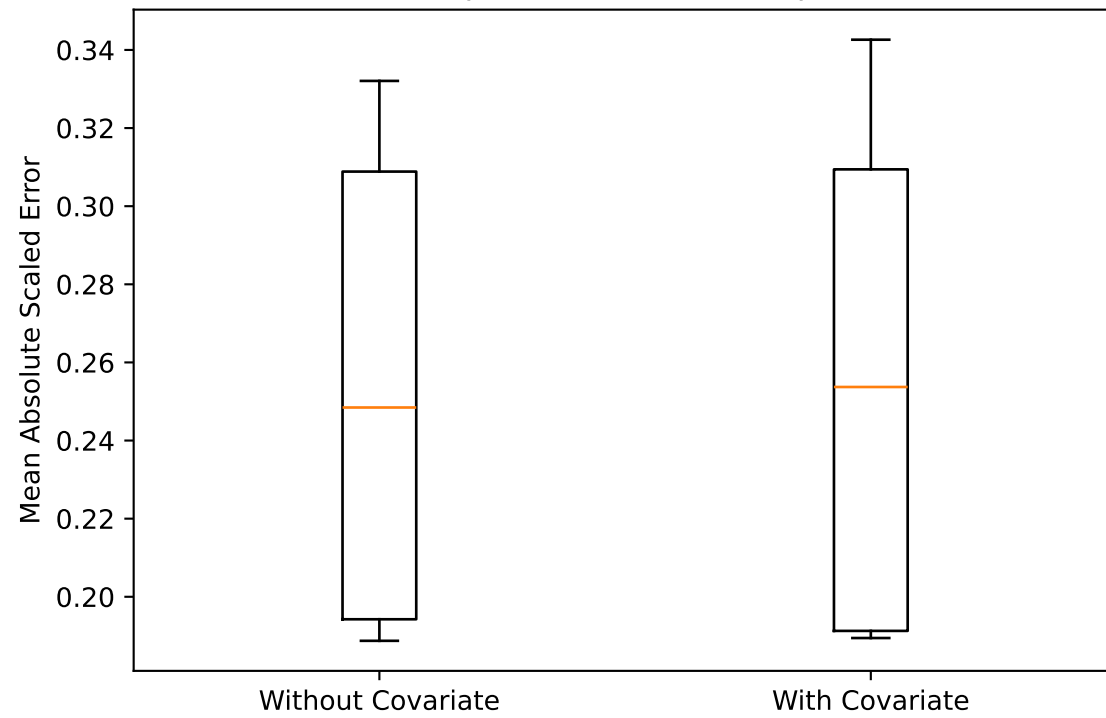
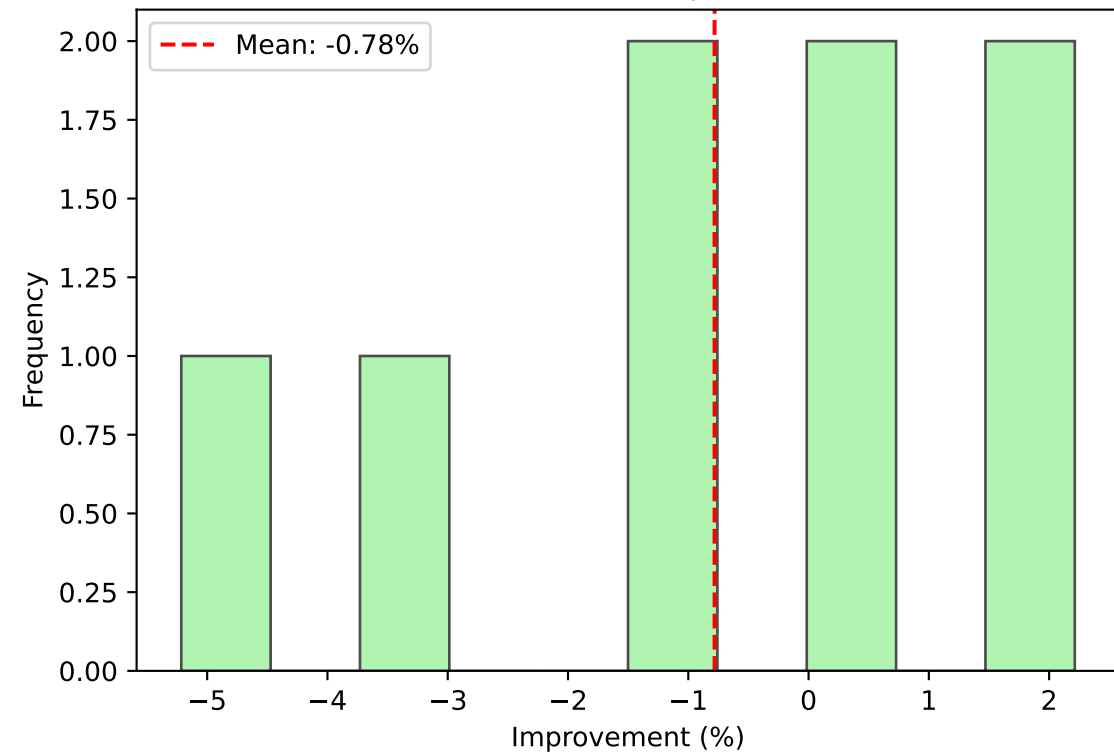


