Home Credit Capstone Project

MSBA
David Eccles School of Business

GROUP 1
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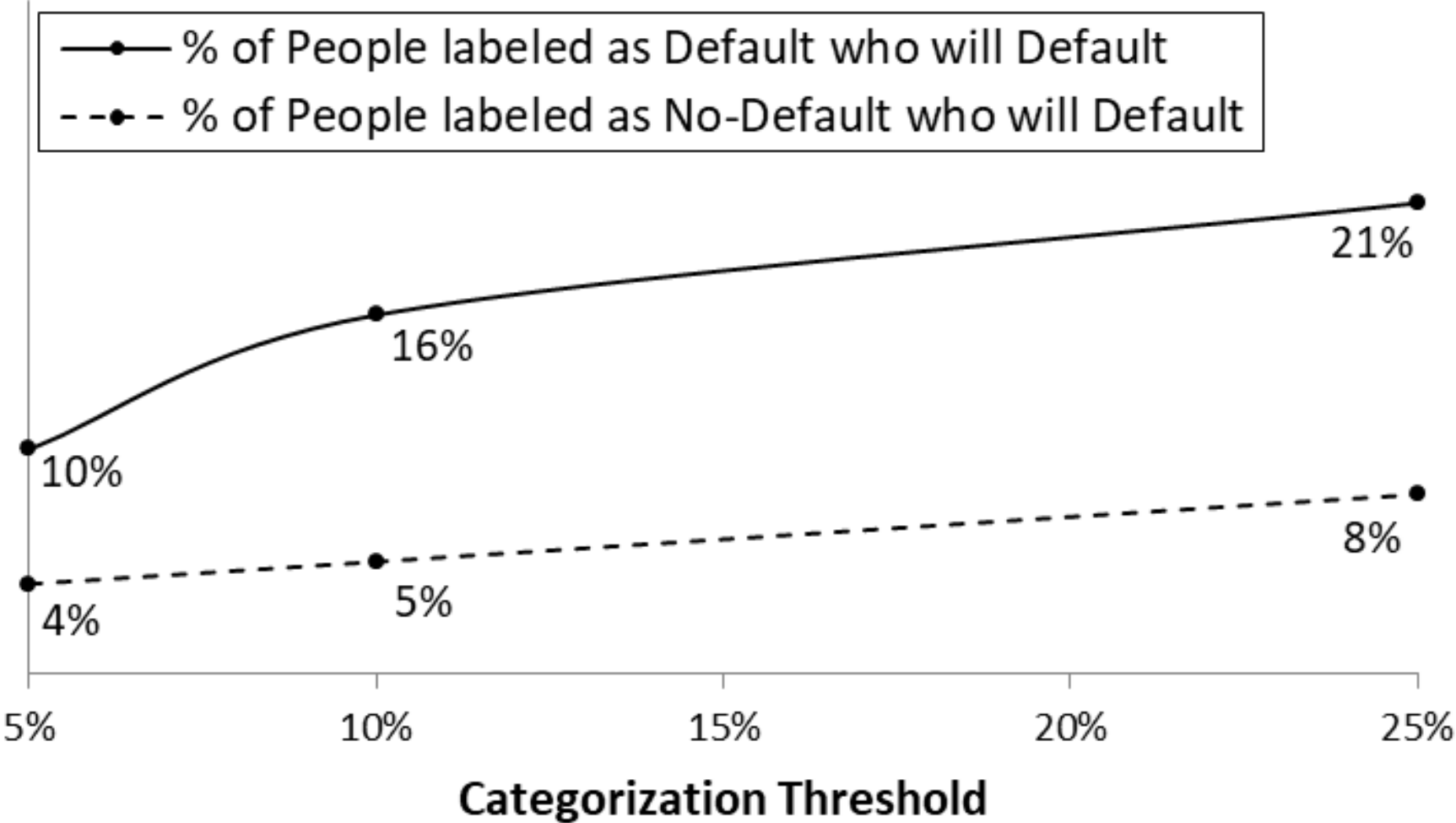GUSTAV VOLLO

