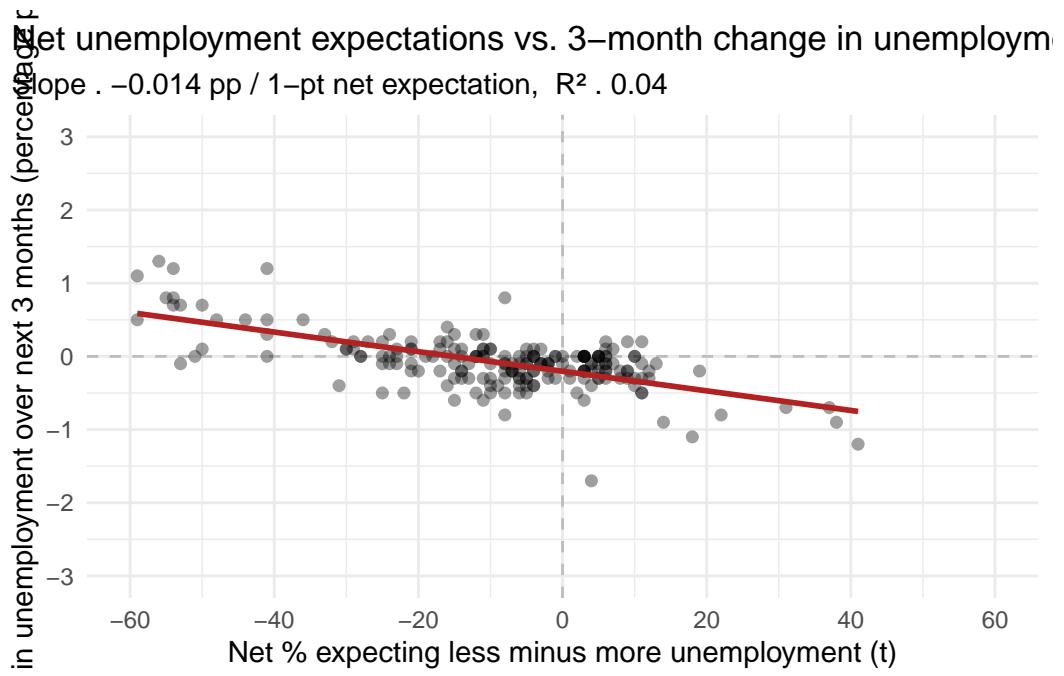
\$h_1m



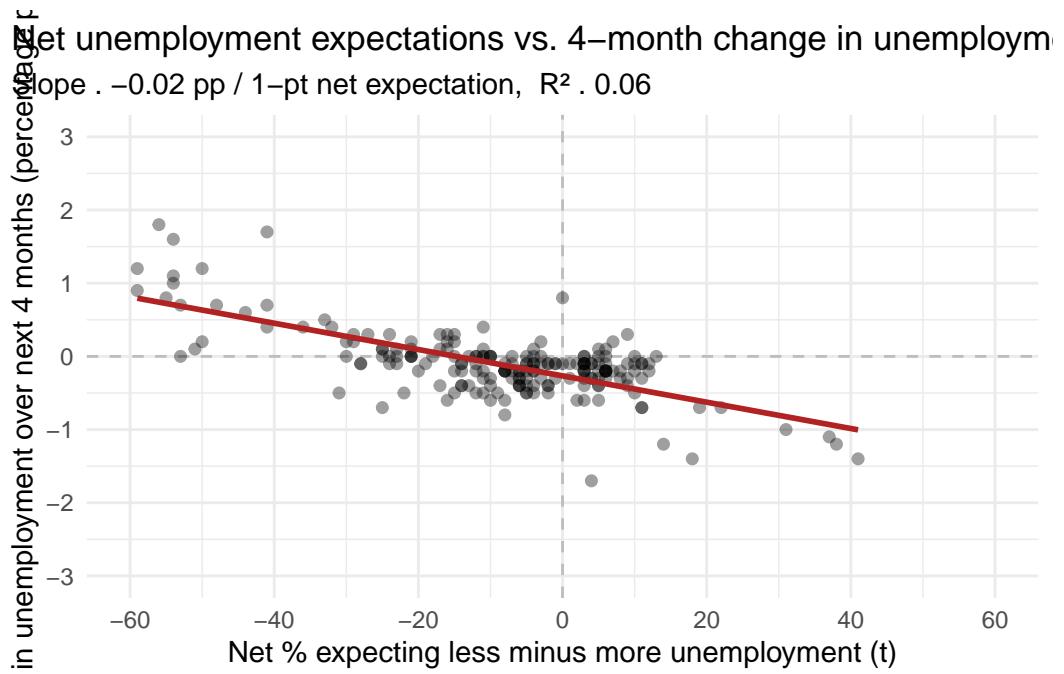
\$h_2m



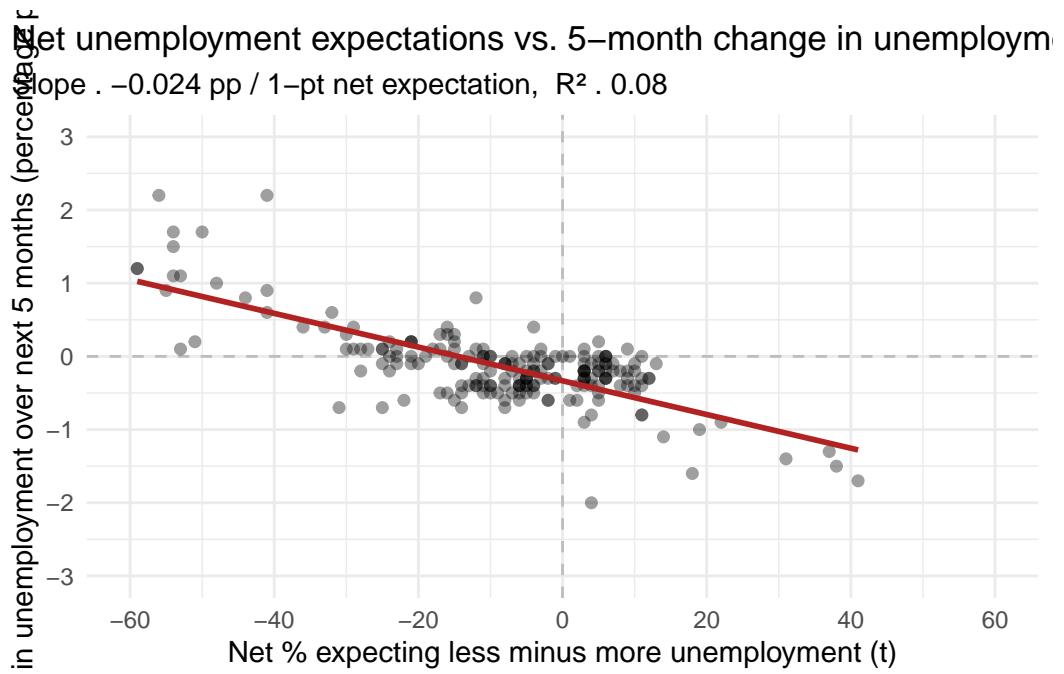
\$h_3m



