A starting point for an estimate of  $u_i$  would be to take the mean of  $y_{ij} - \hat{\beta}_0$  for group j. This is sometimes called the mean raw residual:  $\overline{r}_i = \overline{y}_i - \hat{\beta}_0$ 

where 
$$\overline{y}_{j}$$
 is the mean of  $y_{ij}$  in group  $j$ .