$$\text{var}(y) \qquad \frac{1}{2} \cdot h^2 \cdot \text{var}(y)$$

$$b = \frac{\text{cov}(u_i, \bar{y}_i)}{\text{var}(\bar{y}_i)} = \frac{\overbrace{\frac{1}{2} \cdot \text{var}(u_i)}}{\left[t + (1-t)/n\right] \cdot \text{var}(y)}$$

$$= \frac{\frac{1}{2} h^2 \cdot \text{var}(y)}{\left[h^2/4 + (1 - h^2/4)/n\right] \cdot \text{var}(y)}$$

$$= \frac{\frac{1}{2} h^2}{h^2/4 + (1 - h^2/4)/n}$$

$$= \frac{\frac{1}{2} n h^2}{nh^2/4 + (1 - h^2/4)} = \frac{2nh^2}{nh^2 + (4 - h^2)}$$

$$= \frac{2n}{n + (4-h^2)/h^2} = \frac{2n}{n+k}$$

$$k = \frac{4-h^2}{h^2}$$

$$\hat{u}_i = \frac{2n}{n+k} (\bar{y}_i - \mu)$$