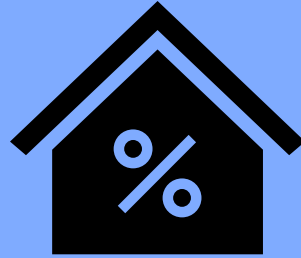# Opening a Mortgage Business

James Scott

The Problem

Create interest rate model

Where to setup shop?

Problem | Solution | Outcome | Recommendation

Why It Matters

1. Risk management

2. Competitive pricing

3. Optimal resource allocation

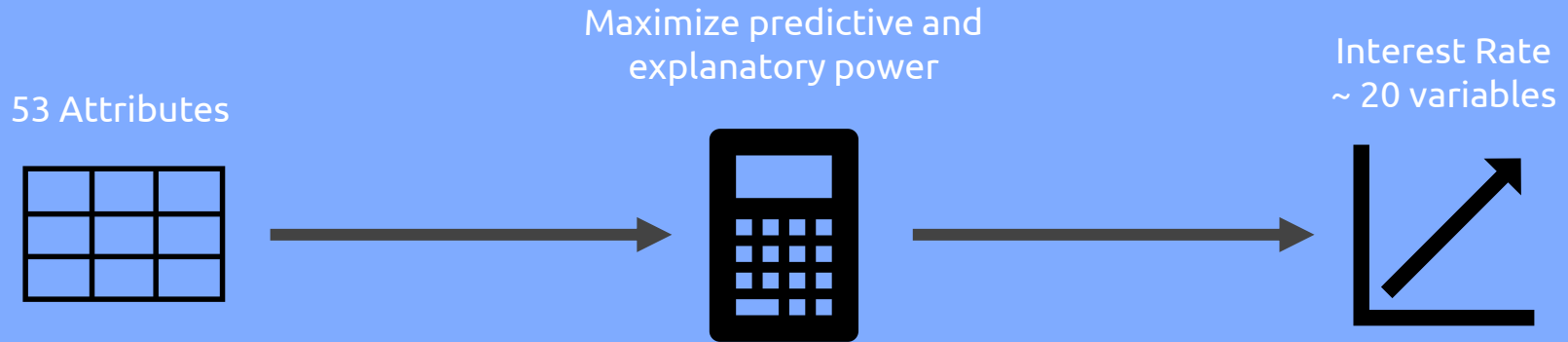Problem | Solution | Outcome | Recommendation

