Modelling Clustered Survival Data with Cured Fraction

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In modelling lifetime data, standard parametric theory assumes that all observations will eventually experience the event of interest if they are monitored for a very long period. While every unit starts as susceptible to the event of interest, a fraction of observations may switch into a non-susceptible group. A mixture cured fraction model with covariates is modified to incorporate random clustering effect to characterize the switch mechanism. Simulation studies and telecommunications data show that cured fraction models with random clustering effect perform better than their parametric counterpart in terms of predictive ability.

Key Words: Mixture Cured Fraction Models, Random Clustering Effect, Right-censored Lifetime Data