



Consumer Sentiments VS. Economy Realities
Longitudinal Analysis of Changing Consumer Perceptions in Relation to
Employment

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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

Preview of Consumer Sentiment Data

```
# A tibble: 6 x 4
```

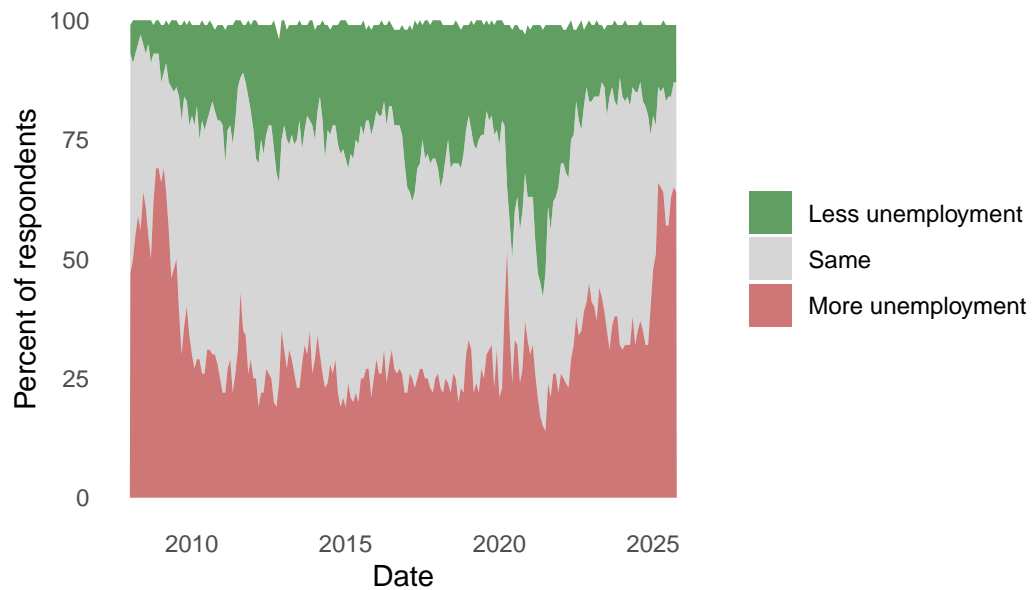
	date	cs	year	month
	<date>	<dbl>	<int>	<int>
1	2008-01-01	78.4	2008	1
2	2008-02-01	70.8	2008	2
3	2008-03-01	69.5	2008	3
4	2008-04-01	62.6	2008	4
5	2008-05-01	59.8	2008	5
6	2008-06-01	56.4	2008	6

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

Expected change in unemployment over the next year



- BRIEF EXPLAIN HERE

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

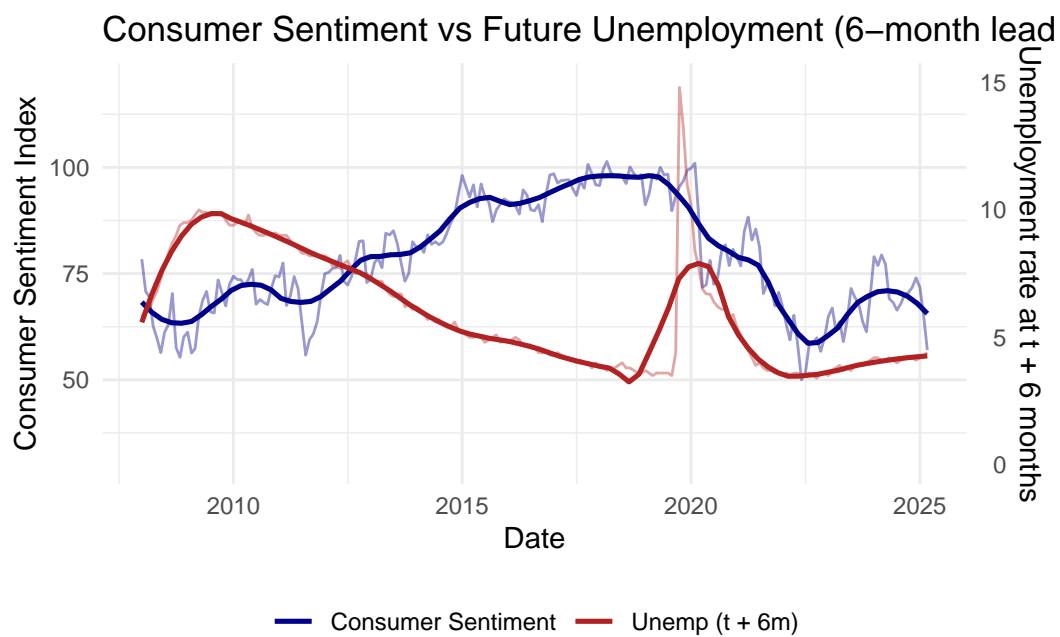
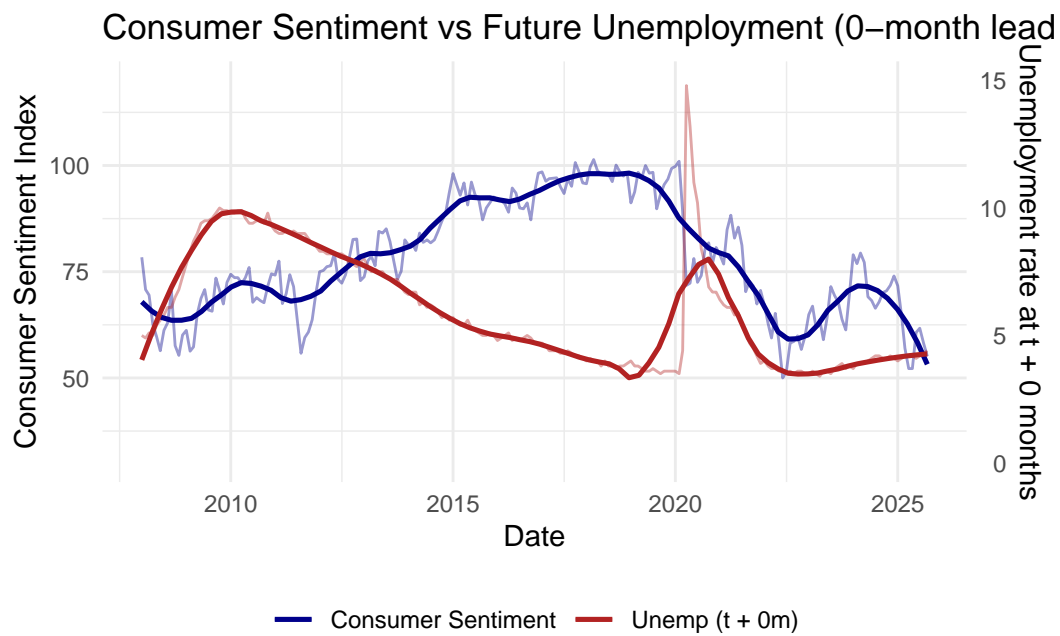
	date	nonfarm_emp	job_change
	<date>	<dbl>	<dbl>
1	2008-01-01	138391	NA
2	2008-02-01	138327	-64
3	2008-03-01	138257	-70
4	2008-04-01	138038	-219
5	2008-05-01	137851	-187
6	2008-06-01	137698	-153

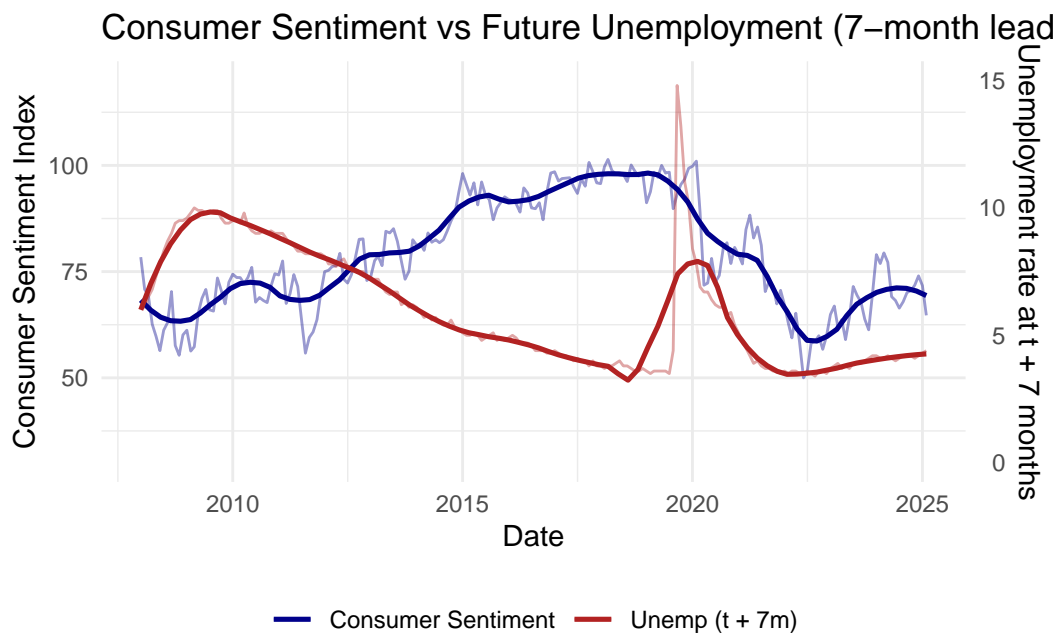
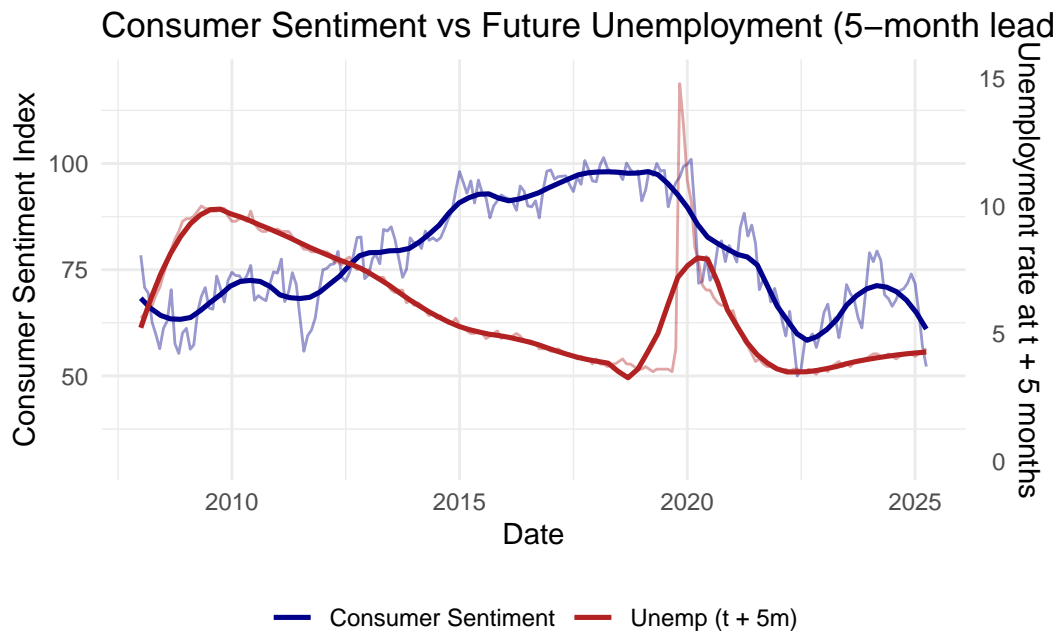
Visualization 1. Lagged Time-Series of Consumer Sentiment and Unemployment Rate/Job Change

