



**CAS RESEARCH PAPER  
SERIES ON RACE AND INSURANCE PRICING**

# APPROACHES TO ADDRESS RACIAL BIAS IN FINANCIAL SERVICES: LESSONS FOR THE INSURANCE INDUSTRY

*Members of the 2021 CAS Race and  
Insurance Research Task Force*

**CASUALTY ACTUARIAL SOCIETY**



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# **Approaches to Address Racial Bias in Financial Services: Lessons for the Insurance Industry**

**By Members of the 2021 Casualty Actuarial Society Race and  
Insurance Research Task Force**

## **Executive Summary**

The goal of this paper is to equip actuaries to proactively participate in discussions and actions related to potential racial biases in insurance practices. This paper uses the following definition of racial bias:

Racial bias refers to a system that is inherently skewed along racial lines. Racial bias can be intentional or unintentional and can be present in the inputs, design, implementation, interpretation or outcomes of any system.

To support actuaries and the insurance industry in these efforts, this paper examines issues of racial bias that have impacted four areas of non-insurance financial services — mortgage lending, personal lending, commercial lending and the underlying credit-scoring systems — as well as the solutions that have been implemented in these sectors to address this bias. Actuaries are encouraged to combine this information on solutions and gaps in other industries with expertise in their practice areas to determine how, if at all, this information could be applied to identify potential racial biases impacting insurance or other industries in which actuaries work.

Parallels can be drawn between the issues noted here in financial services and those being discussed within the insurance industry. While many states have long considered race to be a protected class which cannot be used for insurance business decisions, regulators and consumer groups have brought forth concerns about potential racial bias implicit in existing practices or apparent in insurance outcomes. State regulators are taking individual actions to address potential issues through prohibition of certain rating factors, and even some insurers are proactively calling for the industry to move away from using information thought to be correlated with race. However, this research suggests that government prohibition of specific practices may not be a silver-bullet solution. Actuaries can play a key role as the insurance industry develops approaches to test for, measure and address potential racial bias, and increase fairness and equality in insurance, while still maintaining risk-based pricing, company competitiveness and solvency.

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## 1. Introduction

In December 2020, the Board of Directors of the Casualty Actuarial Society (CAS) approved an organizational approach to issues of race and insurance pricing, with four key areas of focus:

- 1. Basic and Continuing Education
- 2. Research
- 3. Leadership and Influence
- 4. Collaboration

While this approach focuses on race/ethnicity as a protected class and personal lines of insurance, much of what is learned from this effort can be applied to other protected classes and lines of business in the future.

The 2020 CAS Race and Insurance Working Group put forth this definition of racial bias, which is important to understand before proceeding.

Racial bias refers to a system that is inherently skewed along racial lines. Racial bias can be intentional or unintentional and can be present in the inputs, design, implementation, interpretation or outcomes of any system.

As the insurance industry turns its focus to potential racial bias across the spectrum of insurance processes and practices, it is imperative that actuaries are cognizant of these issues and how they will relate to their work. The goal of this paper is to equip actuaries to proactively participate in discussions and actions related to potential racial biases in insurance practices.

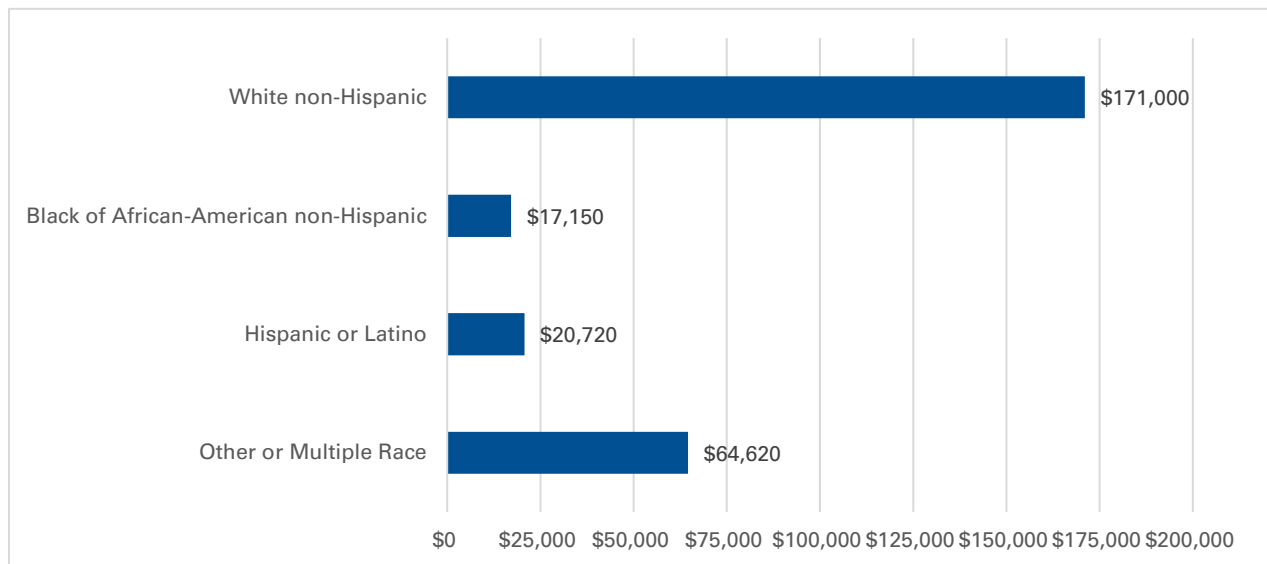
To support actuaries and the insurance industry in these efforts, this paper examines issues of racial bias that have impacted four areas of non-insurance financial services — mortgage lending, personal lending, commercial lending and the underlying credit-scoring systems — as well as the solutions that have been implemented in these sectors to address this bias. Many of the solutions have been driven by government actions, but this paper will also identify solutions driven by corporate and non-profit entities.

