CatData HW6

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A4.3, A4.5, A4.15 (3 points)

A4.31 (5 points)

A4.16-A4.17, A5.4 (10 points)

4.3

(a): In the linear probability model, the coefficient is treated the same way as it is in linear regression. That is, it represents a slope such that for every unit increase x (decade, in this case), there is a corresponding unit change in y (the probability of pitching a complete game, in this case, the change of which = -0.0694).

(b):

$$\hat{\pi} = 0.7578 - 0.0694(12),$$
$$= -0.075.$$

Percentages can't be negative! So not possible.

(c):

$$\hat{\pi} = \frac{e^{\alpha+\beta x}}{1+e^{\alpha+\beta x}}.$$
$$\hat{\pi} = \frac{e^{1.148-0.315(12)}}{1+e^{1.148-0.315(12)}},$$
$$= 0.0671071.$$