

Survival Analysis and Customer Lifetime Value Report

Using the Telco subscriber dataset, I fitted three parametric Accelerated Failure Time (AFT) models — Weibull, Log-Logistic, and Log-Normal — to model customer churn. Comparing AIC scores, the Log-Normal AFT model was selected as the final model. Significant covariates affecting churn included ***address tenure, age, customer category, internet subscription, marital status, and voice service***.

Positive coefficients indicate factors that increase survival (lower churn risk), while negative coefficients increase churn probability. For example, subscribers with internet or voice services had slightly lower survival probabilities, suggesting they may be more likely to churn sooner, whereas longer address tenure and older age were associated with higher retention.

Using the final model, I predicted each customer's median lifetime and calculated their ***Customer Lifetime Value (CLV)***, assuming a monthly revenue of \$50 and a 1% discount rate. Analysis of CLV across segments revealed that ***Zone 2 subscribers*** and customers in the ***Total Service and E-Service categories*** were the most valuable, combining high predicted lifetime with higher spending potential. Based on the predicted churn probabilities within 12 months, the suggested ***annual retention budget*** is approximately ***\$174,064***, prioritizing high-risk, high-CLV customers. To improve retention, I recommend targeted interventions such as personalized promotions, loyalty programs for high-value segments, and proactive customer support for subscribers with high churn probability.