This work is not intended to suggest solutions for the insurance industry or actuarial practice. In fact, many of the solutions laid out here have been shown to be only partially effective at addressing issues of racial bias. Actuaries are encouraged to combine this information on solutions and gaps in other industries with expertise in their practice areas to determine how, if at all, this information could be applied to identify potential racial biases impacting insurance or other industries in which actuaries work.

## 2. Mortgage Lending

Rates of homeownership vary significantly across racial/ethnic groups. In 2020, 74.5% of non-Hispanic White households owned their home, while this was the case for only 44.1% of Black households (Amadeo 2021). This gap has been growing over time — in 1960, this difference between White and Black homeownership rates was only 27% (Quinn 2021). Similar gaps are observed in the net worth of White versus Black families. In 2016, the median net worth for White households was \$171,000 while it was only \$17,150 for Black households (Urban Institute 2021). The White/Black wealth gap, now approximately a factor of ten (10), was only a factor of six (6) in the 1990s (McIntosh, Moss, Nunn et al., 2020). The most significant portion of most households' net worth is equity in their home. Figure 1 illustrates these dramatic disparities between White and Black family wealth.

**Figure 1. Median Value of Family Net Worth by Race or Ethnicity, 2016**



Notes: (a) Net Worth is calculated by summing the values of total financial and nonfinancial assets and subtracting the value of total debt. (b) Financial assets include transaction accounts, certificates of deposit, savings bonds, bonds, stocks, pooled investment funds, retirement accounts, cash value life insurance, other managed assets, and other miscellaneous financial assets. Nonfinancial assets include vehicles, primary residence, other residential property or equity in residential property, business equity, and other miscellaneous nonfinancial assets. Debt includes mortgages and home equity loans, installment loans for education or vehicles, credit card balances, other lines of credit, and other debt such as loans against pensions. Overall, transaction accounts and retirement accounts are the two most common financial components, vehicles and primary residences are the two most common nonfinancial components, and credit card balances and installment loans are the two most common debt components.

Source: The Federal Reserve Board, 2016 survey of consumer finances (SCF), 2017.

These homeownership and wealth disparities between White and Black consumers are the legacy of a long history of explicitly racist practices in the real estate and mortgage industries. Beginning in 1927, the Chicago Real Estate Board implemented restrictive covenants that prevented the sale of properties to Blacks in predominantly White neighborhoods. This practice was adopted countrywide and continued into the 1950s (Tatum 2017).

One of the most glaring issues causing this gap was the governmental sanctioning and encouragement of racist practices. In 1934, the Federal Housing Act (FHA) was passed as part of the New Deal. In addition to providing large amounts of government funding for support of the mortgage industry, a methodology for appraising home values was introduced which included race as a factor in the valuation. Housing tracts were determined to be high risk for lending and colored red on the valuation maps based on having non-White occupancy rates even as low as 10% (Rothstein 2017). This introduced the term “redlining,” which is taken to this day to mean a practice in which neighborhoods are discriminated against because of their racial composition.

The FHA also established the standard of offering 30-year home loans for a down payment of as little as 10% to 20%, where previously only five-year mortgages with 50% down were available. This served to make home loans more accessible for many. However, the FHA allowed conditions on titles that no homes be sold to Black people in designated neighborhoods. From 1934 to 1962 the U.S. government underwrote \$120 billion in new housing, but less than 2% went to non-White households (Adelman 2014). As these loans were not commonly available to Black borrowers, this intensified the wealth gap between Black and White households that already existed and has led to lower inheritable wealth for minorities to this day.

Government intervention to address race-based redlining came in 1968 with passage of Title VIII of the Civil Rights Act, also known as the Fair Housing Act. This Act prohibited discrimination in residential lending practices based on race, religion, national origin or sex. It was later amended to include handicap and family status.

*In many states, it is legal and common practice for insurance companies to explicitly use sex or gender and family status or household composition as rating variables for personal lines of insurance.*

Enforcement of Title VIII has been administered by the Department of Housing and Urban Development (HUD), with mixed success. An example of this is government penalties on “Predatory Loans.” Because commissions are inherently lower on loans for low value

homes, banks have included high fees on low value loans to encourage loan officers to make these transactions. The Federal government has deemed these high-cost loans on low-value mortgages to be a predatory practice and has penalized the banks by limiting guaranty funds. The unintended consequence is to disincentivize loan officers to make these loans (Ohio FLC 2020). A parallel could be drawn to the insurance practice of including fixed fees on low premium policies as a means of covering fixed costs, though they may not be explicitly utilized as an incentive to sell these policies. Could these fees impact insurance affordability for low-income and minority communities or come under regulatory scrutiny for such potential impacts?



