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Racial Disparities in the U.S. Mortgage Market

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Racial Disparities in the U.S. Mortgage Market

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Studying disparities and discriminatory forces in the U.S. mortgage market is central to understanding the racial wealth gap, which features prominently in policy discussions.¹

The goal of this study is to empirically examine the extent and potential drivers of disparities in mortgage access and cost. We consider technological and individual factors that might mitigate or exacerbate disparities. The technological factor we examine is the use of purportedly race-blind algorithms known as automated underwriting systems (AUS), which are widely used in the mortgage market. Recent evidence from peer-to-peer and small business credit data suggests that the use of automation, specifically, robo-advising and automatic income verification, might reduce racial disparities (Howell et al., 2023; D’Acunto et al., 2021).

Our investigation of individual factors—specifically, loan officers’ race and whether borrowers’ race is observed at application—is motivated by work studying financial gatekeepers such as loan officers and investors (Fisman, Paravisini and Vig, 2017; Cook, Marx and Yimford, 2022; Frame et al., 2024).

Empirically studying racial disparities in the mortgage market is challenging. Naive approaches comparing minority and White borrowers using differences in means (henceforth *observed* disparities) typically show large disparities. For example, the average Black applicant is 14 percentage points less likely to be ap-

proved for a mortgage than the average White applicant (Figure 1, Panel A2).

Since the seminal work of Munnell et al. (1996), much ink has been spilled on the fact that research documenting *observed* disparities does not disentangle the role of race from creditworthiness and other factors that might be correlated with race while also directly impacting mortgage access and cost. Precisely estimating disparities would require an experiment with borrowers identical on every possible dimension except race, which would be randomly assigned.

We resemble this ideal experiment by comparing minority and White borrowers with the same demographic and risk characteristics, with mortgages with the same characteristics, and with the same bank, loan officer, and underwriting method. This approach requires detailed data linking borrowers, banks, and officers. We will discuss these data next.

I. Data

We rely on data developed in Hurtado and Sakong (2024), a study that investigates the economics of minority bank ownership. These data incorporate several innovations, which range from new data sources such as LinkedIn headshots to new tools such as balanced facial attribute recognition used to predict loan officers’ race. We refer the reader to Hurtado and Sakong (2024) for more details on the data.

We use the near-universe of nonbrokered mortgage applications submitted under the Home Mortgage Disclosure Act (HMDA) from 2018 to 2019. We access a confidential version of the HMDA data through the Federal Reserve System, which contain information on applicants’ credit risk and their loan officers.

We focus on three minority categories combining race and Hispanic ethnicity: non-Hispanic Asian (henceforth Asian), non-Hispanic Black (henceforth Black), and Hispanic of any race (henceforth Hispanic).²

²These categories are based on the Office of Management

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¹The mortgage market matters for wealth accumulation because 1) most U.S. households need a mortgage to own housing, 2) having a mortgage likely leads to a 1-to-1 rise in wealth (Bernstein and Koudijs, 2023), and 3) housing is the principal asset held by U.S. households and 4) has the highest risk-adjusted return (Jordà et al., 2019).

We use three datasets containing Asian–White, Black–White, and Hispanic–White mortgage applicants and discuss results by minority category, from largest to smallest: Hispanic (45 percent of minority applicants), Black (31 percent), and Asian (24 percent). In each dataset, we observe applicants’ demographic and risk characteristics, their banks and officers, detailed mortgage and underwriting characteristics, and measures of credit access and cost.

We measure credit access for mortgage applicants as approval conditional on application completion. We quantify the credit cost for borrowers as an interest rate spread conditional on mortgage origination, with the spread calculated as the difference between the mortgage’s annual percentage rate (APR) and the average prime offer rate for a comparable transaction. Our APR variable is a single measure of mortgage cost that includes interest rate, points, and fees and does not exhibit the truncation issues highlighted in Bhutta and Hizmo (2021).

II. Estimating Racial Disparities

We mimic the ideal experiment measuring disparities by estimating

$$(1) \quad Y_{ijklt} = \alpha \text{MinorityBorrower}_i + X_i' \Theta + \Phi_{ijklt} + \varepsilon_{ijklt}$$

where i, j, k, l , and t index applicants or borrowers, property census tracts, banks, loan officers, and application month–year pairs, respectively. Y_{ijklt} is either an indicator for approval (among completed applications) or interest spread (among originated loans), $\text{MinorityBorrower}_i$ is a minority indicator, and X_i includes applicant, mortgage, and underwriting characteristics. Applicant characteristics include demographic characteristics (income, gender, co-borrower presence) and creditworthiness (credit score, loan-to-value and debt-to-income ratios). Mortgage characteristics are loan amount, purpose (purchase, improvement, or refinancing), type (conventional, FHA, VA, or FSA/RHS), occupancy (principal, second, or

and Budget’s Directive 15 and provide well-defined standards that we can consistently use when linking records. We exclude the Native category because its small size, unique laws, and geographies might threaten inference and external validity.

investment), and sold mortgage. Underwriting characteristics include AUS use and observed race of the applicant.³ $\Phi_{ijklt} \equiv \{\phi_j, \phi_k, \phi_l, \phi_t\}$ are census tract, bank, loan officer, and year–month fixed effects. We control for continuous characteristics using percentile fixed effects and cluster standard errors at the bank, loan officer, and census tract levels.

