



# Regressão Logística Binária Concessão de Crédito (Banco de Varejo)

Grupo 02: 404

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Costa

# Problema & Objetivo

- Problema: Risco de inadimplência
- Objetivo: Construir um modelo preditivo capaz de estimar a probabilidade de inadimplência em novos pedidos de crédito
- Objeto de análise: Situação do empréstimo (adimplente ou inadimplente)

# Dados & Variáveis

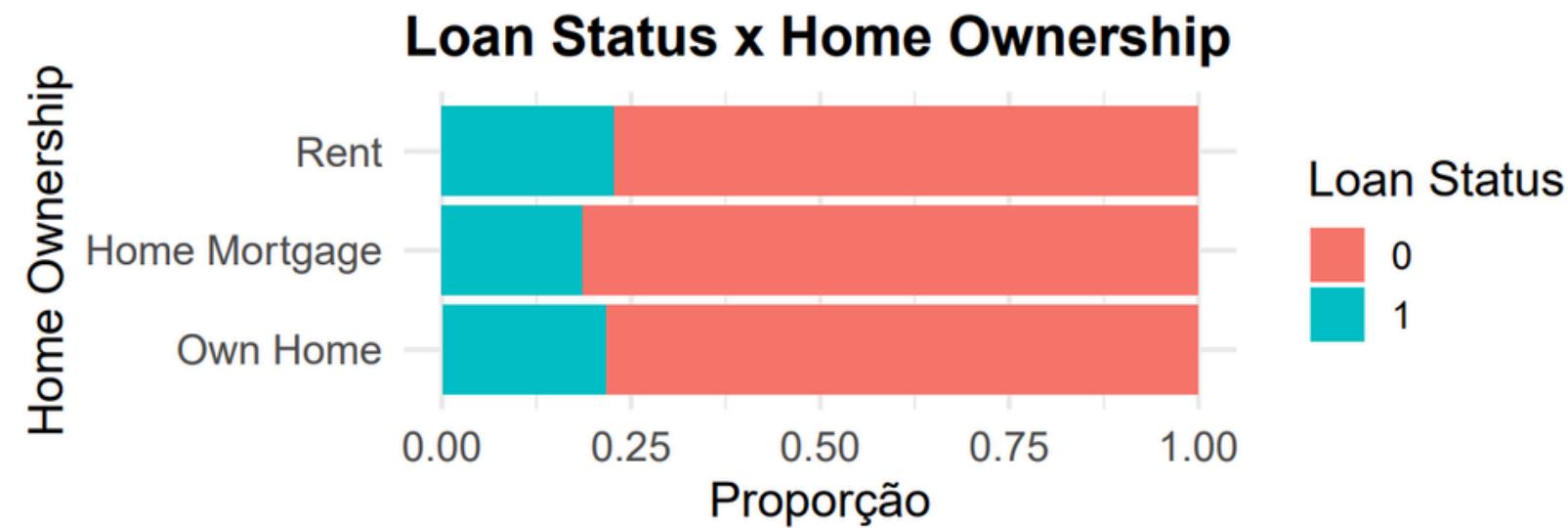
Y: Loan Status (0 Adimplente/ 1 Inadimplente)

X: Credit Score, Annual Income, Tax Liens,  
Dummies; Home Ownership:Own Home,  
Purpose:Medical Bills