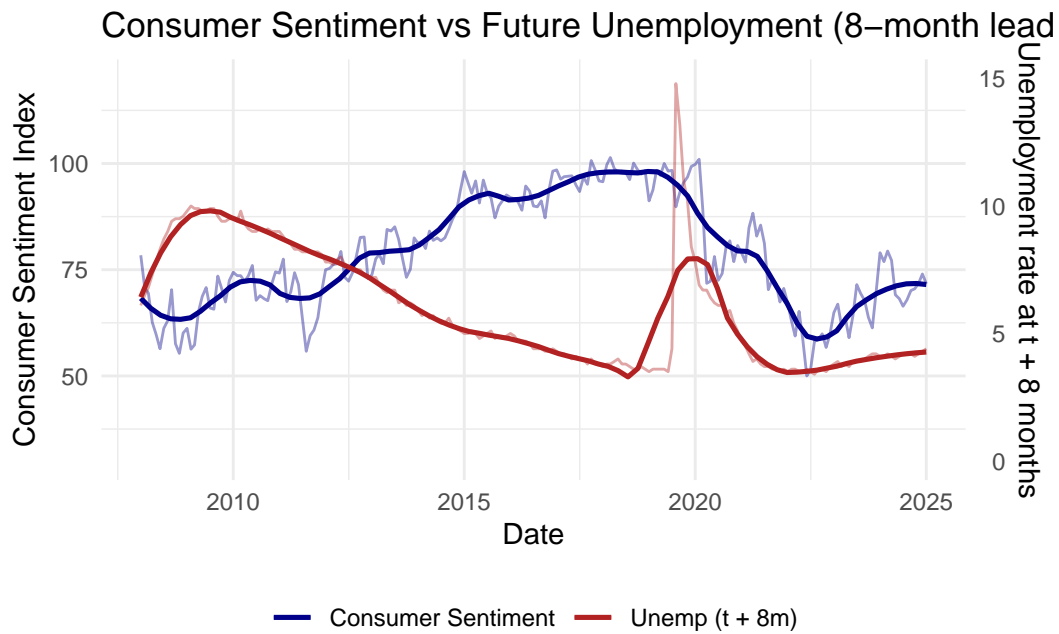
Preview of Merged Monthly Aligned Macro Data

A tibble: 6 x 5

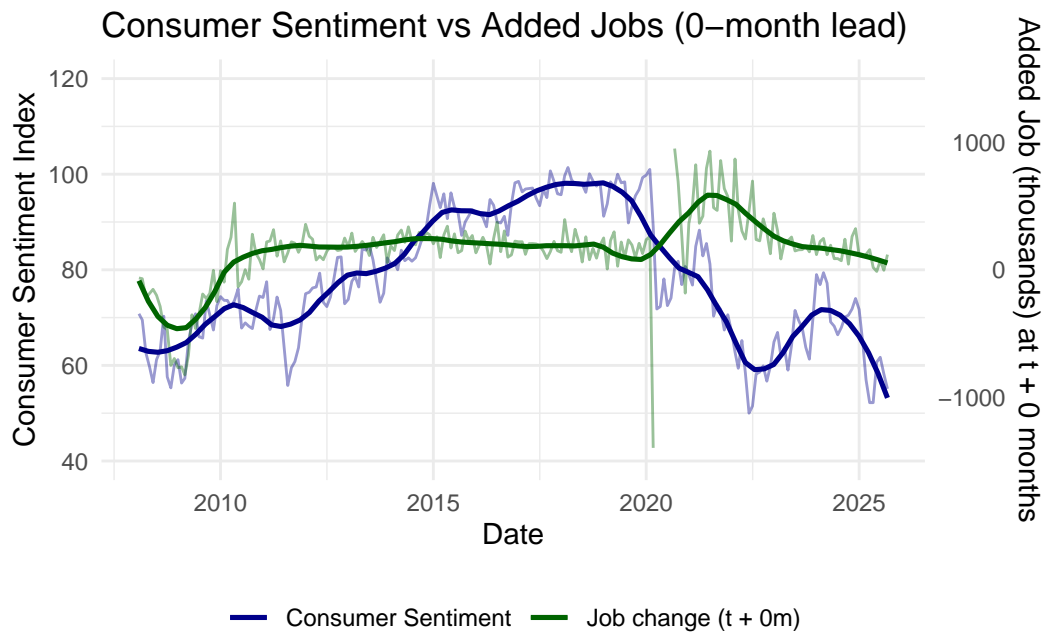
	date	cs	unrate	nonfarm_emp	job_change
	<date>	<dbl>	<dbl>	<dbl>	<dbl>
1	2008-01-01	78.4	5	138391	NA
2	2008-02-01	70.8	4.9	138327	-64
3	2008-03-01	69.5	5.1	138257	-70
4	2008-04-01	62.6	5	138038	-219
5	2008-05-01	59.8	5.4	137851	-187
6	2008-06-01	56.4	5.6	137698	-153

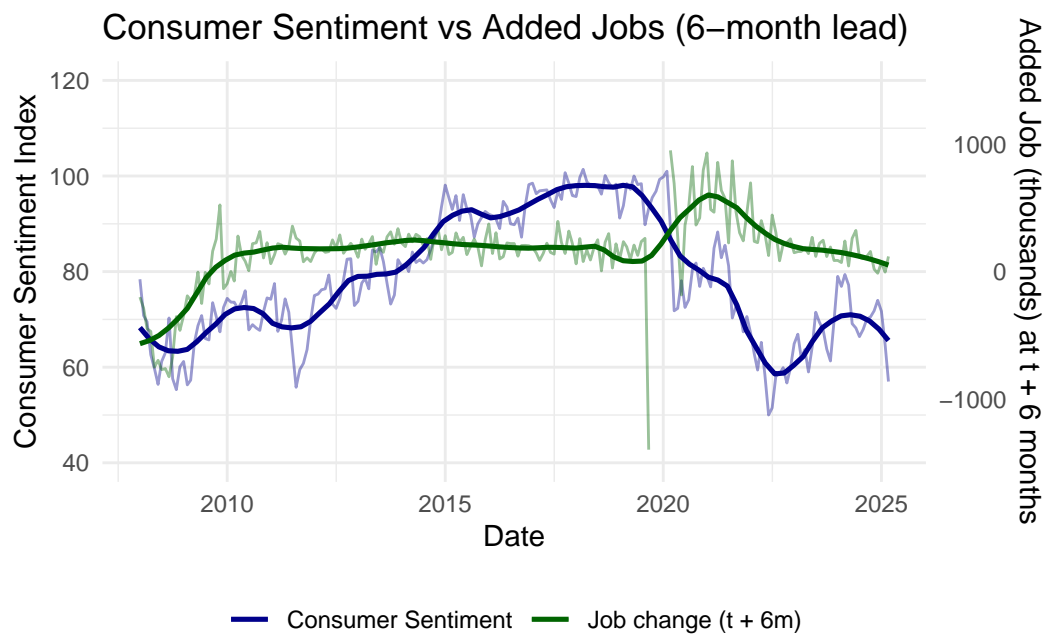
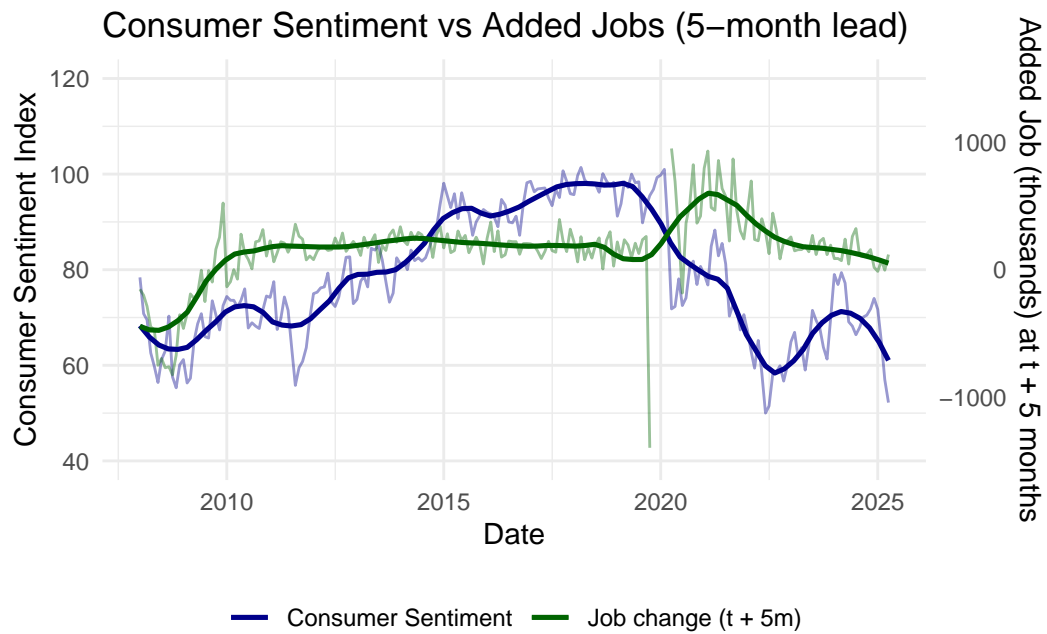


