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Pledge to Progress? Analyzing the Impact of the BLM Movement on Racial Mortgage Approval Rate Gaps

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Abstract

Following the surge of Black Lives Matter protests in 2020, prominent financial institutions announced their commitment to improving racial disparities in homeownership. Using the HMDA dataset from 2019-2022, this paper investigates the difference in home-loan approval rates between white and black borrowers in Ohio post Black Lives Matter movement using bank fixed effects. We found a statistically significant reduction in the approval rate gap between black and white borrowers post 2020.

Introduction

Banks historically have played a prominent role in mortgage discrimination on the basis of race, leading to home-ownership gaps between black and white families up to 30 percent (Gibbons et al.). These disparities are furthered by historical red-lining preventing black homeowners from owning homes in better economic areas (Federal Reserve History). Home value appreciation similarly sees large disparities between predominantly black and predominantly white neighborhoods, furthering the racial gap (Kermani et al.) Overall, Black families are less likely to own a home, and Black families who achieve home ownership are less likely to benefit from property value appreciation than their White counterparts.

Following the murder of George Floyd and the subsequent national Black Lives Matter protests, banks were forced to reckon with their part in systemic inequality. Between 2020 and 2021, banks made up over half of the corporate pledges to the Black Lives Matter movement (Hoyer et al.). In addition to pledges to the BLM movement, many banks initiated community development programs to address racial disparities in home-ownership. A majority of these pledges took the form of loans or investments, with some institutions also making commitments to improving the rates of black homeownership alongside their corporate pledges.

We look to use a bank fixed effects OLS regression model to see if the BLM movement and subsequent corporate pledges led to any changes in the difference of approval rates between black and white loan applicants.

Literature Review

Liao et al. analyzed the effect of BLM protests on local lending disparities. They found that following the BLM protests, the interest rate gap between Black and White borrowers in cities with BLM protests decreased. We aim to build on Liao et al. by looking at the acceptance rate gap between Black and White borrowers in Ohio following the BLM protests.

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Kau et al. and Gerardi et al. look at other sources of inequity in mortgages. Kau et al. finds that Black borrowers are less likely to terminate their loans early. Gerardi et al. finds that Black and White borrowers have much different likelihoods for refinancing during low federal funds rate time periods.

Wheeler and Olson found that from 1990 to 2013 Black borrowers were, on average, denied more often than their White counterparts, but that as housing prices became more inflated, the difference in approval rates decreased significantly. We look to see whether social movements like BLM and public pressure on financial institutions can also lower approval rate gaps.

Data and Methodology

The data comes from the 2019-2022 Home Mortgage Disclosure Act Data (HMDA) for Ohio. The HMDA data is an individual loan level dataset that includes both approvals and rejections. For this study the data was aggregated by year, bank, and race to get totals for the year by the bank and by race. Our variable of interest was the approval rate gap between black and white borrowers. The approval rate was calculated as:

$$\frac{pct\_approved}{pct\_approved + pct\_denied}$$

This method of calculating the approval rate disregards loan applications that were withdrawn. Taking the approval rate for black borrowers and the approval rate for white borrowers at each bank within one year gave us the approval rate discrepancy.

Descriptive Statistics

The data was aggregated by financial institutions for white and black loan recipients. Below a summary of key variables are shown along with the p-value from the pairwise t-test based on race.

Table 1: Comparison of loan data by derived race category

	Derived Race		
	Black or African American	**White**	**Test (p-value)**
Number of Loans	46.4 (139)	401 (1.8e+03)	<1.0e-03***
Pct approved	.88 (.24)	.903 (.208)	<1.0e-03***
Pct Denied	.02 (.108)	.014 (.076)	6.8e-03**
Loan amount	1.7e+05 (1.2e+05)	2.1e+05 (2.1e+05)	<1.0e-03***
Interest rate	4.27 (1.42)	4.47 (20.5)	.69
Property value	2.4e+05 (4.0e+05)	3.6e+05 (3.0e+06)	.108
Income	118 (1.2e+03)	145 (845)	.338
Pct in loan program	.32 (.361)	.174 (.282)	<1.0e-03***
Approval rate	.976 (.119)	.984 (.088)	.013*
Total dollars	7.4e+06 (2.1e+07)	7.1e+07 (2.9e+08)	<1.0e-03***
Rate spread	.919 (1.08)	.647 (1.03)	<1.0e-03***

Standard deviations in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Derived race is the same as primary applicant's race.