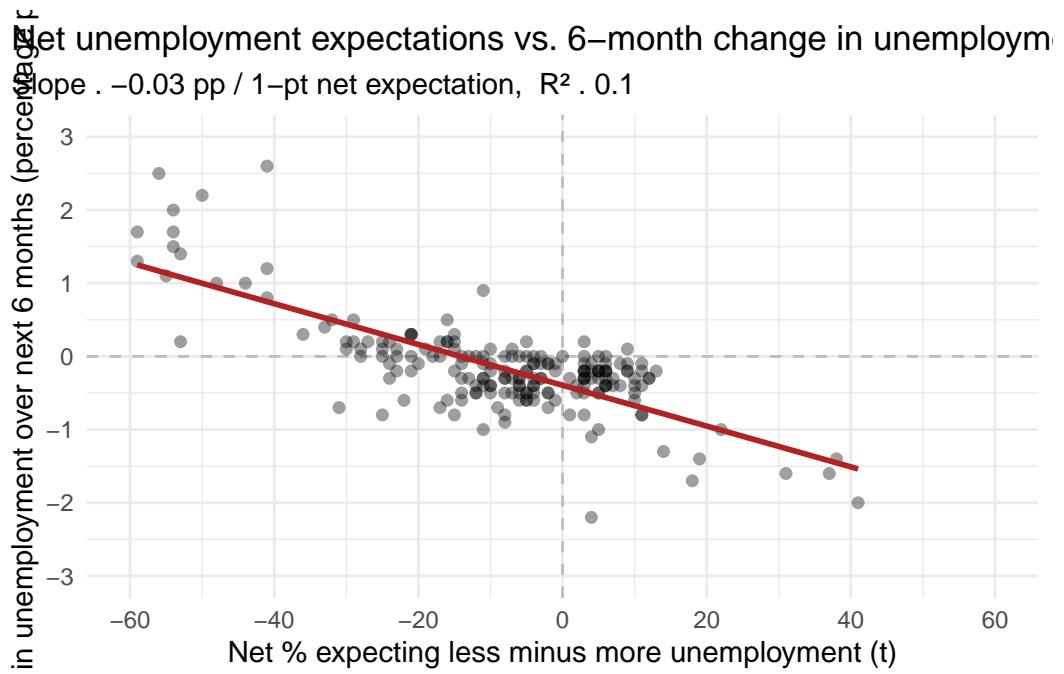
\$h_4m



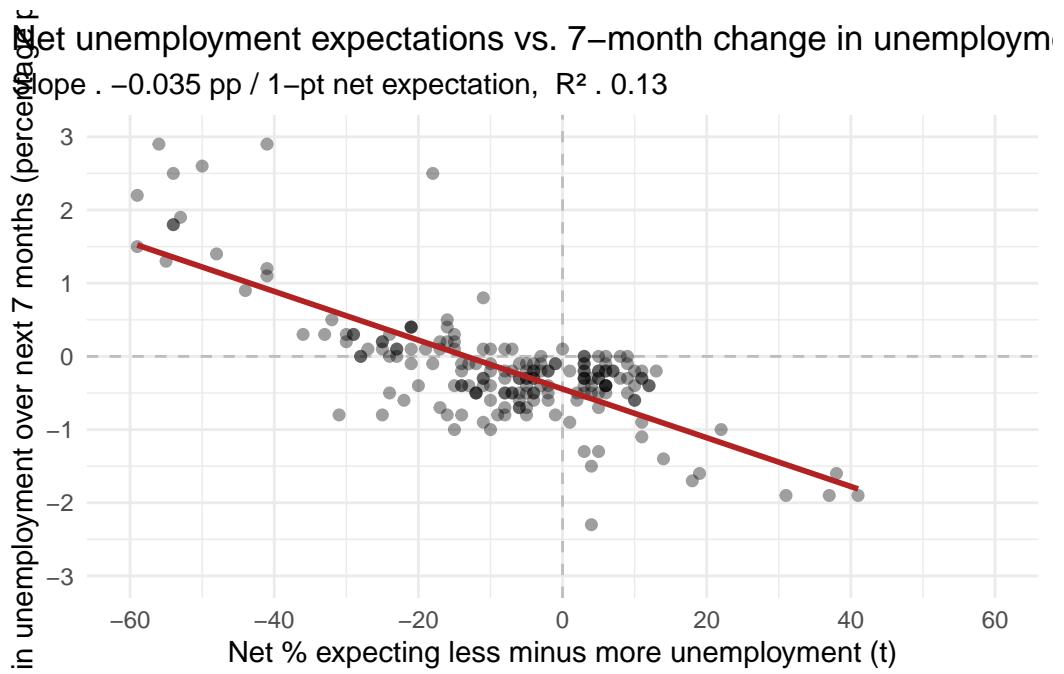
\$h_5m



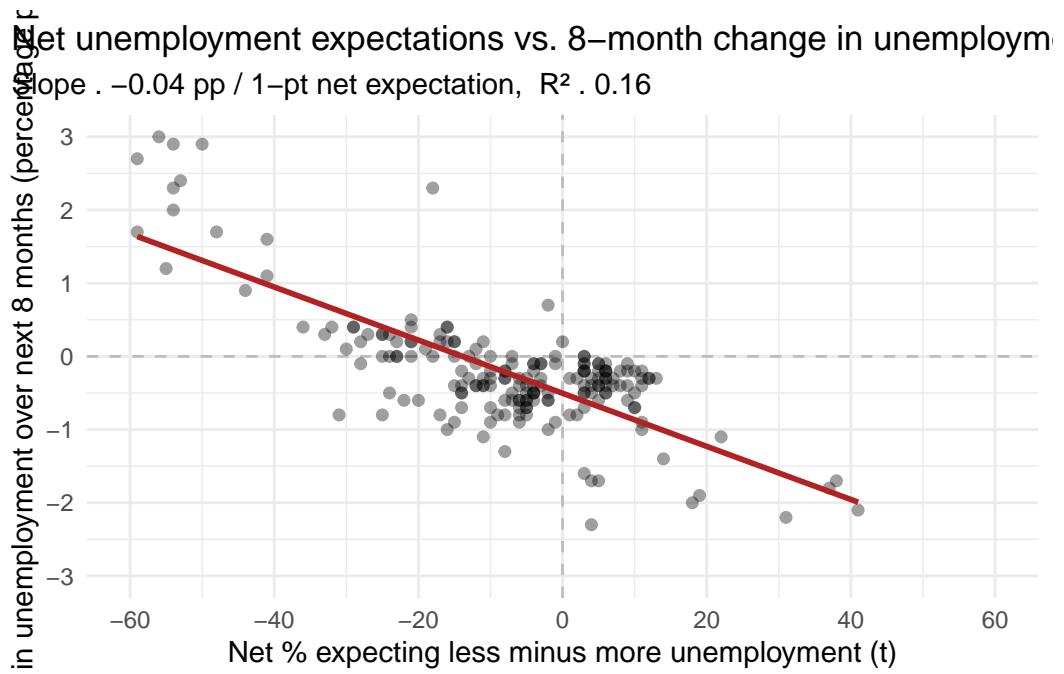
\$h_6m