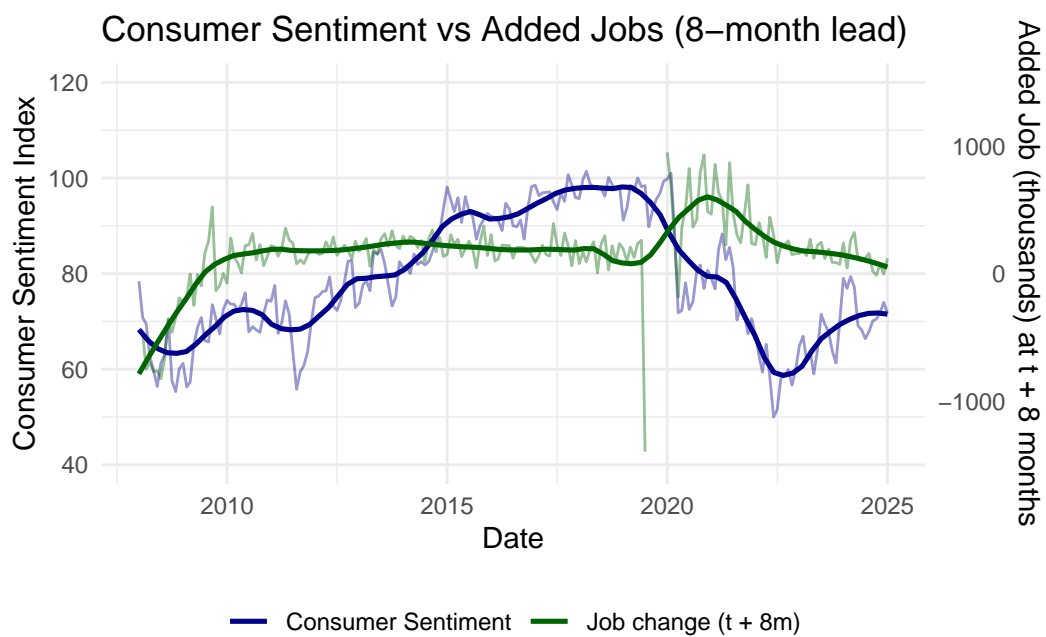
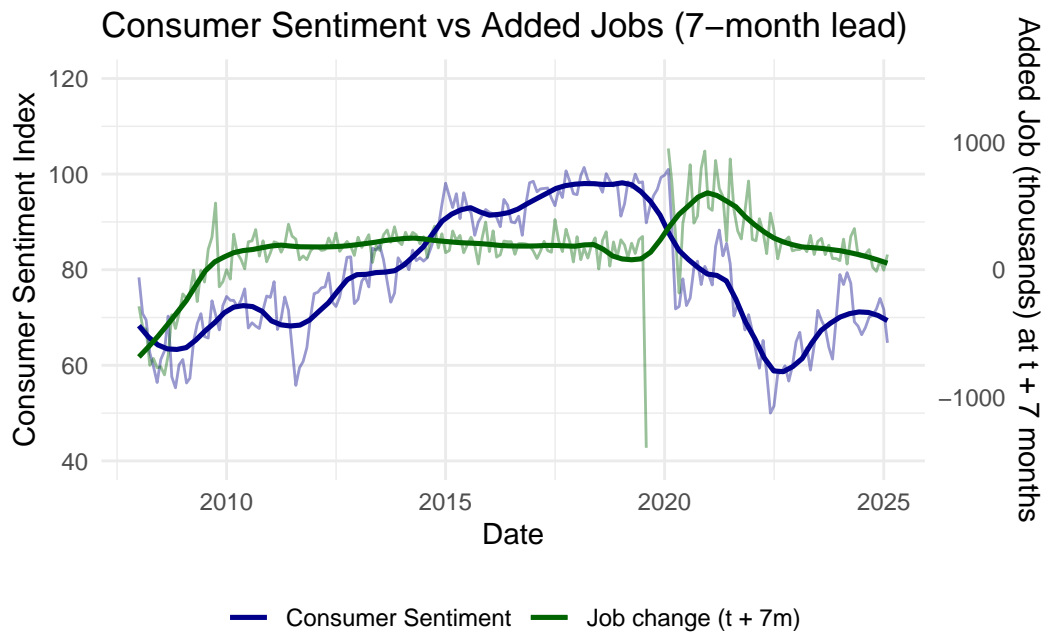




- ANALYSIS HERE
- EXPLAIN LOGISTICS OF SMOOTHING
- ENDED UP NOT THAT CLEAR INDICATING







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

Visualization 2. 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 Δ unemp): NA