Despite decades of government intervention, the generational impacts of low homeownership rates remain. A 2021 Freddie Mac report cited several barriers contributing to low rates of homeownership among households of color (Quinn 2021). These include:

- Lack of access to credit, which results in additional constraints imposed by lenders.
- Lack of funds for down payments.
- Different household composition — “being single reduces the probability of transitioning to homeownership.”
- Lack of affordable housing supply in general, which is especially harmful to low- and moderate-income first-time homebuyers.

A new approach to address this problem is the governmental Housing Finance Agency (HFA) loans (not to be confused with FHA loans). Housing Finance Agencies (HFAs) are public entities created by state and local governments to finance affordable housing activities. In 2019, almost 30% of state HFA first mortgages were originated for borrowers of color (Quinn 2021).

HFAs offer:

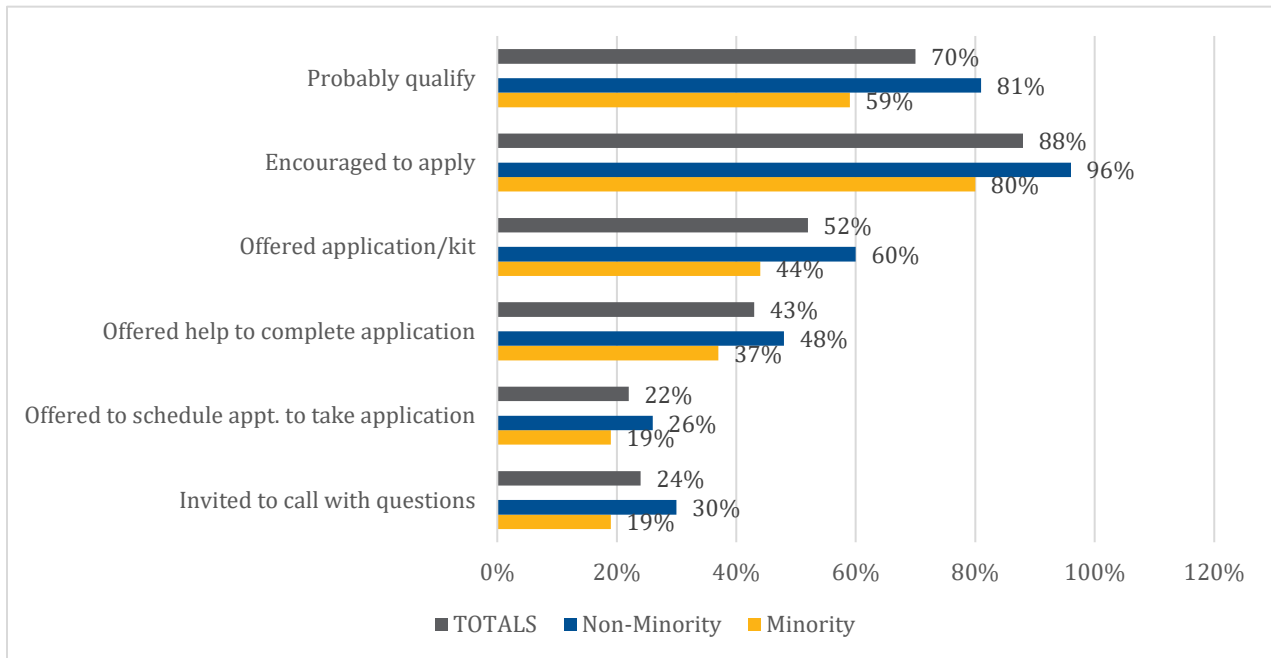
- First mortgage loan products, which are often at below-market rates with borrower benefits such as assistance with down payments and closing costs. These are “competitively priced 30-year fixed rate conventional mortgages with no loan-level pricing adjustments for creditworthy low-income borrowers (specifically, borrowers earning  $\leq 80\%$  of the area median income),”
- Lower mortgage insurance coverage requirements.
- Mortgage Credit Certificates, which provide a tax credit for up to \$2,000 in mortgage interest paid per year for certain eligible borrowers.

## Identifying Bias in Practice

In addition to addressing issues of racial bias in access to loans through service offerings, monitoring efforts have been utilized to uncover new and ongoing biases in mortgage loan practices. Matched-pair testing has been used extensively to measure home loan practices, uncovering significant differences in loan rejection rates by race. Matched pair testing exists as a way for government agencies to enforce fair lending legislation by measuring loan treatment between pairs of “mystery shoppers” with similar characteristics except for race (or another selected characteristic), and several consulting services exist to help banks conduct matched pair tests for internal compliance. Matched pair testing is a powerful tool that can compare specific elements of the loan process across characteristics, and statistical tests can quantify significant differences in treatment. Researchers can also create easily digestible summaries of matched test results, such as the illustrative example in Figure 2 from Lubin (2008).



**Figure 2. Mortgage Purchase Matched Pair Testing — Data Disguised but Reflect Actual Findings**



Source: Joint Center for Housing Studies Harvard University, 2008.

These outcomes in mortgage lending led to the question of whether matched pair testing can be used in property-casualty insurance to identify racial bias in underwriting, marketing or claims practices for personal insurance. For example, given the segregation in housing caused by historical lending practices, could unconscious bias impact underwriting based on geographic boundaries?

A corollary impact of biased lending practices, like those illustrated above, is that the cost of low value homes becomes further depressed due to a lack of demand from potential buyers who cannot obtain financing. In fact, a significant portion of low value housing is sold to investors who then rent the homes to households who are blocked from financing, further lowering the home ownership percentage among minorities (Ohio FLC 2020). Having mechanisms in place to identify and reduce biased lending practices could help to disrupt that cycle.