The Dataset

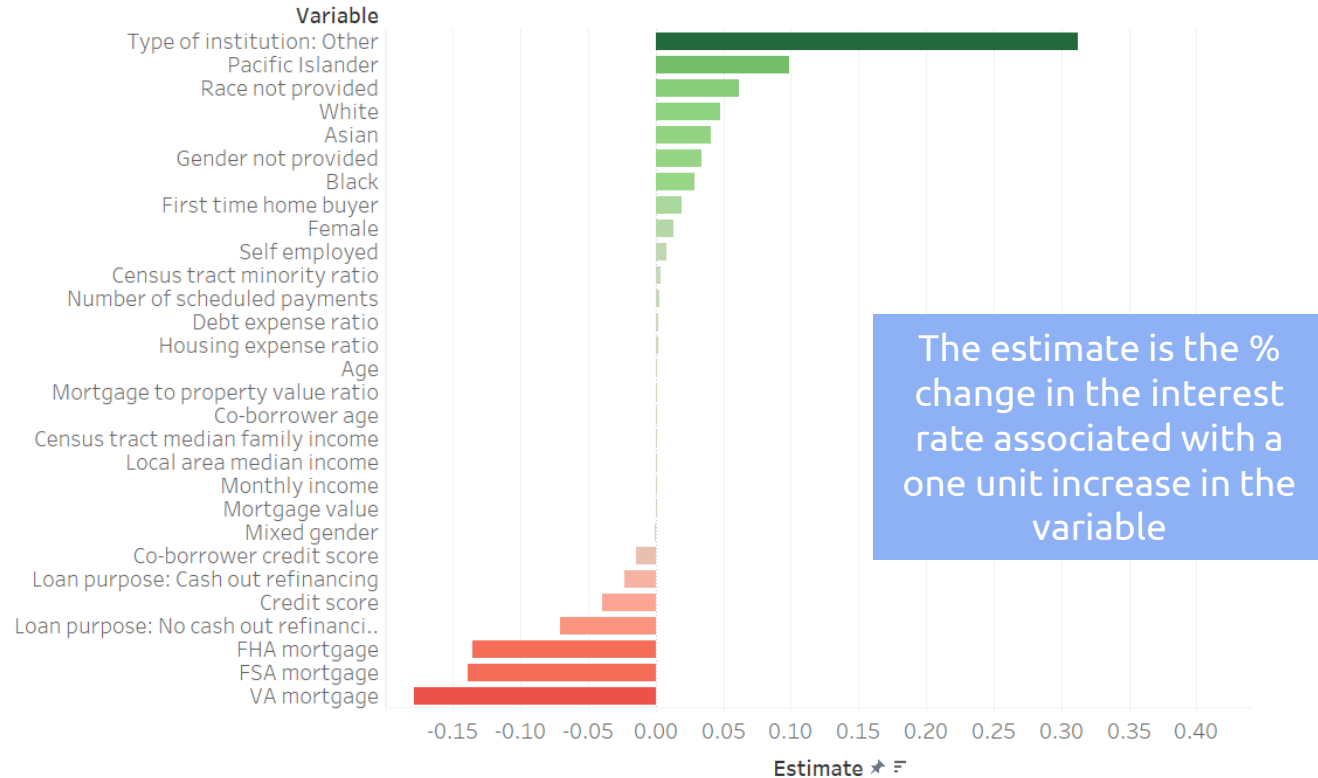

Problem 〉 Solution 〉 Outcome 〉 Recommendation 〉

The Interest Rate Model

53 Attributes

Maximize predictive and explanatory power

Interest Rate ~ 20 variables

| Problem | Solution | Outcome | Recommendation |

Coefficient Estimates

Variable

Variable	
Type of institution: Other	
Pacific Islander	
Race not provided	
White	
Asian	
Gender not provided	
Black	
First time home buyer	
Female	
Self employed	
Census tract minority ratio	
Number of scheduled payments	
Debt expense ratio	
Housing expense ratio	
Age	
Mortgage to property value ratio	
Co-borrower age	
Census tract median family income	
Local area median income	
Monthly income	
Mortgage value	
Mixed gender	
Co-borrower credit score	
Loan purpose: Cash out refinancing	
Credit score	
Loan purpose: No cash out refinanci..	
FHA mortgage	
FSA mortgage	
VA mortgage	

-0.15 -0.10 -0.05 0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40

Estimate ✈ ☰

The estimate is the % change in the interest rate associated with a one unit increase in the variable

