

1 Examples

1.1 Low Crash

Suppose a one mile asphalt principal arterial road in a rural area of district 1 that has a volume of 403 was built and we are interest in the expected number of crashes.

$$\lambda_{new} = e^{x'_{new}\beta} = \exp((1, 0, 0, 0, 0, 0, \log(403), 0, 0, 0) \begin{bmatrix} -7.302 \\ -.118 \\ -.058 \\ -.054 \\ .209 \\ .26 \\ .971 \\ .066 \\ .443 \\ -.005 \end{bmatrix})$$

$$= 0.22855$$

That means we expect 0.22855 crashes (per mile) on this segment in a year. A 95% credible interval for the expected number of crashes is (0.2088,0.2497).

1.2 High Crash

Suppose a one mile asphalt collector road in an urban area of district 6 that has a volume of 7000 was built and we are interest in the expected number of crashes.

$$\lambda_{new} = e^{x'_{new}\beta} = \exp((1, 0, 0, 0, 0, 1, \log(7000), 0, 1, 0) \begin{bmatrix} -7.302 \\ -.118 \\ -.058 \\ -.054 \\ .209 \\ .26 \\ .971 \\ .066 \\ .443 \\ -.005 \end{bmatrix})$$

$$= 7.3791$$

That means we expect 7.3791 crashes (per mile) on this segment in a year. A 95% credible interval for the expected number of crashes is (6.4954,8.381).