\$h_7m



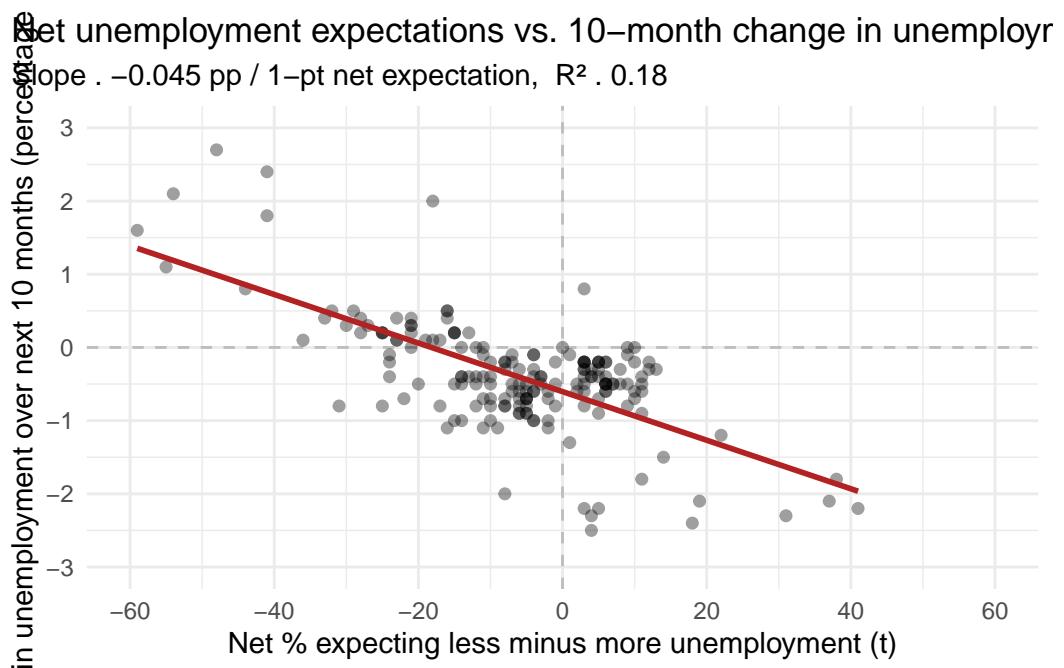
\$h_8m



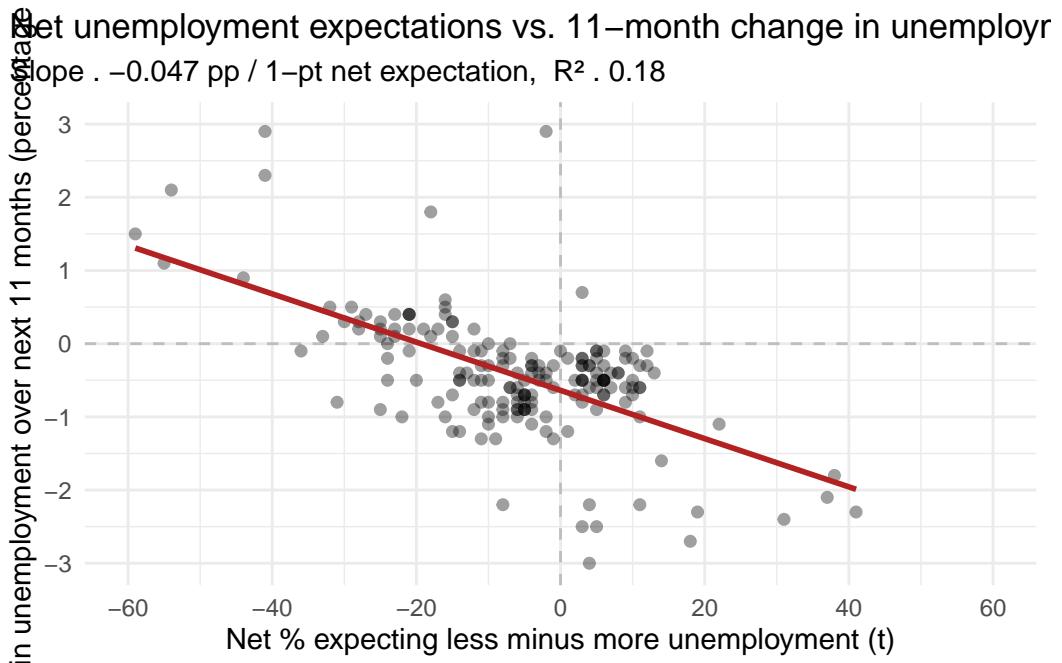
\$h_9m



\$h_10m

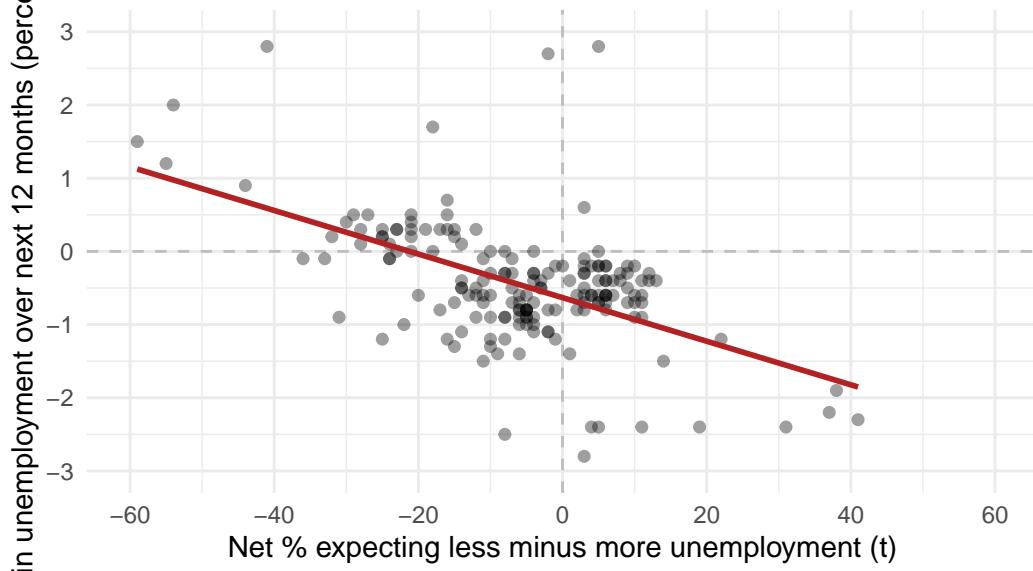