Problem ⟩ Solution ⟩ Outcome ⟩ Recommendation

6

Average Credit Score and Total Mortgage Value

Note Amount
$0.4M — 2B
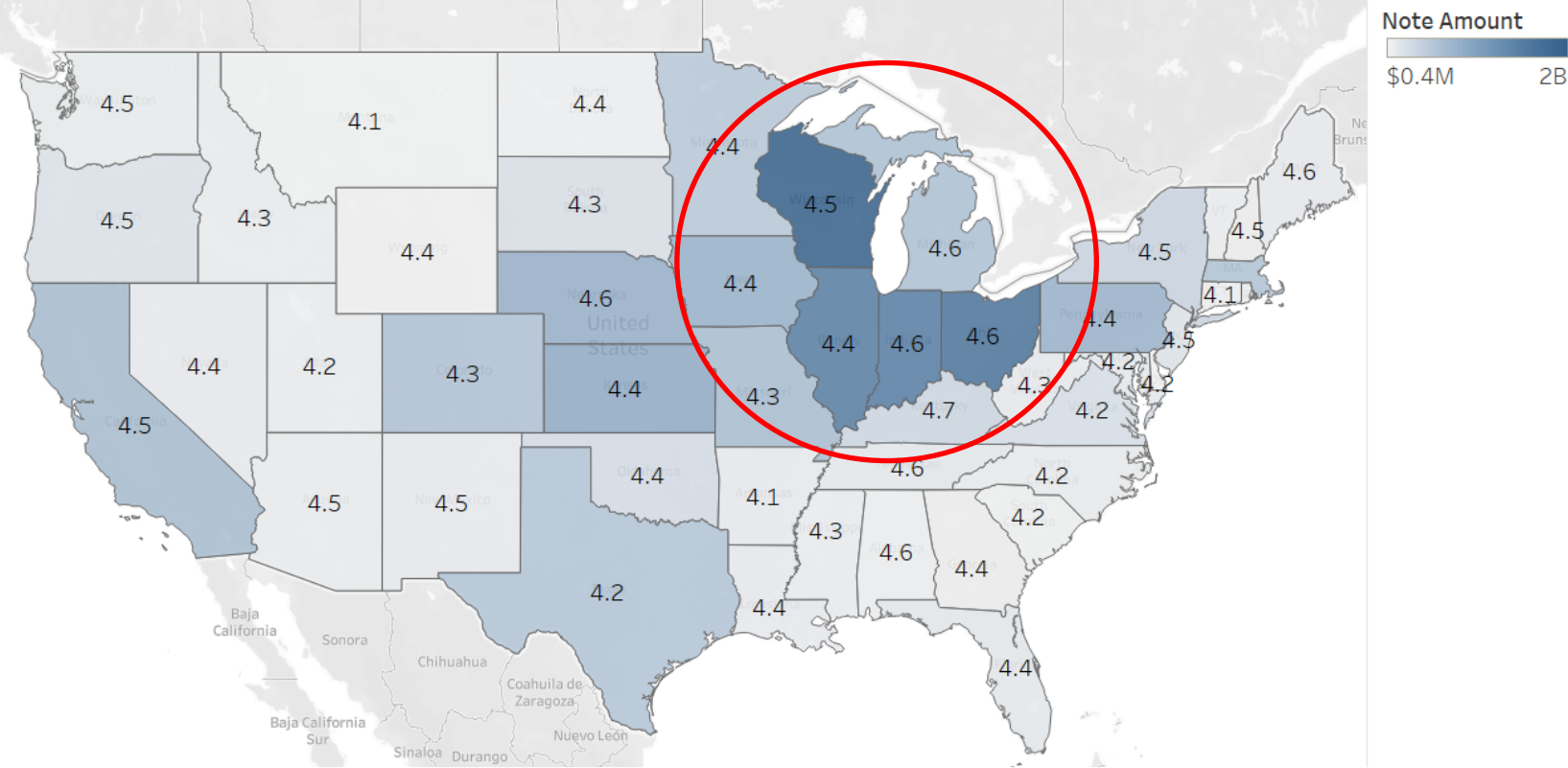
| Problem | Solution | Outcome | Recommendation |