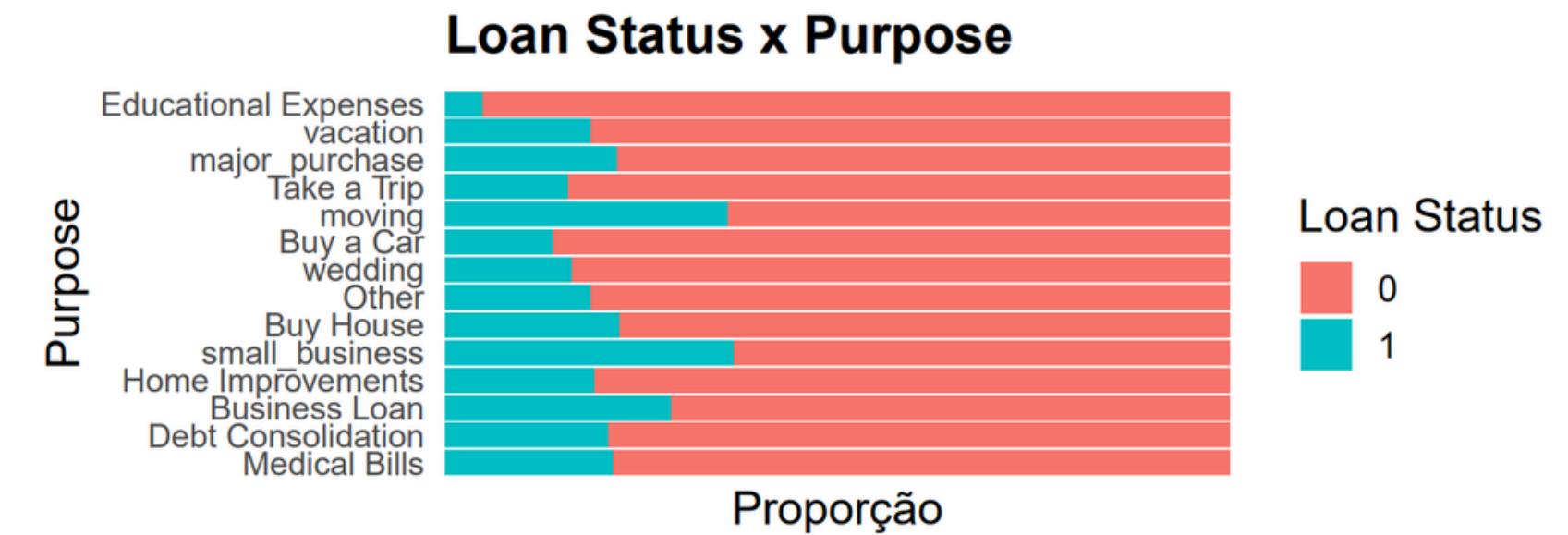
	<b>TREINO</b>	<b>TESTE</b>	
Var1	Freq	Var1	Freq
0	20274	0	8694
1	5220	1	2231