\$h_11m



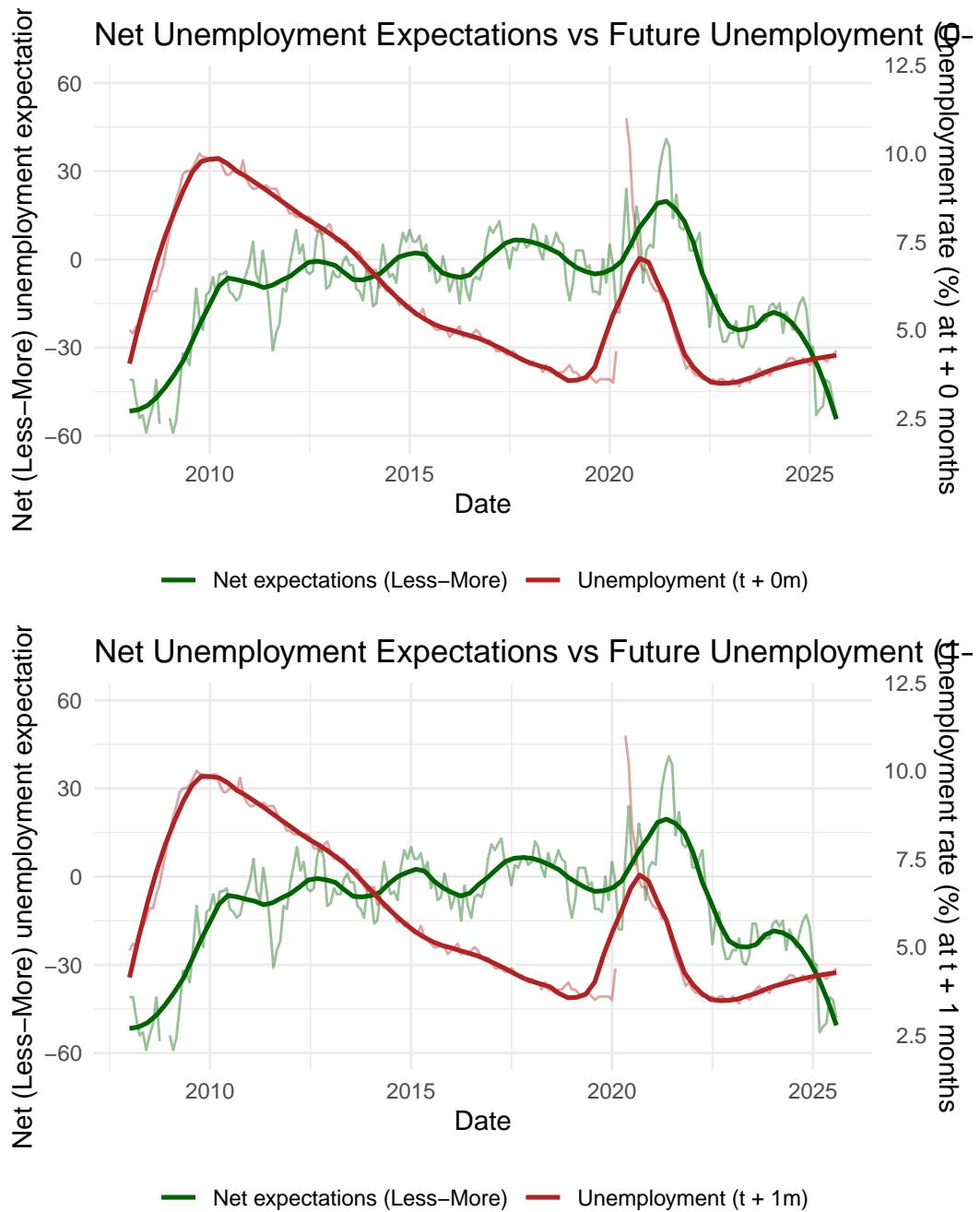
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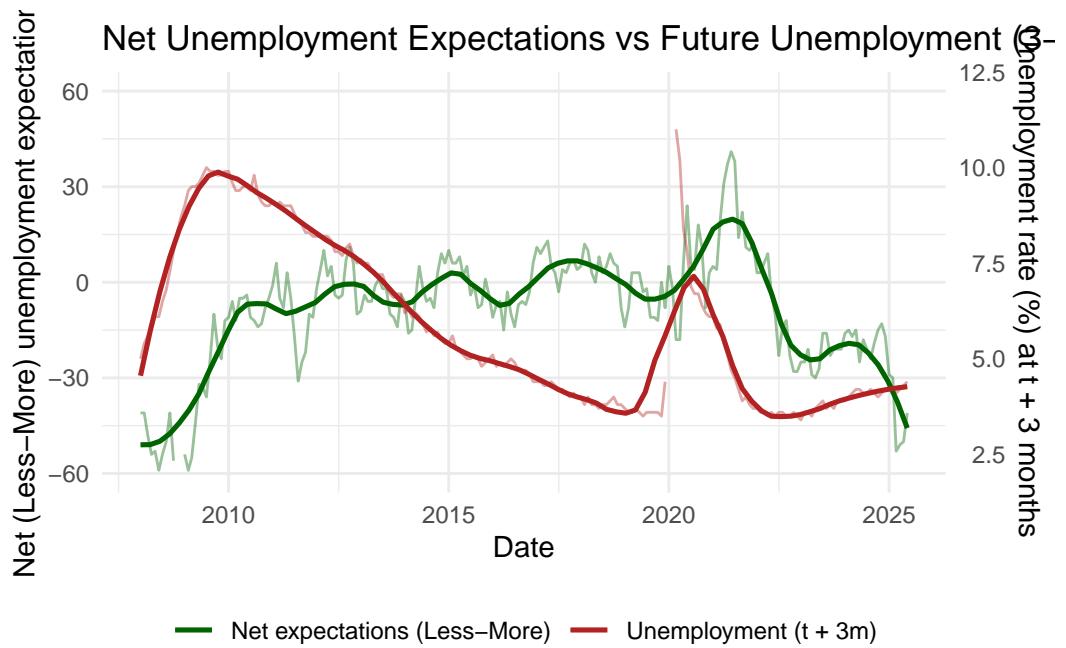