Executive Summary

☑ Success: Good Model Generated

☑ Financial Inclusion vs Risk

☑ Opportunities
   Dynamic Threshold Adjustment
   Customized Products

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Legend:
— % of People labeled as Default who will Default
-- % of People labeled as No-Default who will Default

21%
16%
10%
4%
5%
8%

Categorization Threshold

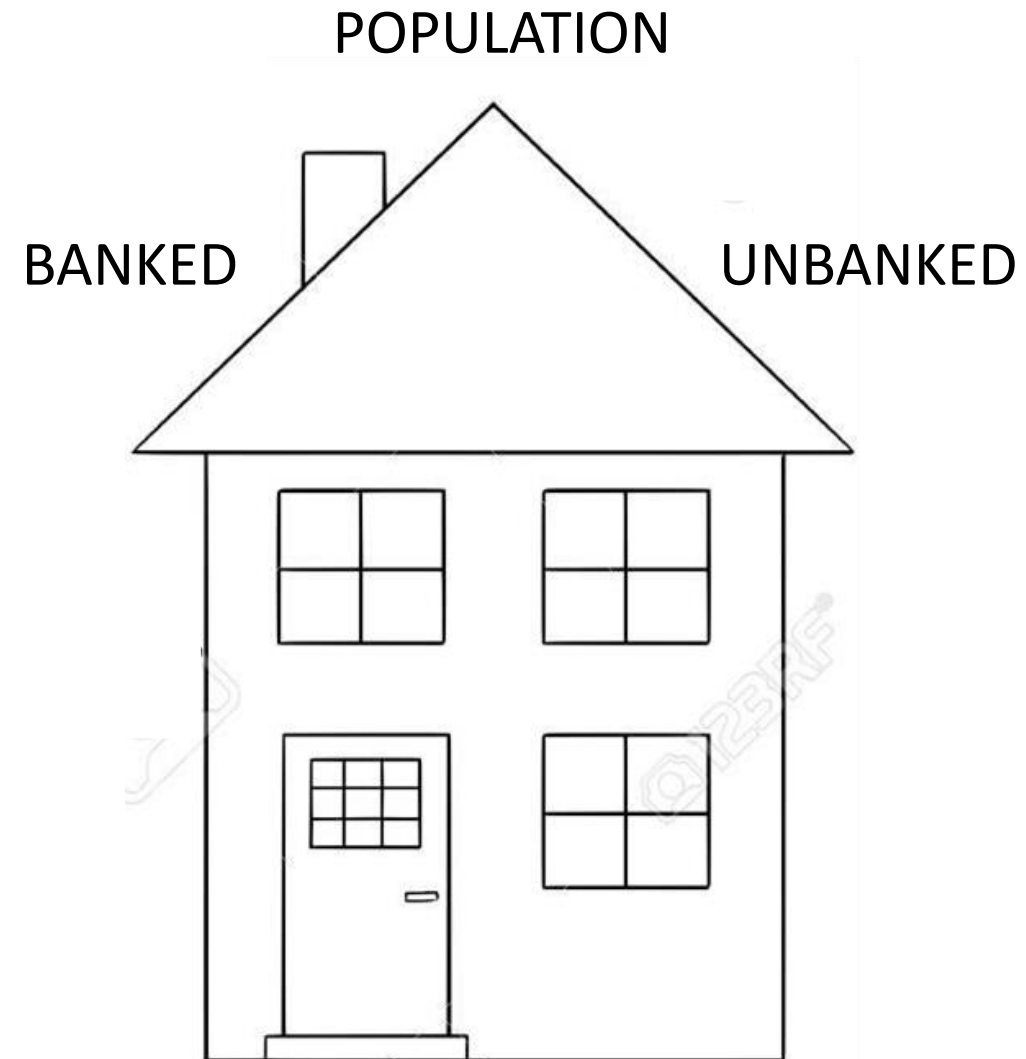Increasing Inclusivity

Increasing Risk

Executive Summary

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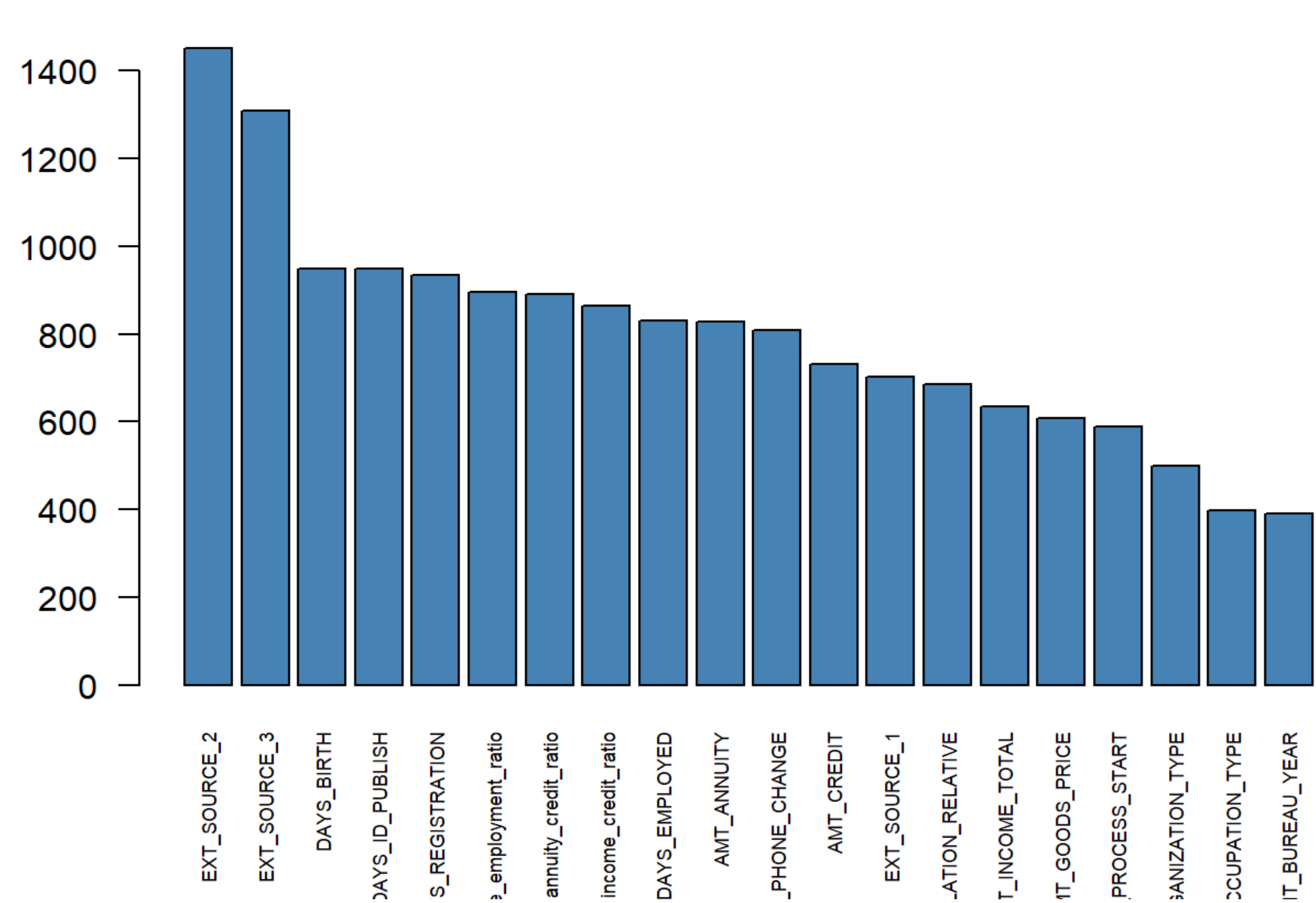 Dynamic Threshold Adjustment
  Customized Products

