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Project Overview

5.2 million microbusinesses
99% have fewer than 10 people
55% are poor or vulnerable
87% operate entirely informally

- 1) Understand regional trends and the **underlying causes of microbusiness informality** and financial exclusion
- 2) Develop **quantifiable indices** and policy recommendations that can help boost financial inclusion for poor and vulnerable microbusinesses

Data

GEIH (Gran Encuesta Integrada de Hogares)



Demographics



Household Labor & Connectivity

General Household Population Survey

EMICRON

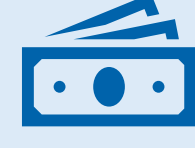
(Microbusiness Survey)



Real Estate



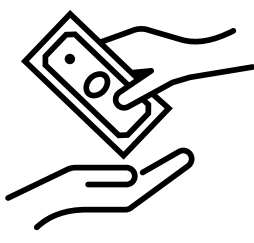
Employees



Finances

Sub-module Focused on Micro-Businesses

Microbusiness Landscape



Businesses Applying for Loans

18%

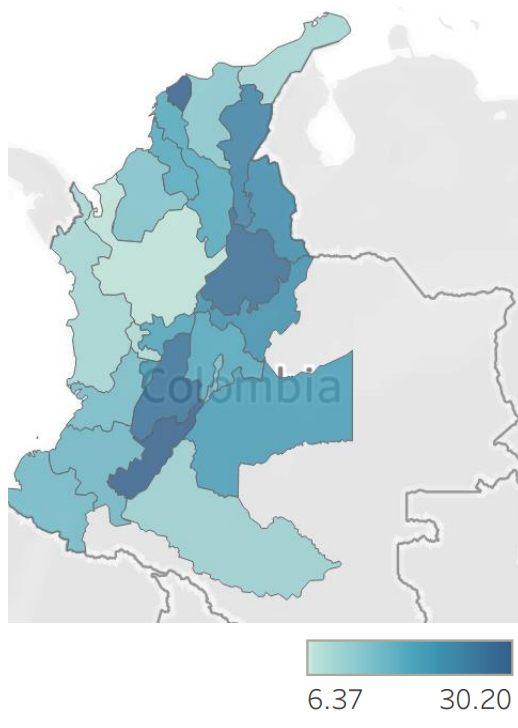
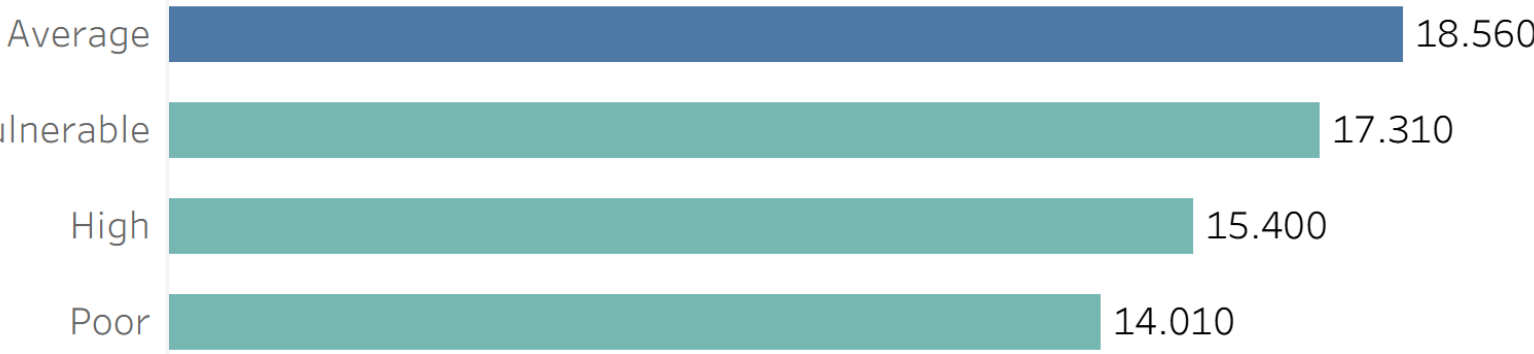
applied for a loan in the last year

