UNIVERSITY OF EDINBURGH
SCHOOL OF MATHEMATICS

Generalised Regression Models

GRM: Example — discrete data on textile faults **Semester 1, 2022–2023**

Let $Y_1, \ldots, Y_n$ be independent, with Y_i having a Poisson distribution and mean

$$\lambda_i = \mu_i = \theta_1 + \theta_2 x_i,$$

for fixed x_i, $i = 1, \ldots, n$. The following discrete data on textile faults, which has $n = 32$ measurements of cloth length (x) and the number of faults (y), is modelled by such a Poisson regression model.

x:	551	651	832	375	715	868	271	630	491	372	645	441	895	458	642	492
y:	6	4	17	9	14	8	5	7	7	7	6	8	28	4	10	4
x:	543	842	905	542	522	122	657	170	738	371	735	749	495	716	952	417
y:	8	9	23	9	6	1	9	4	9	14	17	10	7	3	9	2