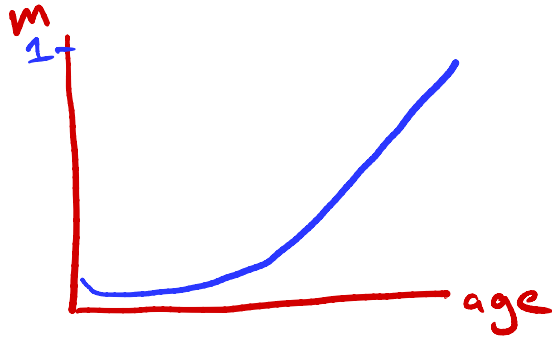
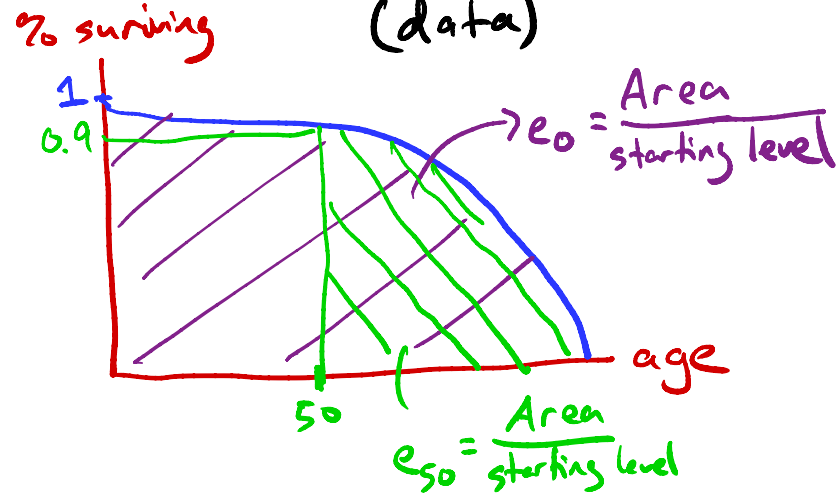


Continuous age  
(conceptual)



vs. Discrete age  
(data)



In discrete setup...

$$\Pr[\text{die before } x+1 | \text{survive to } x] = q_x$$

$$\Pr[\text{survive to } x+1 | \text{survive to } x] = 1 - q_x$$

$$\Pr[\text{survive to } x+n | \text{survive to } x] = (1 - q_x)(1 - q_{x+1}) \cdots (1 - q_{x+n-1})$$

$$\Pr[\text{survive to age 3}] = (1 - q_0)(1 - q_1)(1 - q_2)$$