nominal   interval / ratio

y	X	D
0	3	0
1	4	1
0	6	0
0	2	0
1	-1	1
1	9	0

Limited dep. var

0   0.8   1   y
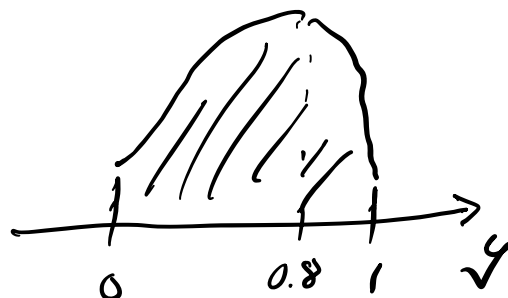
or   2   LPM, logit & probit

0,1,2... k   multinomials

categories ranked · ordinal.
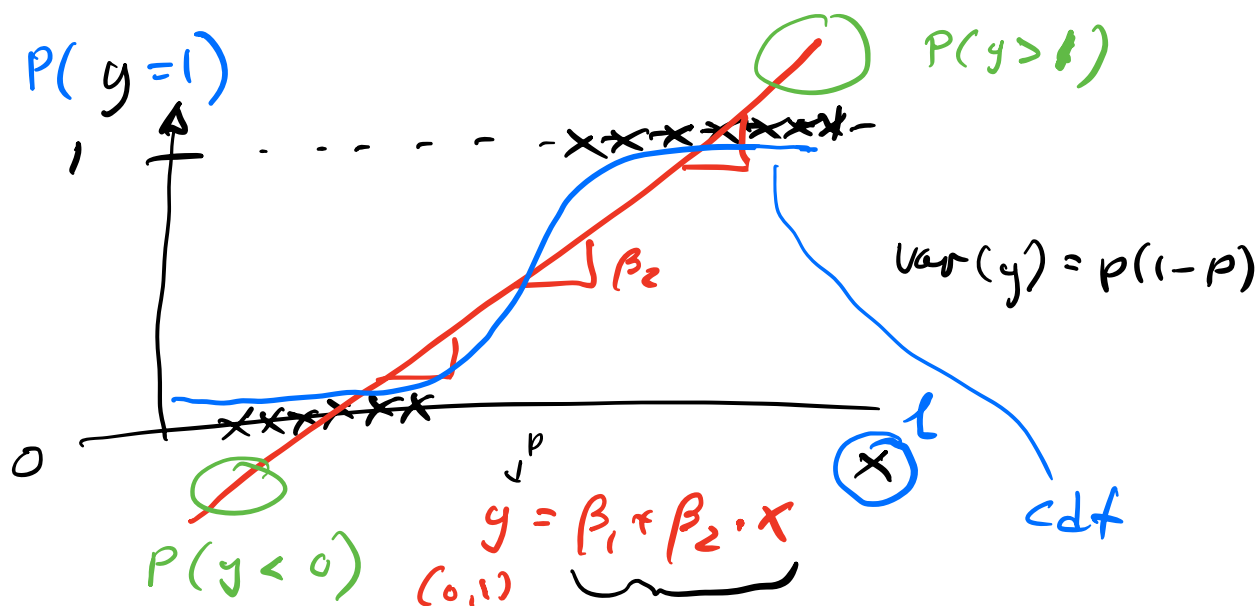count ~~data~~.

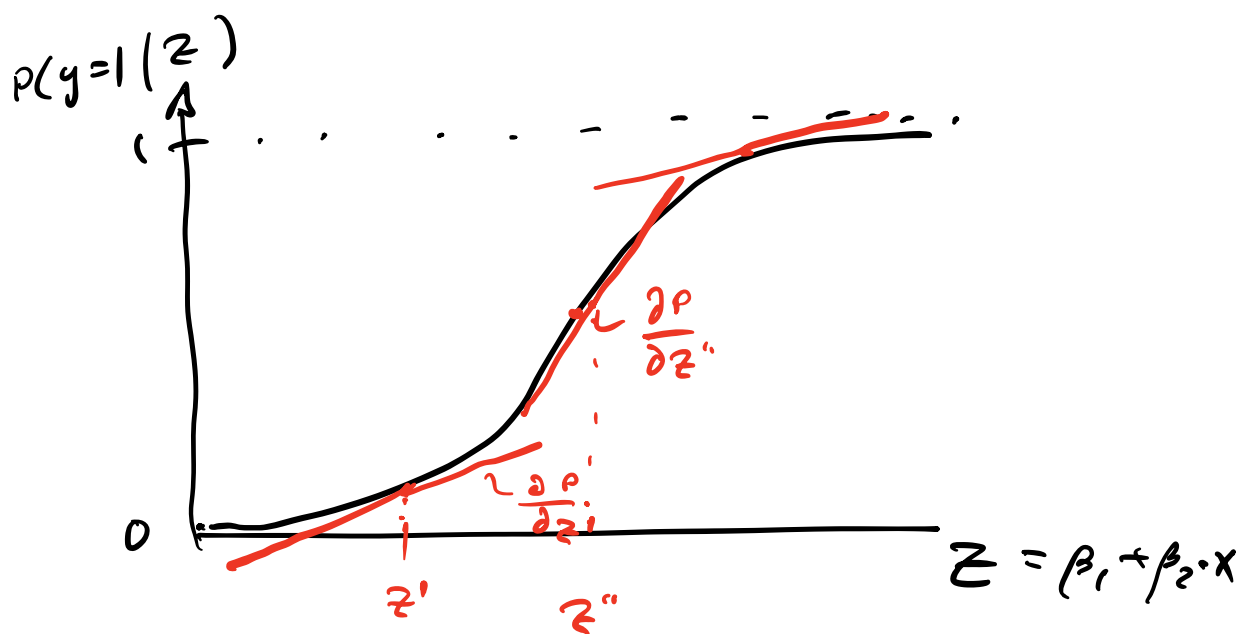Why choos a probability?

