

Econometrics Assignment 5  
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$$Pr[resp_i = 1] = \frac{\exp(\beta_0 + \beta_1 male_i + \beta_2 active_i + \beta_3 age_i + \beta_4 (age_i/10)^2)}{1 + \exp(\beta_0 + \beta_1 male_i + \beta_2 active_i + \beta_3 age_i + \beta_4 (age_i/10)^2)}$$

<i>Variable</i>	<i>Coefficient</i>
<i>Intercept</i>	-2.488
<i>Male</i>	0.954
<i>Active</i>	0.914
<i>Age</i>	0.070
$(Age/10)^2$	-0.069

- (a) For a 50 year old active male customer

$$\begin{aligned} & Pr[resp_i = 0]active_i\beta_2 \\ & (1 - Pr[resp_i = 1])active_i\beta_2 \\ & \frac{1}{1 + \exp(-2.488 + 0.954 + 0.914 + 0.070*50 - 0.069*25)}(0.914) \\ & 0.229 \end{aligned}$$

For a 50 year old inactive male customer

$$\frac{1}{1 + \exp(-2.488 + 0.954 + 0.070*50 - 0.069*25)}0 = 0$$

- (b)  $\frac{Pr[resp_i=1|active_i=1] - Pr[resp_i=1|active_i=0]}{Pr[resp_i=1|active_i=0]}$

- (c)  $\exp(\beta_2) - 1)Pr[resp_i = 0|active_i = 1]$   
 $(\exp(0.914) - 1) \frac{1}{1 + \exp(-2.488 + 0.954 + 0.914 + 0.070*50 - 0.069*25)}$   
0.219