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

R-squared: NaN

Horizon: 1 months

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

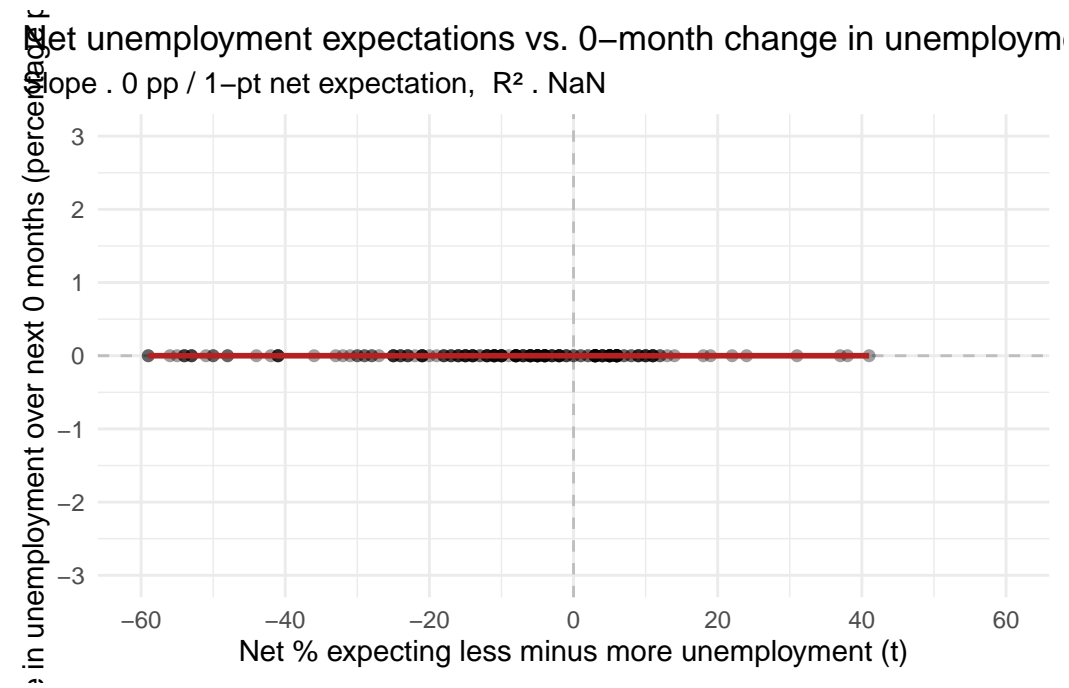
Horizon: 12 months

Correlation (net expectations, future Δ unemp): -0.416

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

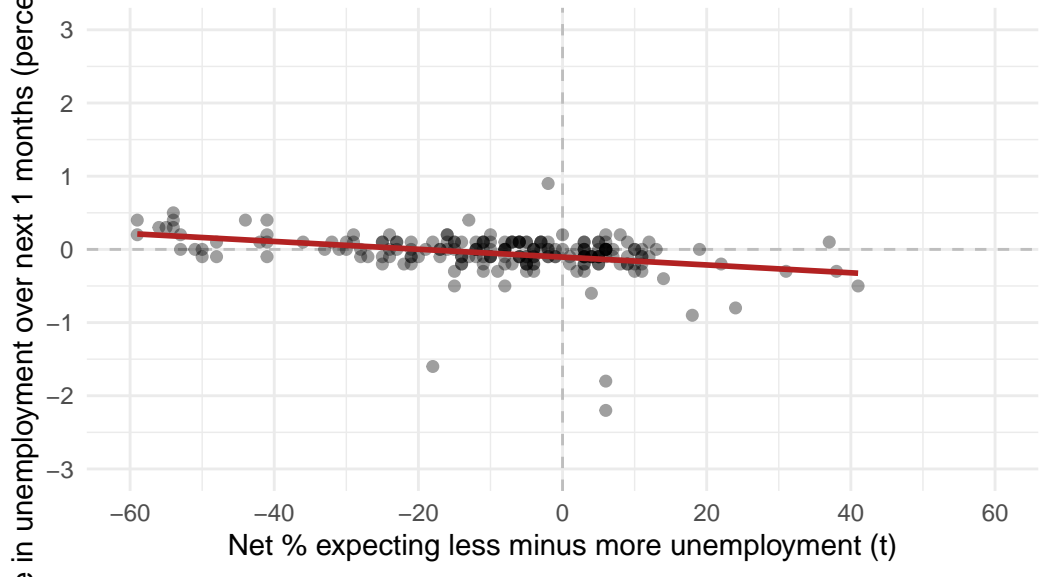
R-squared: 0.173

\$h_0m



\$h_1m

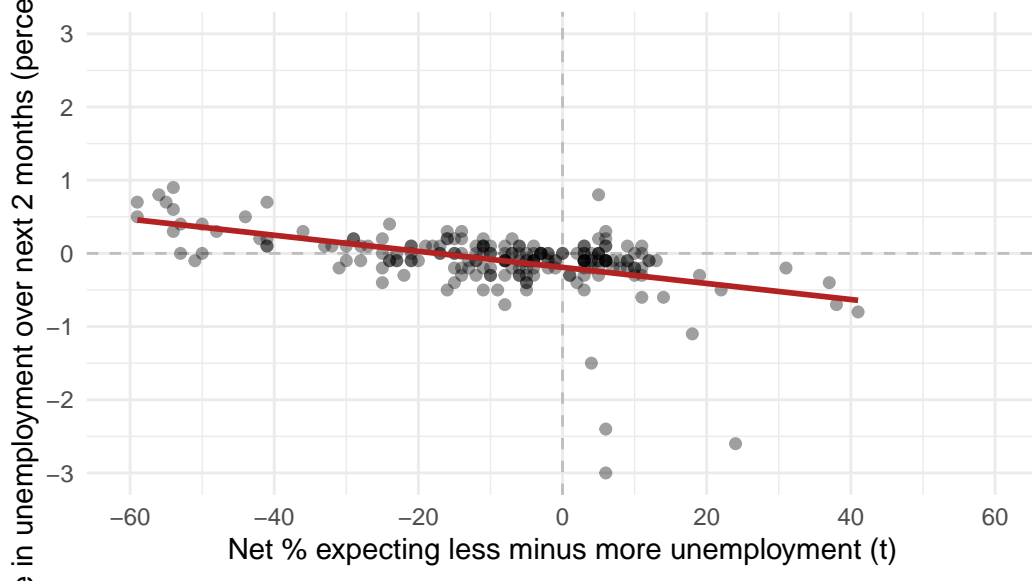
Net unemployment expectations vs. 1-month change in unemployment



\$h_2m

Net unemployment expectations vs. 2-month change in unemployment

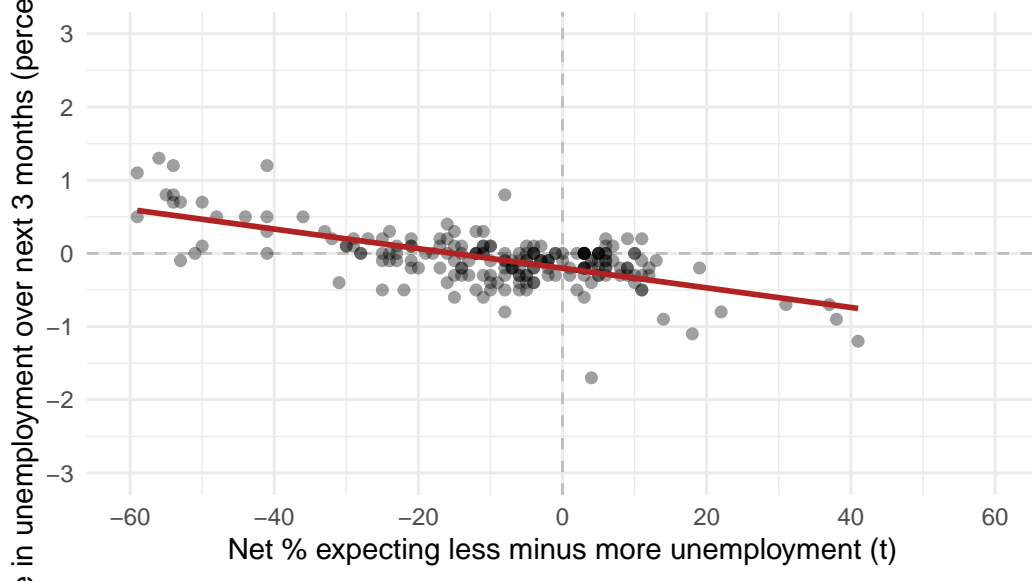
Slope . -0.011 pp / 1-pt net expectation, R^2 . 0.04



\$h_3m

Net unemployment expectations vs. 3-month change in unemployment

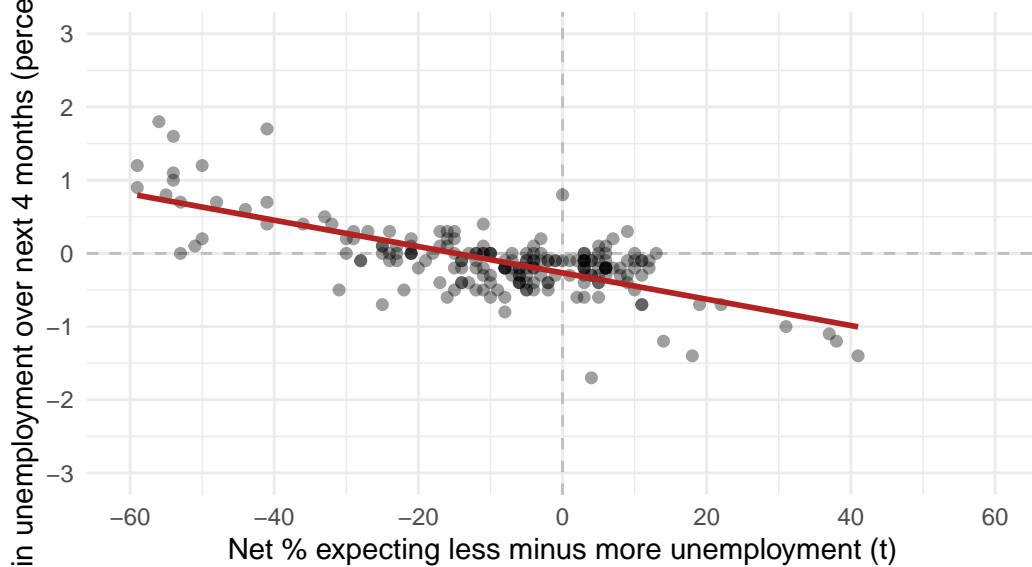
Slope . -0.014 pp / 1-pt net expectation, R^2 . 0.04



\$h_4m

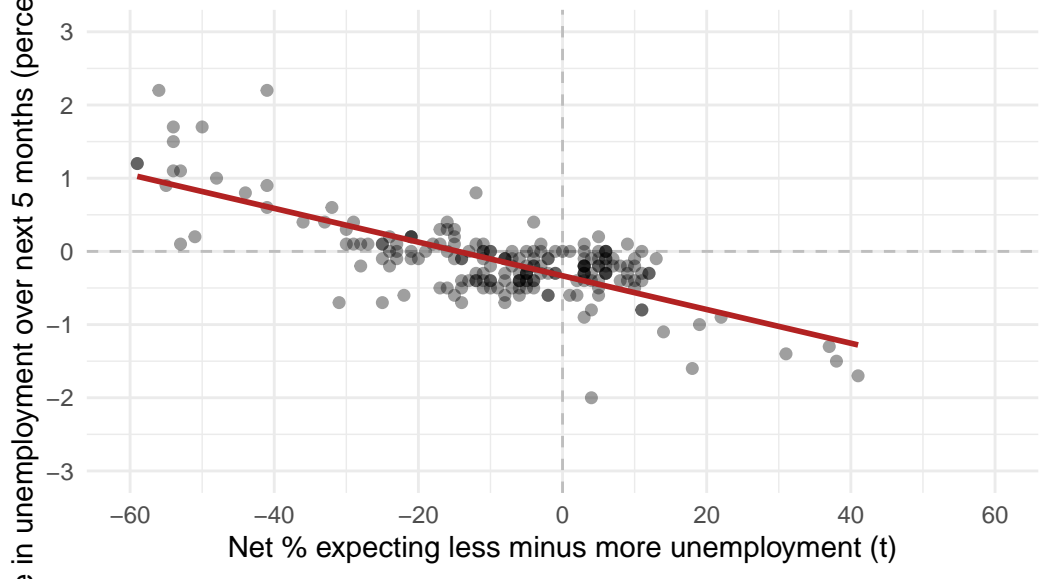
Net unemployment expectations vs. 4-month change in unemployment

Slope . -0.02 pp / 1-pt net expectation, R^2 . 0.06



\$h_5m

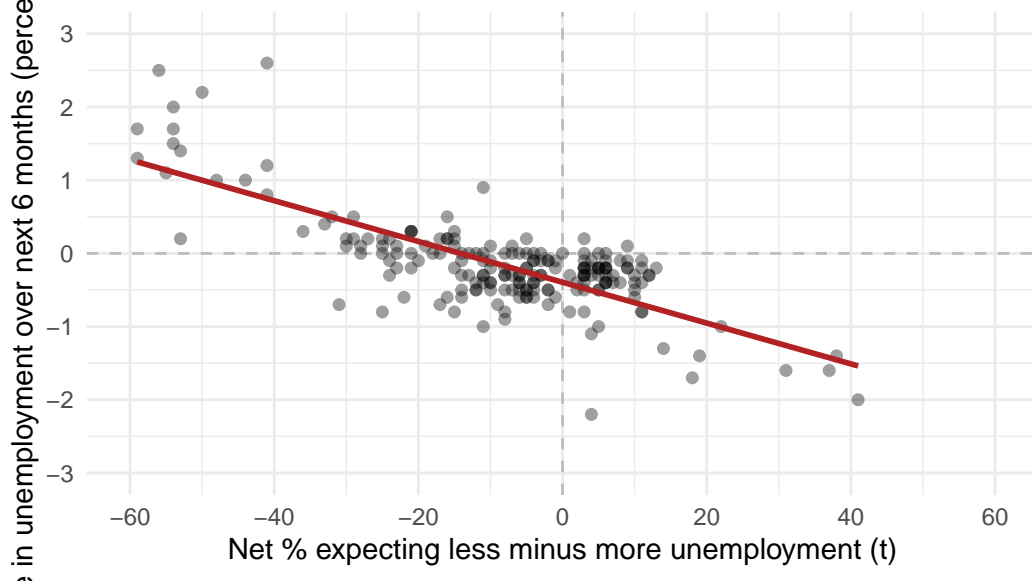
Net unemployment expectations vs. 5-month change in unemployment



