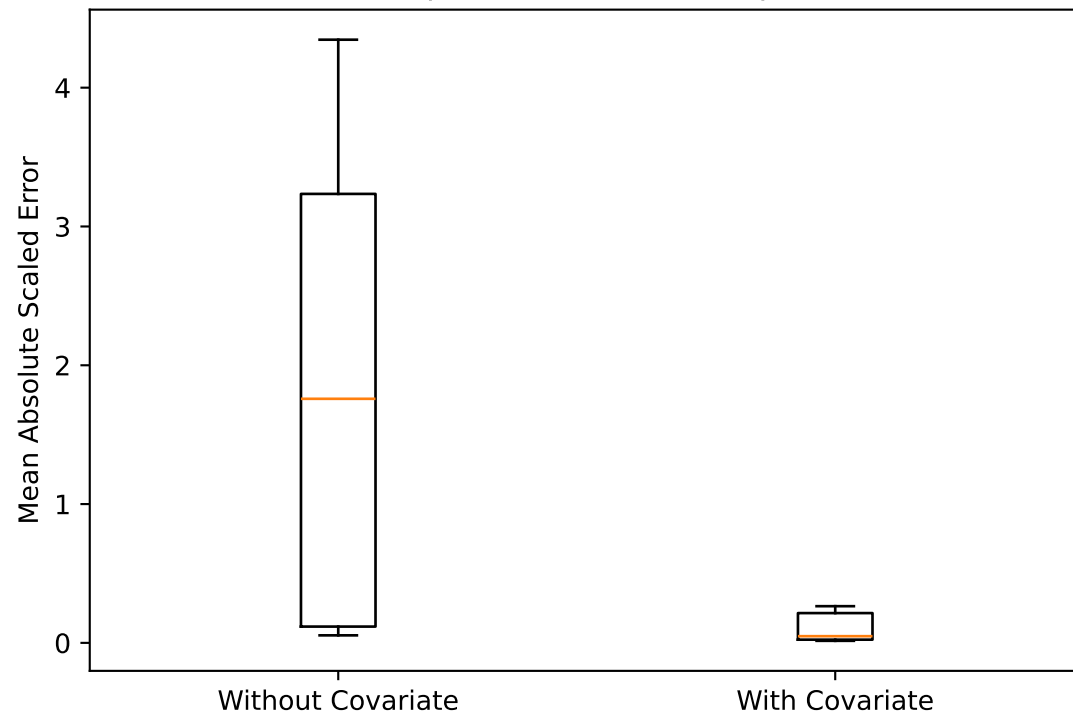
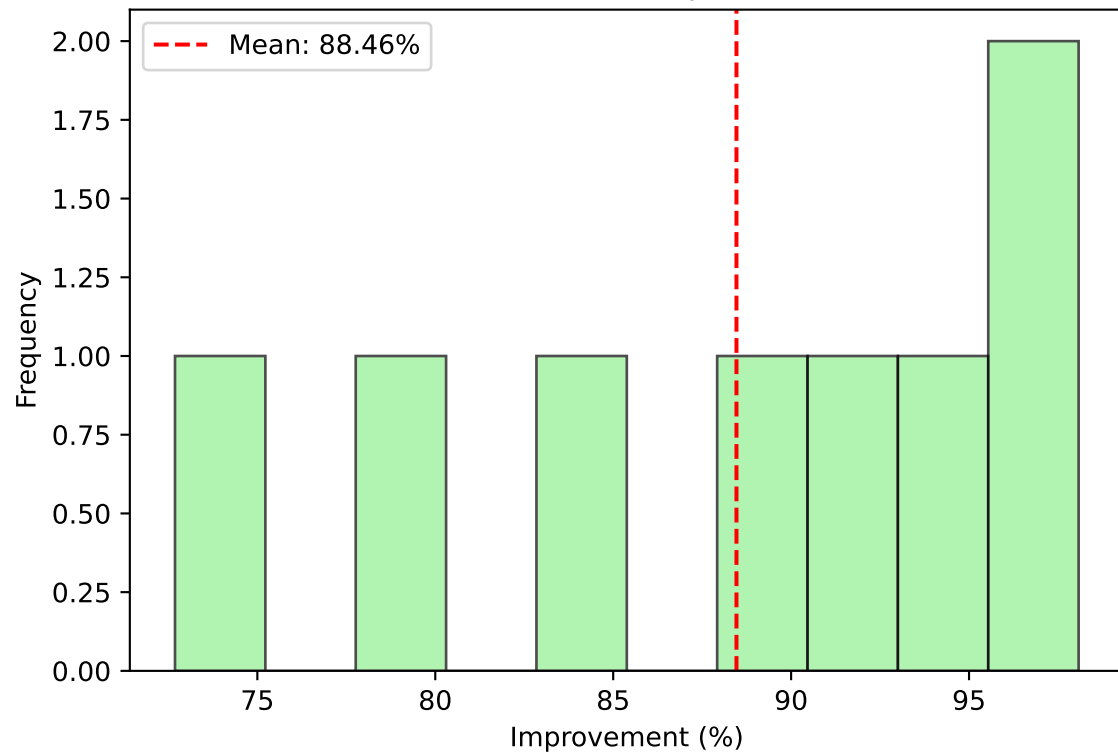


