

# Simulation Project - Step 3 - Results

## Notes for working with QMD file

This is an example of citing a table: Table 1, using its label `tbl-main-effects`. Make sure to start *label* for a table with `tbl-`. Review chunks for formatting of labels and captions. They will automatically update labels and captions

This is an example of citing a figure: Figure 1, using its label `fig-bias-summary`. Make sure to start *label* for a figure with `fig-`

example of citing papers via bibtex files. Citing Shortreed and Ertefaie (2017) using its tag `shortreed2017outcome` in bib file

## Introduction

## Methods

## Results

### Simulation Results

### Main Effects

## Discussion

## Conclusion

Relative ATE Bias (Bias/True ATE) using Different Estimator (IPW v.s. PSS)

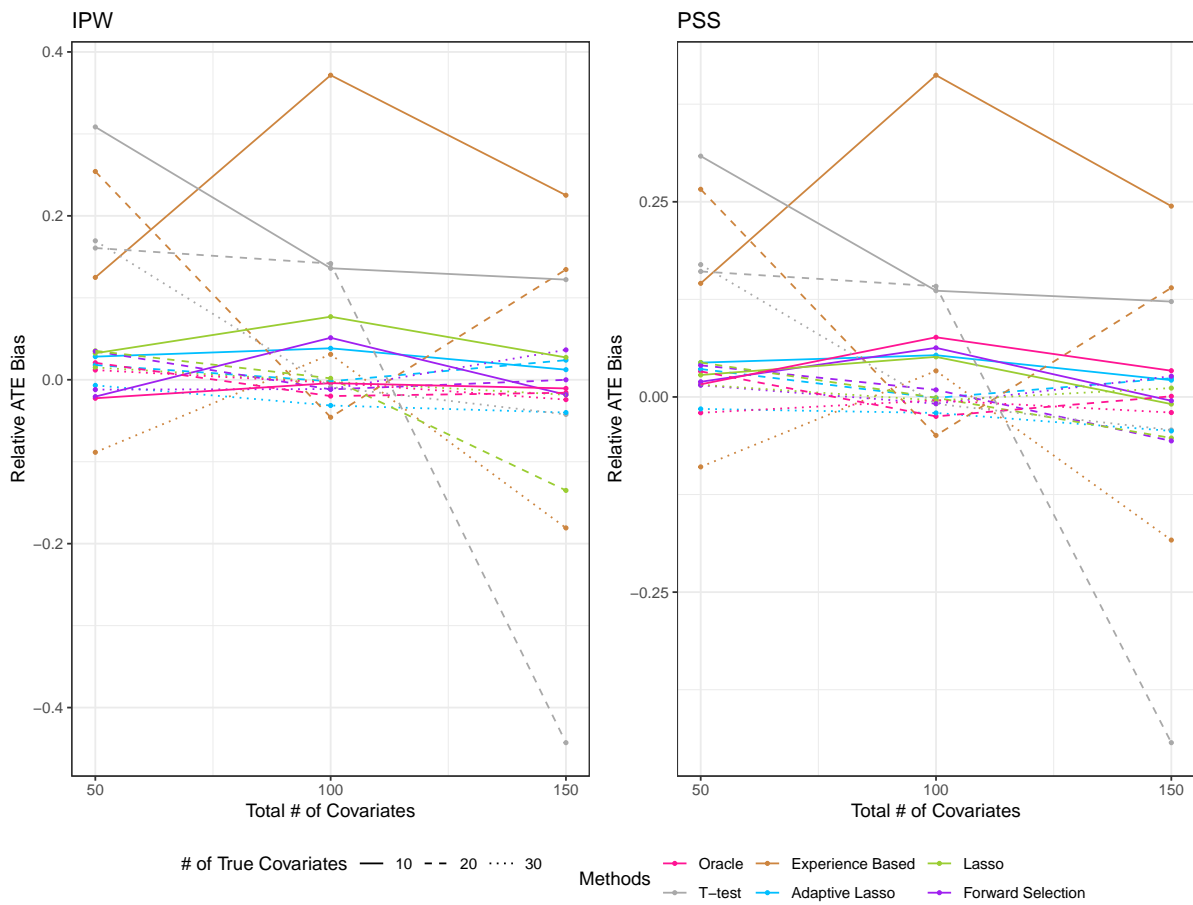


Figure 1: CAPTION FOR THIS PLOT REQUIRED

# MSE using Different Estimator (IPW v.s. PSS)

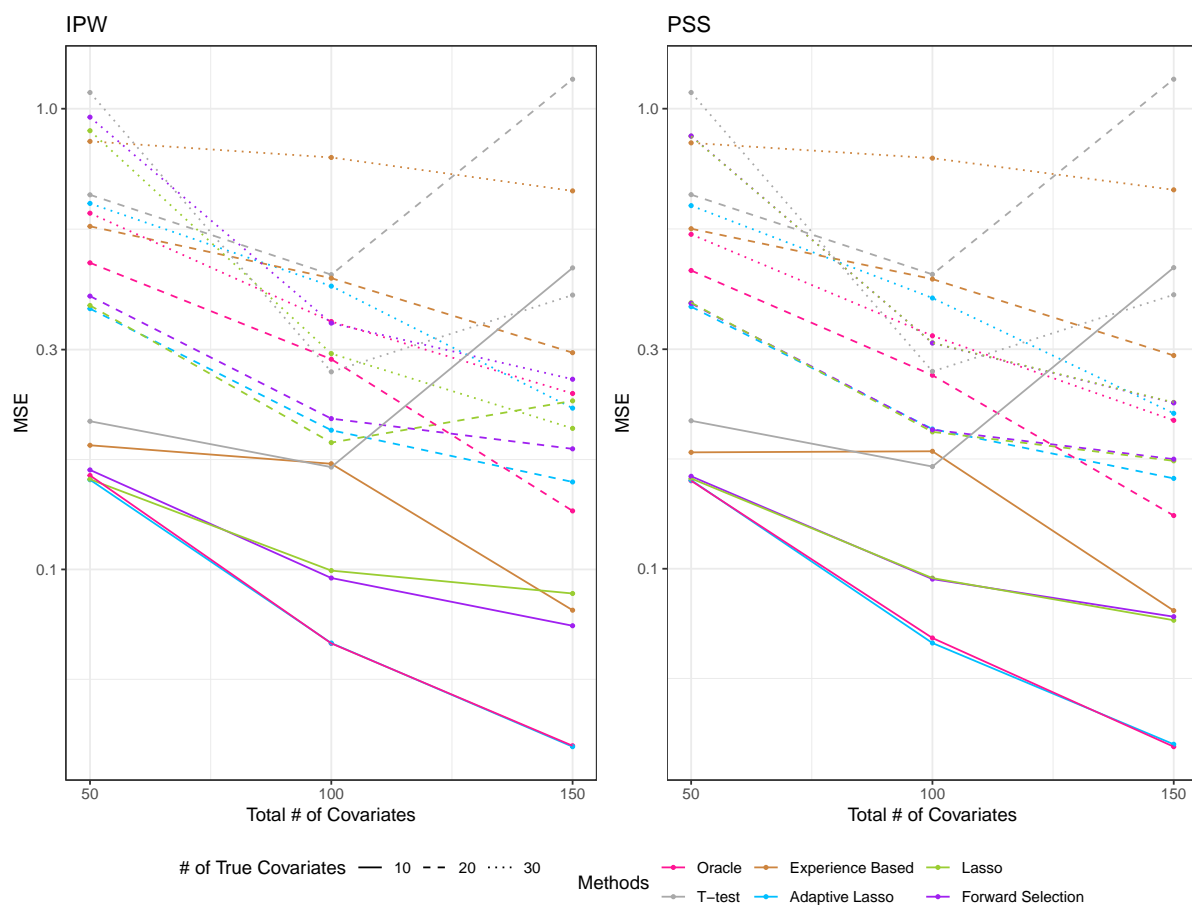


Figure 2: CAPTION FOR THIS PLOT REQUIRED

### Summary of Variable Selection Process, Comparison with True Covariate Space

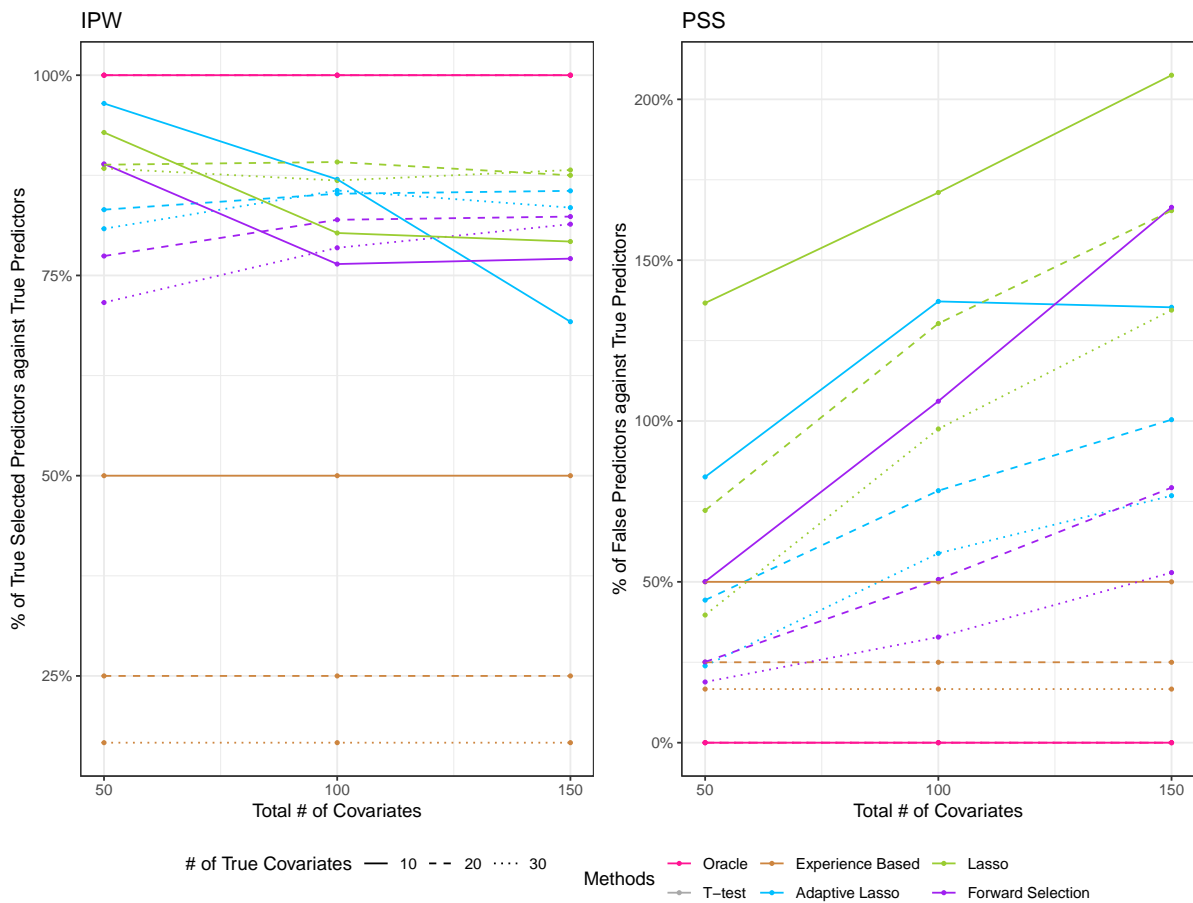


Figure 3: CAPTION FOR THIS PLOT REQUIRED

Table 1: Gaussian GLM with log-transformed response effect estimates. Coefficients are exponentiated and present the effect as % change

Predictor	Estimate	95% CI	P-value	Significance
m	-0.9%	( -1.03 % , -0.84 % )	0.0000	*
n	0%	( 0 % , 0 % )	0.0558	
s	12.5%	( 9.19 % , 15.82 % )	0.0000	*
overlap.cov	8.2%	( 4.97 % , 11.44 % )	0.0000	*
add.cov	1.8%	( 0.24 % , 3.34 % )	0.0235	*
methodExperience Based	143.9%	( 68.66 % , 252.73 % )	0.0000	*
methodAdaptive Lasso	-9.1%	( -35.29 % , 27.73 % )	0.5829	
methodLasso	31.7%	( -11.95 % , 96.96 % )	0.1801	
methodForward Selection	61.5%	( 16.17 % , 124.65 % )	0.0044	*
s:overlap.cov	-0.3%	( -0.38 % , -0.21 % )	0.0000	*
s:add.cov	-0.1%	( -0.17 % , -0.04 % )	0.0018	*
s:methodExperience Based	-1%	( -3.87 % , 1.95 % )	0.4999	
s:methodAdaptive Lasso	0.4%	( -1.2 % , 2.11 % )	0.5991	
s:methodLasso	-0.3%	( -2.2 % , 1.66 % )	0.7673	
s:methodForward Selection	-1.5%	( -3.12 % , 0.11 % )	0.0667	