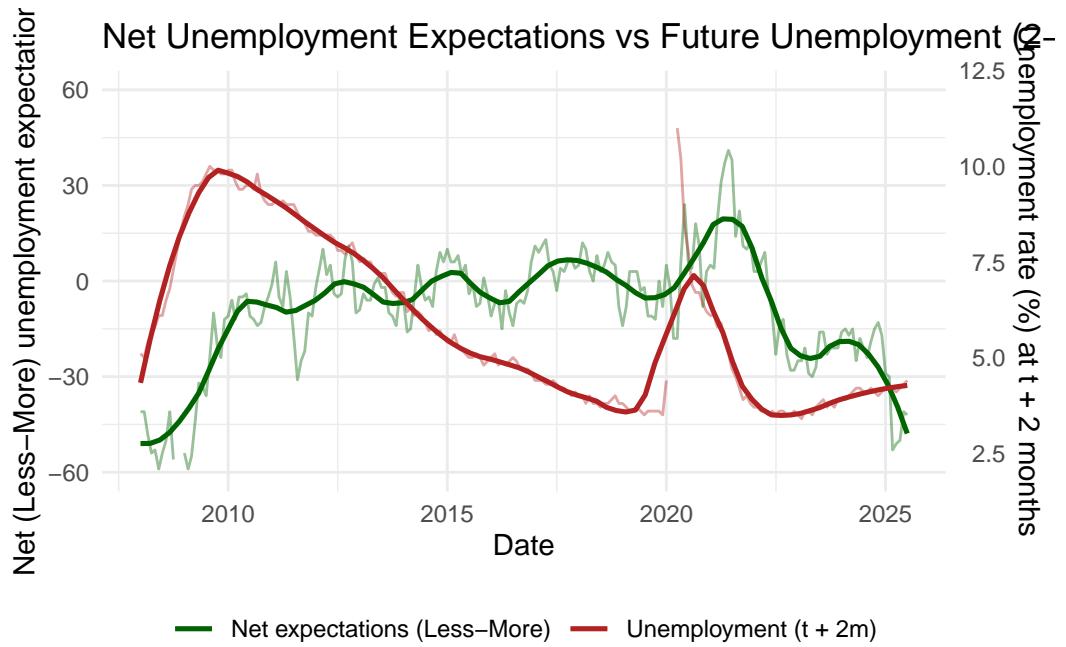
Net unemployment expectations vs. 12-month change in unemployment
slope . -0.048 pp / 1-pt net expectation, R^2 . 0.17