## Further Government Intervention

The Community Reinvestment Act (CRA), passed in 1977, requires the Federal Reserve and other federal banking regulators to encourage financial institutions to help meet the credit needs of the communities in which they do business, including low and moderate-income (LMI) neighborhoods. This Act established CRA ratings to grade banks based on the percentage of loans approved in LMI neighborhoods.

The National Community Reinvestment Coalition built on the foundation provided by the CRA (NCRC 2 2012). In NCRA municipalities, banks must create a Community Reinvestment Plan for the next two years, and their

performance against their plan is judged annually. Cleveland, Los Angeles, New York, Philadelphia and Pittsburgh require banks to report Home Mortgage Disclosure Act (HMDA) data for this evaluation. The other municipalities use Community Reinvestment Act (CRA) ratings. The municipalities are prohibited from depositing funds in banks that do not meet minimum progress toward their two-year plans (NCRC 1 2012).

The NCRC model ordinance was first introduced in Cleveland in 1991 and Philadelphia in 2002. It was updated in 2010 and introduced with slight variation in San Jose in 2010, Seattle in 2011, and Pittsburgh, New York, Los Angeles, Portland, and Kansas City in 2012.

To encourage progress against their goals, banks provide incentives to their loan officers for making targeted loans. These incentives have resulted in mixed success in targeted neighborhoods for moderate priced homes, but largely still fail to meet expectations in low value housing based on studies of 373 participating lenders nationally. A study by Frank Ford of the Cleveland NCRC results from 2016 to 2020 found a 13% mortgage rejection rate for Black households, which was more than twice the rejection rate of White households at 5%. Moreover, when dividing the mortgage applications by income into

Some corporations and non-profit organizations have begun to restrict banking and deposits based on the lending practices of banks. This way of doing business could have a significant impact on banking practices, if adopted widely.

low (less than \$31.9K), moderate (\$31.9K to \$50.9K), middle (\$51K to \$76.4K) and high- (over \$76.4K) income, it was found that rejection rates for high-income Black households at 10% were higher than rejection rates for moderate-income White households at 7% (Ohio FLC 2020).

The contribution of racially biased lending practices to gaps in home ownership — and the corollary wealth gap — are plainly seen. Federally endorsed redlining allowed lending institutions to lower appraised values or outright refuse loans to borrowers in Black neighborhoods. Efforts to correct the issues such as the 1968 Fair Housing Act and Housing Finance Agencies have largely come from governmental action and focused on penalizing noncompliant banks by limiting guaranty funds. These actions have had minimal ameliorating impact; as mentioned, the home ownership and wealth gap between White and minority households has increased since 1968. An important takeaway from the mortgage loan industry is that governmental solutions alone are not sufficient to fix the problem. It will require significant buy-in and commitment by industry leaders.

### 3. Personal Lending

Examples of racial bias in personal lending have been found in credit algorithms, face-to-face lending and access to banking. Bias in credit algorithms and solutions explored by the credit industry will be discussed in more detail in Section 5; biases in face-to-face lending and access to banking are discussed in this section. Additionally, AI solutions have been raised as potential solutions to address racial bias in personal lending, but the potential for racial bias to exist or develop further in AI solutions has also been considered.

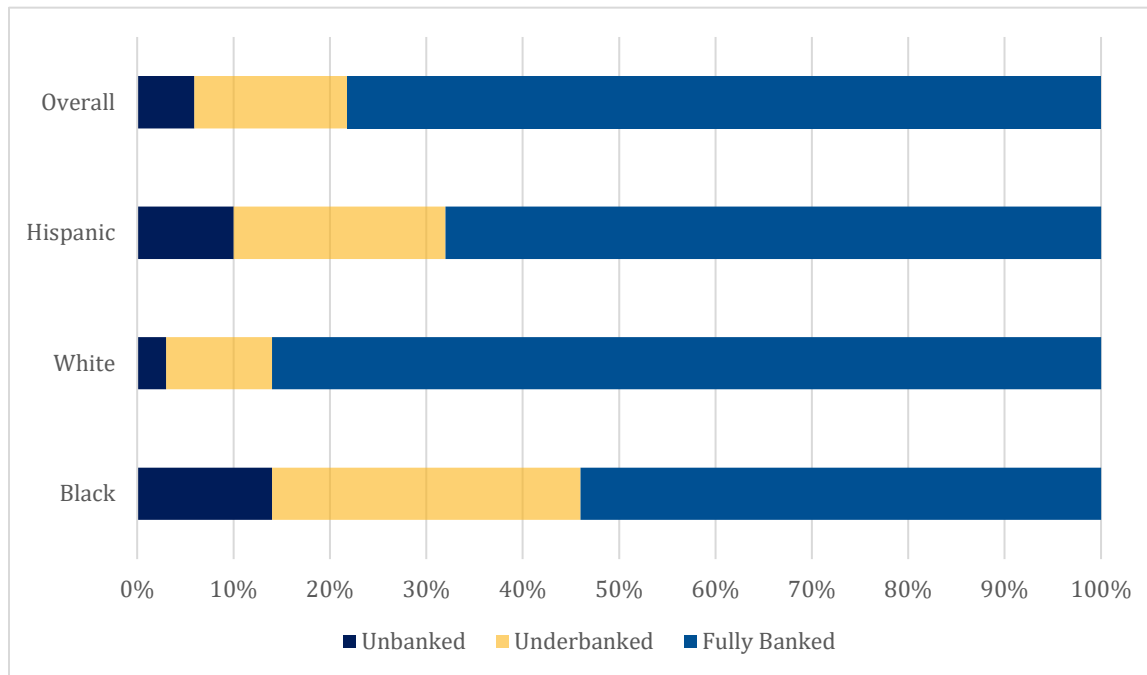
#### Discrimination in Face-to-Face Lending Practices