The table demonstrates several differences between loans given to White borrowers and Black borrowers. The number of loans approximately matches the ratio of the Black to White population in Ohio (approximately 1:8). Black borrowers are approved 2 percentage points less often than white borrowers and get smaller loans on average. The interest rate offered to black borrowers appear to be lower on average, but this is not statistically significant. Notably, Black loan applicants were 14 percentage points more likely to apply through a government loan program. Furthermore, the average rate spread for approved Black loans is .272 percentage points higher than the average White loan (significant at the 0.001 level). Ultimately, Black applicants are applying through government programs more often, have slightly lower approval rates, and get loans with higher rate spreads (indicating higher interest rates than the average prime offer rate).

Hypothesis

We hypothesize that as a result of BLM and the subsequent corporate pledges to BLM, that lending approval gaps would shrink. We suspect the banks pledging to help improve racial housing disparities will adjust their lending practices to better fulfill this goal.

Empirical Analysis

Looking at the approval rate difference, two regressions were run. The first model was a bank fixed effects regression for the after period.

$$approval\_rate\_gap = \beta_0 + \alpha_i + \beta_1 After_{it} + \beta_\mu \mu_{it} + \varepsilon_{it}$$

Where α is bank fixed effects, and i is financial institution, and t is year.

To further analyze the impact over time, a second regression was run using an event study methodology in which the post BLM years (2021 and 2022) were given their own dummy variables to measure the difference between the yearly changes.

$$approval\_rate\_gap = \beta_0 + \alpha_i + \beta_i 2021_{it} + \beta_2 2022_{it} + \beta_\mu \mu_{it} + \varepsilon_{it}$$

Where α is bank fixed effects, and i is financial institution, and t is year.

For both regression models a simple regression was run with no covariate controls, and a regression was also run with controls, μ, in which we controlled for the percentage of loan applications that were pre-approved by the institution, the percentage of loan applications that conformed to the government sponsored entity (GSE) conforming loan limit, and the percentage of loan applications submitted through government loan programs for Black applicants.

Fixed Effects Regressions on Approval Gap

	(1) Simple FE Regression	(2) With Controls
After 2020	-0.00766*	-0.00787*
	(0.00384)	(0.00393)
% Black loans preapproved		-0.0233
		(0.0217)
% Black loans conforming loan limit		0.0284*
		(0.0132)
% black loans from loan program		0.000956
		(0.00491)
Constant	0.0159***	-0.0111
	(0.00284)	(0.0127)
Bank Fixed Effects	Yes	Yes
N	1615	1615
R^2	0.466	0.467

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In the bank fixed effects regression without covariate controls, the post BLM movement period is associated with a .766 percentage point decrease in White-Black approval rate gap. This indicates that the post-BLM period did see a statistically significant decrease in the approval gap at the 5% level. Then when adding in the covariate controls, the after period is still associated with a statistically significant decrease in the rate gap.

Fixed Effects Regressions on Approval Gap

	(1) Simple FE Regression	(2) With Controls
2021	-0.00465	-0.00486
	(0.00440)	(0.00451)
2022	-0.0109*	-0.0111*
	(0.00457)	(0.00460)
% Black loans preapproved		-0.0223
		(0.0214)
% Black loans conforming loan limit		0.0296*
		(0.0132)
% Black loans from loan program		0.00119
		(0.00495)
Constant	0.0159**	-0.0125
	(0.00284)	(0.0127)
Bank Fixed Effects	Yes	Yes
N	1615	1615
R^2	0.467	0.468

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In this second model we look closer at the post period reduction. The main reduction in the approval gap rate happens in 2022. The year 2022 is associated with a 1 percentage point decrease, statistically significant at the 0.05 level, in the approval rating gap. It appears that in 2022, the margin that did exist prior to 2022 had been cut by over half. The negative coefficient on the 2021 dummy variable suggests the year had an overall period of decreasing the racial loan approval gap, and in 2022 this reduction process has statistically significant results. It is also important to note the lack of change in the coefficients because of the covariate controls suggesting that these rates were dropping regardless of pre-approval rates, or government loan program applications for Black applicants.

Conclusion

Overall, we found that the approval rate gap did decrease following the BLM movement. This does suggest that community organizing, and public pressure can be a powerful force for improved equity in the U.S. However, based on the in-depth year effects, further research may have to be conducted to understand if inflation played a larger role in this effect. This was not possible to control because of our small dataset and the correlative trends of time and interest rates post covid. Our paper sheds light on the efficacy of social movements on conducting change. In the future we would like to look at how banks that made large pledges to racial justice compare to banks who opted to not make corporate pledges. Understanding this relationship helps put a tangible effect on the stated values of financial institutions and their actions in the lending market.

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