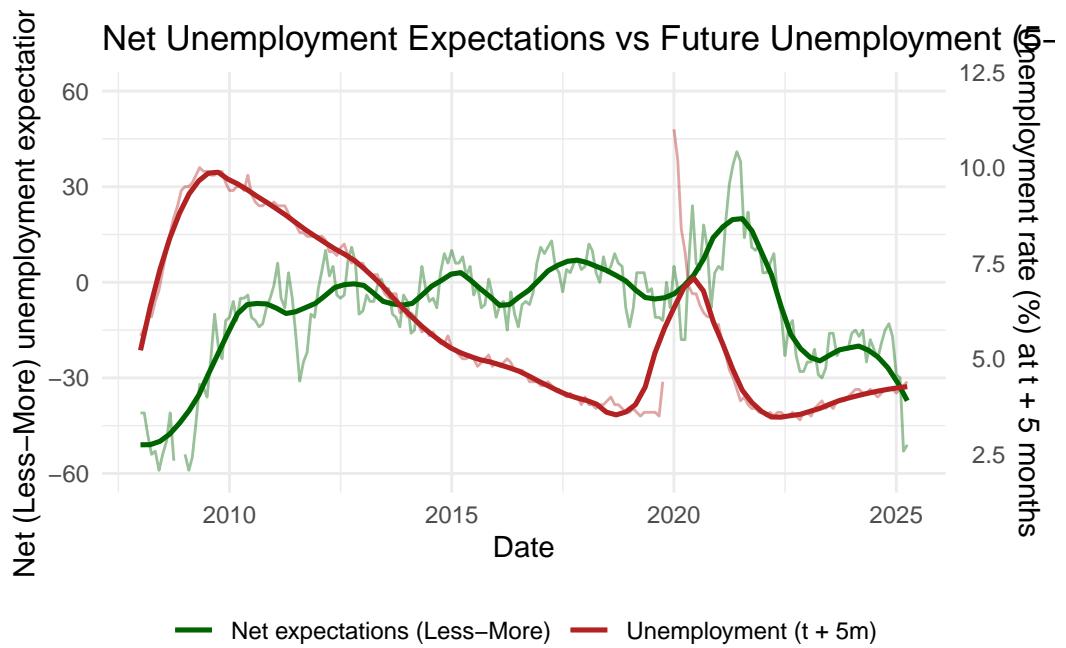
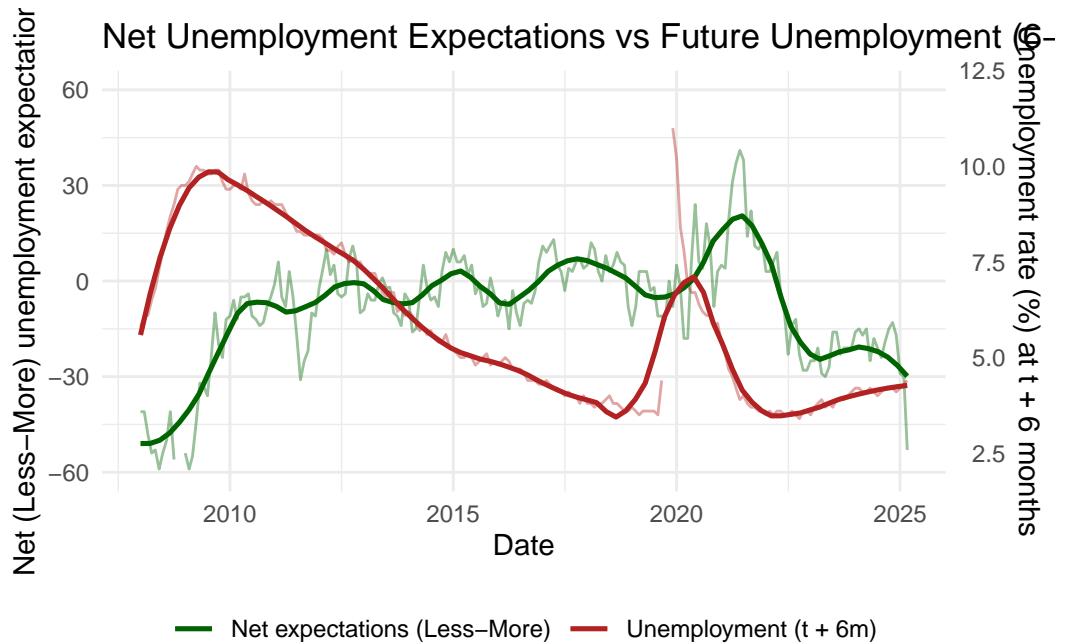