One example of racial discrimination during face-to-face lending is auto loans. Lenders providing an approved interest rate to auto dealers can include markups on loans. These markups are at the discretion of the dealers and are split between the dealer and lender. In "Racial Discrimination in the Auto Loan Market," researchers detailed markups on auto loans that disproportionately affect minorities but also found that minorities default less on auto loans, all else equal (Butler et al. 2019). In 2013, government action was taken to address this issue when the Consumer Financial Protection Bureau (CFPB) issued guidance on how the Equal Opportunity Act applies to auto loans (CFPB Bulletin 2013). The research in "Racial Discrimination in the Auto Loan Market" concluded that this CFPB guidance would lead to a 60% decrease in additional interest paid by minorities on loans. However, this guidance was disapproved in 2018 by a joint resolution passed by Congress (CFPB Bulletin 2013); thus, the expected estimated benefit to minorities was left unrealized. Most states have usury laws that restrict interest rates that can be charged on loans, but these laws may not apply to every form of auto loan and these laws are not primarily targeted at auto loans (CUNA 2014). Some states, like California, specifically regulate the maximum markup on a car loan (LA CBA 2011).

#### Discrimination in Access to Banking Services

Limited access to financial services, which limits a person's ability to build financial history, may also contribute to racial biases in personal lending. In a 2020 Federal Reserve report, individuals without a checking, savings or money market account are classified as "unbanked" and individuals with a bank account who also use alternative financial service products are classified as "underbanked." Per the Federal Reserve report, "alternative financial service products include money orders, check cashing services, pawn shop loans, auto title loans, payday loans, paycheck advances and tax refund advances." Figure 3 shows material differences in banking status reported across race/ethnicity.

**Figure 3. Banking Status by Race/Ethnicity**



Source: 2020 Federal Reserve data.

Solutions suggested to increase access to banking include commitments by financial institutions to community investment and increased lending to minorities. The American Bankers Association recommends an environment that supports innovation and more consistent application of the Community Reinvestment Act (CRA), as described in Section 2. Credit unions, nonbank mortgage lenders and FinTech companies, among others, are currently excluded from the Act (ABA 2021). Another recommendation is to implement affordable (low- and no-cost) financial services, like check cashing, bill payment and short-term loans, via the U.S. Postal Service, which would improve accessibility (Tippett et al. 2014). Other groups are working with local governments and community organizations to develop solutions for affordable banking. For example, the Cities for Financial Empowerment (CFE) Fund has developed standards, called Bank On, for platforms to provide banking solutions in underserved areas and improve financial stability (CFE Fund 2020).

Other potential mechanisms to address access to financial services are Community Development Financial Institutions (CDFI), which are focused on providing access to financial products and services in low-income communities (CDFI Fund 2). The Riegle Community Development and Regulatory Improvement Act of 1994 built on a history of community organizations focused on mission-based lending (e.g., credit unions, community development corporations and non-profit loan funds) by formalizing CDFIs and creating the Treasury Department CDFI Fund “to promote economic revitalization and community development in low-income communities through investment in and assistance to CDFIs (CDFI Fund 2).” The fund has dispersed over \$2 billion directly to

community financial institutions and allocated tax credits to attract \$54 billion in private investment (CDFI Fund 1).

The “2019 CDFI Annual Certification and Data Collection Report” identified consumer finance as the most common type of financing provided by CDFIs in 2019 — 34.9% of dollars and 80.8% of product numbers (CDFI Fund 2020). Research findings in 2014 concluded that the CDFI industry had grown significantly at that time but that it was still very small relative to the total market and that a majority of CDFI lending is to underserved groups like low-income or minority borrowers — 65% to 90% of loan volume, depending on loan type (Swack, et al. 2014).

Digital products, also known as “FinTech,” may help to address racial discrimination in face-to-face lending and to expand access to banking. Concerns have been raised, though, that machine learning techniques that underlie many Fintech products may learn to discriminate against racial groups (Weber, et al. 2020). A landmark 2018 study conducted at UC Berkeley (Bartlett, et al. 2019) found that even though Fintech algorithms charge minority borrowers 40% less on average than face-to-face lenders, they still assign extra mortgage interest to borrowers who are members of protected classes. Bartlett, et al. (2019) identified approaches to correct for this, including:

- Removing bias from the data before the model is built.
- Picking better goals for models that discriminate (for example, by introducing an algorithm to minimize known deficiencies in the logic).
- Introducing an AI-driven adversary to attempt to predict protected-class bias from the first model.

Research done at the MIT-IBM Watson AI Lab evaluated AI fairness in lending (Weber, et al. 2020). These researchers suggest utilizing techniques like “Distributionally Robust Fairness” and a training algorithm called SenSR for AI lending products to improve fairness. These techniques are recent developments; the researchers make a case for the need for real world validation of such approaches. There is a strong parallel between personal lending and the insurance industry with respect to the potential bias of machine learning techniques. Similar issues may exist and should be addressed in techniques utilized for ratemaking and many other applications in the insurance industry. Like those researching solutions for the personal lending industry, actuaries in the insurance industry should be looking for ways to identify and address bias in data or algorithms they develop.