# Covariate Study Summary: Ramps

## MASE Comparison Across All Experiments



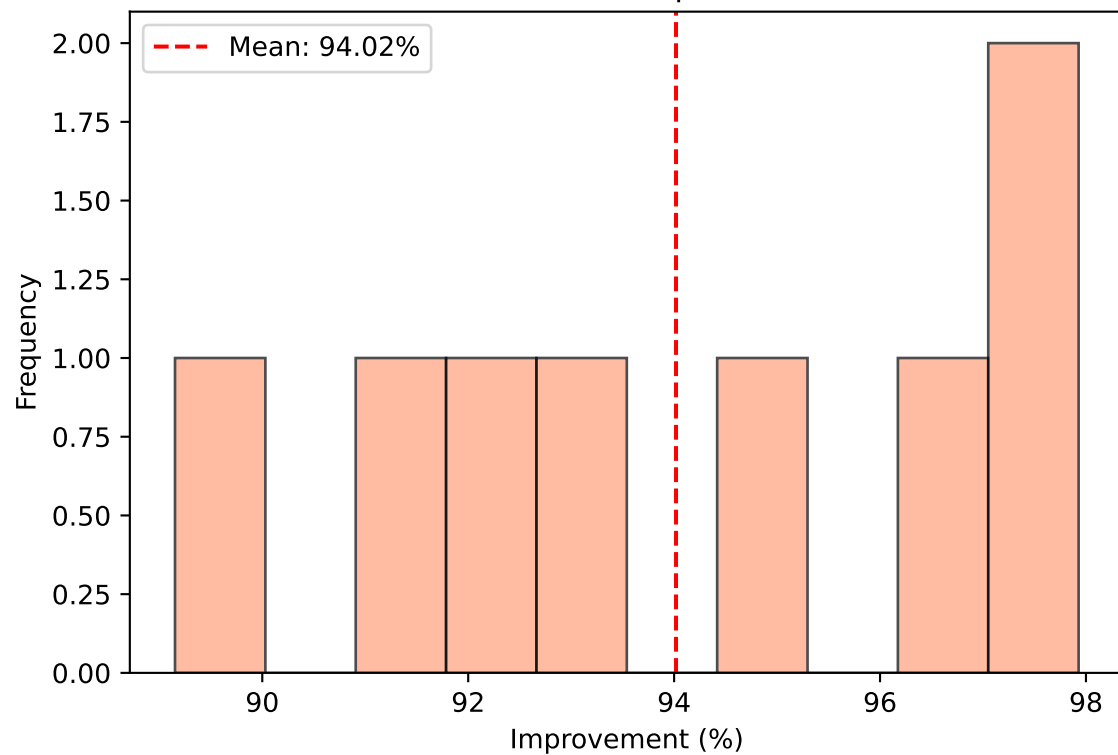
## Distribution of MASE Improvements (%)



## SQL Comparison Across All Experiments



## Distribution of SQL Improvements (%)



## Detailed Statistics

### Covariate Study Detailed Results

Covariate Types: ramps

Number of Experiments: 8

#### MASE Results:

- Without Covariate:  $1.8288 \pm 1.5635$
- With Covariate:  $0.1066 \pm 0.1000$
- Average Improvement: 88.46%
- Median Improvement: 90.46%

#### SQL Results:

- Without Covariate:  $0.9813 \pm 0.7162$
- With Covariate:  $0.0597 \pm 0.0569$
- Average Improvement: 94.02%
- Median Improvement: 93.76%

#### Study Parameters:

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

#### Best Performing Experiment (MASE):

- Experiment 8: 98.08% improvement

#### Worst Performing Experiment (MASE):

- Experiment 3: 72.69% improvement