

# Contraception

outcome ~~use~~ use

age live children (0, +) urban/rural (1, 2)

district

1934 women median 26 woman/district

use  $N(0, 1)$

chist mean use/district  
 ch livech = 0, livech > 0

model m4 (one of many)

look at effect of urban vs rural  
 on use (variation over districts)

Level 1  
 within district

t-test on urban/rural

use  $\sim$  urban

$\alpha_0 + \alpha_1 \text{urban}$

$\alpha_0 = \text{mean}_{\text{rural}}$

Level 2

$$\alpha_0 = \text{age} * \text{ch} + I(\text{age}^2) + u_0$$

$$\alpha_i = \gamma_{10} + u_i$$

$$\alpha_0 = \gamma_{00} + \gamma_{01} \text{age} + \gamma_{02} \text{ch} + \gamma_{03} \text{age} * \text{ch} + \gamma_{04} \text{age}^2 + u_0$$