Racial bias is observed via disproportionate impacts on minorities in several aspects of personal lending. Strategies intended to address the systemic dynamics underlying this bias have been pursued by government action in some cases and by lending institutions, industry trade groups, community groups and research organizations in others. While even this combination of actions may not be fully successful in addressing the variety of racial disparities identified in personal lending, the insurance industry may benefit from

considering a multi-party approach to identify and address potential issues of racial bias in insurance practices.

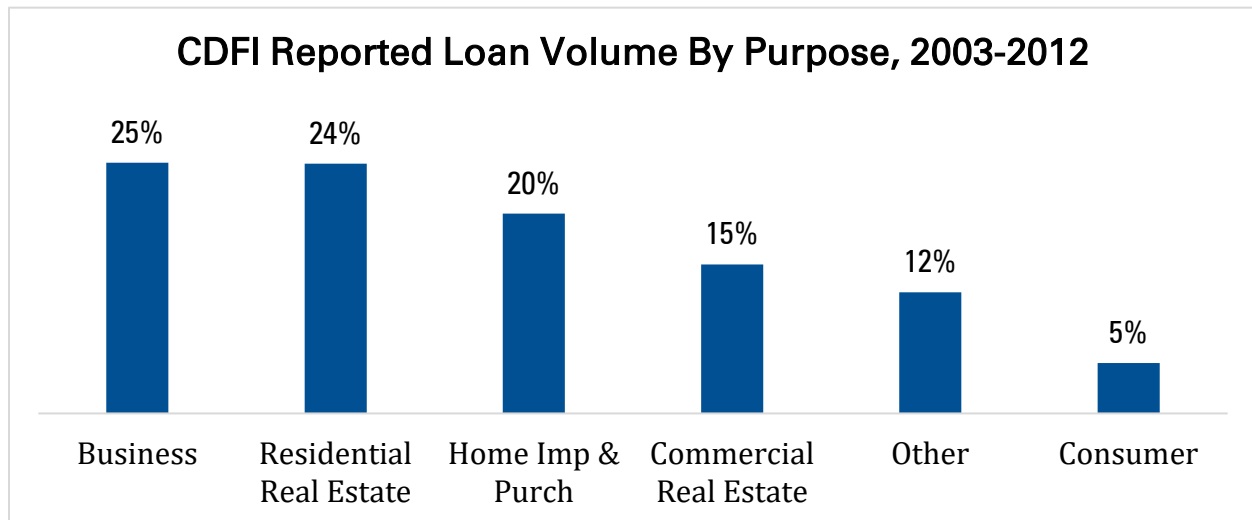
## 4. Commercial Lending

Systemic dynamics that impact personal lending may have similarly resulted in racial biases in commercial lending. Black-owned businesses face a lack of financial, social and human capital based on racial wealth, employment and educational gaps, in addition to direct lending discrimination (Fairlie and Robb 2010). While a suite of regulations and special lending institutions exists in response to these commercial lending gaps, racial disparities for Black businesses persist to the current day.

During the second half of the 20th century, several key orders and laws sought to mitigate discriminatory impacts on minority-owned businesses. Richard Nixon established the Minority Business Development Agency (MBDA) in 1969 to support minority businesses through access to capital, contracts and markets. The Equal Credit Opportunity Act (ECOA) was enacted in 1974 and made discrimination based on race, color, religion, national origin, sex, marital status or age unlawful, including for small business loans. The Community Reinvestment Act, discussed in the previous sections, includes business lending in its focus on community lending. Finally, Section 1071 of the Dodd-Frank Wall Street Reform Act of 2010 requires banks to collect race, ethnicity and gender information on business loan applications and outcomes. However, this section of Dodd-Frank is not enforced, despite calls for standardized data to measure demographic and geographic credit (Robb 2020).

Fair lending regulatory frameworks support CDFIs, as described in Section 3, which target lending to underserved community businesses in addition to personal loans. Business financing loans made up roughly a quarter of all loan dollars for CDFIs based on 2003-2012 data (see Figure 4).

**Figure 4.**



Source: CDFI Loan Volume by purpose (Swack, et al. 2014)

Minority-owned businesses are more likely to apply to CDFIs for funding than non-minority-owned businesses, based on 2017 Small Business Credit Survey (SBCS) data (Robb 2020). Despite the successes of CDFIs, their reach is limited. CDFIs comprise a tiny fraction of total CRA-reported small-business and farm lending (Swack, et al. 2014), and only 11 percent of Black-owned businesses applied to CDFIs based on the 2017 SBCS data (Robb 2020).

Fair lending regulations and the presence of institutions like CDFIs have not eliminated systemic disparities that impact Black-owned businesses, and these disparities widened during the COVID-19 pandemic. Many pre-pandemic studies have shown that, after controlling for creditworthiness and other characteristics, minority-owned businesses, particularly Black-owned businesses, are more likely to receive loan denials and higher interest rates for accepted loans (Fairlie and Robb 2010). From February 2020 to April 2020, overall active business owners fell by 22 percent, and African American business owners decreased 41 percent (Fairlie 2020). The original Paycheck Protection Program (PPP) to support businesses only included Small Business Administration lenders, thus excluding CDFIs that Black businesses are disproportionately more likely to use for funding compared to other racial groups (Hangen and Swack 2020).

