TIGER INSTITUTIONAL RISK ASSESSMENT

LOGISTIC REGRESSION PROBABILITY CALCULATION

$$\Pr(recid) = \frac{\exp(\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\beta_7X_7+\beta_8X_8+\beta_9X_9+\beta_{10}X_{10}+\beta_{11}X_{11}+\beta_{12}X_{12}+\beta_{13}X_{13}+\beta_{14}X_{14}+\beta_{15}X_{15}+\beta_{16}X_{16}+\beta_{17}X_{17}+\beta_{18}X_{18}+\beta_{19}X_{19}+\beta_{20}X_{20}+\beta_{21}X_{21})}{1+\exp(\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\beta_7X_7+\beta_8X_8+\beta_9X_9+\beta_{10}X_{10}+\beta_{11}X_{11}+\beta_{12}X_{12}+\beta_{13}X_{13}+\beta_{14}X_{14}+\beta_{15}X_{15}+\beta_{16}X_{16}+\beta_{17}X_{17}+\beta_{18}X_{18}+\beta_{19}X_{19}+\beta_{20}X_{20}+\beta_{21}X_{21})}$$

Where:

- *Pr(recid)* indicates the probability of three-year recidivism.
- β_0 through β_{21} reflect the corresponding coefficients represented in Table 1.
- X_1 through X_{21} reflect the data values for the corresponding variables represented in Table 1.

Table 1. TIGER Institutional Risk Assessment: Coefficients

Variable Indicator	Variable Name	Coefficient	Coefficient Indicator
-	Constant	-0.5304268	β_0
X_1	Age at First Arrest	0.017552	β_1
X_2	Mental Health Level of Care	-0.0415209	β_2
X_3	Gender	0.288077	β_3
X_4	Marijuana Conviction	-0.1017762	β_4
X_5	History of Revocations	1.070666	β_5
X_6	Age at Release Date	-0.0005054	β_6
X_7	Age at Release Date Squared	0.0000000108	β_7
X_8	Employment History	0.1199185	β_8
X_9	History of Drugs/Alcohol	0.0921725	β_9
X_{10}	Number of Felony Convictions	0.2977796	β_{10}
X_{11}	Crime Type: Other	0.8565472	β_{11}
X_{12}	Crime Type: Property	0.6621011	β_{12}
X_{13}	Crime Type: Sex	1.616689	β_{13}
X_{14}	Crime Type: Sexual Violent	2.049594	β_{14}
X_{15}	Crime Type: Violent	1.421824	β_{15}
X_{16}	Offender Class	0.3183547	β_{16}
X_{17}	Time Served	0.0425726	β_{17}
X_{18}	P07 – Job Placement	0.3052627	β_{18}
X_{19}	Prior Recidivisms	1.135524	β_{19}
X_{20}	Prior Recidivisms Squared	-0.0962842	β_{20}
X_{21}	Age At Release Date * Prior Recidivisms	0.000000795	β_{21}