To facilitate interpretations, we estimate specification (1) using the Hispanic–White, Black–White, and Asian–White disparity datasets separately. When we use the Hispanic–White dataset, for example, α measures mortgage disparities between Hispanic and otherwise identical White borrowers with mortgages with the same characteristics and with the same bank, loan officer, and underwriting methods. We refer to α as a *residualized* disparity.

We empirically examine potential drivers of *residualized* disparities by estimating

$$(2) \quad Y_{ijklt} = \beta \text{MinorityBorrower}_i + W_{ikl}' \Gamma + \text{MinorityBorrower}_i \times W_{ikl}' \Lambda + X_i' \Theta + \Phi_{ijklt} + \xi_{ijklt}$$

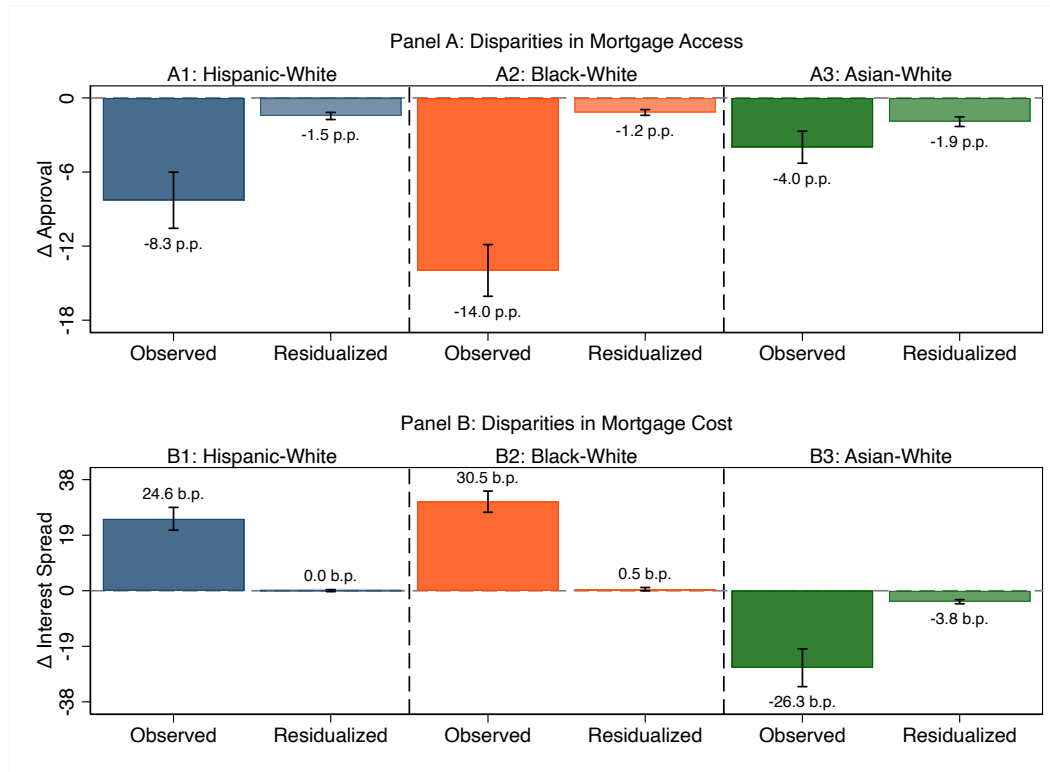
where $W_{ikl} \equiv [\text{AUS}_i \text{MO}_i \text{OR}_i]'$ and $\Lambda \equiv [\lambda_{\text{AUS}} \lambda_{\text{MO}} \lambda_{\text{OR}}]'$ are indicator variables and coefficients for AUS, minority officer, and observed race, respectively. Here, β represents a *baseline residualized* disparity that compares minority and White borrowers whose applications were not evaluated by an AUS, with the same non-minority loan officer who did not observe race. We refer to $\beta + \lambda_w$ as the *AUS*, *minority officer*, and *observed race* disparities for $w \in \{\text{AUS}, \text{MO}, \text{OR}\}$. When we use the Hispanic–White dataset, for example, the *minority officer* disparities $\beta + \lambda_{\text{MO}}$ compare Hispanic and White borrowers whose applications were not evaluated by an AUS, with the same Hispanic loan officer who did not observe race.

