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Subject: Lab 19: Bootstrap Resampling Method

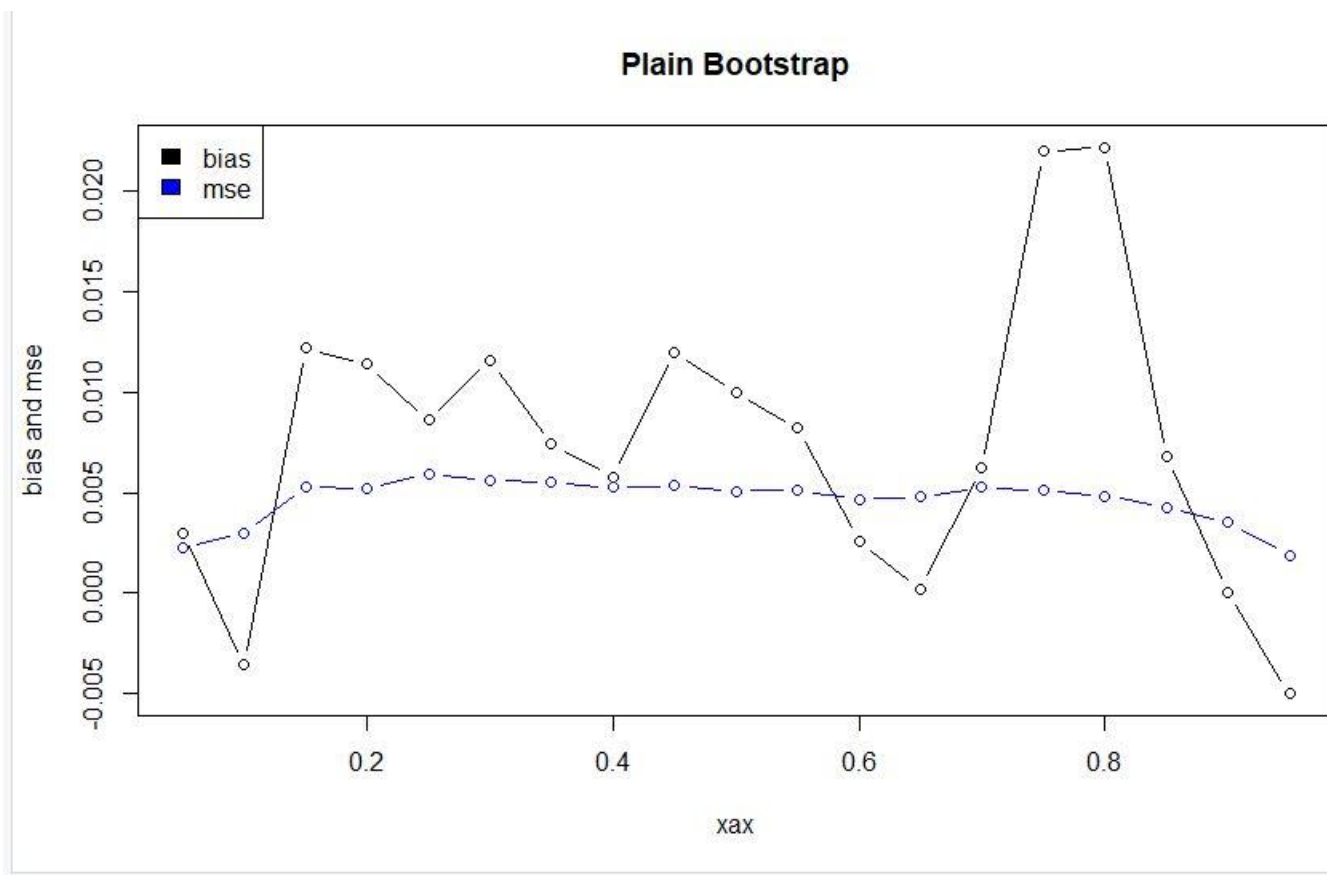
Figure:

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Summary:

Bootstrapping is a statistical resampling method in which we usually try to increase our confidence in descriptive statistic. We do this by first getting a sample, then resampling that sample with replacement are large amount of times. We do this in order to get a confidence interval on a parameter. This is also useful for statistics that lack a standard calculation, such as a  $R^2$  value, and for when the statistical parameters come from data that is non-normal.

There are different variations to the bootstrapping methods such as the wild bootstrap which works best in cases where given and independent variable  $X_i$  the error is equal to zero. Wild bootstrapping works when this case is violated, while general bootstrapping does not.



We could see that bias becomes stable near the mean of  $x_{ax}$  and becomes more volatile as it goes away from it. Mean square error stays steady throughout the graph. The bias represents the difference between the expected value of the sample mean and the actual value of the boot mean. The mean square error is the average of the square of differences between our parameters.