

Improving Just One Algorithm Can Help Tens Of Millions of Americans

A better way to estimate race in fair lending analysis can boost the Black and Hispanic homeownership rate and close the wealth gap. Here's how.

To comply with federal fair lending laws, banks and credit unions must prove they don't discriminate based on race and other protected statuses. But lenders cannot ask for an applicant's race except in mortgage lending, and even in mortgage lending almost a third of applicants put nothing down.

In the absence of data, lenders, regulators and credit bureaus have to guess. The de facto way to do that is with a 30-year-old formula called Bayesian Improved Surname Geocoding (BISG) that combines last name and geographic data to estimate the race.

BISG brought objectivity to fair lending and its predictions work well in racially homogenous areas. But our country is not homogenous. BISG's accuracy has declined as areas diversify and densify.

Zest built a new Race Predictor model (ZRP) that identifies Black borrowers with far more accuracy than BISG. (See sets of results at right.) Generating more accurate race labels makes for better fair lending analysis, which produces more equitable lending. It's a win for all.

TRAINED ON FLORIDA DATA IN 2020

Zest used Florida voter data to train a simple but powerful machine learning model to predict someone's race. Here's how it compared to BISG, the standard race proxying method used today:



TESTED IN NORTH CAROLINA IN 2021

Zest worked with Harvard's Tech For Social Good program to replicate those results in an equally diverse state. Here's how it compared to BISG:



VALIDATED NATIONALLY IN 2021

Zest used multi-state voter registration data to build a national model, keeping it to full name plus ACS demographics. Here's how it compared to BISG:

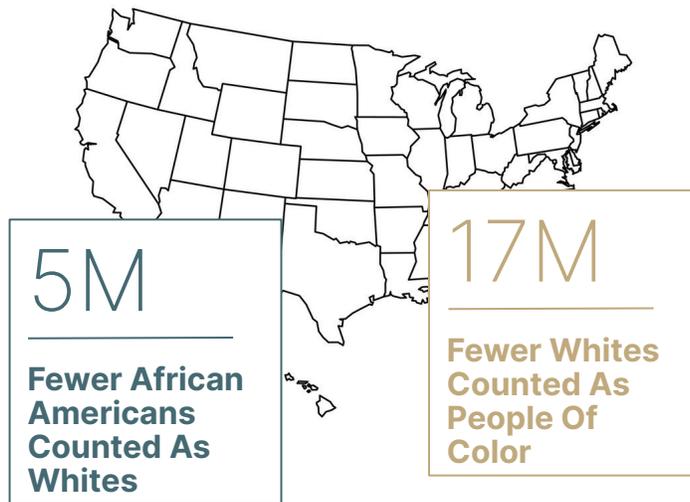


WHAT'S THE ECONOMIC IMPACT OF BETTER RACE ESTIMATION?

Better race estimation can reduce bias in lending by giving us a more accurate picture of who's getting approved or denied and generating truly fair and less discriminatory underwriting models.

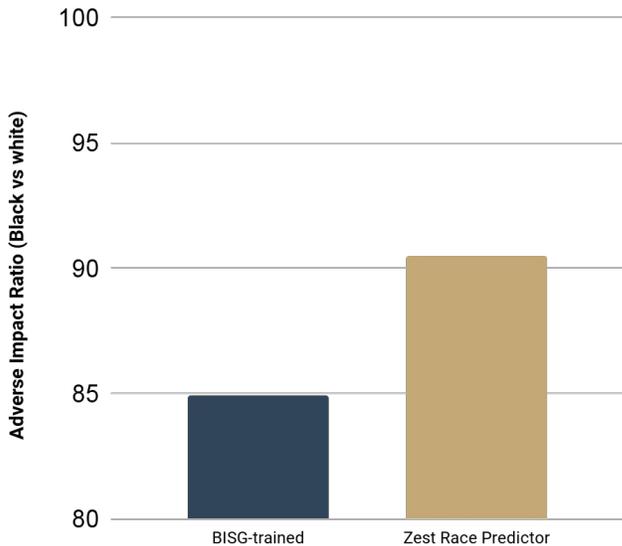
For example, Zest worked with one Florida auto lender to create two fairer alternative models to its baseline model. The first one we created using BISG, and the other with ZRP. The result? The ZRP-trained model did a much better job closing the approval rate gap between White and Black borrowers — from 85% to 91%. Apply that nationwide and **we're talking about tens of thousands of new loans.**

NATIONWIDE IMPACT (est.)



CLOSING THE APPROVAL GAP

A better race proxying method, in combination with de-biasing tools, can substantially shrink disparities in approval rates between Black and white applicants.



Note: Adverse impact ratio measures the difference in approval rates between two classes.

For further reading:

“Use of Geocoding and Surname Analysis to Estimate Race and Ethnicity”, Kevin Fiscella and Allen M. Fremont, RAND, 2006 | [LINK](#)

“A New Method For Estimating Race/Ethnicity And Associated Disparities Where Administrative Records Lack Self-Reported Race/Ethnicity,” Marc N Elliott and Allen Fremont et al, RAND, 2008 | [LINK](#)

“Fair Lending: Implications for the Indirect Auto Lending Market,” Arthur P. Baines and Marsha J. Courchane, Charles River Associates, 2014 | [LINK](#)

“Using Publicly Available Information to Proxy For Unidentified Race And Ethnicity,” CFPB, 2014 | [LINK](#)

“60% Black Homeownership: A Radical Goal For Black Wealth Development,” Dedrick Asante-Muhammad et al, NCRC, 2021 | [LINK](#)

“It’s Time For Lenders To Stop Mislabeled Millions of Americans,” Teddy Flo, Morning Consult, 2021 | [LINK](#)