

## MLE (cont.)

$$L = P_{\text{insured}} \times P_{\text{insured}} \times (1 - P_{\text{insured}})$$

MLE finds  $P_{\text{insured}}$  that maximizes  $L$ .

↳ an estimate of  $P_{\text{insured}}$  that maximizes the likelihood of observing the data we obtain.

Value of  $P_{\text{insured}}$  that maximizes  $L = 2/3$

In case of Logit / Probit with  $y = 0$  and  $y = 1$   
not insured insured

$$P(y=1 | x) = G(\beta_0 + \beta_1 x)$$

$$L = G(\cdot) \times G(\cdot) \times [1 - G(\cdot)]$$

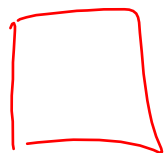
MLE : finds  $\hat{\beta}_0$  and  $\hat{\beta}_1$  that maximizes  
 $L$  or  $\log(L)$ .

## Interpretation

probit  $\rightarrow$  continuous  $x$

$$\boxed{\frac{\Delta P(y=1 | x)}{\Delta x}} = (\text{std. normal density at } x) \beta_1$$

Logit  $\rightarrow$  cont.  $x$



$$= (\text{logistic density at } x) \beta_1$$