43%

did not apply due to fear of debt

94%

of loan applications are approved



Businesses Saving Money

19%

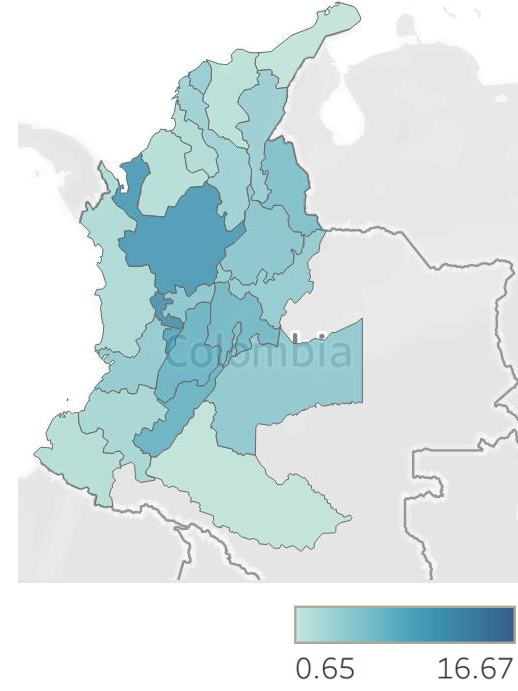
saved money in the last year

24%

of savers do so in financial institutions

67%

of savers do so at home

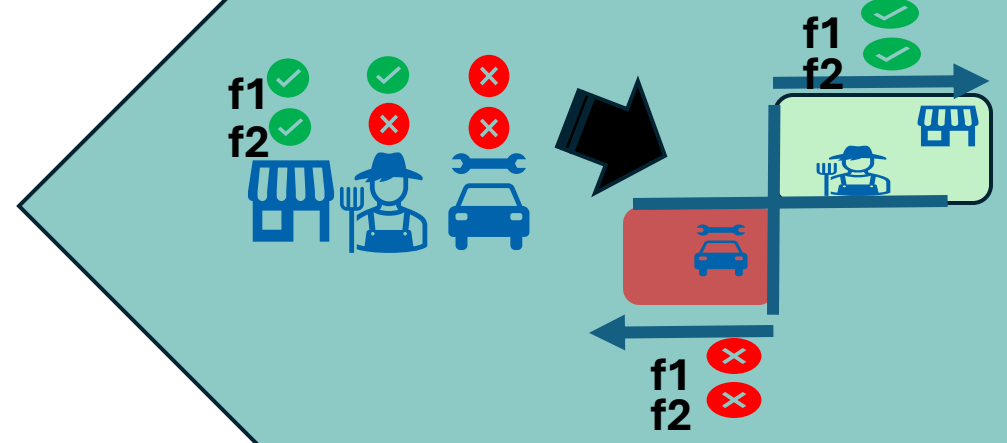
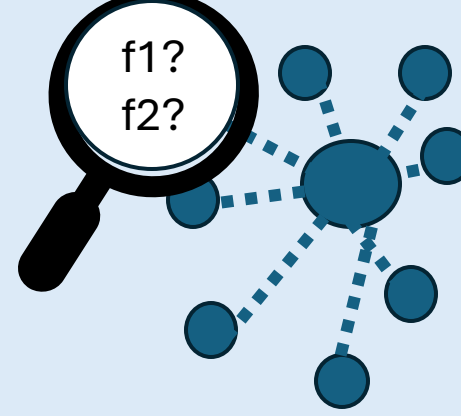


Methodology

Clustering

KMeans Clustering

Identify Differentiating Features



Multiple Correspondence Analysis to Construct Latent Structure (e.g., Digital Maturity)

MCA

Modeling

Structural Equation Modeling (SEM) to understand correlation between different latent structures

Assessment: Comparative Fit Index (CFI)

Random Forest (RF) to identify what features can be predictive of productive loan

Assessment: Out-of-Bag (OOB) Error Rate

Results

4 Indices

- Registered with the Chamber of Commerce?
- Has a single tax registry?
- Paid Occupational Risk Insurance?
- Paid compensation fund or SENA/ICBF (social and labor welfare)?
- Paid for health or pension in last month?