III. Findings

Our first set of results shows that the *residualized* disparities in mortgage access are smaller than the *observed* disparities but still exist. Panels A1–A3 in Figure 1 show that Hispanic,

³The confidential HMDA data contain information on whether an applicant’s race or ethnicity was collected on the basis of visual observation or surname, which we use as a proxy for whether officers observed an applicant’s race.

FIGURE 1. OBSERVED AND RESIDUALIZED RACIAL DISPARITIES IN THE MORTGAGE MARKET



Note: The first bar in each sub-panel reports *observed* disparities, which compare minority and White borrowers using differences in means estimated from specification (1) without controls. The second bar in each sub-panel depicts *residualized* disparities $\hat{\alpha}$ from (1). 95% confidence intervals are constructed using standard errors clustered at the bank, loan officer, and census tract levels. Percentage points are designated by p.p., and basis points are designated by b.p.

TABLE 1—POTENTIAL DRIVERS OF RACIAL DISPARITIES IN THE MORTGAGE MARKET

Race	Base	AUS	MO	OR
<i>A. Mortgage Access: Approval (p.p)</i>				
Hispanic	-5.4	-0.2	-5.9	-6.5
	(0.4)	(0.2)	(0.5)	(0.5)
Black	-5.2	0.1	-5.8	-5.9
	(0.7)	(0.2)	(0.6)	(0.7)
Asian	-4.4	-1.1	-3.8	-5.7
	(0.6)	(0.2)	(0.5)	(0.5)
<i>B. Mortgage Cost: Spread (b.p)</i>				
Hispanic	-9.0	1.2	-7.7	-4.6
	(3.7)	(0.5)	(3.8)	(3.3)
Black	-6.3	1.4	-6.1	0.7
	(3.4)	(0.4)	(3.3)	(3.3)
Asian	-8.6	-2.8	-8.3	-5.7
	(1.5)	(0.3)	(1.5)	(1.5)

Note: The second column reports *baseline* disparities $\hat{\beta}$ from specification (2). The last three columns depict *AUS*, *minority officer (MO)*, and *observed race (OR)* disparities $\hat{\beta} + \hat{\lambda}_w$ from (2), with $w \in \{AUS, MO, OR\}$. Clustered standard errors are reported in parentheses. Percentage points are designated by p.p., and basis points are designated by b.p.

Black, and Asian mortgage applicants are 1.5, 1.2, and 1.9 percentage points (p.p.) less likely to be approved than White applicants with the same demographic and risk characteristics applying for mortgages with the same characteristics at the same bank and with the same loan officer and underwriting method.

In contrast, the Hispanic–White and Black–White *residualized* disparities in mortgage cost are not only substantially smaller than the *observed* disparities but also statistically indistinguishable from zero, consistent with the results of Bhutta and Hizmo (2021). Panels B1 and B2 in Figure 1 show that Hispanic borrowers pay the same and Black borrowers pay only 0.5 basis points (b.p.) more than otherwise identical White borrowers with the same officer and bank. The Asian–White *residualized* cost disparity is slightly negative and statistically significant. Panel B3 indicates that Asian borrowers pay 3.8 b.p. less than otherwise identical White applicants with the same officer and bank.

Interestingly, in our second set of results, we uncover that the use of AUS is associated with smaller disparities in access, and that individual factors do not seem to matter much. Panel A in Table 1 shows that the *baseline* disparities in access are -5.4, -5.2, and -4.4 p.p., whereas AUS disparities are smaller at -0.2, 0.1, and -1.1 p.p. for Hispanic, Black and Asian applicants and not statistically different from zero for Hispanic and Black applicants. In contrast, the *minority officer* and *observed race* disparities are similar to the *baseline* for all minority categories.

Concerning cost disparities as measured by interest rate spreads, we find that the use of AUS is associated with slightly larger cost disparities for all minority categories, while individual factors make little difference. Panel B in Table 1 shows that the *baseline* disparities in mortgage cost are -9.0, -6.3, and -8.6 b.p. The *AUS* disparities are 1.2, 1.4, and -2.8 b.p. for Hispanic, Black, and Asian borrowers. In contrast, the *minority officer* and *observed race* disparities are similar or slightly smaller.

IV. Conclusion

This study employs unique data assembled by Hurtado and Sakong (2024) to investigate the extent and potential drivers of racial disparities in the U.S. mortgage market. These data allow

us to compare mortgage outcomes for minority and otherwise identical White borrowers, with loans with the same characteristics, and with the same bank, loan officer, and underwriting method. We document racial disparities in mortgage access, but none in costs. Further, we show that the use of AUS is associated with substantially smaller access disparities but somewhat larger cost disparities.

Our approach and findings represent another step toward understanding the factors driving disparities and discriminatory forces in the mortgage market. Recent research suggests structural or organizational factors may also play a role and have been overlooked by previous studies (Hurtado and Sakong, 2024).

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