202A-HW6_4),5)

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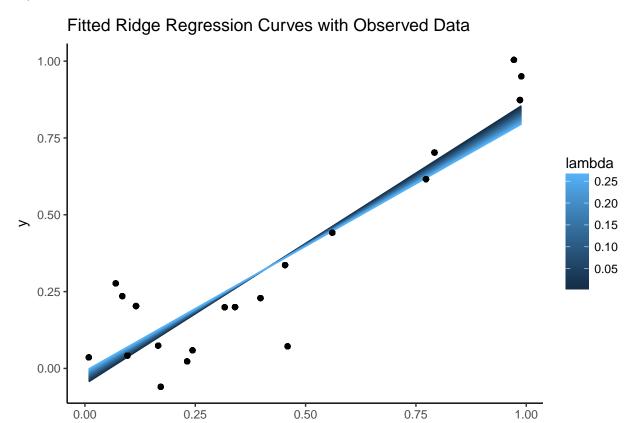*2017/11/15*

4)

Table 1: Time for Spline Regression with Competing Methods (n=20, p=100)

	user.self	sys.self	elapsed
sweep	0.371	0.003	0.376
sweep_c	0.023	0.000	0.024
qr	0.269	0.004	0.273
qr_c	0.230	0.000	0.230

C is significantly faster than R. QR algorithm is a lot faster than Sweep algorithm by comparing qr and sweep, however solve() function in R is too time-consuming, so both qr and qr_c are slower than sweep_c.

5)

Fitted Ridge Regression Curves with Observed Data

Fitted Spline Regression Curves with Observed Data

Training and Testing Errors for Ridge Regression

Training and Testing Errors for Spline Regression