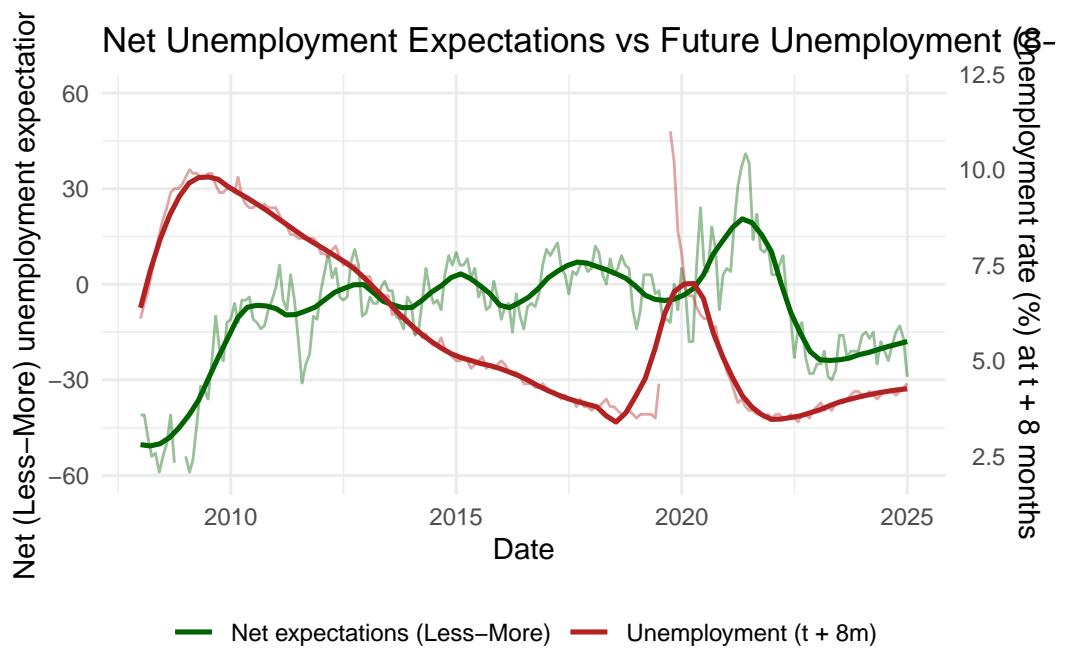
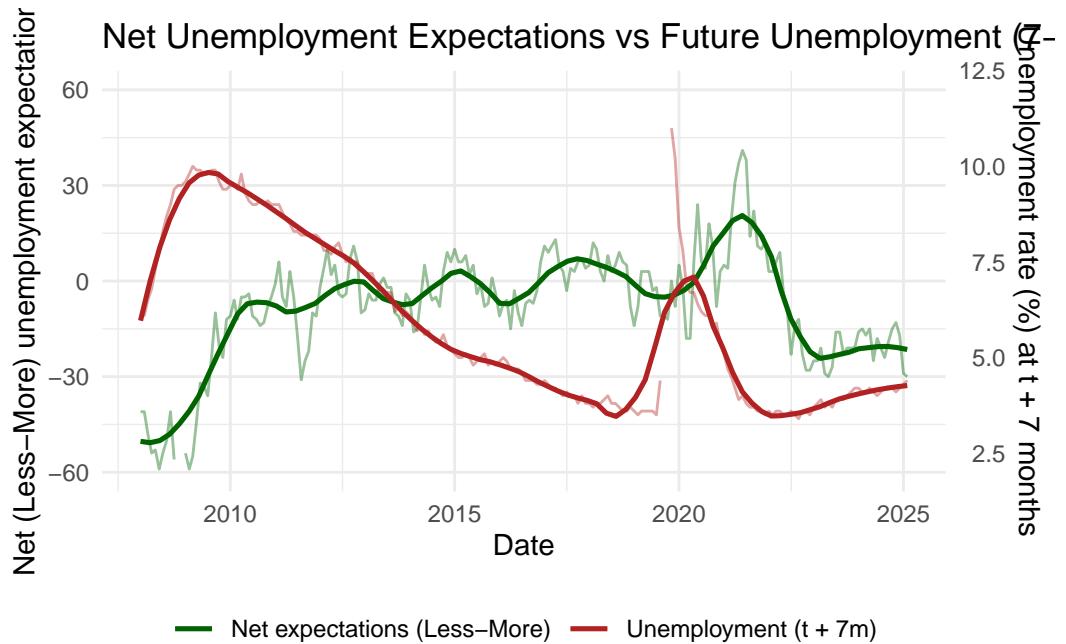
- MAKE A CONCLUSION & INDICATION HERE!

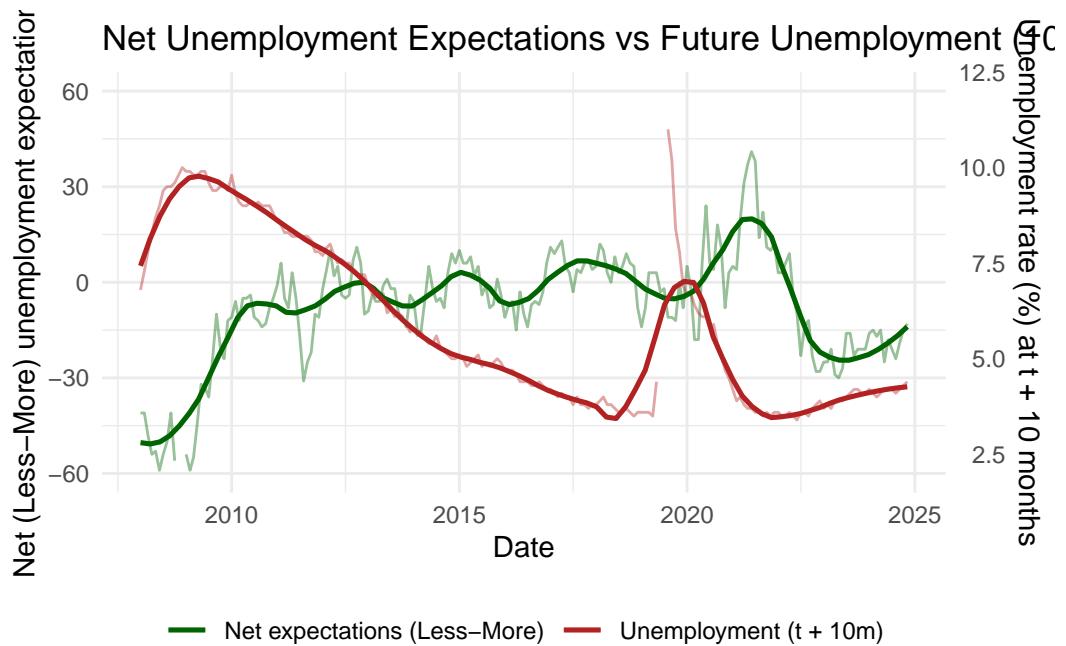
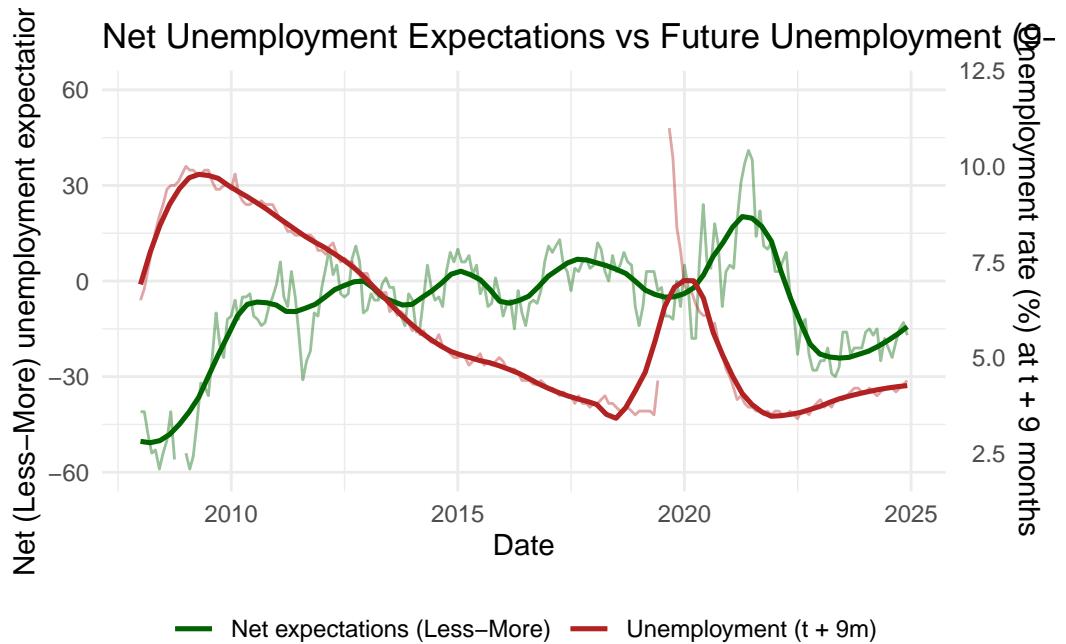
**Visualization 3. Time series: net expectations vs actual unemployment
(dual axis) - NEED TO FINE TUNE PLOT SIZES FOR ALL PLOTS**