\$h_6m

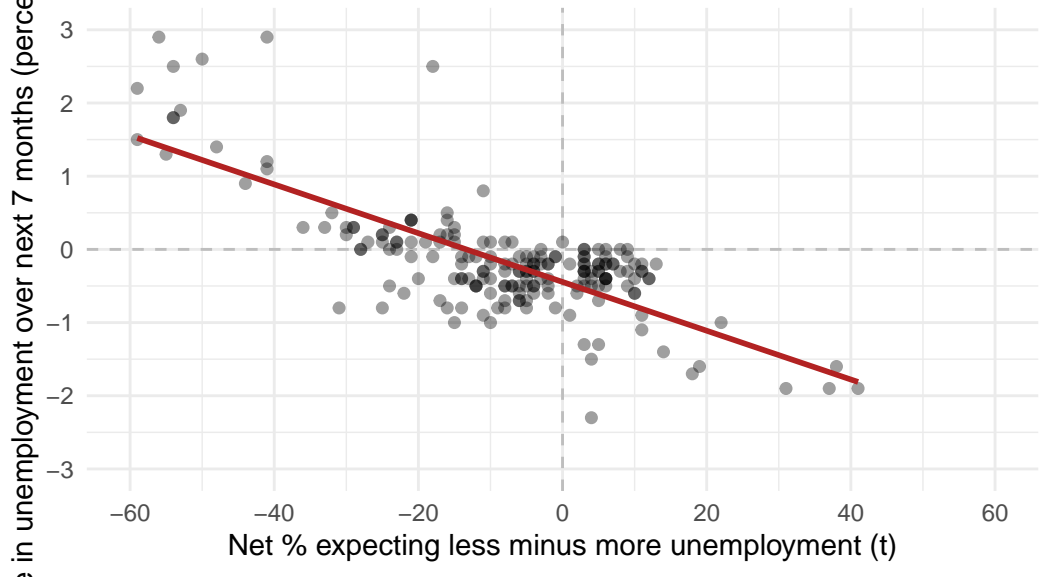
Net unemployment expectations vs. 6-month change in unemployment

Slope . -0.03 pp / 1-pt net expectation, R^2 . 0.1



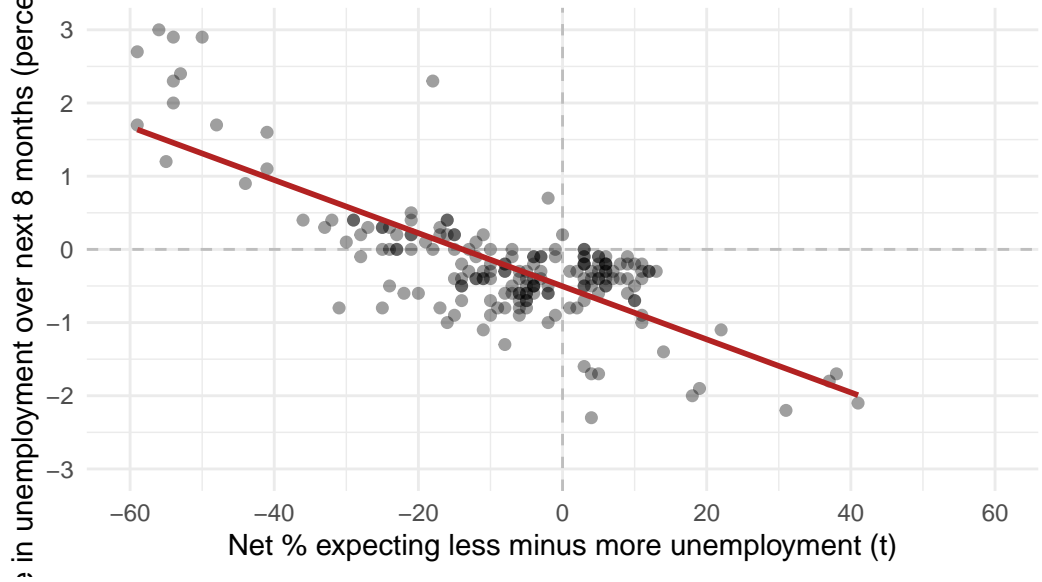
\$h_7m

Net unemployment expectations vs. 7-month change in unemployment



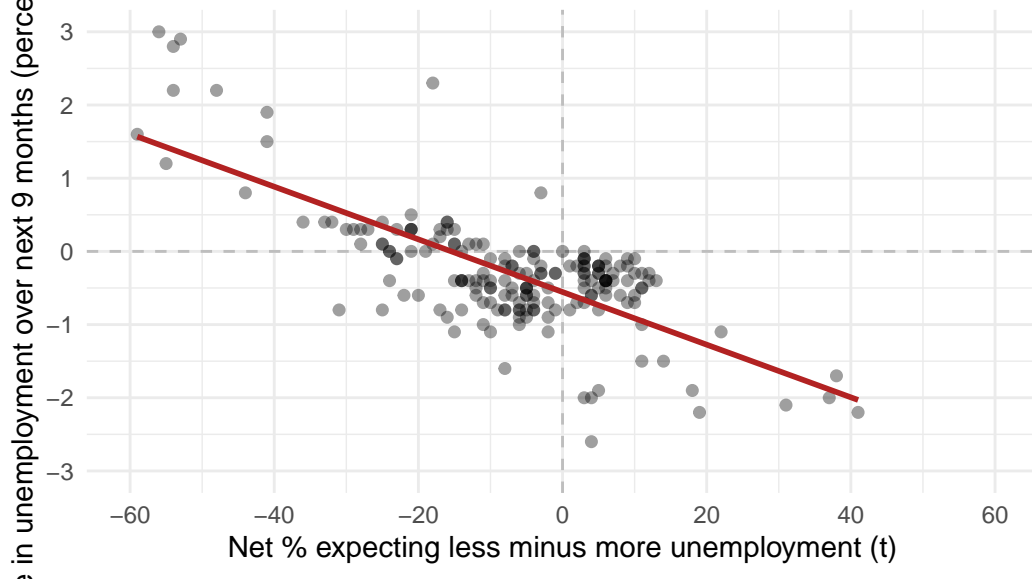
\$h_8m

Net unemployment expectations vs. 8-month change in unemployment



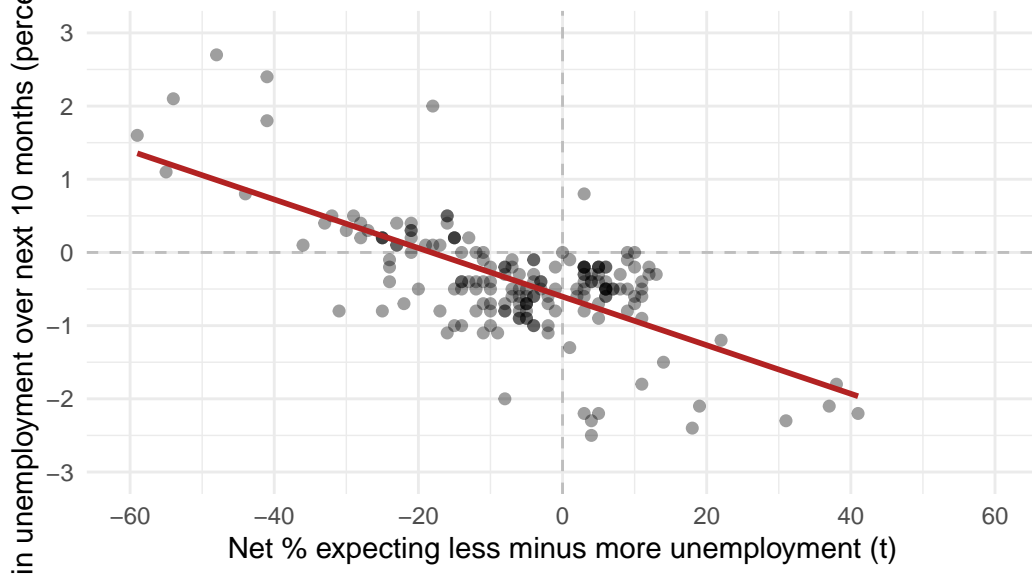
\$h_9m

Net unemployment expectations vs. 9-month change in unemployment
 Slope . -0.043 pp / 1-pt net expectation, R^2 . 0.17



\$h_10m

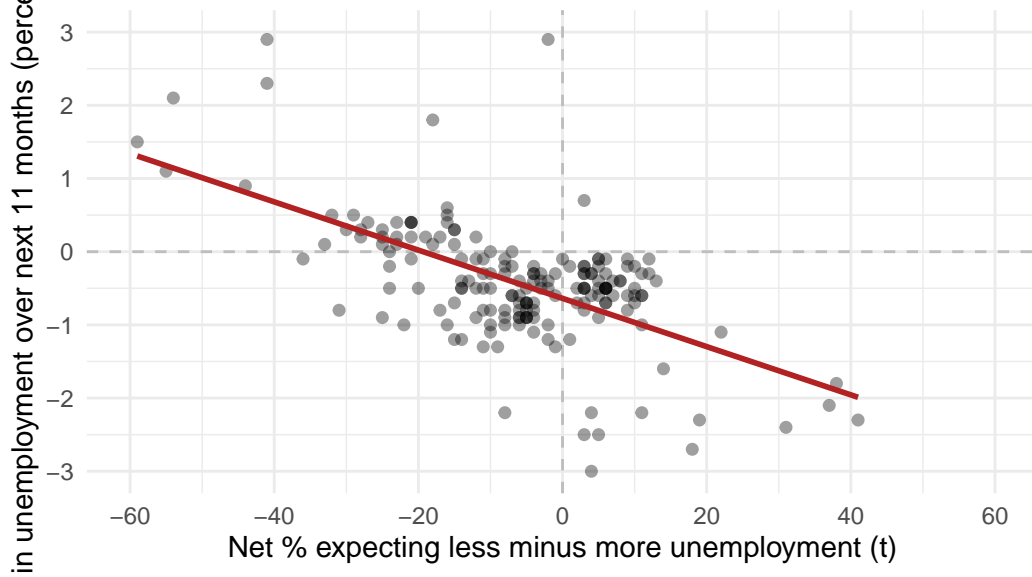
Net unemployment expectations vs. 10-month change in unemployment
 Slope . -0.045 pp / 1-pt net expectation, R^2 . 0.18