# Análise descritiva

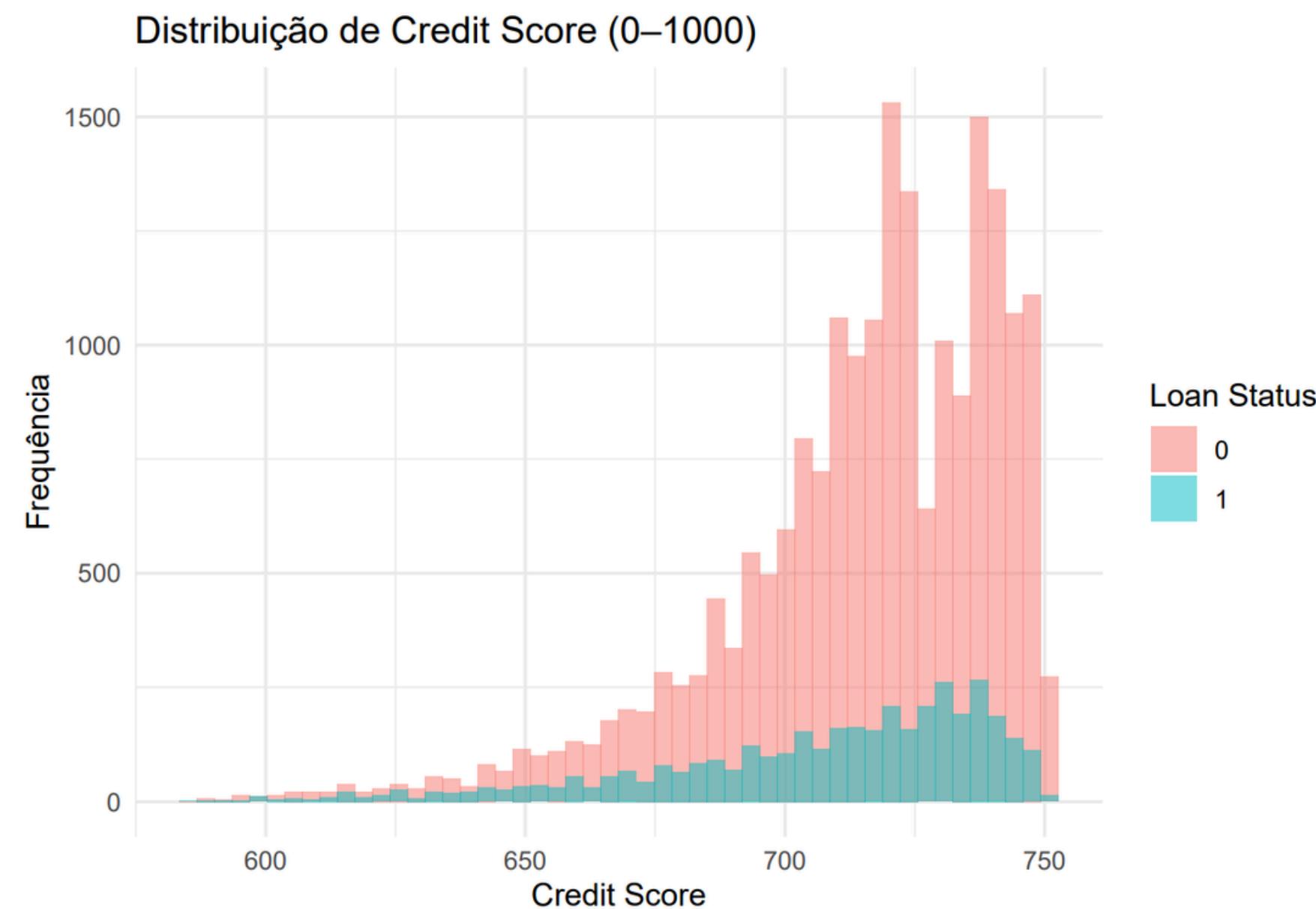
