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Appendix

Multiple Regression Method Solution of the Cumulative-Rate-Time Linear Form

$$\Delta N_p = m_q q + m_{qt} qt + Q_{abs}. \quad (1)$$

Applying multiple regression analysis on linear form in equation (1) above, the forms in equations (2) to (4) below were obtained

$$\sum \Delta N_p = m_q \sum q + m_{qt} \sum qt + nQ_{abs} \quad (2)$$

$$\sum qt\Delta N_p = m_q \sum q^2 t + m_{qt} \sum q^2 t^2 + Q_{abs} \sum qt \quad (3)$$

$$\sum q\Delta N_p = m_q \sum q^2 + m_{qt} \sum q^2 t + Q_{abs} \sum q \quad (4)$$

Solving equations (2) – (4) simultaneously gives,

$$Q_{abs} = \frac{\sum \Delta N_p - m_q \sum q - m_{qt} \sum qt}{n} \quad (5)$$

$$m_{qt} = \frac{\left(n\sum qt\Delta N_p - \sum qt \sum \Delta N_p\right) - m_q\left(n\sum q^2 t - \sum q \sum qt\right)}{\left(n\sum q^2 t^2 - \left(\sum qt\right)^2\right)} \quad (6)$$

$$m_q = \frac{\left(n\sum qt\Delta N_p - \sum qt \sum \Delta N_p\right)\left(n\sum q^2 t - \sum q \sum qt\right) - \left(n\sum q^2 t^2 - \left(\sum qt\right)^2\right)\left(n\sum q\Delta N_p - \sum q \sum \Delta N_p\right)}{\left(n\sum q^2 t - \sum q \sum qt\right)^2 - \left(n\sum q^2 t^2 - \left(\sum qt\right)^2\right)\left(n\sum q^2 - \left(\sum q\right)^2\right)} \quad (7)$$