FORMALITY



- Saves money in a financial institution?
- Accepts online payments?
- Accepts credit cards as payment?
- Applied for a credit or loan in the last year?

FINANCIAL FORMALITY



- Has an email?
- Uses a cellphone?
- Uses a laptop or tablet?
- Has internet service?

DIGITAL READINESS



- Has a trade name?
- Has workers who receive payments?
- Has a website?
- Does accounting / daily bookkeeping?

BUSINESS SOPHISTICATION



SEM for index interrelationship

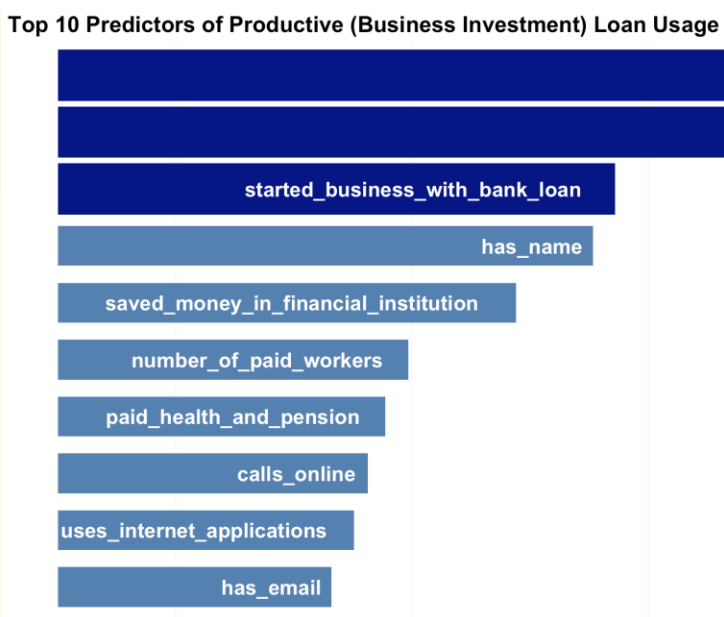
Index 1	Index 2	Std Estimate
Formality	Business Sophistication	0.906
Digital Readiness	Business Sophistication	0.721
Financial Formality	Digital Readiness	0.646
Financial Formality	Business Sophistication	0.379