Home Ownership



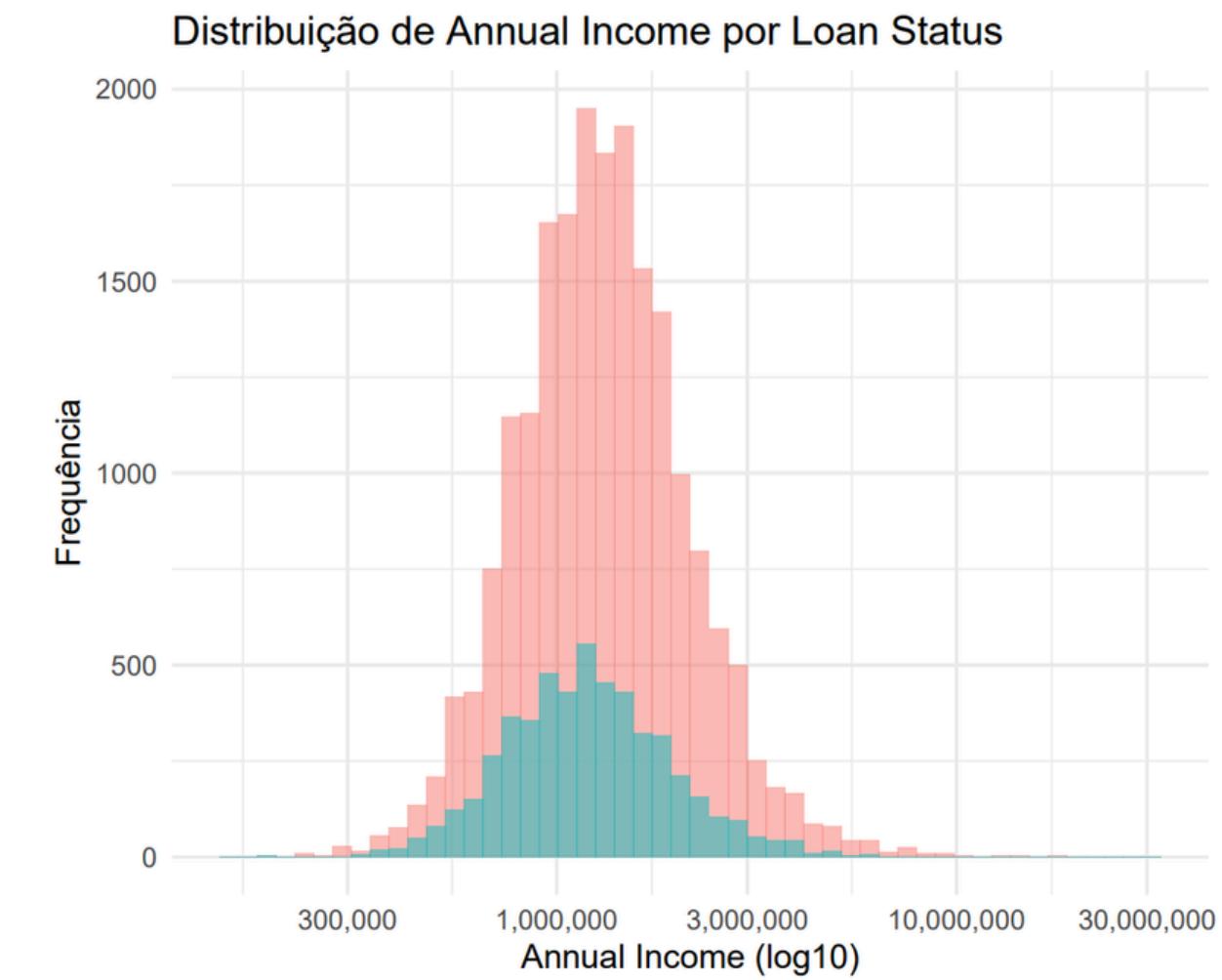