## Effect of Covariate Selection Process on MSE

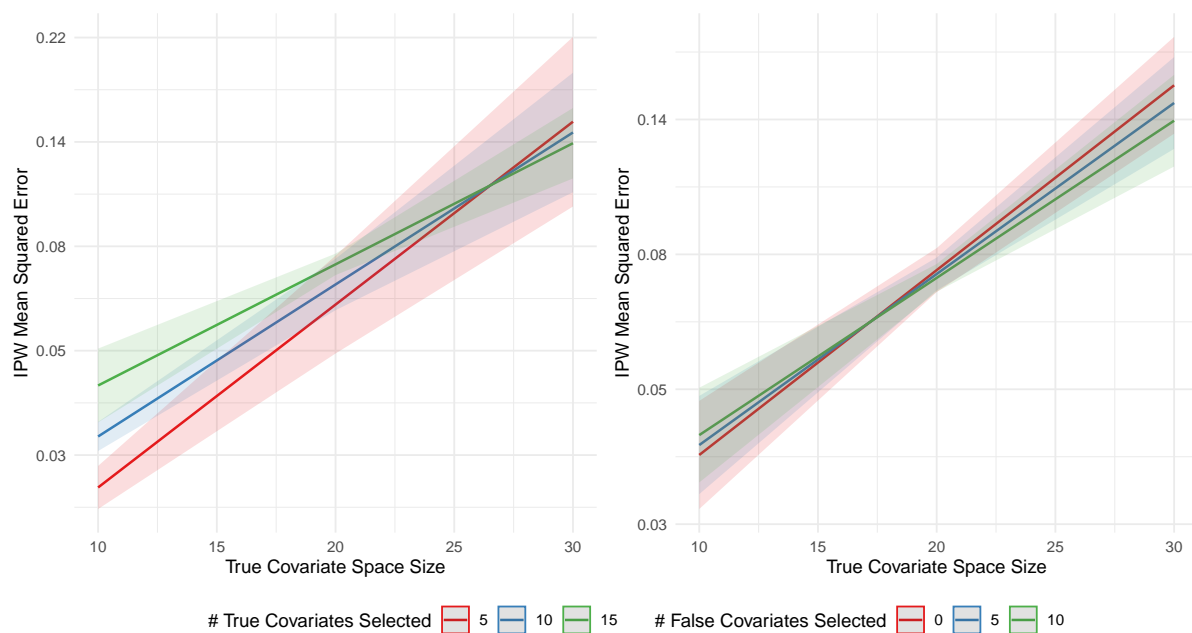


Figure 4: Estimated Marginal Effects IPW Estimator FILL IN THE REST

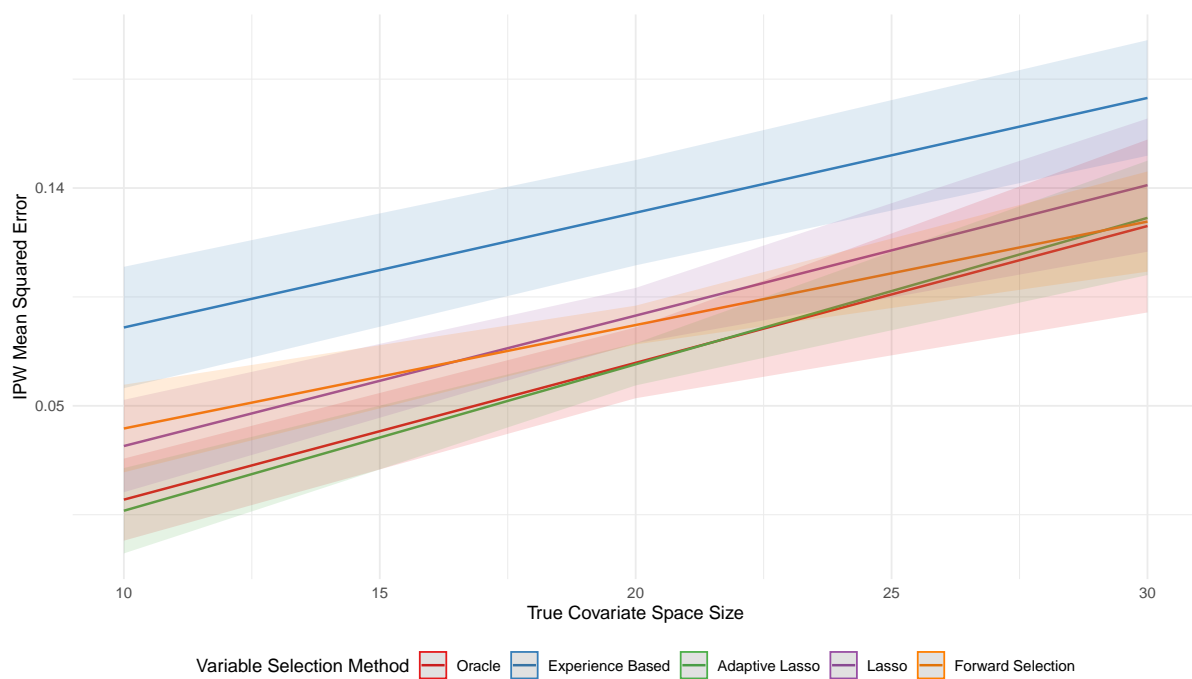


Figure 5: Effect of Variable Selection Method on IPW MSE

## References

Shortreed, Susan M, and Ashkan Ertefaie. 2017. “Outcome-Adaptive Lasso: Variable Selection for Causal Inference.” *Biometrics* 73 (4): 1111–22. <https://doi.org/10.1111/biom.12679>.

## Appendix