\$h_11m

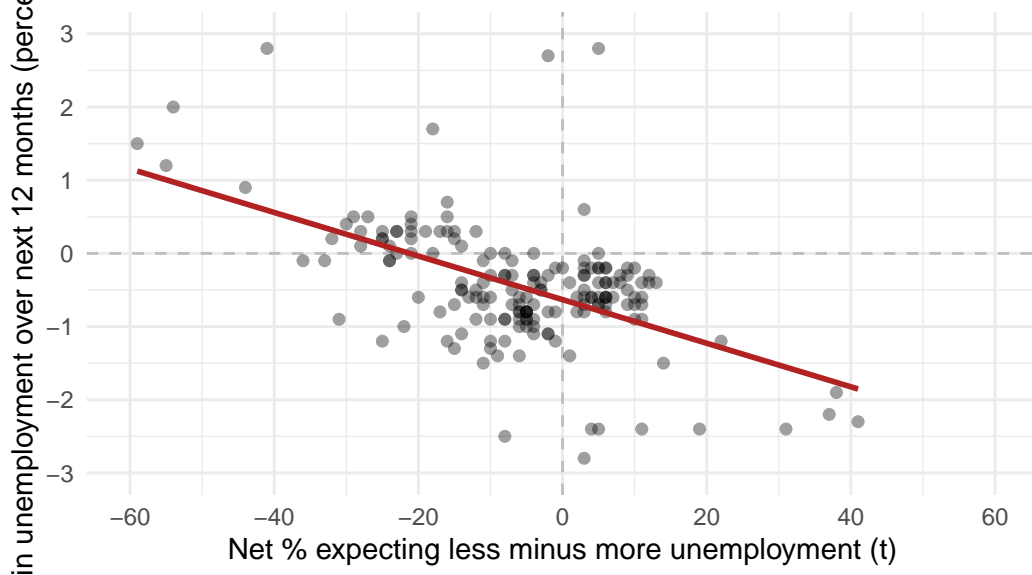
Net unemployment expectations vs. 11-month change in unemployment

Slope . -0.047 pp / 1-pt net expectation, R^2 . 0.18



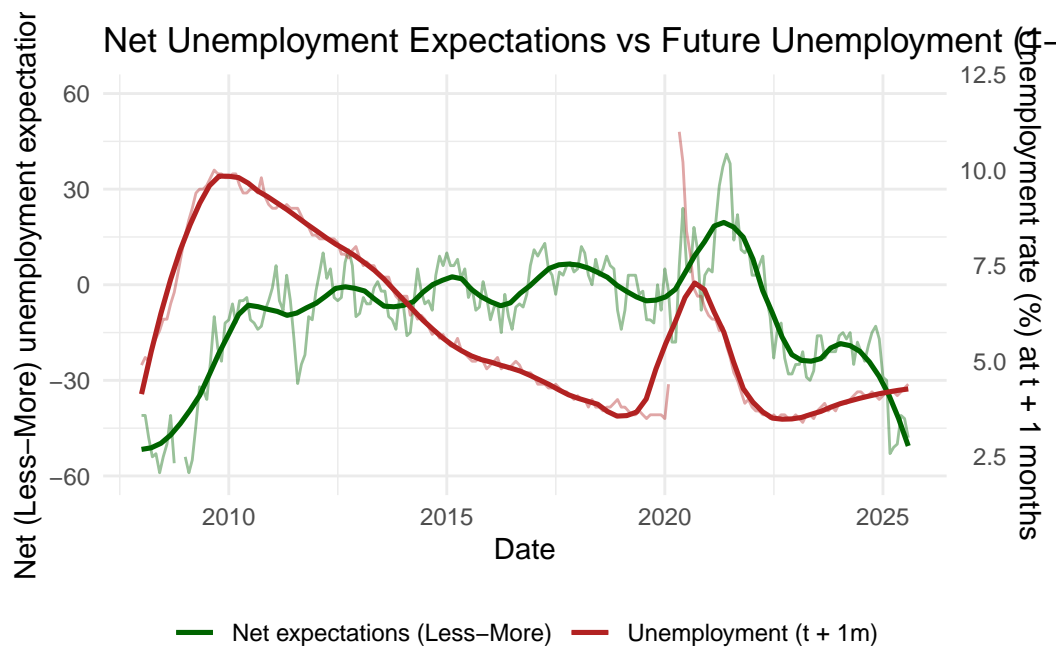
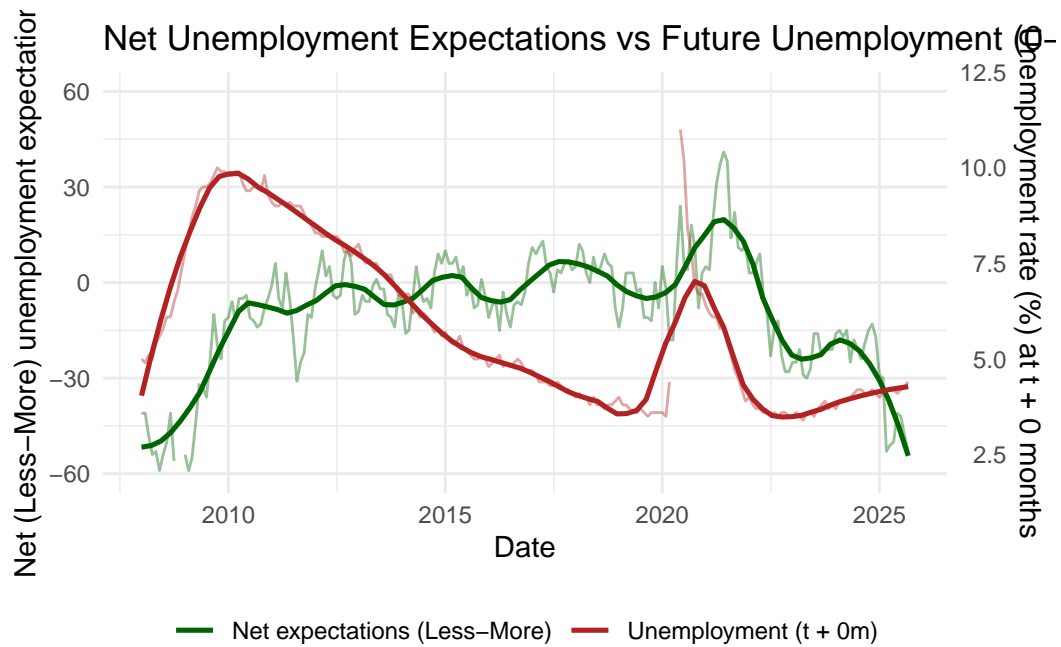
\$h_12m

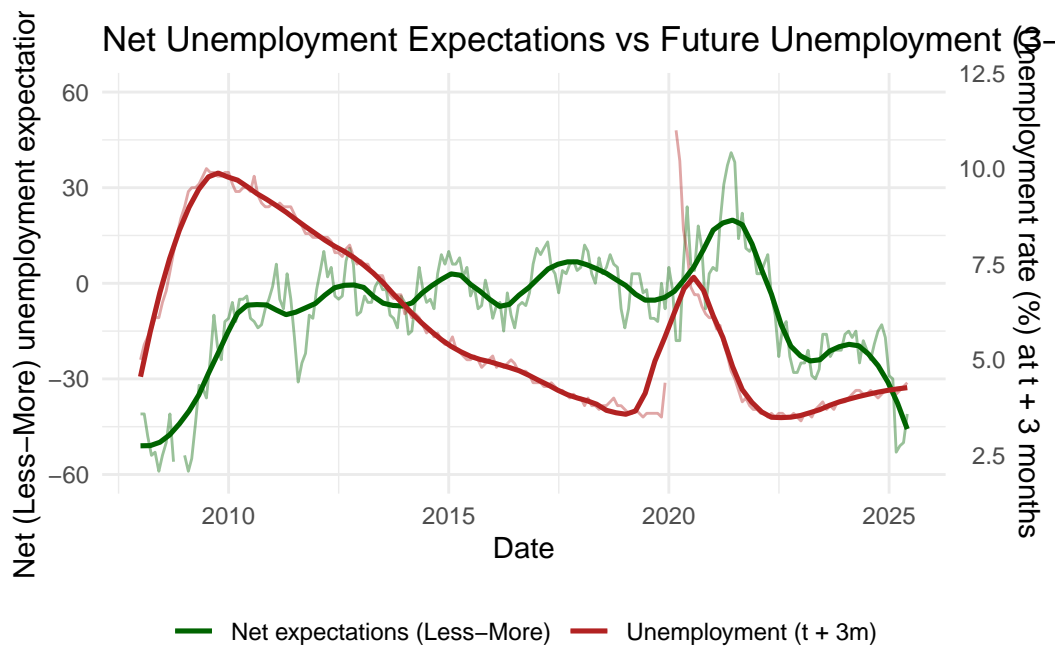
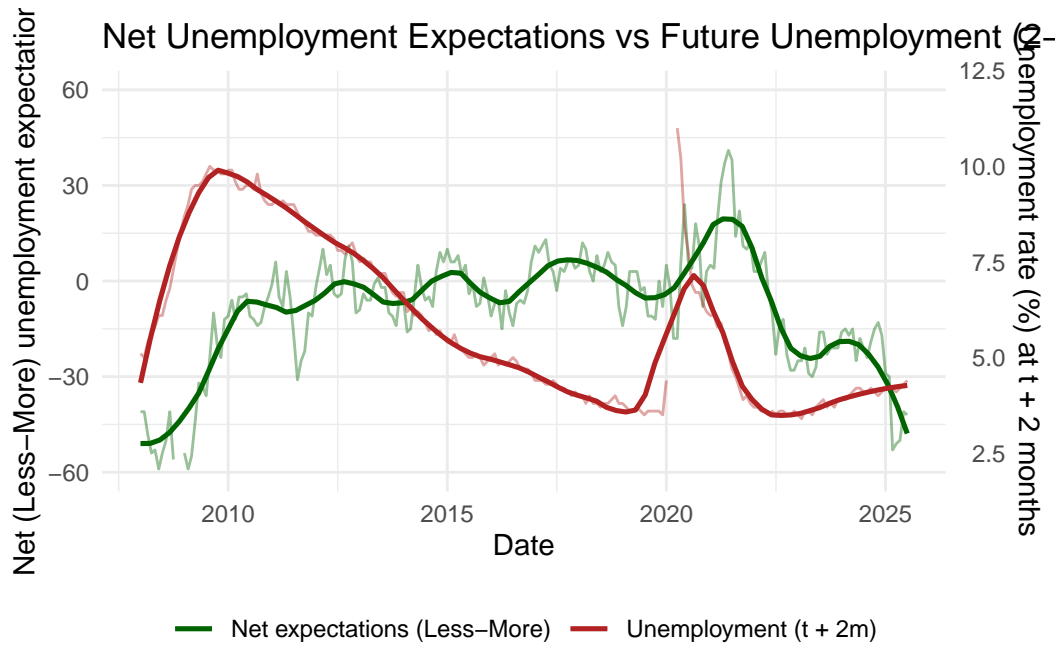
Net unemployment expectations vs. 12-month change in unemployment rate
 Slope . -0.048 pp / 1-pt net expectation, R^2 . 0.17