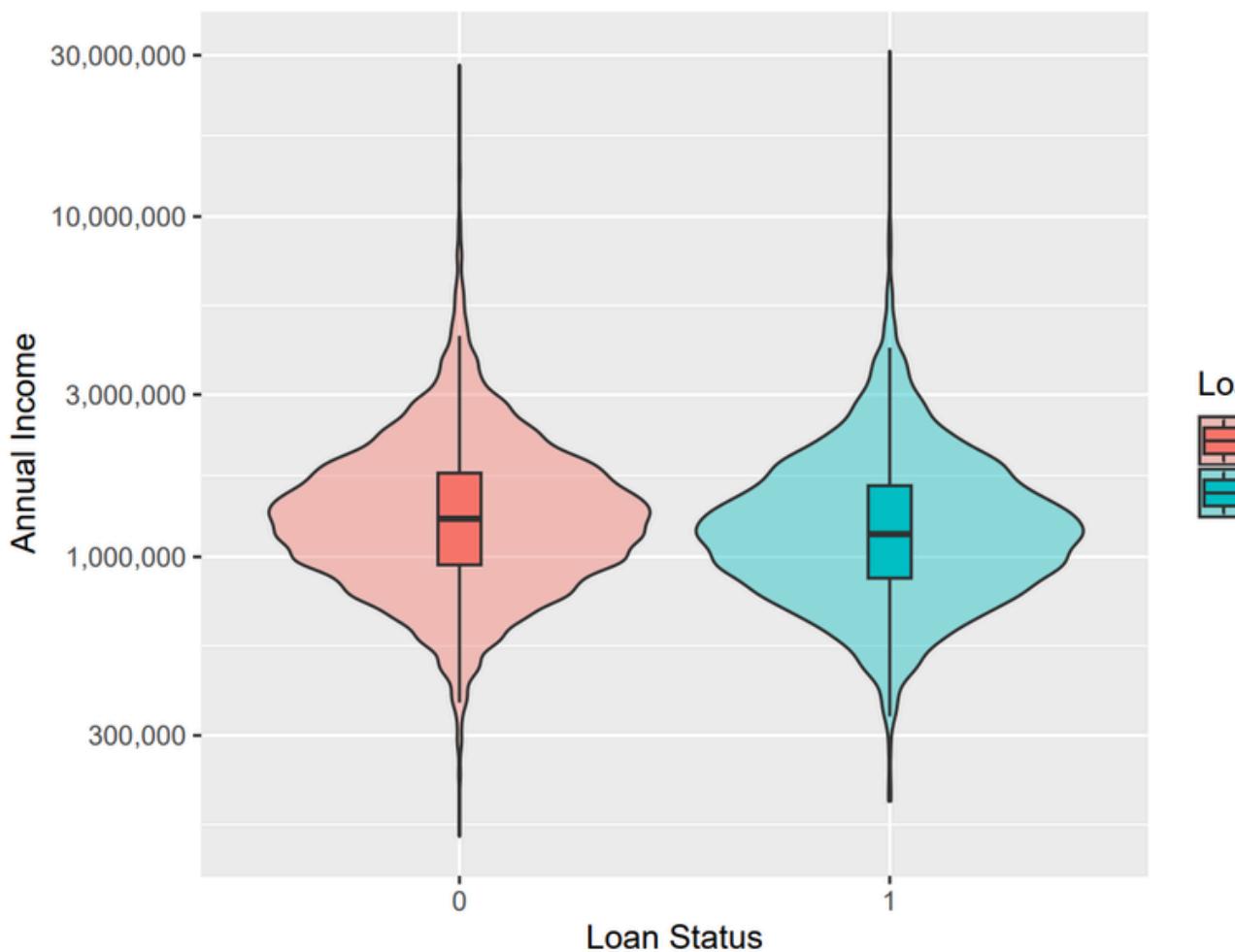
Purpose