Business Problem Statement

☑ Financial Inclusion

☑ Safe Borrowing Experience

☑ Manage Level of Risk

POPULATION

BANKED   UNBANKED

Exploratory Data Analysis

Top Variable Importance from Random Forest 3

- ☑ Explore
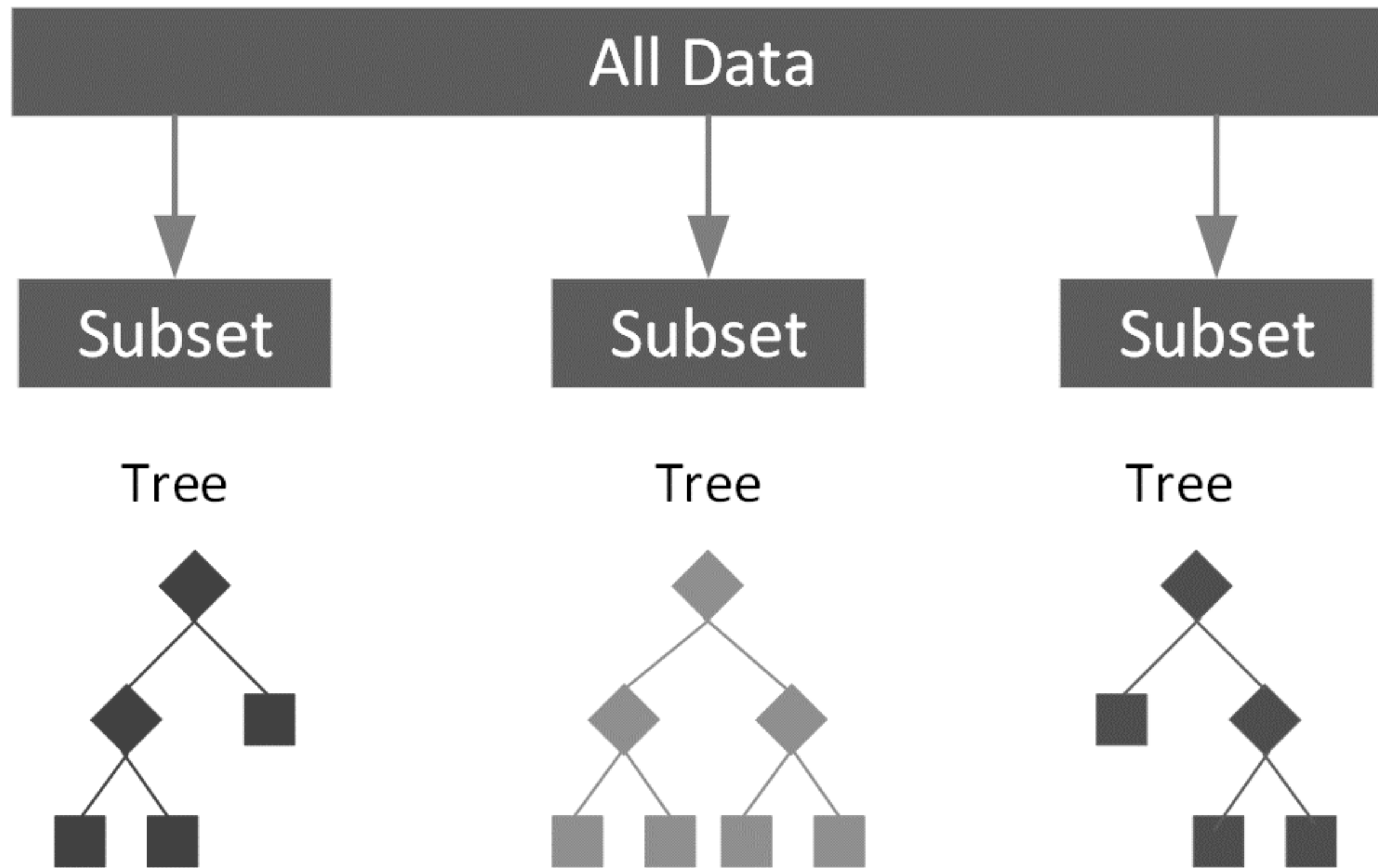- ☑ Transform