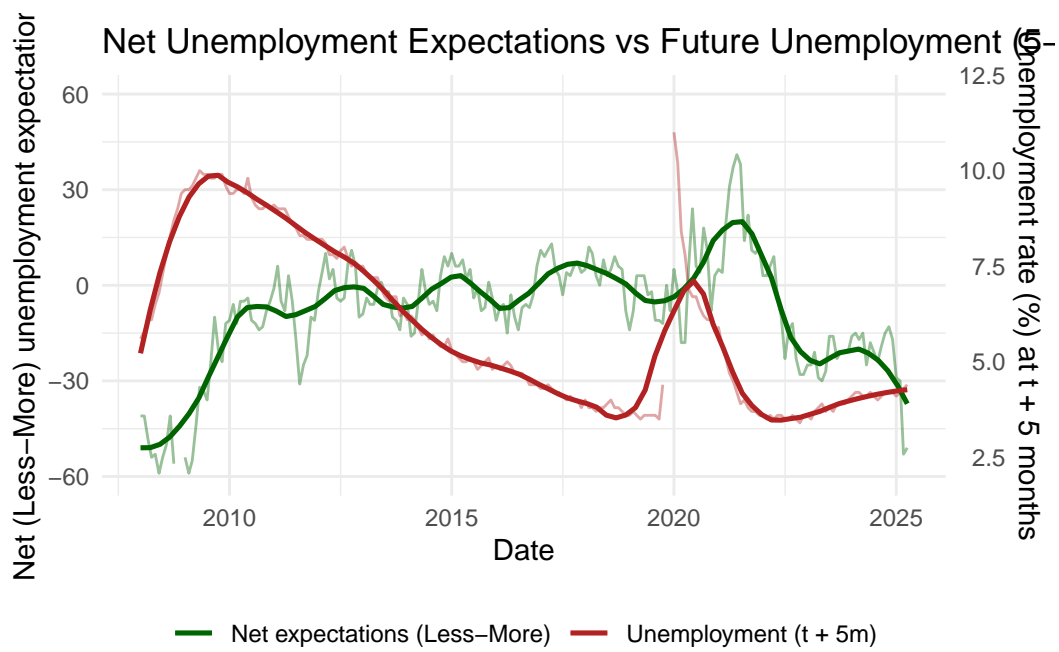
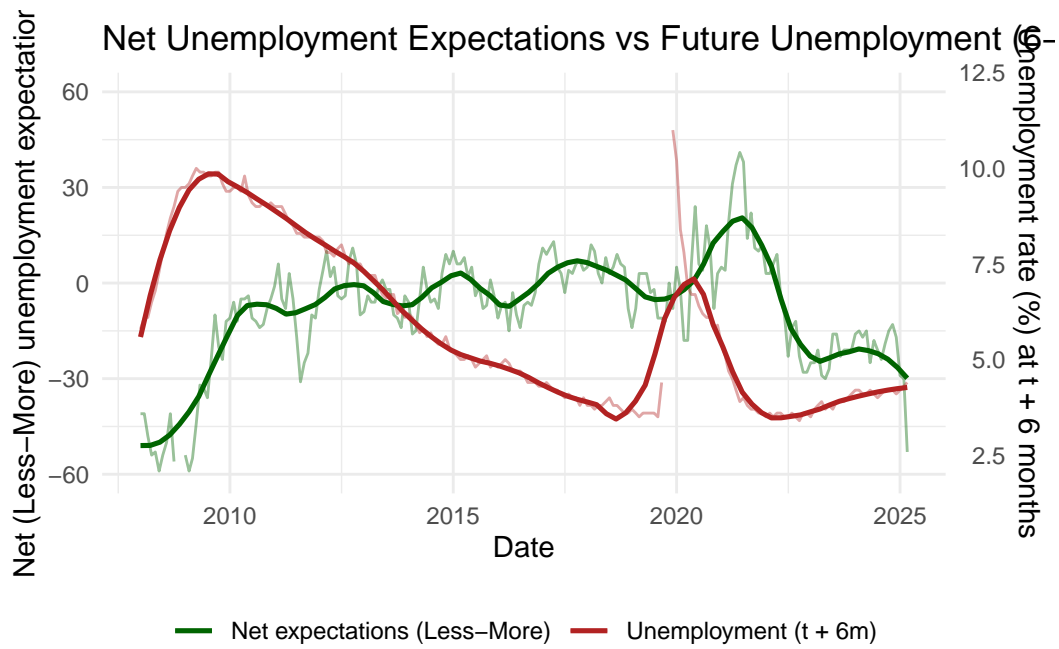


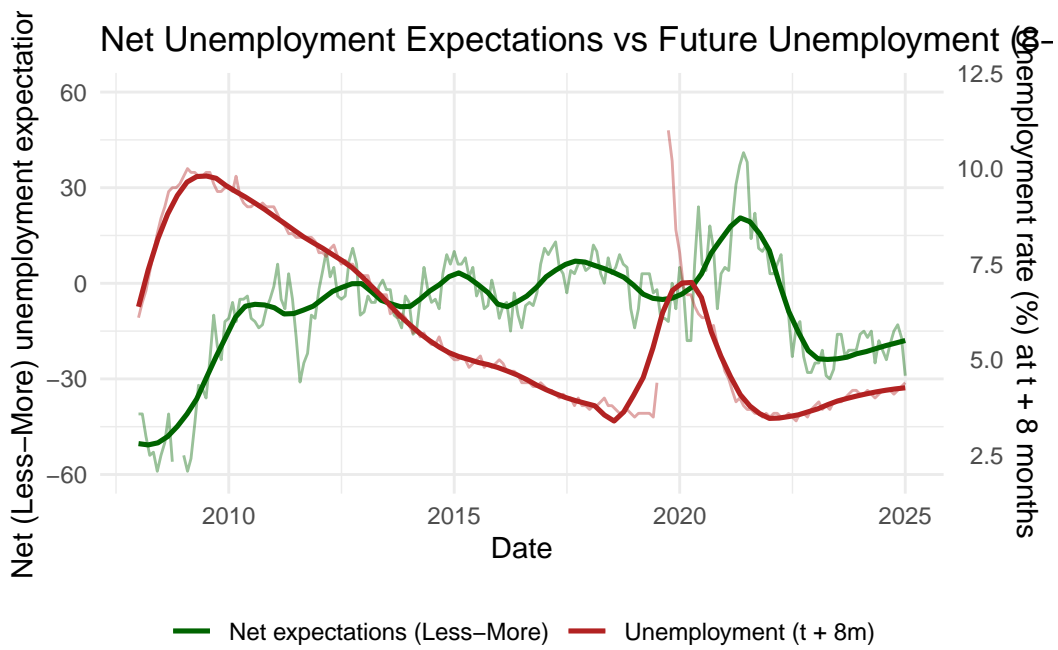
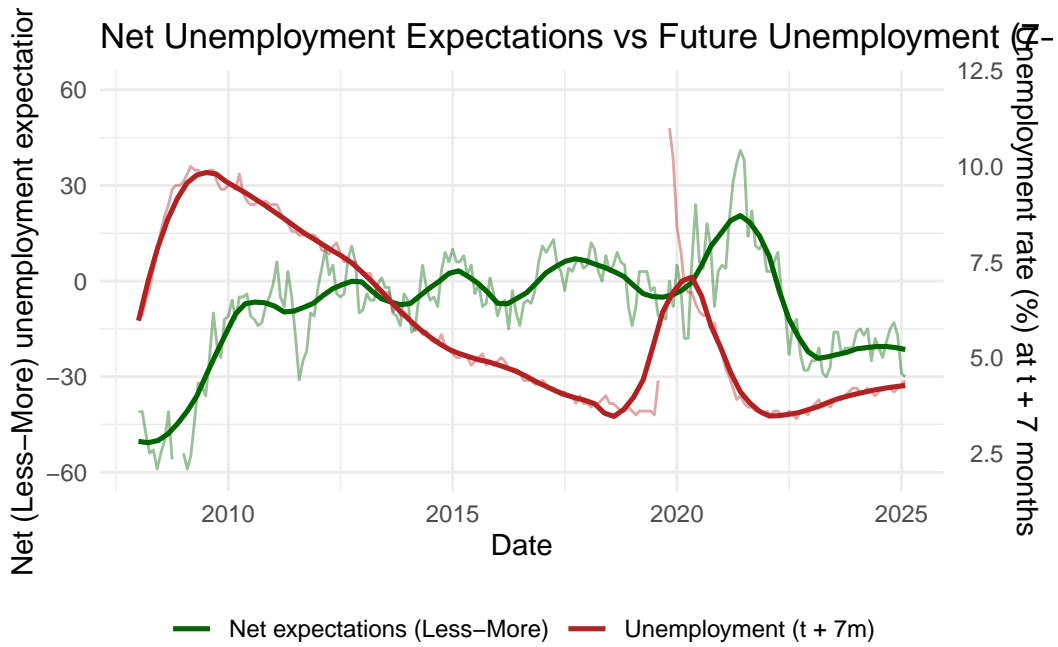
- MAKE A CONCLUSION & INDICATION HERE!