# Covariate Study Summary: Pulses

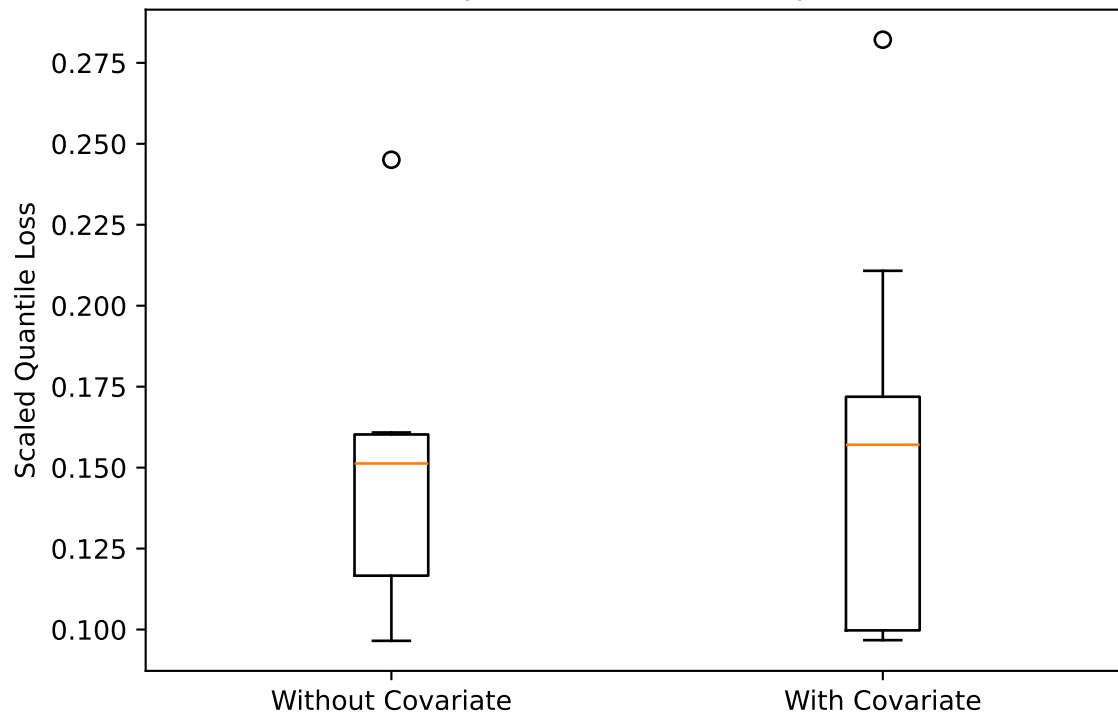
## MASE Comparison Across All Experiments



