Computing Assignment 3

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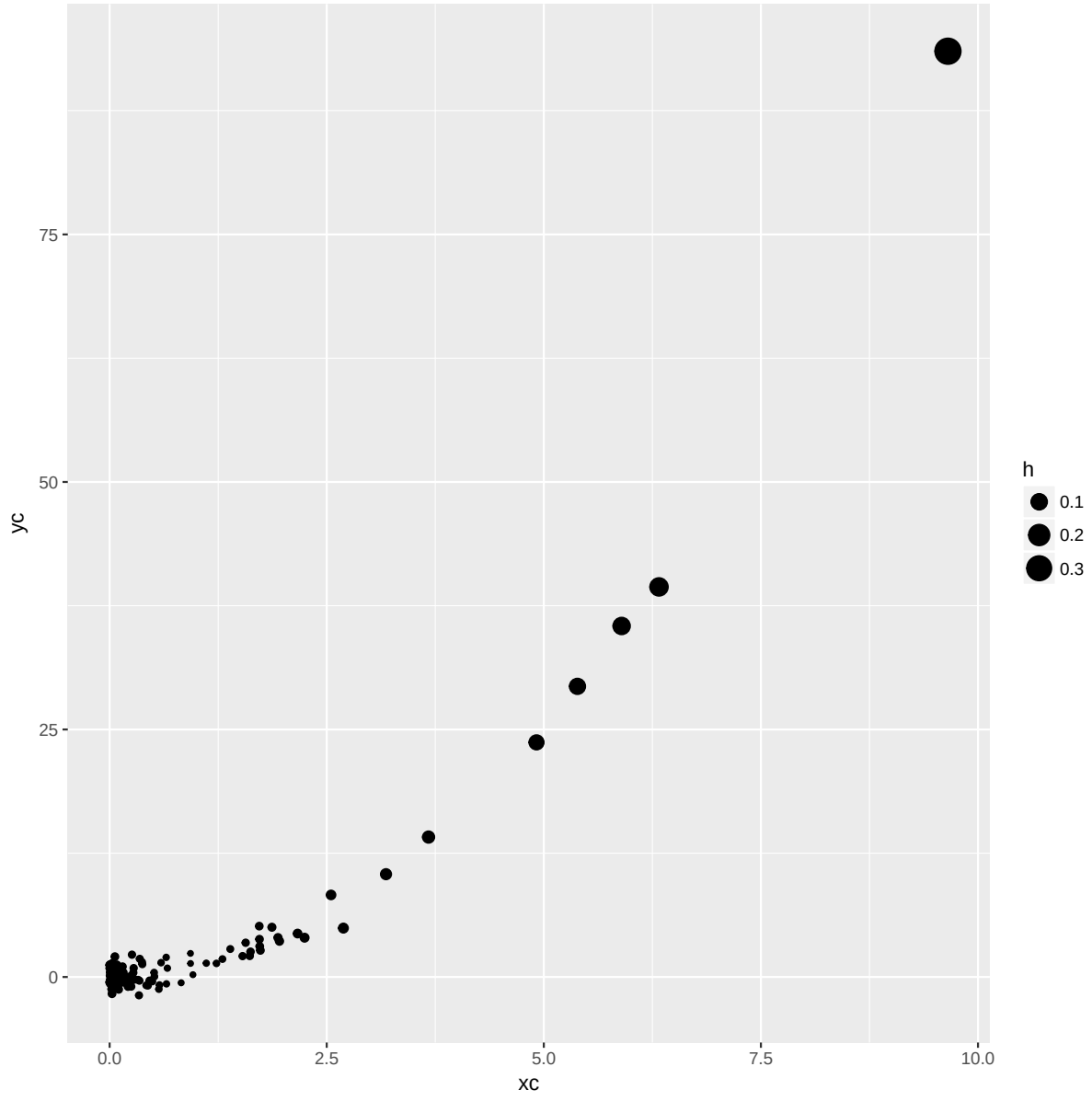
Scatter plot of y as the square of a chi-squared random variable



Notes:

1. See that the cluster of points at the left are all small–because each individual point carries comparatively little information about the fit line, they have low leverage.
2. By contrast, the points out to the right are sparse, and thus large. The location of these points greatly affects the slope of the best fit line.

High heteroskedasticity DGP

Table 1:

Statistic	N	Mean	St. Dev.	Min	Max
beta	1,000	0.988	0.604	−1.228	2.846
homo_se	1,000	0.442	0.064	0.241	0.734
homo_t	1,000	1.000	0.000	1	1
homo_p	1,000	0.837	0.000	0.837	0.837
sandwich_se	1,000	0.462	0.218	0.114	1.276
sandwich_t	1,000	2.661	2.249	−2.511	19.848
sandwich_p	1,000	0.900	0.179	0.009	1.000
omega_se	1,000	0.621	0.000	0.621	0.621
omega_t	1,000	1.592	0.973	−1.978	4.585
omega_p	1,000	0.871	0.169	0.029	1.000

Low heteroskedasticity DGP

Table 2:

Statistic	N	Mean	St. Dev.	Min	Max
beta	1,000	1.002	0.632	−0.803	3.335
homo_se	1,000	0.605	0.082	0.349	0.886
homo_t	1,000	1.000	0.000	1	1
homo_p	1,000	0.837	0.000	0.837	0.837
sandwich_se	1,000	0.494	0.207	0.129	1.403
sandwich_t	1,000	2.419	1.976	−2.382	12.574
sandwich_p	1,000	0.886	0.186	0.012	1.000
omega_se	1,000	0.621	0.000	0.621	0.621
omega_t	1,000	1.614	1.018	−1.294	5.374
omega_p	1,000	0.866	0.174	0.103	1.000