Cross-Selling Car Loans to Remittance Recipients in Uzbekistan: A Machine Learning Approach Using SMOTE-ENN

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Abstract— The primary objective of this study is to develop a robust model that assists financial institutions in identify potential customers with a higher likelihood of adopting car loans. We use a unique dataset of remittance transactions and vehicle financing data provided by a commercial bank in Uzbekistan. To balance data, we apply data sampling techniques. We then compare the performance of Logistic Regression (LR), Decision Tree (DT), and Random Forest (RF) models in these two datasets. Our analysis reveals than all models perform better on the Synthetic Minority Over-sampling Technique Edited Nearest Neighbors (SMOTE-ENN) dataset. DT outperforms the other models. Based on these insights, we recommend using DT and SMOTE-ENN techniques on imbalanced datasets. The results of this study offer practical implications for data scientists and financial institutions in remittance-receiving countries aiming to leverage remittance flows, boost cross-selling, and increase revenue.

Keyword— cross-selling, machine-learning (ML), remittances, vehicle loans, Uzbekistan

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