How might matched pair testing be applied by insurance professionals to identify potential racial bias in the context of commercial insurance?

Matched pair testing, as described in Section 2, has proven to be an effective tool for identifying discrimination in commercial lending as well as mortgage lending, including within the PPP program. Matched pair testing for PPP applications between hypothetical



Black and White borrowers in Washington DC uncovered statistically significant disparities for Black applicants in encouragement to apply, type of products offered and level of information provided by the bank representative (Lederer, et al. 2020). White testers received favorable pre-application treatment compared to matched Black testers in 27 out of 63 matched pair tests (43%). Identifying such gaps in treatment establishes a foundation upon which to begin addressing issues of racial bias.

In response to the pandemic's disparate impact on Black-owned businesses, several government and private sector organizations have promised support for minority businesses. On May 28, 2020, the SBA set aside \$10 billion of PPP funding exclusively for CDFIs (SBA 2020), and CDFIs received first access to PPP funding in the January 2021 round (SBA 2021). The American Rescue Plan Act of 2021 set aside \$5 billion in combined direct payments and training, outreach and technical assistance to socially disadvantaged farmers, defined as Black/African American, American Indian, Alaskan Native, Hispanic/Latino, Asian American or Pacific Islander (USDA 2021). This was a notable sum albeit a small portion of an estimated \$250 to \$350 billion of economic loss due to Black farmer land dispossession in the last 100 years (Pollack and Chung 2020). Private entities made similar commitments in 2020. JPMorgan Chase pledged \$2 billion toward small businesses in majority-Black and Latinx communities in 2020; Wells Fargo has a \$175 million program for minority-owned businesses and increased community-based lending funding in 2020; and Citibank stated it would donate a portion of PPP profits toward people of color (Kish and Spencer 2020).

Overall, racial bias in commercial lending shares similar themes as personal lending, namely, disparities rooted in multi-faceted structural elements, a smattering of regulatory and lending institutions targeting these inequities and a persistent racial wealth gap in the 21<sup>st</sup> century. Just like the lending industry, insurance products tailored to small- and medium-sized businesses often deal with similar challenges as personal lending. The approaches used in commercial lending to identify and address racial bias may serve as valuable lessons to the commercial insurance industry as it moves forward on this issue.

## 5. Credit Scoring

Credit scores are critical to obtaining personal loans, which means that people with limited credit histories are often unable to obtain such loans. Research by the CFPB found that Black and Hispanic populations have a higher rate of no credit history and a higher rate of unscored credit records and are therefore disproportionately unable to access loans (Brevoort, Grimm, Kambara 2015).

Disparate impact has been defined as occurring when “a creditor employs facially neutral policies or practices that have an adverse effect or impact on a member of a protected class unless it meets a legitimate business need that cannot reasonably be achieved by means that are less disparate in their impact.” In other words, lenders may use information that is correlated with a protected class, if their use supports a “legitimate

business need” that cannot be met in an alternative way while causing less disparate impact (Klein 2019).

It is this second part of the definition that has left the financial services industry struggling to address concerns from consumers, activists and the government as to whether the industry has done enough and is doing enough to address economic disparity on its own, or if regulators need to intervene. Some industries within the financial services sector, such as the credit scoring bureaus, are imperiled by their failure to address these issues proactively.

In 2010, The Federal Reserve Board issued a paper that investigated whether credit scoring produces a disparate impact. According to their own conclusion, “our examination yields no evidence of disparate impact by race (or ethnicity) or gender” (Avery, Brevoort, Canner 2010). This was followed in 2012 by a FICO blog post promoting the Fed’s conclusion, which opened with the following:

“I am troubled when I read allegations in the press that FICO® Scores discriminate against people of color. That’s because a credit score is nothing more than the output of a mathematical formula built to rank-order the likelihood that a person will repay the debts they have incurred. To say that FICO Scores are unfair suggests that the formula was built with racial bias. To say that the use of a FICO Score is unfair suggests that it would be fair for a creditor to use the score to assess the credit risk presented by most borrowers, but not if the borrower is a member of a racial minority” (Huynh 2012).

It appears that the credit scoring bureaus initially disputed potential disparate impact of their practices instead of challenging themselves to find ways to address the issue. Will the insurance industry follow a similar path? Credit bureaus are now bringing solutions to market, described below, but are they doing too little too late?

One potential solution to racial bias in credit scoring is the use of alternative data, like rental payments, utility payments and affiliation with community groups in credit algorithms. Research completed by the Brookings Institution Urban Markets Initiative, a public policy organization, found that use of alternative data in credit scores resulted in higher acceptance rates for loan applications, especially for minorities. Including utility payment history in the credit score resulted in a 22% increase in acceptance rates for Hispanic consumers, 21% for Black consumers, 14% for Asian consumers and around 8% for White consumers (Turner, et al. 2006). All three major credit bureaus have developed products that include alternative data, as shown in Figure 5.