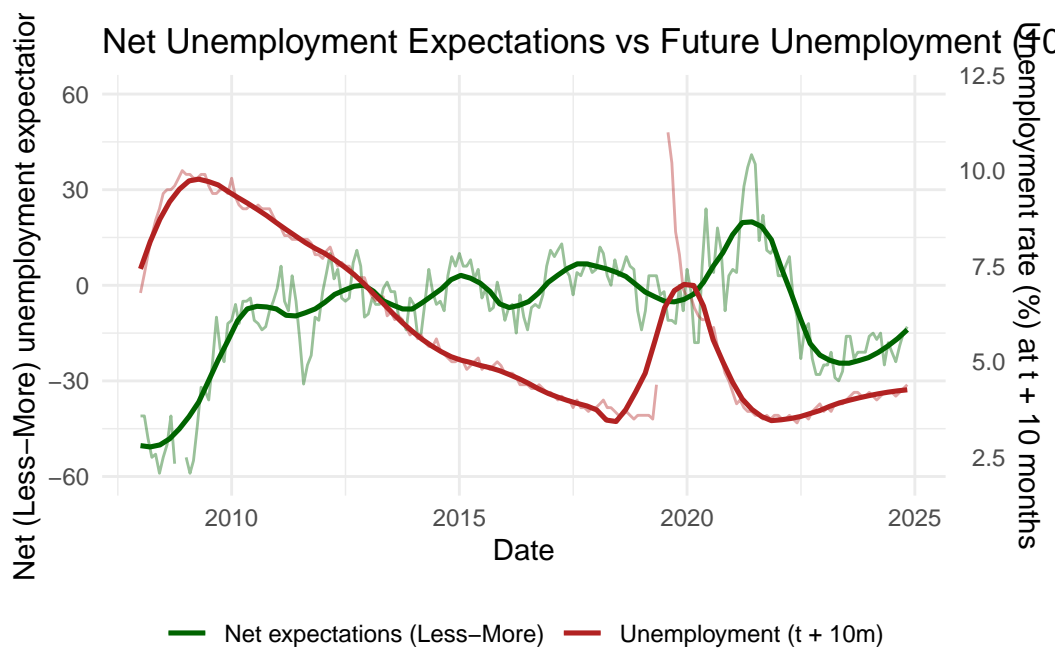
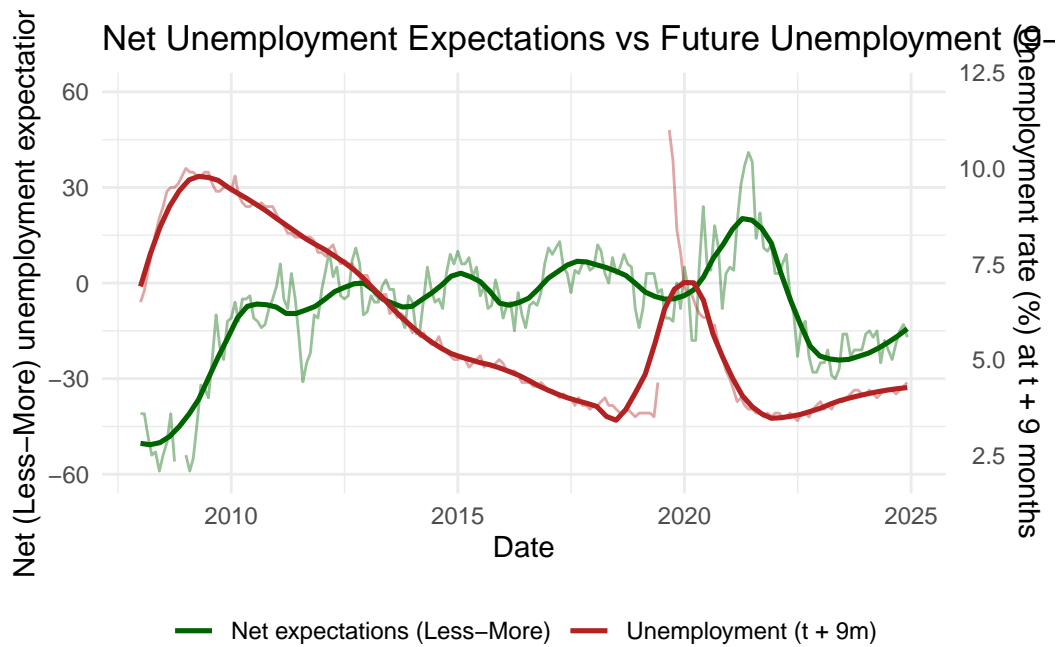
Visualization 3. Time series of net expectations vs actual unemployment -
 NEED TO FINE TUNE PLOT SIZES FOR ALL PLOTS

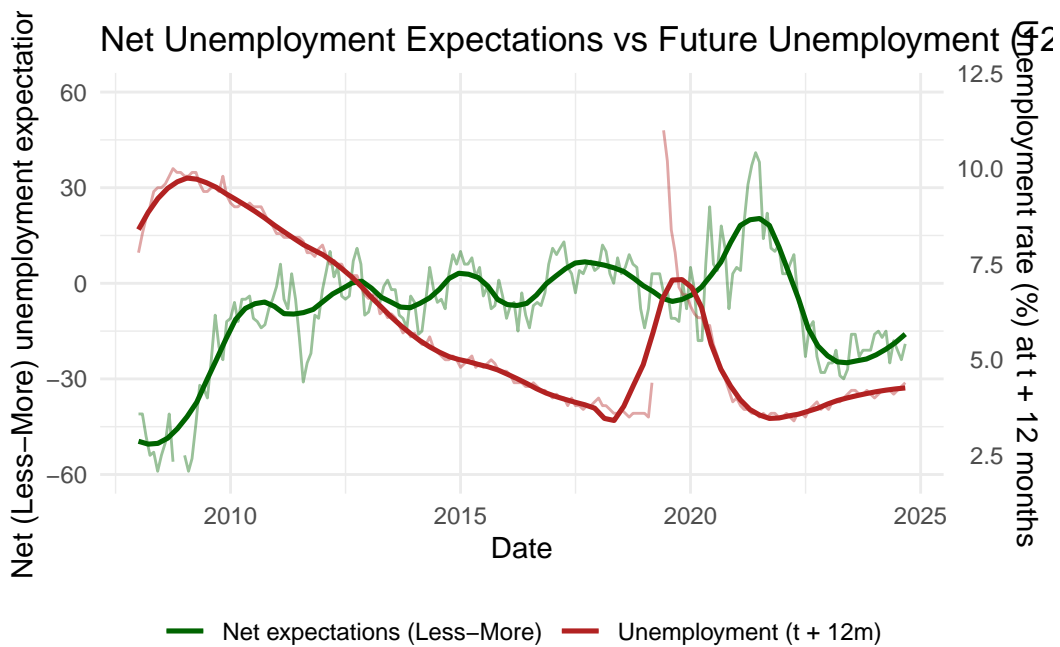
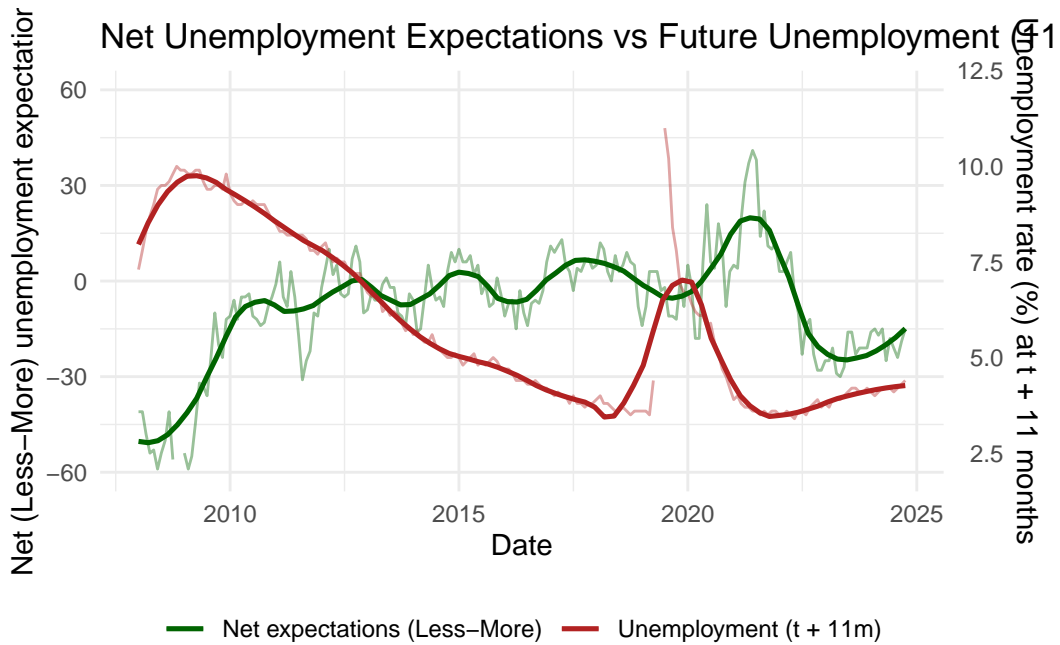












- EXPLAIN LOGISTICS
- MAKE A CONCLUSION & INDICATION HERE!

Implications

SOME REAL WORLD INDICATIONS.

Conclusion & Outlook

Limitation

Working repo could be found at:

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

References

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

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

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