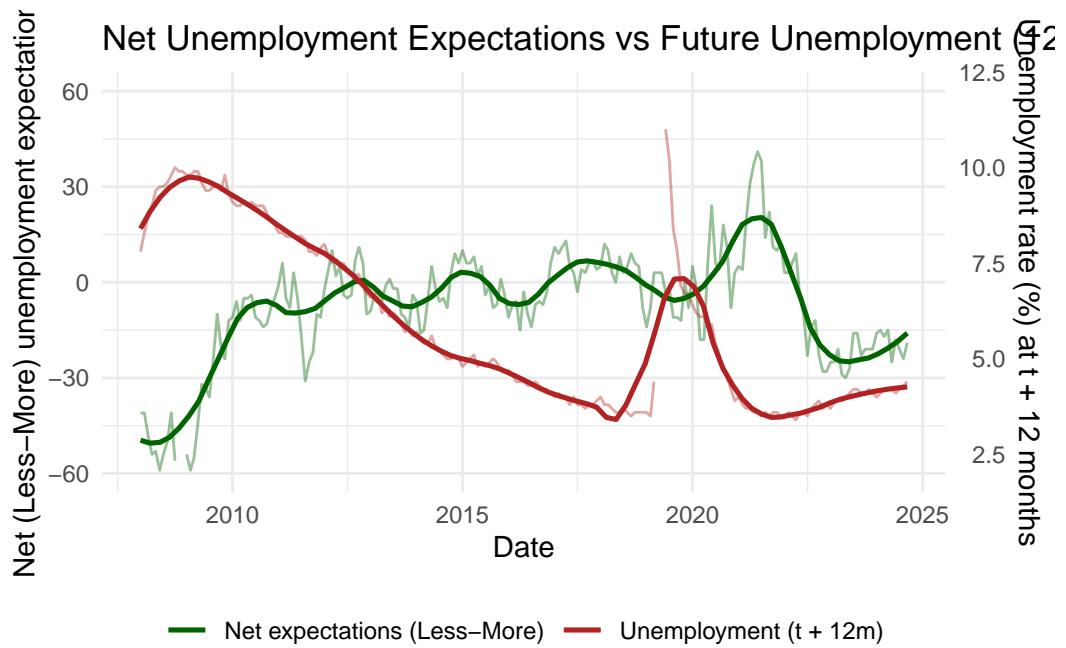
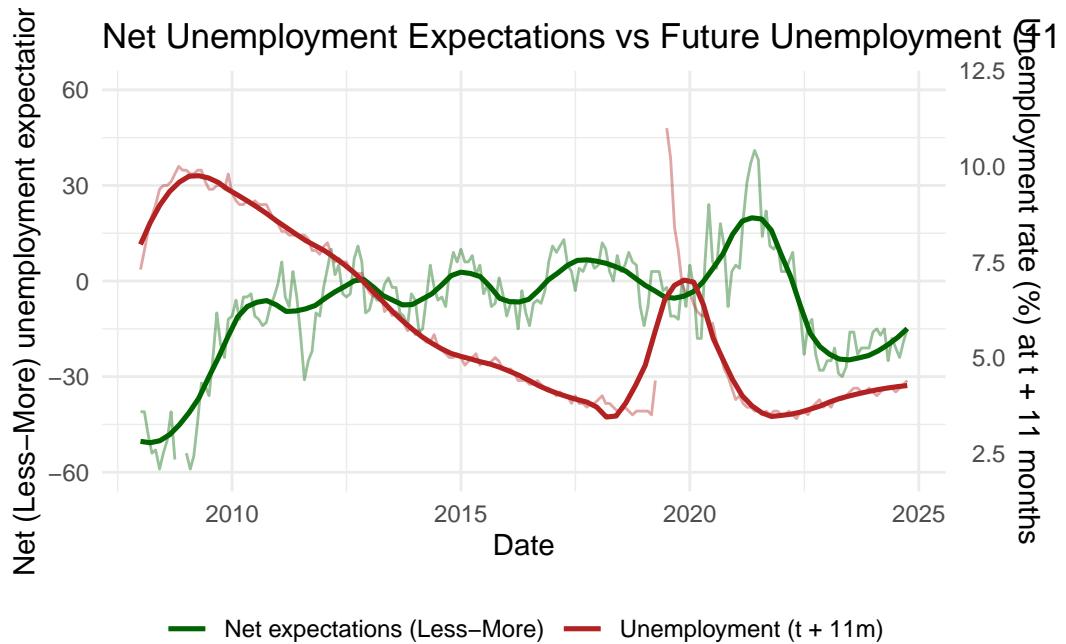












- EXPLAIN LOGISTICS
- MAKE A CONCLUSION & INDICATION HERE!

Implications

SOME REAL WORLD INDICATIONS.

Conclusion & Outlook

Limitation

References

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

<https://www.bls.gov/cps>

<https://www.bls.gov/ces>