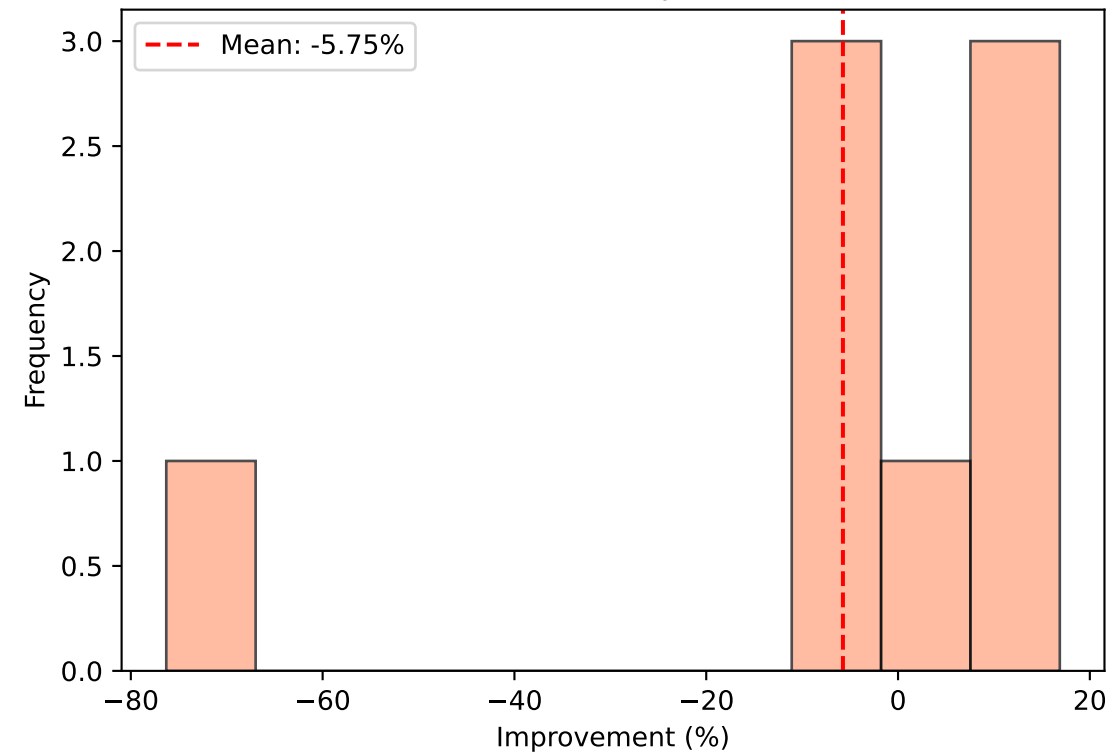
## Distribution of MASE Improvements (%)



## SQL Comparison Across All Experiments



## Distribution of SQL Improvements (%)



## Detailed Statistics

### Covariate Study Detailed Results

Covariate Types: pulses

Number of Experiments: 8

#### MASE Results:

- Without Covariate:  $0.2538 \pm 0.0597$
- With Covariate:  $0.2558 \pm 0.0604$
- Average Improvement: -0.78%
- Median Improvement: -0.36%

#### SQL Results:

- Without Covariate:  $0.1490 \pm 0.0432$
- With Covariate:  $0.1578 \pm 0.0599$
- Average Improvement: -5.75%
- Median Improvement: -1.07%

#### Study Parameters:

- Weight: 1.0
- Relation: additive
- Train Ratio: 0.6
- Covariate Weights: Randomized per experiment (Dirichlet distribution)

#### Best Performing Experiment (MASE):

- Experiment 5: 2.21% improvement

#### Worst Performing Experiment (MASE):

- Experiment 8: -5.22% improvement