- ☑ Engineer

Exploratory Data Analysis
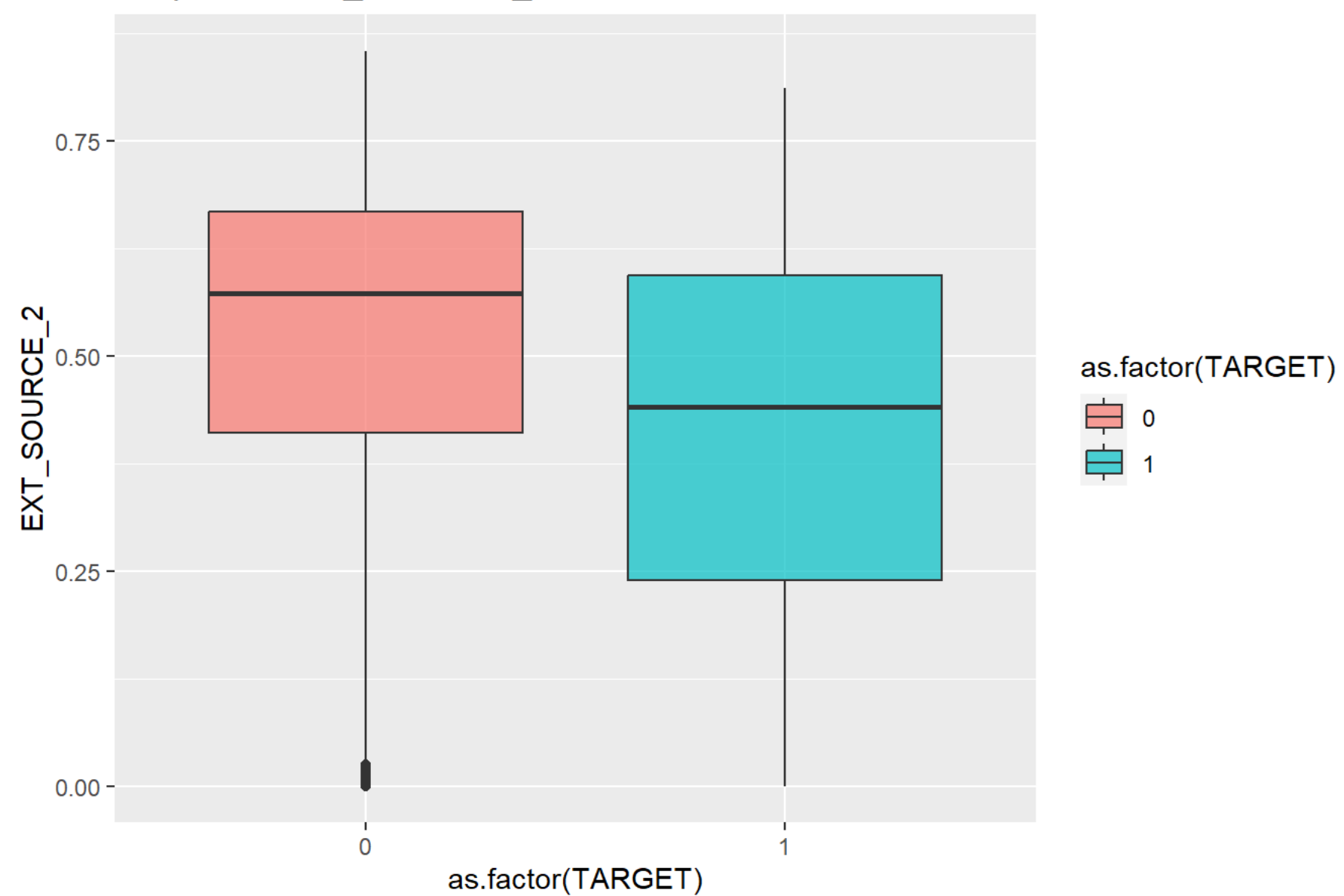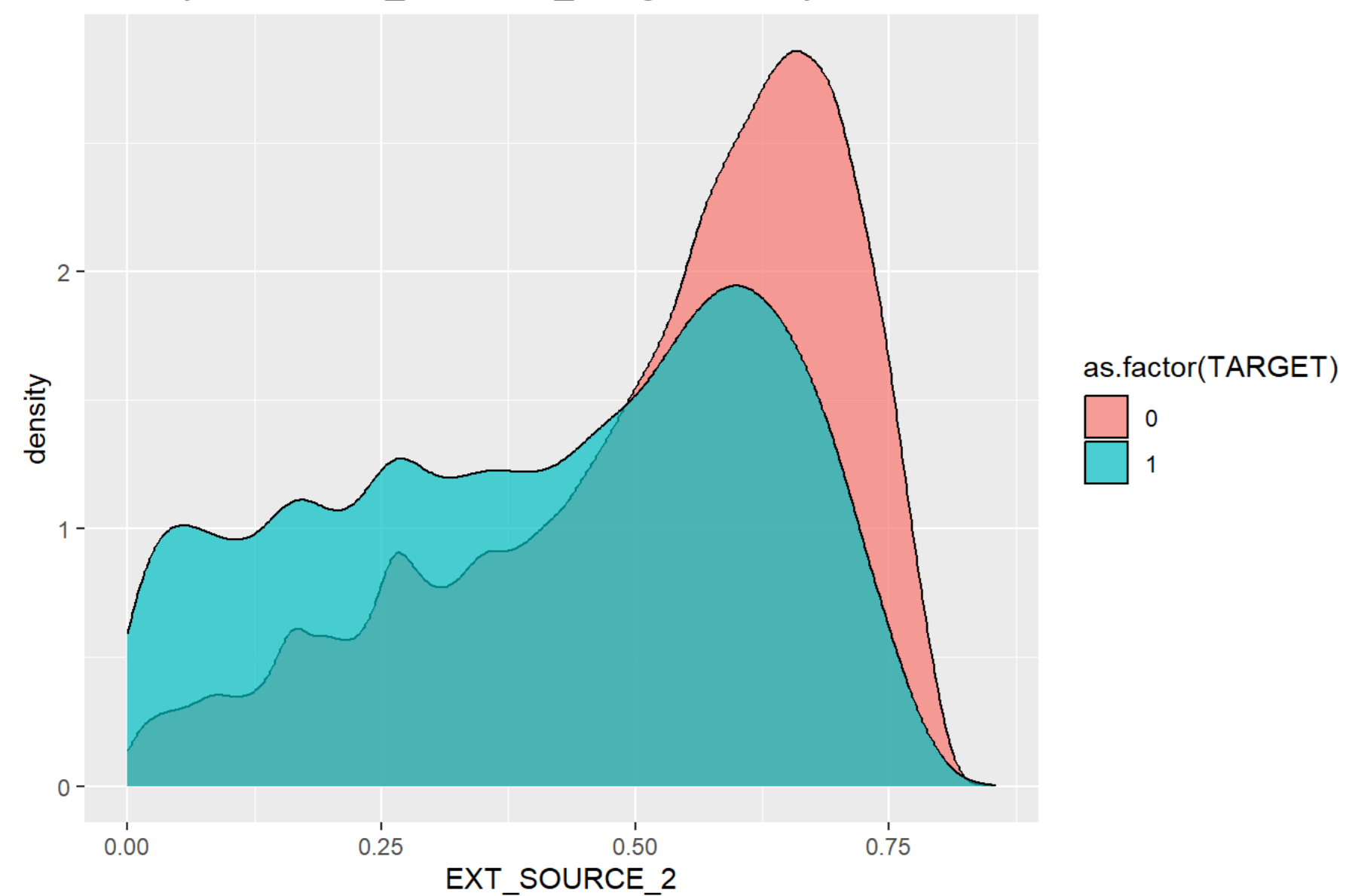
Modeling XGBoost