Difference Between Predicted and Actual IR Given Credit Score

Rate Difference

-0.49   0.21
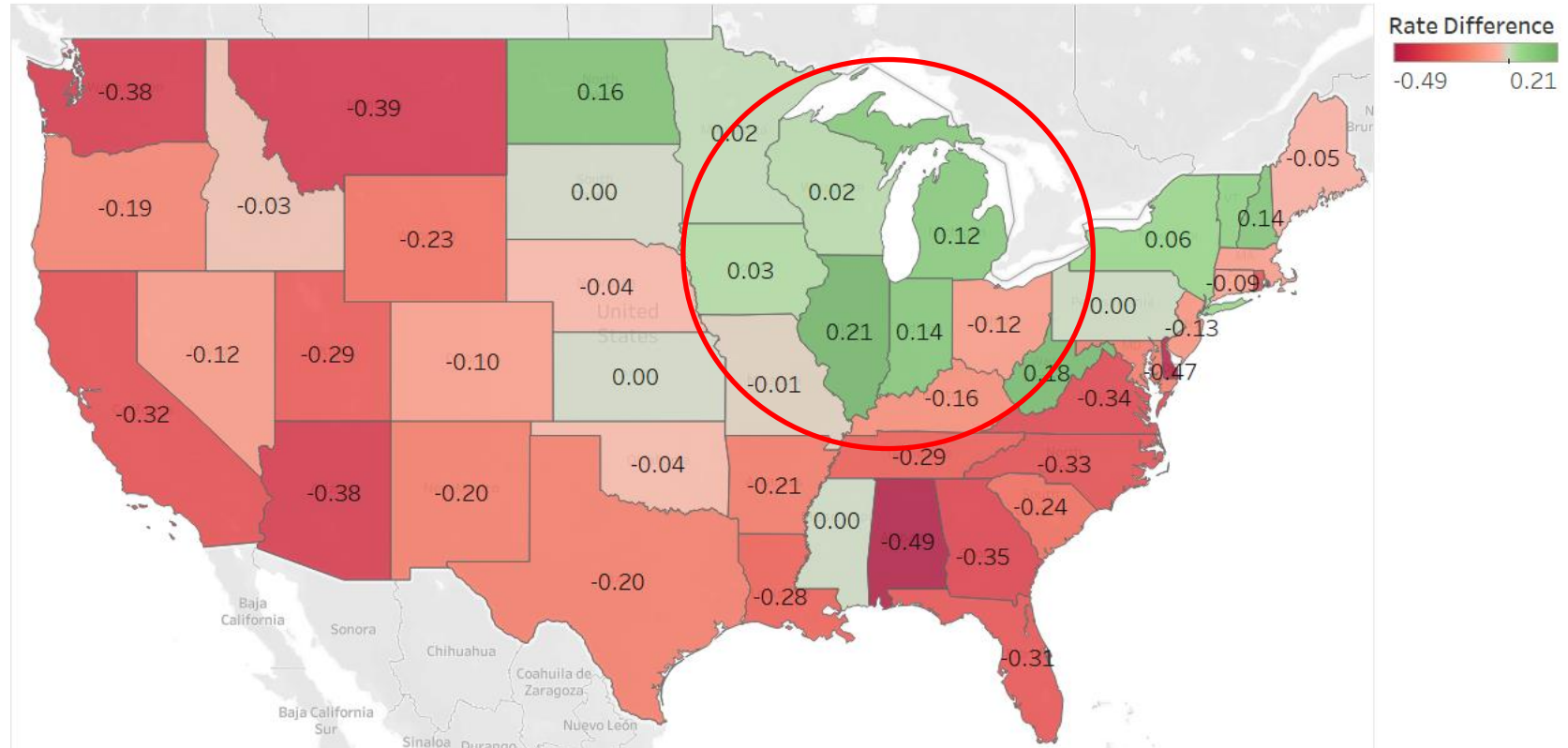
Problem	Solution	Outcome	Recommendation
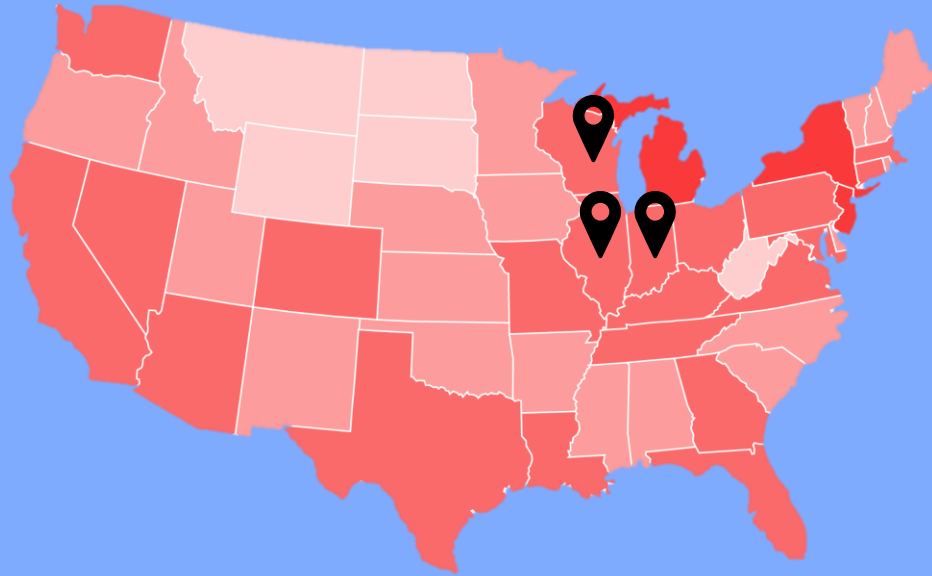
Recommendation

Thank you