**Figure 5. Credit Bureaus' Products Using Alternative Data**

Equifax	Experian	TransUnion
FICO Score XD considers payment history from National Consumer Telecom and Utilities Exchange, Inc, in addition to traditional credit data (Equifax 2016).	Experian Boost is a tool that lets consumers add positive utility, telecom and Netflix payments to their credit file (Jayakumar 2020).	CreditVision Link considers deposit account history, short-term lending and more (TransUnion 1).
Insight Score for Personal Loans considers alternative data and traditional credit data (Equifax 2019).	Experian Lift integrates Experian's alternative data including alternative financing info and rental data with traditional credit score data (Experian 2019).	L2C Model is a creditworthiness tool based on alternative data (TransUnion 2).

VantageScore, the model developed jointly by the three major credit bureaus, also considers payment history like rent, phone and utility bills (VantageScore 2020). FICO, in partnership with Experian and Finicity, developed an opt-in credit score product that considers information from checking, savings or money market accounts in addition to traditional credit report data; this model began a pilot program in May 2020 with a small group of lenders (Luthi 2020; O'Shea 2020).

With regards to how frequently alternative data is used, a 2015 TransUnion survey of 317 lenders and credit providers found that 34% of responding lenders were using some alternative data in assessment of loans and that 21% had planned to start using alternative data within five years (TransUnion 2015). An Experian white paper, based on a survey of 136 lenders, reported that 74% of respondents use information other than traditional credit reports for assessing credit applications (Burrows 2020). Regarding benefits of alternative data, the TransUnion survey found 66% of respondents using alternative data were able to reach more creditworthy consumers in current markets and 56% were able to reach new markets. The Experian survey found that 89% of respondents say that alternative data allows them to extend credit to more customers, and 96% of lenders agree that with alternative data they can more closely evaluate consumer creditworthiness in times of economic stress. Despite the addition of alternative credit data, the credit bureaus find themselves under attack. An article from Forbes that discusses problems with the current credit scoring models includes a section entitled "A Public Credit Scoring Agency Would Help Promote Fairness" (Campisi 2021). This idea was previously proposed by the Demos think tank in 2019, and the Biden administration appears to be giving it some consideration (Hyatt 2021). In at least one version of the idea, the CFPB would house a public registry of credit reports. Although this agency could

be promoted as a competitor to the three credit reporting bureaus, it is not difficult to see that its creation could put the current private credit bureaus out of business.

Because the credit bureaus sought initially to refute the charges against their business model instead of trying to find ways to address them, they may now be in danger of facing a government competitor, which could potentially put them out of business. Are there parallels in the insurance business? What aspects of insurance rating are under fire, and is the industry responding by defending past practices or by trying to address the concerns being raised about these rating methodologies and rating factors? If use of traditional credit information contributes to disparate impact in financial services, does that disparate impact flow through to an insurance product priced using a credit-based insurance score? Could this be the driving force behind the pushback from some regulators to credit-based insurance scoring? As credit-based insurance scores come under increased scrutiny in the insurance industry, actuaries may benefit from a deeper understanding of how successful alternative credit scoring approaches are at addressing racial bias outside of insurance. It is possible that those changes could have similar impacts on insurance.

## 6. Moving Forward

Racial bias has been identified across a variety of financial services sectors, including mortgage lending, other personal lending and commercial lending, as well as the credit-scoring tools that support these sectors. While government action in the 1960s prohibited explicit discrimination on the basis of race, this research has shown that biased practices and outcomes have persisted to the current day across these sectors.

Methods like matched-pairs testing continue to be an important tool to identify racial bias in treatment of minority consumers and business-owners. Actuaries in the insurance industry may wish to consider if and how matched-pair testing or similar approaches fit in their broader statistical tool belt to diagnose sources of bias in underwriting, marketing, claims, or any other area that involves human judgement to determine risk selection or customer treatment in personal or commercial insurance. This could be a particularly fruitful exercise in commercial lines where risks are less homogenous than personal lines and more human underwriting judgement is applied.

Regulatory frameworks like the Community Reinvestment Act monitor progress and incentivize industry to improve access to financial services for these customers. Alternative financial service organizations, such as Community Development Financial Institutions, seek to proactively fill gaps in financial opportunity for low-income and minority communities and alternative credit data allows more equitable measurement of financial responsibility for these consumers. While each of these strategies helps to advance the financial services industry towards more equal access to financial tools, progress has been slow. Understanding the disparities that continue to impact unbanked

or underbanked populations may aid actuaries in determining the implications of those issues on variables used in insurance pricing.

Parallels can be drawn between the issues noted here in financial services and those being discussed within the insurance industry. While many states have long considered race to be a protected class which cannot be used for insurance business decisions, regulators and consumer groups have brought forth concerns about potential racial bias implicit in existing practices or apparent in insurance outcomes. State regulators are taking individual actions to address potential issues through prohibition of certain rating factors, and even some insurers are proactively calling for the industry to move away from using information thought to be correlated with race. However, this research suggests that government prohibition of specific practices may not be a silver-bullet solution. Actuaries can play a key role as the insurance industry develops approaches to test for, measure and address potential racial bias, and ensure fairness in insurance while still maintaining risk-based pricing, company competitiveness and solvency.

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*Research and education are vital to the success and evolution of the Casualty Actuarial Society (CAS), the actuarial profession, and the broader insurance industry. As the industry discourse on potential bias in insurance pricing evolves, the CAS will continue to develop resources to support members and industry professionals and is open to collaborating with others. As the CAS pursues further research and educational opportunities and the development of new approaches to address these issues, we invite anyone interested in collaborating with the CAS on future research or educational sessions to reach out by sending an email to [diversity@casact.org](mailto:diversity@casact.org).*

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