y	
0	
0	
1	
0	
1	
N	:

$P(y=1) = p$

$P(y \neq 1) = 1 - p$

$E(y) = \bar{y} = \dfrac{\Sigma \; P(y=1)}{N} = 0.4$ proportion.
↓
probabilities

$P(y=1)$

$P(y>1)$

0

1

$\text{Var}(y) = p(1-p)$

β_2

$P(y<0)$

p

$y = \beta_1 + \beta_2 \cdot x$

$(0,1)$

cdf

$\ell = \text{cdf}(\beta_1 + \beta_2 \cdot x)$

cdf $\to$ probit $\leftarrow$ standard normal cum. density

$\searrow$ logit $\leftarrow$ logistic cum. dens. fn

$p(y=1|z)$

0

1

$\frac{\partial p}{\partial z''}$

$\frac{\partial p}{\partial z'}$

z'

z''

$z = \beta_1 + \beta_2 \cdot x$

OLS

S

$\hat{\beta}_1$

β_1

$\hat{\beta}_2$

β_2

Max Like.

LL

$\hat{\beta}_1$

β_1

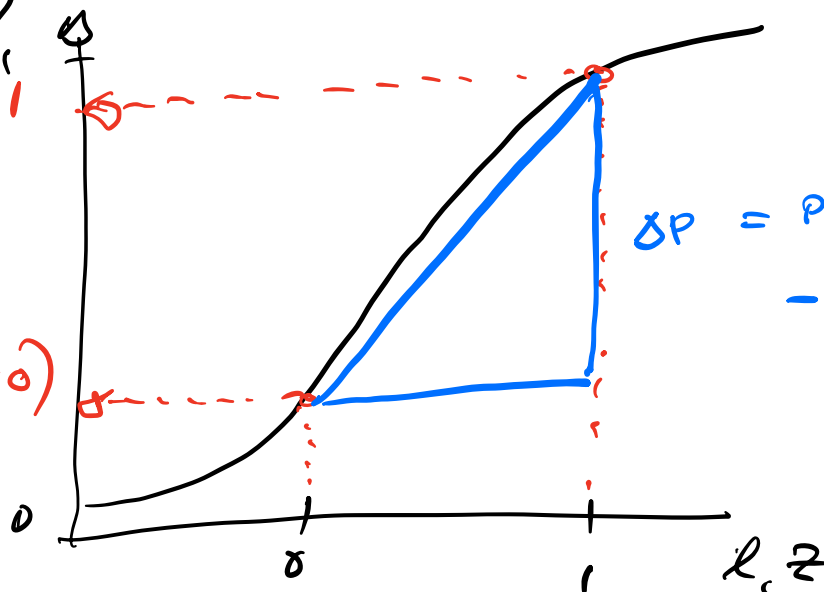$\hat{\beta}_2$

β_2

$P(y=1)$
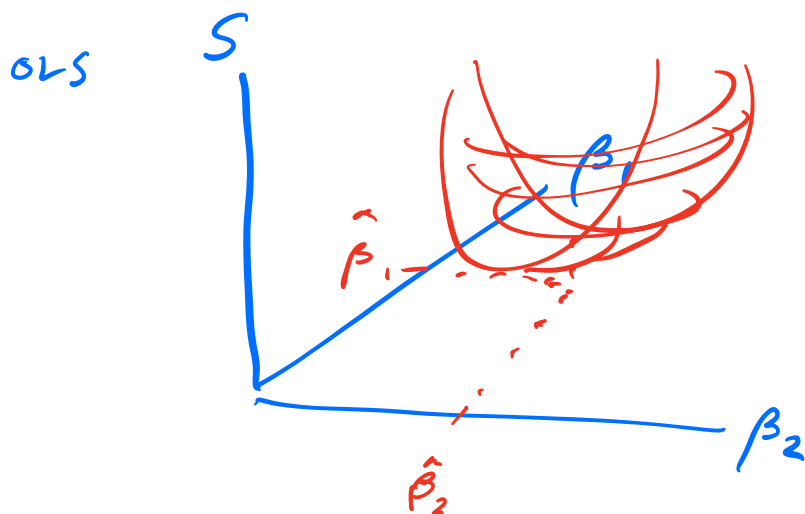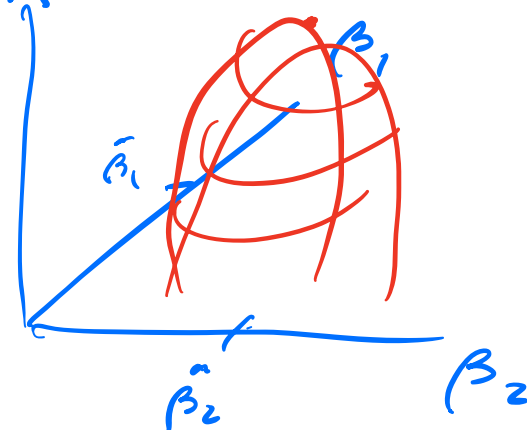
$P(y=1) = \Phi(\beta_1 + \beta_2 \cdot D)$

$0, 1$

$P(y=1 | D=1)$

$P(y=1 | D=0)$

$\delta P = P(y=1 | D=1) - P(y=1 | D=0)$

0

0

1

l, z

$p(y=1)$

1

0

$x = 2$

$x = y$

x

$\Delta p = p(y=1|x=y) - p(y=1|x=2)$