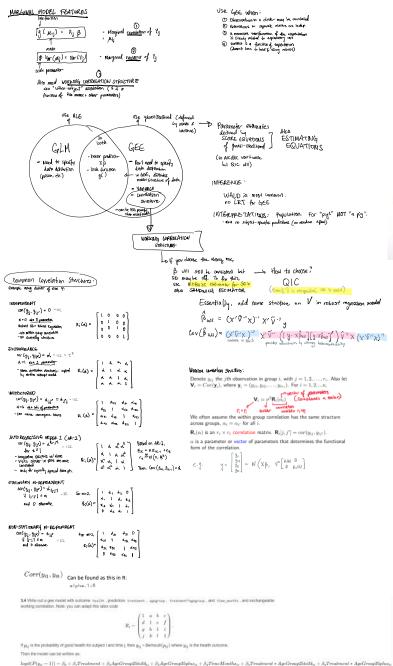
## **GEEs Summary**

Saturday, November 25, 2023 17:14



•  $\beta_0=15.098$ : The expected weight at time 0 for pigs with no vitamin E and no copper in their diet.
•  $\beta_{time}=6.98$ : The expected increase in pig weight for each one week increase in time, controlling for vitamin E and copper in the diet.
•  $\beta_{CALGRISS}=-0.765$ : The expected different in weight comparing pigs who received a 35 mg/kg dose of copper to pigs who received a 0 mg/kg dose of copper.

## EXAMPLES:

1) Continuous response variable

μij = βXij (linear predictor) ()  $Var(Y_{ij}) = Q_2^2$ (variance)(i) Corr (Yij, Yik) =  $\rho^{|\mathbf{i}|\cdot\mathbf{k}|}$  (working our souther = AR ske assurpnise) (3)

② count response vovimble - Asson  $\log (k_j) = \beta k_{ij}$  (linear predictor) 0 (vadance) ① Var (4:3) = \$ 2:3 averalispention parameter

Corr(Yi, Yik) = 0 (working our structure = compand symmetry)(3)

3 Binany nesponse vonable - Bernoulli

 $logit(M_j) = log \left(\frac{P(X_2 \circ i)}{P(X_2 \circ i)}\right) = P(X_j) \quad (linear prodictor) \bigcirc$ Var (tj) » Mij (1- Mij) (variance) corr(tiz. tie)= Pij (working our stackure = Unstallstrad) (3)

 $\forall$  witting out the model of binary response var:

y<sub>ij</sub> <sup>με</sup> Benoulli (ρ<sub>ij</sub>) logit (P(4:j-1)) = β0+β1+++j+β2..... V:(2) = D; 1/2 R;(4) D; 1/2  $= \left[ \left( \frac{e^{x_{i,1}'\hat{\beta}}}{\left( 1 + e^{x_{i,1}'\hat{\beta}} \right)^{1/2}} \right] = 0$  Poisson GEE Models: Coefficients are log rate various Exponentiated usefficients one rate various Same interpretation as Bisson Regression

but specify they're at poplevel

# (1) 1.34 q3\_9 \* esp(1.96 \* sgrt(q3\_9var2)) er [1] 3.69

 $Cov(y_t) = \phi D_t^{1/2} R_t(\alpha) D_t^{1/2}$ 

β<sub>1</sub> is baseline septoded log odds of good health when all other covariates are zero.

β<sub>2</sub> is the log odds ratio especiated with rearried white controlling for other covariates, β<sub>2</sub> is the log odds ratio associated with age group 25-34 white controlling for other covariates. β<sub>3</sub> is the log odds ratio associated with age group 34-4 when controlling for other convariates. β<sub>4</sub> is the log odds ratio associated with age group 34-4 when controlling for other convariates. β<sub>4</sub> is the log odds ratio associated with the intercal of a large group 32-34 and rearried write controlling for other convariates, β<sub>4</sub> is the log odds ratio associated with the intercal of large group 34-4 and treatment while controlling for other convariates, β<sub>4</sub> is the log odds ratio associated with the interaction of age group 34-4 and treatment while controlling for other convariates.

mr Analysis of 'smid statistic' Table

as Notel 1 health - treatment - apagroup + treatment:apag

as Notel 2 health - treatment - apagroup + time\_months

as DF 3D F(P(DA))

as 1 2 2.06 6.35