XGBoost

Process & Tuning

Reasoning

Balancing Financial Inclusion and Default Risk

◆ Our model reduces risk but cannot entirely eliminate the chance of individual defaults

◆ Applying dual models to demonstrate how increasing default prediction thresholds balances extending credit to more applicants

◆ Thresholds can be adjusted dynamically in response to the prevailing economic climate

Preliminary Model Exploration

Prediction Thresholds	0.05	0.10	0.25
Test-Set Accuracy	0.36	0.73	0.91
Positive Predictive Value (PPV)	0.10	0.16	0.21
Negative Predictive Value (NPV)	0.96	0.95	0.92

Balancing Financial Inclusion and Default Risk

At 25% threshold, 8% of people labeled as **"no-default"** will **actually default**

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Our Recommendations

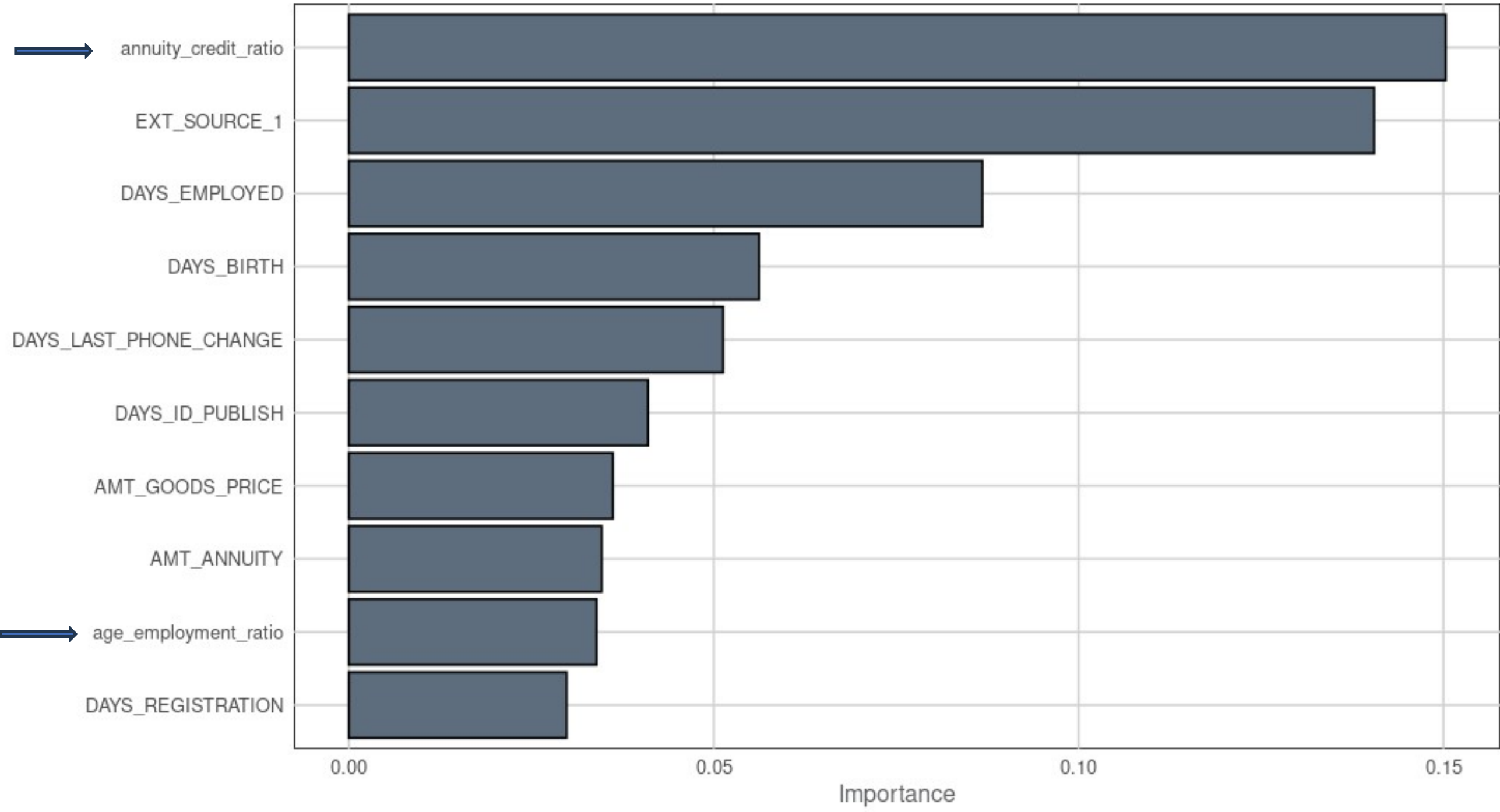**Balancing Financial Inclusion and Default Risk**

Dynamic Threshold Adjustment for Loan Approvals

Credit Evaluation Using Predictive Modeling

Development of Customized Financial Products

Additional Data Insights – Posterior Observations

Questions?

Thank You!

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