0.952

Scaled Comparative Fit Index

RF for predicting loan utilization

23.73% Out-of-Bag Error Rate



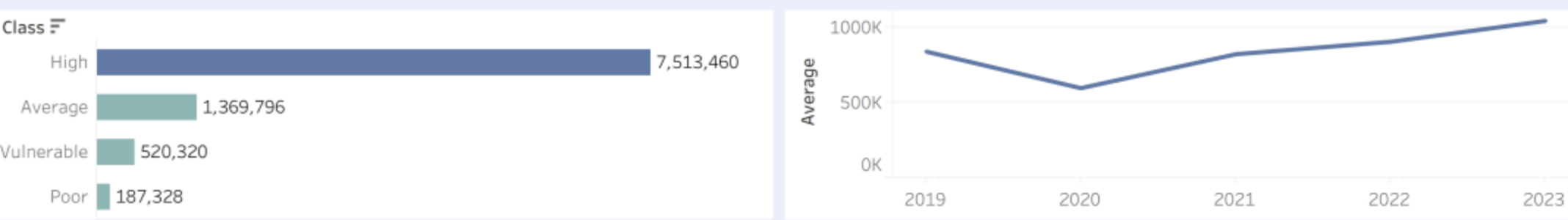
Dashboard

Colombia Microbusiness Credit Scoring Index

Select the feature you'd like to assess and apply filters as needed

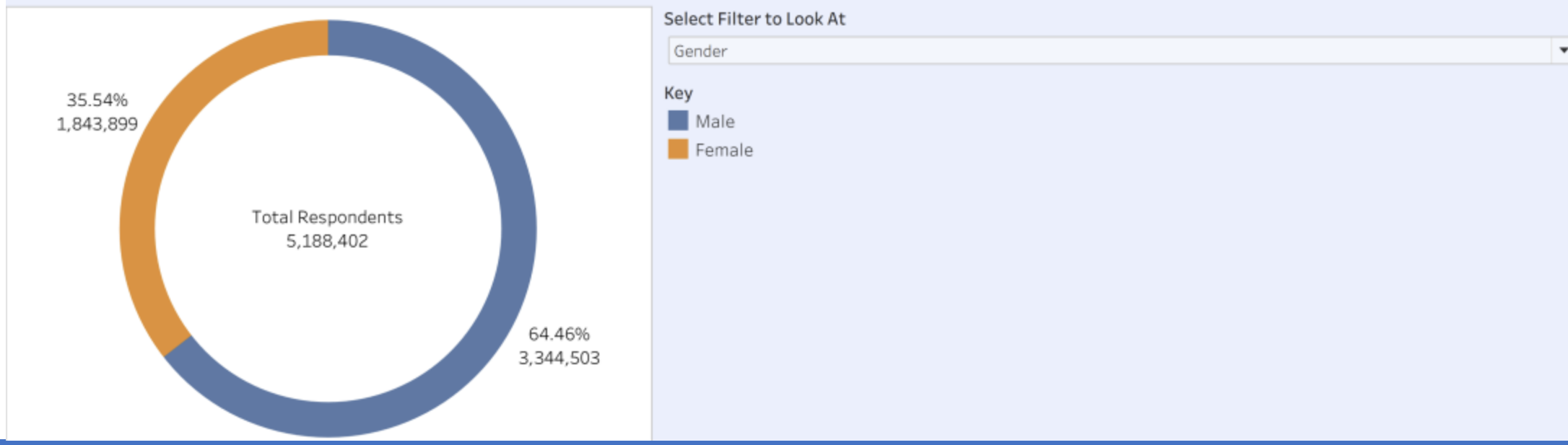
Select Feature: Net Profit
Survey Year: 2023
Age: 2
Gender: (Multiple values)
Education Level: (Multiple values)
Why not applied for credit or loan?: (Multiple values)
What did business use loan for?: (Multiple values)
Who did business apply for the loan from?: (Multiple values)
Business applied for credit or loan last year?: (Multiple values)
Did business get requested credit or loan?: (Multiple values)
Business has single tax registry (RUT)? (Multiple values)
Got / renewed chamber of commerce registration this year?: (Multiple values)
Business is registered with chamber of commerce?: (Multiple values)
Did business save money in previous year?: (Multiple values)
Business has website?: (Multiple values)
Business has email?: (Multiple values)
Business has name?: (Multiple values)
Business has internet service?: (Multiple values)
Business uses cell phone?: (Multiple values)
Urban or Rural: (Multiple values)

Average 1,041,810 Total Respondents 5,188,402



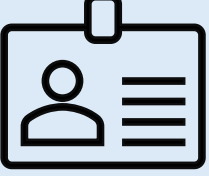
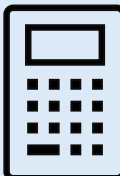
Formality 0.51 / 5 Financial Formality 0.50 / 4 Digital Readiness 1.32 / 4 Business Sophistication 1.14 / 4

Optional: Use the chart below to explore the different filters and more



Policy Recommendations

Promote Formality via Business Sophistication (to lower barriers to formality)



Encourage Digital Transformation (to gain access to formal financial services)

Boost Loan Uptake and Number of Savings Accounts (to help close the gap in formality)

Survey Business Progress, Not Only Status (to move the analysis from correlation to causation)

Adoption in Other Countries (to build similar models worldwide)

