

1) Consider choosing $\hat{\boldsymbol{\eta}}$ to minimize the elastic net criterion

$$Q(\boldsymbol{\eta}) = RSS(\boldsymbol{\eta}) + \lambda_1 \|\boldsymbol{\eta}\|_2^2 + \lambda_2 \|\boldsymbol{\eta}\|_1$$

where $\lambda_i \geq 0$ for $i = 1, 2$.

a) Which values of λ_1 and λ_2 correspond to ridge regression? (For example, both are zero, λ_1 is zero, or λ_2 is zero.)

soln: $\lambda_2 = 0$

b) Which values of λ_1 and λ_2 correspond to the OLS full model?

soln: $\lambda_1 = \lambda_2 = 0$. (See Exam 3 review 90) and 91).

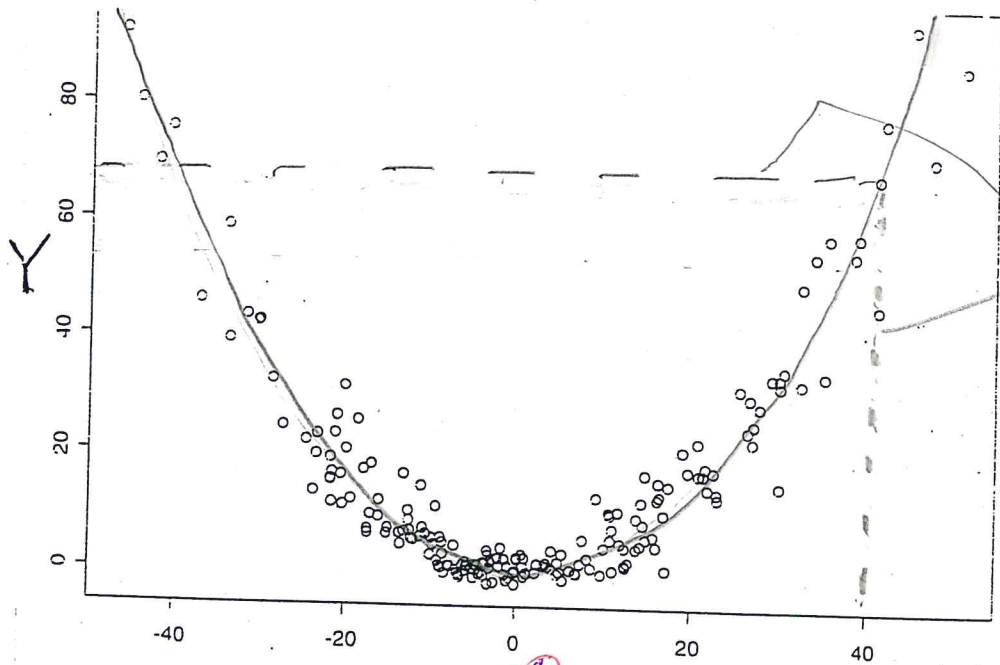
2) Consider choosing $\hat{\boldsymbol{\eta}}$ to minimize the criterion

$$Q(\boldsymbol{\eta}) = \frac{1}{a} (\mathbf{Z} - \mathbf{W}\boldsymbol{\eta})^T (\mathbf{Z} - \mathbf{W}\boldsymbol{\eta}) + \frac{\lambda_{1,n}}{a} \sum_{i=1}^{p-1} |\eta_i|^j \quad (1)$$

where $\lambda_{1,n} \geq 0$, $a > 0$, and $j > 0$ are known constants. Which value of j corresponds to lasso?

soln: $j = 1$. (See Exam 3 review 90).

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cross out \hat{w} \rightarrow $E(y|w)$ may have made some gray fit plot

90 for $E(y|w)$

1) Above is a plot of w vs y where $y = m(\beta^T x) + e$, $w = \hat{\beta}^T x$ and x is a vector of predictors.

a) What type of plot is the above plot?

20 \rightarrow

response plot

more than one

b) Draw an estimate of $E(y|w)$ on the plot and predict y if $w = 40$.

20

$E(y|w)$

-10

wrong -15

25 \rightarrow

between 60 and 70

see Exam 3 review 99)

65