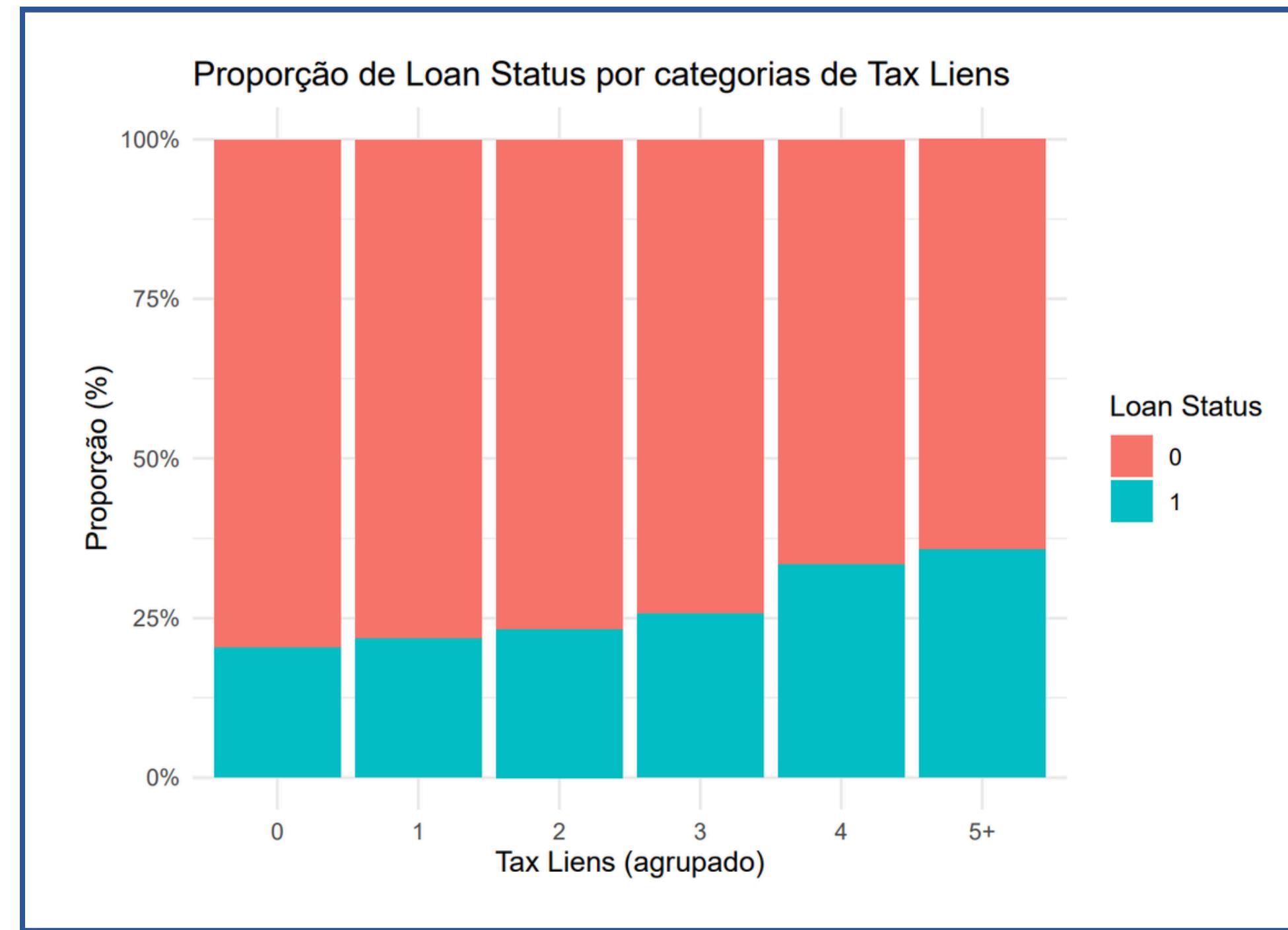
# Credit Score



# Annual Income



# Tax Liens



# Multicolinearidade

	GVIF	Df	GVIF^(1/(2*Df))
Credit Score	1.01	1	1.00
Annual Income	1.05	1	1.02
Tax Liens	1.00	1	1.00
Home Ownership	1.07	2	1.02
Purpose	1.05	13	1.00

# Modelo Logístico Ótimo

Table 5: Modelo logístico ótimo

	Estimate	Std. Error	z value	Pr(> z )	
(Intercept)	-2.13	0.18	-11.80	0.00	
Credit Score	0.00	0.00	15.52	0.00	
Annual Income	0.00	0.00	-8.31	0.00	
Tax Liens	0.11	0.05	2.20	0.03	
Home Ownership	Home Mortgage	-0.17	0.06	-2.60	0.01
Home Ownership	Rent	0.05	0.06	0.70	0.48
Purpose	Debt Consolidation	-0.04	0.16	-0.22	0.82
Purpose	Business Loan	0.53	0.20	2.60	0.01
Purpose	Home Improvements	-0.04	0.18	-0.22	0.83
Purposes	small_business	0.95	0.30	3.20	0.00
Purpose	Buy House	-0.01	0.26	-0.03	0.98
Purpose	Other	-0.14	0.17	-0.84	0.40
Purpose	wedding	-0.08	0.52	-0.15	0.88
Purpose	Buy a Car	-0.66	0.26	-2.54	0.01
Purpose	moving	0.80	0.40	2.01	0.04
Purpose	Take a Trip	-0.41	0.29	-1.41	0.16
Purpose	major_purchase	-0.10	0.37	-0.27	0.79
Purpose	vacation	-0.22	0.57	-0.38	0.70
Purpose	Educational Expenses	-1.49	1.04	-1.43	0.15

# Avaliação do modelo

Table 6: Matriz de Confusão - Previsto vs Real

	Real: 0	Real: 1
Previsto: 0	8694	1642
Previsto: 1	0	589

P-Corte = 50%

Falsos positivos : 0 %.

Acurácia: 85 %.

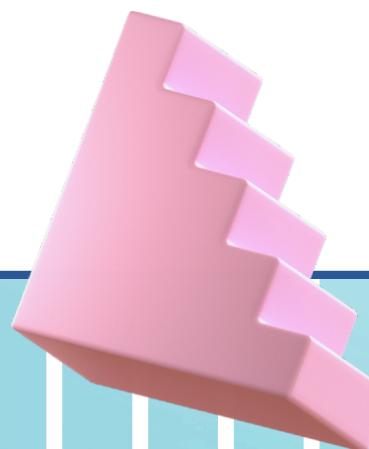
Taxa de falsos negativos: 74 %.

Sensibilidade: 26 %.

