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This work presents inference for the multiple linear regression model  $Y = \beta_1 x_1 + \dots + \beta_p x_p + e$  after variable selection, including prediction intervals for a future value of the response variable  $Y_f$  given a  $p \times 1$  vector of predictors  $x_f$ , and testing hypotheses with the bootstrap. If  $n$  is the sample size, most results are for  $n \gg p$ , but prediction intervals are developed that increase in average length slowly as  $p$  increases for fixed  $n$ , if the model is sparse:  $k$  predictors have nonzero coefficients  $\beta_i$  where  $n \gg k$  (Received August 06, 2016)