Lecture week 6

$$\lambda(t;\beta) = \lambda_0(t)\, e^{\beta^T x}$$

$\beta_1, \beta_2, \beta_3 \ldots\ldots$

e.g.

$$\lambda_1(t;\beta) = \lambda_0(t)\, e^{\beta^T \underset{\sim}{x_1}} \quad (p \times 1)$$

$$\lambda_2(t;\beta) = \lambda_0(t)\, e^{\beta^T x_2}$$

Holding other variables constant, and let the first variable.

$X_{2,1} = X_{1,1} + 1$ first variable for 1^{st} individual

first variable for 2^{nd} individual

$$\frac{\lambda_2(t;\beta)}{\lambda_1(t;\beta)} = \frac{e^{\beta_1 x_{2,1}}}{e^{\beta_1 x_{1,1}}} = e^{\beta_1}$$

1 unit ↑ in x_1 first variable will increase $\lambda(t;\beta)$ to e^{β_1} times. For example: $e^{\beta_1} \approx 69\%$ for "fin"

compared with $fin=0$, $fin=1$

$\lambda(t,\beta)$ will be decreased to $e^{\beta_1}=69\%$

$$\begin{array}{l} fin=1 \leftarrow \\ fin=0 \leftarrow \end{array} \frac{\lambda_2(t;\beta)}{\lambda_1(t;\beta)} = 69\%$$

$\Longleftrightarrow \lambda_2(t;\beta) = 69\% \, \lambda_1(t;\beta)$

$\lambda(t,\beta)$ will be decreased by $1-e^{\beta_1} = 31\%$

$\lambda_2(t;\beta) - \lambda_1(t;\beta) = -31\% \, \lambda_1(t;\beta)$

$\downarrow$

decrease by .