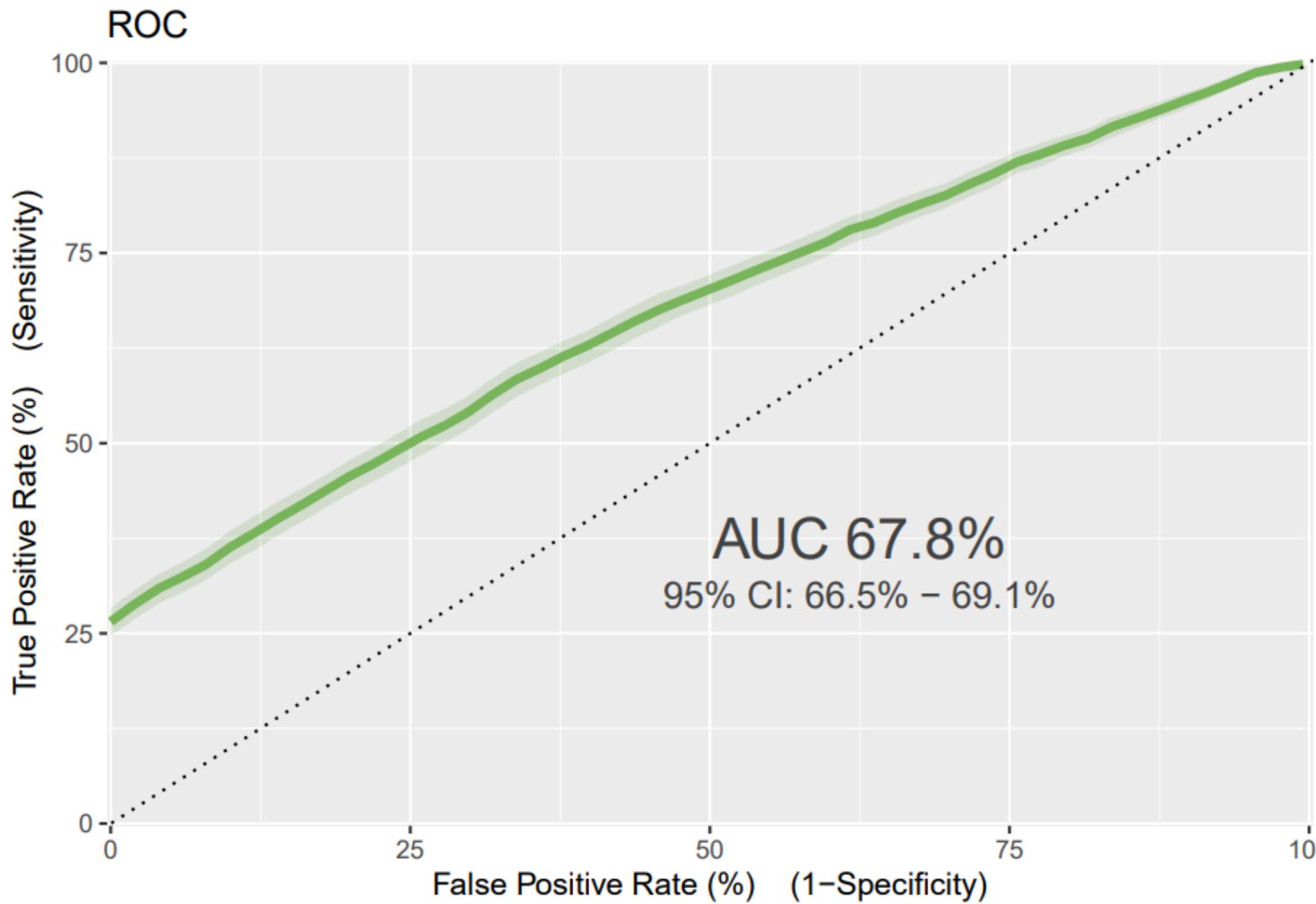
Precisão: 100 %.

Especificidade: 100 %.

Valor predictivo negativo: 84 %.



# Curva ROC, AUC e P-Corte Ótimo



threshold	sensitivity	specificity
<dbl>	<dbl>	<dbl>
0.2013054	0.3105623	0.9588166

# OBRIGADO

